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APPENDIX A

LISTS OF COMPUTER PROGRAM

```
#include <iostream.h>
#include <iomanip.h>
#include <math.h>
#include <string.h>        //strcmp function
#include <complex.h>

const int N=10;
const int m=10;
const int SZ=20;
const int nl=100;
const float R=83.1434;  //cm3.bar/g mol.K
const float PI=3.141596541;
//Const for ALS EOS
const float d1=190.8;            //+-37
const float d2=87.7;             //+-3.1
const float d3=0.6387;           //+-0.087
const float d4=-5247.7;  //+-2830
const float d5=-0.5836;          //+-0.097
const float d6=2.3211;           //+-0.23
const float d7=282.2;            //+-24
const float d8=-4484.9;          //+-2100
const float d9=2.829e-2;//+-6.4e-3
const float d10=4.248e-3;        //+-4.7e-4
const float d11=1.156e-2;        //+-3.0e-3
const float d12=-4.069e-6;       //+-7.5e-7
//C = Peneloux-type parameter   //ALS EOS
const float C= 0;        //case: substance HC.no.C< C7+
//SBC
const float k0=1.2865;
const float k1=2.8225;
const float x21=0.14988;
const float x22=0.97848;
const float x31=-0.32379;
const float x32=1.84591;
const float x41=0.14833;
const float x42=-3.46693;
const float x51=0.11048;
const float x52=0.57743;
const float x61=0.02581;
const float x62=-0.02700;
const float x71=-0.77357;
const float x72=-1.45342;

class alldata
    {
    protected:
            int n,vl,r;
            float T,P,Pn,no;
            float Tci[N],Pci[N],Tri[N];
            float zi[N],xi[N],yi[N];
            float Tb[N],Pb[N];
            float sumaj[N],sum[N];
            float kij[N][N],k[N][N],aij[N][N];
            float aci[N],mi[N],wi[N],alphai[N],ai[N],bi[N];
            float beta,omega,sumai,sumbi,TdaT,sumj;
```

```
                double sumbb[3],sumbb0[3],BB[3];        //For ALS EOS
                double bbi[3][N],BBi[3][N];      //For ALS EOS
                double pa1[N],pa2[N],pa3[N];   //For ALS EOS
                float A,B,Pst;
                float Ai[N],Bi[N];
                double fi[N],fLi[N],fVi[N],Ki[N];
                float sumai0,sumbi0;
                float z,zV,zL,VL,dH,dHV,dHL,dS,dSV,dSL;
                double fV,fL,PB;
                double Psat[N],Ps[N];
                float zVo,zLo,VLo,dHVo,dHLo,dSVo,dSLo;
                double fVo,fLo,Psato;
                double fVio[N],fLio[N],Kio[N];
                float Tci0[N],Pci0[N],wi0[N];
                float kij0[N][N];
                float Tc[N],Pc[N],w[N],SG[N],MW[N];
                char name[SZ][N];
        public:
                alldata( )<<"\nEquation Of State";};
                void diskIn( );
                void diskOut( );
                void getdata( );
                void showdata( );
                void findab( );
                void findAB( );
                void Z( );
                void ent( );
                void fuga( );
                void BP( );
                void bubble_P( );
                void para_ab( );
                void para( );
                void save( );
                void pureVP( );
                void pure( );
                void mix( );
                void newprop( );
                void newab( );
                void crit( );
                void acen( );
                ~alldata( ){cout<<"\nFinish Alldata Now!";};
        };//end class alldata

void alldata::diskIn( )                    //read array from file
        {
        ifstream infile;                                        //make file
        infile.open("B:\EQUATIONS.DAT", ios::nocreate);         //open it
        if(infile)                                              //if it exists,
        infile.read((char*)this,sizeof(*this));                 //read it
        }//end function diskIn( )

void alldata::diskOut( )                          //write array from file
        {
        ofstream outfile;                                       //make file
        outfile.open("B:\EQUATIONS.DAT");                       //open it
```

```
        outfile.write((char*)this,sizeof(*this));                    //write to it
        }//end function diskOut( )
void alldata::getdata( )
        {
        cout<<endl;
        float sumz;
        sumz=0;
        cout<<"\nEnter Number Of Components: ";cin>>n;
        for(int i=0; i<n; i++)
                {
                cout<<"Component: "<<(i+1);
                cout<<"\nEnter Name: ";cin>>name[i];
                if(i<(n-1))
                {cout<<"Enter composition: ";cin>>zi[i];
                sumz=sumz+zi[i];}//end if
                else{
                zi[n-1]=1-sumz;
                cout<<"Enter composition: "<<zi[n-1]<<endl;}//end else
                char u;
                cout<<"Are properties of this component known?(y/n)";cin>>u;
                if(u!='n')
                {
                cout<<"Enter Critical Temperature(K)    : ";cin>>Tci[i];
                cout<<"Enter Critical Pressure(Bar)    : ";cin>>Pci[i];
                cout<<"Enter Acentric Factor           : ";cin>>wi[i];
                cout<<"Enter Boiling Point Temperature(K): ";cin>>Tb[i];
                }//end if(u)
                else{
                if(r<=3){
                //ALS EOS
                if(r>2){
                cout<<"\nTo Find The Properties of C7+ fraction.";
                cout<<"\nSpecific Gravity in 60F/60F : ";cin>>SG[i];
                cout<<"Molecular Weight          : ";cin>>MW[i];
                Tci[i]=d1*SG[i]+(d2*(log(MW[i])))+d3*MW[i]+(d4/MW[i]);
                Pci[i]=d5+d6*SG[i]+(d7/MW[i])+(d8/pow(MW[i],2));
                Pci[i]=exp(Pci[i]);
                wi[i]=d9+d10*MW[i]+d11*SG[i]+(d12*pow(MW[i],2));
                cout<<"\nCritical Temperature = "<<Tci[i]<<" K";
                cout<<"\nCritical Pressure    = "<<Pci[i]<<" atm";
                Pci[i]=Pci[i]*1.01325;cout<<Pci[i]<<" bar";
                cout<<"\nAcentric Factor      = "<<wi[i];}//end ALS
                if(r<3){
                //To Find Critical Properties(Tc,Pc,w)
                Tb[i]=(Tb[i]-273.15)*1.8+32;
                cout<<"So,Boiling Point Temperature(F) = "<<Tb[i];
                cout<<"\nBoiling Point Pressure = ";cin>>Pb[i];
                cout<<"Specific Gravity in 60F/60F = ";cin>>SG[i];
                alldata::crit( );
                alldata::acen( );}//end SRK,PR
                }//end else
                }//end if(EOS<=3)
                if(r==4){
                //TCC
                cout<<"Enter Critical Compressibility Factor: ";
```

```
                    cin>>Zc;}
                    if(r==5){
                    cout<<"Enter Critical Volume      : ";cin>>Vc;}
                    }//end for(i)
                    cout<<endl;
             if(n!=1){
             int n1;
             cout<<"\nType 0 for all binary interaction parameters equal to zero";
             cout<<"\n      1 for otherwise.  ";cout<<endl;
             cin>>n1;
             if(n1!=1){
             for(i=0; i<n; i++){
             for(int j=0; j<n; j++){
             kij[i][j]=0;
             }//end if(n1)
             }}//end for(i,j)
             else{
             cout<<"\nEnter Binary Interactions(kij): ";
             cout<<endl;
                    for(int i=0; i<n; i++){
                    for(int j=0; j<n; j++){
                    if(i!=j){
                    cout<<"Component:"<<(i+1)<<"-"<<(j+1)
                        <<"  kij= ";cin>>kij[i][j];
                    kij[j][i]=kij[i][j];}//end if(i)
                    else
                    kij[i][j]=0;
                    }}//end for(i,j)
                    }//end else
             }//end if(n)
             else{
             for(int i=0; i<n; i++){
             for(int j=0; j<n; j++){
             kij[i][j]=0;}//end else
             }}//end for(i,j)
             }//end function getdata( )

void alldata::showdata( )
        {
        cout<<"\nTemperature  "<<T<<" K";
        cout<<"\nPressure     "<<P<<" bar";
        cout<<"\nCritical Temperature & Pressure and Acentric factor";
        cout<<endl<<setiosflags(ios::right)<<setw(25)<<"Tc"
                <<setw(15)<<"Pc"<<setw(16)<<"w";
        for(int i=0; i<n; i++)
        {
        cout<<endl<<setiosflags(ios::right)<<setw(15)<<name[i]
                <<setiosflags(ios::showpoint)<<setw(10)
                <<setiosflags(ios::fixed)<<setprecision(2)
                <<Tci[i]<<setw(15)<<setprecision(2)<<Pci[i]<<setw(16)
                <<setprecision(5)<<wi[i];
        }//end for(i)
        cout<<endl;
        cout<<"\nBinary Interaction,kij";cout<<endl;
        cout<<"          ";
```

```cpp
for(i=0; i<n; i++){
cout<<setiosflags(ios::right)<<setw(10)<<name[i];
}//end for(i)
for(i=0; i<n; i++){
cout<<endl<<setiosflags(ios::right)<<setw(10)<<name[i];
for(int j=0; j<n; j++){
cout<<setiosflags(ios::right)<<setw(10)
    <<setprecision(4)<<kij[i][j];
}//end for(j)
}//end for(i)
cout<<endl;
}//end function showdata( )

void alldata::findab( )
    {
    double a[N];
    if(r==1){
    //Soave //omega = 0.427480233
    //Soave //beta = 0.08664035
    omega = 1/(9*(pow(2,0.33333333)-1));
    beta=pow(2,0.33333333);
    beta=(beta-1)/3;}
    if(r==2){
    //Peng-Robinson        //omega = 0.457235528
    //Peng-Robinson        //beta = 0.077796076
    float beta1,beta2,Zc;
    beta1=sqrt(512)-13;
    beta1=pow(beta1,0.33333333);
    beta2=sqrt(512)+13;
    beta2=pow(beta2,0.33333333);
    Zc=(beta1-beta2+11)/32;
    beta=1-3*Zc;
    omega = 30*pow(Zc,2)-24*Zc+5;}
    sumbi=0;
    for(int i=0; i<n; i++){
    for(i=0; i<n; i++){
            bi[i]=beta*R*Tci[i]/Pci[i];
            sumbi =sumbi + bi[i]*zi[i];}//end for(i)
    }//end if
    if(r==3){
    //ALS
    double b[2][N],betab[2][N];
    for(int i=0; i<n; i++)
    {
    aci[i]= 0.44869 + 0.04024*wi[i] + 0.01111*pow(wi[i],2)
            -0.00576*pow(wi[i],3);
    a[i]= aci[i];       //a[i]:omega
    }//end for(i)
    for(int k=0; k<3; k++){
    sumbb[k]=0;
    for(int i=0; i<n; i++){
    pa1[i]=pow(a[i],0.33333333);
    pa2[i]=pow(a[i],0.66666667);
    pa3[i]=sqrt((4*a[i])-(3*pa2[i]));
    b[0][i]= 0.08974 - 0.03452*wi[i] + 0.0033*pow(wi[i],2);
```

```cpp
b[1][i]= (2*(1+b[0][i]))-(3*pa1[i])+pa3[i];
b[1][i]= 0.5*b[1][i];
b[2][i]= (-2*(1+b[0][i]))+(3*pa1[i])+pa3[i];
b[2][i]= 0.5*b[2][i];
         betab[k][i]=b[k][i]*R*Tci[i]/Pci[i];
         bbi[k][i]= betab[k][i]-C;
         sumbb[k] =sumbb[k] + bbi[k][i]*zi[i];
         }//end for(i)
}//end for(k)
}//end if
for(int i=0; i<n; i++){
if(r<3){//Soave,Peng
aci[i]=omega*(pow((R*Tci[i]),2))/Pci[i];
if(r<2){//Soave
mi[i]=0.48000+1.57400*wi[i]-0.17600*pow(wi[i],2);}
else{//Peng
mi[i]=0.37646+1.54226*wi[i]-0.26992*pow(wi[i],2);}
}//end else
}//end if
if(r==3){//ALS
aci[i]= a[i]*(pow((R*Tci[i]),2))/Pci[i];
mi[i]=0.40700+1.37870*wi[i]-0.29330*pow(wi[i],2);
}//end if
alphai[i]=1+mi[i]*(1-sqrt(Tri[i]));
alphai[i]=pow(alphai[i],2);
ai[i]=aci[i]*alphai[i];
}//end for(i)
sumai=0;
for(i=0; i<n; i++){
for(int j=0; j<n; j++){
         if(i!=j){
         aij[i][j]=sqrt(ai[i]*ai[j])*(1-kij[i][j]);
         aij[j][i]=aij[i][j];}//end if(i)
         else{
         aij[i][j]=ai[i];}//end else
         sumai=sumai+zi[i]*zi[j]*aij[i][j];
}//end for(j)
}//end for(i)
cout<<endl;
cout<<"\nSo,a = "<<setiosflags(ios::scientific)<<setw(10)
    <<setiosflags(ios::showpoint)<<setprecision(8)
    <<sumai<<" bar K^1/2 cm^6 mol^-2";
}//end function findab( )

void Twu::findC( )
       {
       //find critical Bc
       float q1[N],q2[N];
       float B0[N],B1[N];
       float fB,fBB,fB0,dfB;
       for(int i=0; i<n; i++){
       q1[i]=-(3*Zc[i]+1);
       q2[i]=3*pow(Zc[i],2)-6*Zc[i]+2;
       Bc[i]=0;fB=0;
       do{
```

```
fB0=fB;
B0[i]=Bc[i];
Bc[i]=Bc[i]+0.0001;
fB=pow(Bc[i],3)+q1[i]*pow(Bc[i],2)+q2[i]*Bc[i]-pow(Zc[i],3);
}//end do
while((fB*fB0)>=0);
do{
B1[i]=Bc[i];
fBB=pow(Bc[i],3)+q1[i]*pow(Bc[i],2)+q2[i]*Bc[i]-pow(Zc[i],3);
dfB=3*pow(Bc[i],2)+q1[i]*2*Bc[i]+q2[i];
if(dfB!=0)
Bc[i]=Bc[i]-fBB/dfB;
}//end do
while(fabs(Bc[i]/B1[i]-1)>=1.0e-10);
if(Bc[i]>0){
cout<<"\nBc = "<<Bc[i]<<endl;}//end if
}//end for(i)
//find critical Ac,Cc
for(i=0; i<n; i++){
Ac[i]=3*pow(Zc[i],2)+Bc[i]+(1-3*Zc[i])+4*pow(Bc[i],2);
Cc[i]=1-3*(Zc[i]+Bc[i]);}//end for(i)
}//end function findC( )

void alldata::finda( )
    {
    float p[N];
    float a1,a2;
    a=0;a1=0;a2=0;
    sumHG=0;sumG=0;
    for(int i=0; i<n; i++){
    aci[i]=Ac[i]*(pow((R*Tci[i]),2)/Pci[i]);
    p[i]=O[i]*(M[i]-1);
    alpha[i]=pow(Tri[i],p[i])*exp(L[i]*(1-pow(Tri[i],(O[i]*M[i]))));
    ai[i]=aci[i]*alpha[i];
    }//end for(i)
    for(i=0; i<n; i++){
    cout<<"\nComponent: "<<(i+1);
    for(int j=0; j<n; j++){
    H[i][j]=(kij[j][i]-kij[i][j])/T;
    G[i][j]=exp(-bij[i][j]*H[i][j]);
    if(H[i][j]<0)
    {H[i][j]=-H[i][j];
    Hn[i][j]=pow(H[i][j],0.33333333);
    Hn[i][j]=-Hn[i][j];
    H[i][j]=-H[i][j];}//end if
    else{Hn[i][j]=pow(H[i][j],0.33333333);}//end else
    if(G[i][j]<0)
    {G[i][j]=-G[i][j];
    Gn[i][j]=pow(G[i][j],0.33333333);
    Gn[i][j]=-Gn[i][j];
    G[i][j]=-G[i][j];}//end if
    else{Gn[i][j]=pow(G[i][j],0.33333333);}//end else
    An[i][j]=pow((ai[i]*ai[j]),0.16666667);
    sumG=sumG+G[i][j]*zi[i];
    sumHG=sumHG+zi[i]*Hn[i][j]*Gn[i][j]*An[i][j];
```

```cpp
}//end for(j)
}//end for(i)
sumHG1=pow(sumHG,3);
for(i=0; i<n; i++){
for(int j=0; j<n; j++){
a2=a2+zi[i]*sumHG1/sumG;
a1=a1+zi[i]*zi[j]*(1-kij[i][j]/T)*sqrt(ai[i]*ai[j]);
}//end for(j)
}//end for(i)
a=a1+a2;
float aij[N][N],Eij[N][N];
daT=0;
float sumHG2=pow(sumHG,2);
float sumG1=pow(sumG,2);
float LNM[N];
for(i=0; i<n; i++){
for(int j=0; j<n; j++){
LNM[j]=(L[j]*O[j]*M[j])*pow(Tri[j],(O[j]*M[j]));
if(n<2){
ai[i]=a;}
aij[i][j]=sqrt(ai[i]*ai[j])*(kij[i][j]/T+((O[j]*(M[j]-1))-LNM[j])*(1-kij[i][j]/T));
Eij[i][j]=-(sumHG1/sumG1)*G[i][j]*bij[i][j]*H[i][j]
+(sumHG2/sumG)*Hn[i][j]*Gn[i][j]*An[i][j]*(bij[i][j]*H[i][j]-LNM[j]);
daT=daT+zi[i]*zi[j]*aij[i][j]-zi[i]*zi[j]*Eij[i][j];
}//end for(j)
}//end for(i)
}//end function finda( )


void alldata::findbc( )
        {
        b=0;c=0;
        for(int i=0; i<n; i++){
        bi[i]=Bc[i]*(R*Tci[i]/Pci[i]);
        ci[i]=Cc[i]*(R*Tci[i]/Pci[i]);
        b=b+zi[i]*bi[i];
        c=c+zi[i]*ci[i];}//end for(i)
        cout<<"\nb = "<<b<<" cm^3 mol^-1";
        cout<<"\nc = "<<c<<" cm^3 mol^-1";
        }//end function findbc( )


void alldata::findABC( )
    {
    A=P*a/pow((R*T),2);
    B=P*b/(R*T);
    C=P*c/(R*T);
    }//end function findABC( )


void alldata::findAB( )
    {
    if(r<4){
    A= sumai*P/pow((R*T),2);
    cout<<"\nA = "<<setiosflags(ios::fixed)<<setw(14)
        <<setiosflags(ios::showpoint)<<setprecision(8) <<A<<" (-)";
    if(r<3){//Soave,Peng
    B= sumbi*P/(R*T);
```

```cpp
cout<<"\nB = "<<setiosflags(ios::fixed)<<setw(14)
    <<setiosflags(ios::showpoint)<<setprecision(8)<<B<<" (-)";
else{//ALS
for(int k=0; k<3; k++){
BB[k]= sumbb[k]*P/(R*T);
cout<<"\nB["<<(k+1)<<"] = "<<setiosflags(ios::fixed)
    <<setw(14)<<setiosflags(ios::showpoint)<<setprecision(8)<<BB[k]<<" (-)";
}//end for(k)
}//end EOS<4
}//end function findAB( )

void alldata::Z( )
    {
    float z1,fZ,dfZ,ddfZ,S,M1;
    float k,m,l;
    float nL,mL,kL;
    //For vapor; Z^3 - kZ^2 + mZ - n = 0 = fZV
    //Soave
    //k= 1;
    //m= A-B-pow(B,2);
    //n= A*B;
    //For liquid; n(B/Z)^3 -m(B/Z)^2 + k(B/Z) - B = 0 = fZL
    //k =1;
    //n= A/B;
    //m= n-1-B;

    float a,b,c,d;
    for(vl=0; vl<2; vl++)
        {                    //vl=0 => vapor phase; vl=1 => liquid phase;
    if(vl!=1){
    zV=0;M1=0;
    if(r==1){//Soave
    M1= 1-A+B+pow(B,2);//initial estimate of Z vapor phase
    if(M1!=0)
    zV= M1- A*B/M1;                       //end estimate Z vapor
    a=1;b=1;
    c=A-B-pow(B,2);
    d=A*B;}
    if(r==2){//Peng
    M1=1-B-(A-B*(2+3*B))/(1-B);//initial estimate of Z vapor phase
    if(M1!=0)
    zV=M1-B*(A-B-pow(B,2))/(M1*(1-B));
    a=1;b=1-B;
    c=A-B*(2+3*B);
    d=A*B-pow(B,2)-pow(B,3);}
    if(r==3){//ALS
    k=1+BB[0]+BB[1]-BB[2];
    m=A+BB[1]-BB[2]+BB[0]*BB[1]-BB[1]*BB[2]-BB[0]*BB[2];
    l=A*BB[0]-BB[1]*BB[2]-BB[0]*BB[1]*BB[2];
    M1=k-m/k;//initial estimate of Z vapor phase
    if(M1!=0)
    zV= M1- (l/k)/M1;
    a=1;b=k;
    c=m;d=l;
    }//end if
```

```
if(r==4){//TCC
k=-(3*B+C-1);
m=A-4*B-C-4*pow(B,2);
l=(A+B*C+C)*B;
M1=k-m/k;
if(M1!=0)
zV=M1-(l/k)/M1;
a=1;b=k;
c=m;d=l;}//end if
z=zV;
}//end if(vl)
else{
float M2 =0;zL=0;
if(r==1){//Soave
nL= A/B;          //estimate Z liquid phase
mL= nL-1-B;
kL =1;
M2= (mL/nL)-(kL/mL);
a=A/B;
b=a-1-B;
c=1;d=B;}
if(r==2){//Peng
nL= A/B-1-B;
mL= A/B-(2+3*B);
kL= 1-B;
M2= (mL/nL)-(kL/mL);
a=A/B-1-B;
b=A/B-(2+3*B);
c=1-B;d=B;}
if(r<3){//Soave,Peng
if((mL*M2)!=0)
zL= M2- B/(mL*M2);}          //end estimate Z liquid
if(r==3){//ALS
nL= (l/pow(BB[0],2));
mL= m/BB[0];
kL= k;
M2= (mL/nL)-(kL/mL);
if((mL*M2)!=0)
zL= M2- BB[0]/(mL*M2);                    //end estimate Z liquid
a=nL;b=mL;
c=kL;d=BB[0];}
if(r==4){
mL=m/B;
nL=L/pow(B,2);
M2=0;zL=0;
M2=(mL/nL)-(k/mL);
if((mL*M2)!=0)
zL=M2-B/(mL*M2);
a=nL;b=mL;
c= k;d= B;}//end if
z=zL;
}//end else
dfZ= 3*a*pow(z,2)-2*b*z+c;//differentiate fZV
if(dfZ<=0){
float BC = 1-((3*a*c)/pow(b,2));
```

```
        if(BC<0)
        BC= 0;
        z= b*(1-sqrt(BC))/(3*a);
        }//end if(dfZ)
        else{
        do{
        z1=z;
        fZ= a*pow(z,3)-b*pow(z,2)+c*z-d;
        dfZ= 3*a*pow(z,2)-2*b*z+c;//differentiate fZV
        ddfZ= 6*a*z-2*b;
        ddfZ= ddfZ/2;
        S= fZ/dfZ;
        z=z-S/(1-S*(ddfZ-S)/dfZ);
        }//end do
        while((fabs(z/z1-1)>=1.0e-10));
        if(vl!=1){
        zV = z;}//end if(vl)
        else{
        if(r<3){//Soave,Peng
        zL = B/z;}//ALS
        if(r==3){
        zL = BB[0]/z;}
        VL = zL*R*T/P;
        cout<<"\nVL = "<<VL;
        if (VL<B) {zL=zV;}
        cout<<endl;}//end else
        }//end else
        }//end for(vl)
        }//end function Z( )

void alldata::ent( )
        {
        float aijn[N][N];
        float Po=1.01325;        //bar unit
        float dP= P/Po;
        for(vl=0; vl<2; vl++){
        TdaT=0;
        for(int i=0; i<n; i++){
        for(int j=0; j<n; j++){
        if(n<2){
        ai[j]=sumai;
        aci[j]=sumai/alphai[j];}
        if(i!=j){
        aijn[i][j]= mi[j]*sqrt(ai[i]*aci[j]*Tri[j])*(1-kij[i][j]);}
        else{
        aijn[i][j]=mi[i]*sqrt(ai[i]*aci[i]*Tri[i]);}
        TdaT= TdaT - zi[i]*zi[j]*aijn[i][j];
        }//end for(j)
        }//end for(i)
        if(vl!=1){
        z=zV;}
        else{
        z=zL;}
        if(r==1){//Soave
        dH= (R*T)*(z-1-(A/B)*(1-TdaT/sumai)*log(1+B/z));
```

```
dS= R*(log(z-B)+((A/B)*(TdaT/sumai)*log(1+B/z))-log(dP));}
if(r==2){//Peng
dH= (R*T)*(z-1-(A/(pow(2,1.5)*B))*(1-TdaT/sumai)
         *log((z+(sqrt(2)+1)*B)/(z-(sqrt(2)-1)*B)));
dS= R*(log(z-B)+((A/(pow(2,1.5)*B))*(TdaT/sumai)
         *log((z+(sqrt(2)+1)*B)/(z-(sqrt(2)-1)*B)))-log(dP));}
if(r==3){//ALS
dH= z-1-(A/(BB[1]+BB[2]))*(1-TdaT/sumai)*log((z+BB[2])/(z-BB[1]));
dH= (R*T)*dH;
dS= log(z-BB[0])+(A/(BB[1]+BB[2]))*(TdaT/sumai)
         *log((z+BB[2])/(z-BB[1]))-log(dP);
dS= R*dS;}
if(r==4){//TCC
W=sqrt(16*pow(B,2)+4*B*C+pow(C,2));
phi=(2*z+4*B+C+W)/(2*z+4*B+C-W);
dH=z-1-(A/W)*(1-daT/a)*log(phi);
dH=(R*T)*dH;
float P0=1.01325;        //bar unit
dS=log(z-B)+(A/W)*(daT/a)*log(phi)-log(P/P0);
dS=R*dS;}
if(vl!=1){
zV=z;
dHV=dH;dSV=dS;
else{
zL=z;
dHL=dH;dSL=dS;}//end else
}//end for(vl)
}//end function enth to find enthalpy-entropy departure

void alldata::fuga( )
        {
        //For find fucacity coeff. each phase
        if(r<3){
        for(int i=0; i<n; i++){//Soave,Peng
        bi[i]=sumbi;
        Bi[i]= bi[i]/sumbi;}}//end for(i)
        if(r==3){//ALS
        for(int k=0; k<3; k++){
        cout<<"\nFor k = "<<(k+1);
        for(int i=0; i<n; i++){
        if(n<2){
        bbi[k][i]=sumbb[k];}
        BBi[k][i]=bbi[k][i]/sumbb[k];
        }//end for(i)
        }//end for(k)
        if(r==4){//TCC
        suma0=0;
        for(i=0; i<n; i++){
        if(n<2){
        bi[i]=b;
        ci[i]=c;}
        Bi[i]=bi[i]/b;
        Ci[i]=ci[i]/c;
        ohm[i]=(1/pow(W,2))*(2*(8*B+C)*B*Bi[i]+(2*B+C)*C*Ci[i]);}//end for(i)
        for(int j=0; j<n; j++){
```

```
if(n<2){
ai[i]=a;}
a0[i][j]=(1-kij[i][j]/T)*sqrt(ai[i]*ai[j]);
a0[j][i]=(1-kij[j][i]/T)*sqrt(ai[j]*ai[i]);
suma0=suma0+zi[j]*(a0[i][j]+a0[j][i]);}}//end for(i,j)
}//end if
for(i=0; i<n; i++){
sumj=0;
sum[i]=0;
        for(int j=0; j<n; j++){
        sumaj[j]=0;
        if(n<2){
        ai[j]=sumai;}
        sumaj[j]=sumaj[j]+zi[j]*(sqrt(ai[j]))*(1-kij[i][j]);
        sumj=sumj+sumaj[j];
        }//end for(j)
        sum[i]=sumj;
}//end for(i)
double sumf;
        for(i=0; i<n; i++){
        if(n<2){
        ai[i]=sumai;}
        Ai[i]= 1/sumai*(2*(sqrt(ai[i]))*sum[i]);
        for (vl=0; vl<2; vl++){
        sumf=0;
        if(vl!=1){z=zV;}
        else{z=zL;}
        if(r==1){//Soave
        fi[i]= -log(z-B)+(z-1)*Bi[i]-(A/B)*(Ai[i]-Bi[i])*log(1+B/z);}
        if(r==2){//Peng
        fi[i]= -log(z-B)+(z-1)*Bi[i]-(A/(pow(2,1.5)*B))*(Ai[i]-Bi[i])
                *log((z+(sqrt(2)+1)*B)/(z-(sqrt(2)-1)*B));}
        if(r==3){//ALS
        fi[i]= -log(z-BB[0])+(BB[0]/(z-BB[0]))*(BBi[0][i]);
                    -(A/(BB[1]+BB[2]))*(BB[1]/(z-BB[1]))*BBi[1][i];
                    -(A/(BB[1]+BB[2]))*(BB[2]/(z+BB[2]))*BBi[2][i];
                    -(A/(BB[1]+BB[2]))*Ai[i]*log((z+BB[2])/(z-BB[1]));
                    +(A/(BB[1]+BB[2]))*(BB[1]/(BB[1]+BB[2]))
                    *log((z+BB[2])/(z-BB[1]));
                    +(A/(BB[1]+BB[2]))*(BB[2]/(BB[1]+BB[2]))
                    *log((z+BB[2])/(z-BB[1]));
        }//end if
        if(r==4){//TCC
        fi[i]=(B*Bi[i])/(z-B)-log(z-B)
                +(A/W)*(ohm[i]-(1/a)*suma0)*log(phi)//set E=0
                +((1/(z-B))-1)*((1/2)*(4*B*Bi[i]+C*Ci[i])-ohm[i]
                *(z+(1/2)*(4*B+C)));
        }//end if
        fi[i]= exp(fi[i]);
        sumf=sumf+zi[i]*fi[i];
        if(vl!=1){
        fVi[i]=fi[i];
        fV=sumf;
        zV=z;}//end if(vl)
        else{
```

```
                fLi[i]=fi[i];
                fL=sumf;
                zL=z;}//end else
                }//end for(i)
        }//end for(vl)
        for(i=0; i<n; i++){
        Ki[i]=fLi[i]/fVi[i];
        }//end for(i)
        cout<<endl;
        }//end function fuga to find fugacity coefficient

void alldata::bubble_P( )
        {
        int bp;
        cout<<"\nEstimate Bubble Pressure:";
        cout<<"\nType 0 by Antoine Equation";
        cout<<"\n     1 by otherwise";
        cout<<"\n     2 by initial estimate";
        cout<<"\n     3 by default(1.0e-100):";
        cin>>bp;
        cout<<endl;
        if(bp<4){
        if(bp<3){
        if((bp!=0)&&(bp!=2)){
        float axp[N],dt1[N],dt2[N],dt3[N];
        cout<<endl;
        cout<<"\nComponent       Psat(i)(bar)";
        for(int i=0; i<n; i++)
        {
        if(Tri[i]>1.1){
        axp[i]= 7.224-2.598*log(Tri[i])-7.534*Tri[i];
        Ps[i]= Pci[i]*exp(axp[i]);}//end if(Tri)
        else{
        dt1[i]= (1/T)-(1/Tb[i]);
        dt2[i]= (1/Tci[i])-(1/Tb[i]);
        dt3[i]= log(Pci[i]);
        Ps[i]= exp(dt3[i]*dt1[i]/dt2[i]);}//end else
        cout<<endl<<setw(5)<<(i+1)<<setiosflags(ios::scientific)
                <<setw(25)<<setiosflags(ios::showpoint)<<setprecision(5)
                <<Ps[i]<<endl;
        }//end for(i)
        }//end if(bp)
        else if(bp<1){
        float AA[N],BB[N],CC[N];
        cout<<"\nEnter Antoine Constants:(kPa,K)";
        for(int i=0; i<n; i++){
        cout<<"\nComponent: "<<(i+1);
        cout<<"\nAi      : ";cin>>AA[i];
        cout<<"\nBi      : ";cin>>BB[i];
        cout<<"\nCi      : ";cin>>CC[i];
        Ps[i]= AA[i]-BB[i]/(T+CC[i]);
        Ps[i]= exp(Ps[i]);
        Ps[i]= Ps[i]/pow(10,2);  //converge kPa to bar
        }//end for(i)
        cout<<"\nComponent       Psat(i)(bar)";
```

```cpp
for(i=0; i<n; i++){
cout<<endl<<setw(5)<<(i+1)<<setiosflags(ios::scientific)
    <<setw(25)<<setiosflags(ios::showpoint)
    <<setprecision(5)<<Ps[i];
}//end for(i)
}//end else
else if(bp>1){    //if bp<3
//Good initial estimate pure vapor  pressure
float delta[N],d1[N],ceta[N],R0[N],R1[N],R2[N];
float Vmax[N],Vmin[N],Vd[N],Pmax[N],Pmin[N],Pd[N];
float fmax[N],fmin[N],fd[N],ff[N];
for(int i=0; i<n; i++){
delta[i]=beta*Tri[i]/(omega*alphai[i]);
if(r==1){
//Soave
d1[i]=pow((3-delta[i]),3);
ceta[i]=acos(1-216*delta[i]/d1[i]);          //radians
R0[i]=sqrt((3-delta[i])/6*cos(ceta[i]/3+120*PI*0/180)+(3+delta[i])/6);
R1[i]=sqrt((3-delta[i])/6*cos(ceta[i]/3+120*PI*1/180)+(3+delta[i])/6);
R2[i]=sqrt((3-delta[i])/6*cos(ceta[i]/3+120*PI*2/180)+(3+delta[i])/6);
Vmax[i]=sumbi/(-R0[i]+R1[i]+R2[i]);
Vmin[i]=sumbi/(R0[i]+R1[i]-R2[i]);
Pmax[i]=R*T/(Vmax[i]-sumbi)-sumai/(Vmax[i]*(Vmax[i]+sumbi));
Pmin[i]=R*T/(Vmin[i]-sumbi)-sumai/(Vmin[i]*(Vmin[i]+sumbi));}
if(r==2){
//Peng-Robinson
d1[i]=pow((1-2*delta[i]),3);
ceta[i]=acos(1-27*delta[i]/(8*d1[i]));        //radians
R0[i]=sqrt(8*(2-delta[i])/(3*(1-2*delta[i]))*cos(ceta[i]/3+120*PI*0/180)
                +4*(1+delta[i])*(2-delta[i])/(3*pow((1-2*delta[i]),2))+1);
R1[i]=sqrt(8*(2-delta[i])/(3*(1-2*delta[i]))*cos(ceta[i]/3+120*PI*1/180)
                +4*(1+delta[i])*(2-delta[i])/(3*pow((1-2*delta[i]),2))+1);
R2[i]=sqrt(8*(2-delta[i])/(3*(1-2*delta[i]))*cos(ceta[i]/3+120*PI*2/180)
                +4*(1+delta[i])*(2-delta[i])/(3*pow((1-2*delta[i]),2))+1);
Vmax[i]=sumbi*(2*(2-delta[i])/(1-2*delta[i]))/(R0[i]+R1[i]-R2[i]+1);
Vmin[i]=sumbi*(2*(2-delta[i])/(1-2*delta[i]))/(-R0[i]+R1[i]+R2[i]+1);
Pmax[i]=R*T/(Vmax[i]-sumbi)
                -sumai/(Vmax[i]*(Vmax[i]+sumbi)+sumbi*(Vmax[i]-sumbi));
Pmin[i]=R*T/(Vmin[i]-sumbi)
                -sumai/(Vmin[i]*(Vmin[i]+sumbi)+sumbi*(Vmin[i]-sumbi));}
cout<<"\nPmax = "<<Pmax[i];
cout<<"\nPmin = "<<Pmin[i];
if(Pmin[i]<0){Ps[i]=Pmax[i]/2;}
else{Ps[i]=(Pmax[i]+Pmin[i])/2;}
cout<<"\nPsat(i) = "<<Ps[i];
}//end else
}//end if(bp<3)
else{    //(bp>=3)
for(int i=0; i<n; i++){
Ps[i]=1.0e-100;
cout<<"\nPsat(i) = "<<setiosflags(ios::scientific)
            <<setw(25)<<setiosflags(ios::showpoint)
            <<setprecision(5)<<Ps[i];}//end for(i)
}//end else
}//end if(bp<4)
```

```cpp
else{
cout<<"\nMistake!!";
for(int i=0; i<n; i++){
cout<<"\nPB_quess = ";cin>>Ps[i];}}
}//end function bubble point pressure

void alldata::BP( )          //For Pure Component
     {
     double Ps1[N],U[N];
     double z1[N],fZ[N],dfZ[N],ddfZ[N],S[N];
     double nL[N],mL[N],kL[N],M1[N],M2[N];
     double a[N],b[N],c[N],d[N],zz[N],BC[N];
     double A1[N],B1[N],z2V[N],z2L[N],fV1i[N],fL1i[N];
     //ALS
     double BB1[3][N];
     double k1[N],m1[N],l1[N];
     PB=0;
     cout<<"\nIsothermal Calculations:";
     for(int i=0; i<n; i++){
     //Find Each Pure Vapor Preesure
     do{      //do1
     Ps1[i]=Ps[i];
     A1[i]= sumai*Ps[i]/pow((R*T),2);
     if(r<3){//Soave,Peng
     B1[i]= sumbi*Ps[i]/(R*T);}
     if(r==3){//ALS
     for(int k=0; k<3; k++){
     BB1[k][i]=sumbb[k]*Ps[i]/(R*T);}//end for(k)
     }//end if
     if(r==4){
     A1[i]=Ps[i]*a/pow((R*T),2);
     B1[i]=Ps[i]*b/(R*T);
     C1[i]=Ps[i]*c/(R*T);}//end if
     //Vapor Phase
     M1[i]=0;z2V[i]=0;
     if(r==1){//Soave
     M1[i]= 1-A1[i]+B1[i]+pow(B1[i],2);
     if(M1[i]!=0)
     z2V[i]=M1[i]-A1[i]*B1[i]/M1[i];}
     if(r==2){//Peng
     M1[i]=1-B1[i]-(A1[i]-B1[i]*(2+3*B1[i]))/(1-B1[i]);
     if(M1[i]!=0)
     z2V[i]=M1[i]-B1[i]*(A1[i]-B1[i]-pow(B1[i],2))/(M1[i]*(1-B1[i]));}
     if(r==3){//ALS
     k1[i]=1+BB1[0][i]+BB1[1][i]-BB1[2][i];
     m1[i]=A1[i]+BB1[1][i]-BB1[2][i]+BB1[0][i]*BB1[1][i]
                    -BB1[1][i]*BB1[2][i]-BB1[0][i]*BB1[2][i];
     l1[i]=A1[i]*BB1[0][i]-BB1[1][i]*BB1[2][i]-BB1[0][i]*BB1[1][i]*BB1[2][i];
     M1[i]=k1[i]-m1[i]/k1[i];//initial estimate of Z vapor phase
     if(M1[i]!=0)
     z2V[i]= M1[i]-(l1[i]/k1[i])/M1[i];}
     if(r==4){//TCC
     k1[i]=-(3*B1[i]+C1[i]-1);
     m1[i]=A1[i]-4*B1[i]-C1[i]-4*pow(B1[i],2);
     l1[i]=(A1[i]+B1[i]*C1[i]+C1[i])*B1[i];
```

```
M1[i]=k1[i]-m1[i]/k1[i];
if(M1[i]!=0)
z2V[i]=M1[i]-(l1[i]/k1[i])/M1[i];}//end if
//Liquid Phase
if(r==1){//Soave
nL[i]= A1[i]/B1[i];
mL[i]= nL[i]-1-B1[i];
kL[i] =1;}
if(r==2){//Peng
nL[i]= A1[i]/B1[i]-1-B1[i];
mL[i]= A1[i]/B1[i]-(2+3*B1[i]);
kL[i]= 1-B1[i];}
if(r==3){//ALS
nL[i]= (l1[i]/pow(BB1[0][i],2));
mL[i]= m1[i]/BB1[0][i];
kL[i]= k1[i];}
if(r==4){//TCC
mL[i]=m1[i]/B1[i];
nL[i]=l1[i]/pow(B1[i],2);}
M2[i]= 0;
M2[i]= (mL[i]/nL[i])-(kL[i]/mL[i]);
z2L[i]=0;
if((mL[i]*M2[i])!=0)
if(r<3){//Soave,Peng
z2L[i]= M2[i]- B1[i]/(mL[i]*M2[i]);}
if(r==3){//ALS
z2L[i]= M2[i]- BB1[0][i]/(mL[i]*M2[i]);}
if(r==4){
z2L[i]=M2[i]-B1[i]/(mL[i]*M2[i]);}
for(vl=0; vl<2; vl++)
{              //vl=0 => vapor phase; vl=1 => liquid phase;
if(vl!=1){
zz[i]=z2V[i];
if(r==1){//Soave
a[i]=1;b[i]=1;
c[i]=A1[i]-B1[i]-pow(B1[i],2);
d[i]=A1[i]*B1[i];}
if(r==2){//Peng
a[i]=1;b[i]=1-B1[i];
c[i]=A1[i]-B1[i]*(2+3*B1[i]);
d[i]=A1[i]*B1[i]-pow(B1[i],2)-pow(B1[i],3);}
if(r==3){//ALS
a[i]=1;b[i]=k1[i];
c[i]=m1[i];d[i]=l1[i];}
if(r==4){//TCC
a[i]=1;b[i]=k[i];
c[i]=m[i];d[i]=l[i];}
}//end if(vl)
else{
zz[i]=z2L[i];
if(r==1){//Soave
a[i]=A1[i]/B1[i];
b[i]=a[i]-1-B1[i];
c[i]=1;
d[i]=B1[i];}
```

```
if(r==2){//Peng
a[i]=A1[i]/B1[i]-1-B1[i];
b[i]=A1[i]/B1[i]-(2+3*B1[i]);
c[i]=1-B1[i];d[i]=B1[i];}
if(r==3){//ALS
a[i]=nL[i];b[i]=mL[i];
c[i]=k1[i];d[i]=BB1[0][i];}
if(r==4){//TCC
a[i]=nL[i];b[i]=mL[i];
c[i]=k[i];d[i]=B1[i];}
}//end else
dfZ[i]= 3*a[i]*pow(zz[i],2)-2*b[i]*zz[i]+c[i];
if(dfZ[i]<=0)
{
BC[i] = 1-((3*a[i]*c[i])/pow(b[i],2));
if(BC[i]<0)
BC[i]= 0;
zz[i]= b[i]*(1-sqrt(BC[i]))/(3*a[i]);
}//end if(dfZ)
else{
do{        //do2
z1[i]=zz[i];
fZ[i]= a[i]*pow(zz[i],3)-b[i]*pow(zz[i],2)+c[i]*zz[i]-d[i];
dfZ[i]= 3*a[i]*pow(zz[i],2)-2*b[i]*zz[i]+c[i];
ddfZ[i]= 6*a[i]*zz[i]-2*b[i];
ddfZ[i]= ddfZ[i]/2;
S[i]= fZ[i]/dfZ[i];
if((1-S[i]*(ddfZ[i]-S[i])/dfZ[i])!=0)
zz[i]=zz[i]-S[i]/(1-S[i]*(ddfZ[i]-S[i])/dfZ[i]);
}//end do2
while(fabs((zz[i]/z1[i])-1)>=1.0e-6);
}//end else
if(vl!=1){
z2V[i]=zz[i];}    //end if(vl)
else{
if(r<3){//Soave,Peng
z2L[i]=B1[i]/zz[i];}
if(r==3){//ALS
z2L[i]=BB1[0][i]/zz[i];}
if(r==4){//TCC
z2L[i]=B1[i]/z2L[i];}
}        //end else
}//end for(vl)
if(r==1){//Soave
fL1i[i]= -log(z2L[i]-B1[i])+(z2L[i]-1)*1-A1[i]/B1[i]*(2-1)*log(1+B1[i]/z2L[i]);
fL1i[i]= exp(fL1i[i]);
fV1i[i]= -log(z2V[i]-B1[i])+(z2V[i]-1)*1-A1[i]/B1[i]*(2-1)*log(1+B1[i]/z2V[i]);}
if(r==2){//Peng
fL1i[i]= -log(z2L[i]-B1[i])+(z2L[i]-1)*1-(A1[i]/(pow(2,1.5)*B1[i]))*(2-1)
        *log((z2L[i]+(sqrt(2)+1)*B1[i])/(z2L[i]-(sqrt(2)-1)*B1[i]));
fL1i[i]= exp(fL1i[i]);
fV1i[i]= -log(z2V[i]-B1[i])+(z2V[i]-1)*1-(A1[i]/(pow(2,1.5)*B1[i]))*(2-1)
        *log((z2V[i]+(sqrt(2)+1)*B1[i])/(z2V[i]-(sqrt(2)-1)*B1[i]));}
if(r==3){//ALS
fL1i[i]= -log(z2L[i]-BB1[0][i])+(BB1[0][i]/(z2L[i]-BB1[0][i]))*1
```

```
                    -(A1[i]/(BB1[1][i]+BB1[2][i]))*(BB1[1][i]/(z2L[i]-BB1[1][i]))*1
                    -(A1[i]/(BB1[1][i]+BB1[2][i]))*(BB1[2][i]/(z2L[i]+BB1[2][i]))*1
                    -(A1[i]/(BB1[1][i]+BB1[2][i]))*2
                    *log((z2L[i]+BB1[2][i])/(z2L[i]-BB1[1][i]))
                    +(A1[i]/(BB1[1][i]+BB1[2][i]))*(BB1[1][i]/(BB1[1][i]+BB1[2][i]))
                    *log((z2L[i]+BB1[2][i])/(z2L[i]-BB1[1][i]))
                    +(A1[i]/(BB1[1][i]+BB1[2][i]))*(BB1[2][i]/(BB1[1][i]+BB1[2][i]))
                    *log((z2L[i]+BB1[2][i])/(z2L[i]-BB1[1][i]));
fL1i[i]= exp(fL1i[i]);
fV1i[i]= -log(z2V[i]-BB1[0][i])+(BB1[0][i]/(z2V[i]-BB1[0][i]))*1
                    -(A1[i]/(BB1[1][i]+BB1[2][i]))*(BB1[1][i]/(z2V[i]-BB1[1][i]))*1
                    -(A1[i]/(BB1[1][i]+BB1[2][i]))*(BB1[2][i]/(z2V[i]+BB1[2][i]))*1
                    -(A1[i]/(BB1[1][i]+BB1[2][i]))*2
                    *log((z2V[i]+BB1[2][i])/(z2V[i]-BB1[1][i]))
                    +(A1[i]/(BB1[1][i]+BB1[2][i]))*(BB1[1][i]/(BB1[1][i]+BB1[2][i]))
                    *log((z2V[i]+BB1[2][i])/(z2V[i]-BB1[1][i]))
                    +(A1[i]/(BB1[1][i]+BB1[2][i]))*(BB1[2][i]/(BB1[1][i]+BB1[2][i]))
                    *log((z2V[i]+BB1[2][i])/(z2V[i]-BB1[1][i]));}
if(r==4){//TCC
W1[i]=sqrt(16*pow(B1[i],2)+4*B1[i]*C1[i]+pow(C1[i],2));
ohm1[i]=(1/pow(W1[i],2))*(2*(8*B1[i]+C1[i])*B1[i]*1+(2*B1[i]+C1[i])*C1[i]*1);
//liquid phase
phiL[i]=(2*z2L[i]+4*B1[i]+C1[i]+W1[i])/(2*z2L[i]+4*B1[i]+C1[i]-W1[i]);
fL1i[i]=(B1[i]*1)/(z2L[i]-B1[i])-log(z2L[i]-B1[i])
        +(A1[i]/W1[i])*(ohm1[i]-2)*log(phiL[i])
        +((1/(z2L[i]-B1[i]))-1)*((1/2)*(4*B1[i]*1+C1[i]*1)
        -ohm1[i]*(z2L[i]+(1/2)*(4*B1[i]+C1[i])));
fL1i[i]=exp(fL1i[i]);
//vapor phase
phiV[i]=(2*z2V[i]+4*B1[i]+C1[i]+W1[i])/(2*z2V[i]+4*B1[i]+C1[i]-W1[i]);
fV1i[i]=(B1[i]*1)/(z2V[i]-B1[i])-log(z2V[i]-B1[i])
        +(A1[i]/W1[i])*(ohm1[i]-2)*log(phiV[i])
        +((1/(z2V[i]-B1[i]))-1)*((1/2)*(4*B1[i]*1+C1[i]*1)
        -ohm1[i]*(z2V[i]+(1/2)*(4*B1[i]+C1[i])));
fV1i[i]=exp(fV1i[i]);}
fV1i[i]= exp(fV1i[i]);
U[i]=log(fV1i[i]/fL1i[i]);
if((z2V[i]-z2L[i])!=0)
Ps[i]=Ps[i]*(1-U[i]/(z2V[i]-z2L[i]));
}//end do1
while(fabs((Ps[i]/Ps1[i])-1)>=1.0e-6);
cout<<endl;
Psat[i]=Ps[i];
PB=PB+zi[i]*Psat[i];
cout<<"\ncomponent: "<<(i+1);
cout<<"\nzi = "<<zi[i];
cout<<"\nZV = "<<z2V[i];
cout<<"\nZL = "<<z2L[i];
cout<<"\nFV = "<<fV1i[i];
cout<<"\nFL = "<<fL1i[i];
cout<<"\nBubble Point Pressure(bar)= "<<setiosflags(ios::scientific)
        <<setw(14)<<setiosflags(ios::showpoint)<<setprecision(4)<<Psat[i];
}//end for(i)
}//end function BP( )
```

```
void alldata::pure( )
    {
    char c;
    cout<<"\n1.Soave-Redlich-Kwong(SRK).";
    cout<<"\n2.Peng-Robinson(PR).";
    cout<<"\n3.Adachi-Lu-Sugie(ALS).";
    cout<<"\n4.Twu-Coon-Cunningham(TCC).";
    cout<<"\n5.Shah-Bienkowski-Cochran(SBC).";
    cout<<"\nSelect: ";cin>>r;
    do{     //do1
    cout<<"\nPure Substance";
    alldata::getdata( );
    do{     //do2
    cout<<"Enter Temperature(K): ";cin>>T;
    cout<<"Enter Pressure:(Bar) ";cin>>P;
    alldata::showdata( );
    for(int i=0; i<n; i++){
    Tri[i]=T/Tci[i];}
    if(r<4){
    alldata::findab( );
    alldata::findAB( );}
    if(r==4){//TCC
    alldata::findC( );              //use Zc
    alldata::finda( );//Tc,Pc,T
    alldata::findbc( );            //Tc,Pc,T
    alldata::findABC( );}       //T,P
    alldata::Z( );
    alldata::ent( );
    alldata::fuga( );
    alldata::save( );
    do{     //do3
    if(r<4){
    alldata::para_ab( );
    alldata::findAB( );}
    if(r==4){
    alldata::findC( );              //use Zc
    alldata::finda( );//Tc,Pc,T
    alldata::findbc( );            //Tc,Pc,T
    alldata::findABC( );}       //T,P
    alldata::Z( );
    alldata::ent( );
    alldata::fuga( );
    alldata::newprop( );
    cout<<"\nDo you want to change any properties(y/n)?";
    cin>>c;
    }//end do3
    while(c!='n');
    cout<<"\nDo you want to change condition system(T,P)(y/n)?";
    cin>>c;
    }//end do2
    while(c!='n');
    cout<<"\nDo you want to change a new pure substance(y/n)?";
    cin>>c;
    }//end do1
    while(c!='n');
```

```
        }//end function pure( )

void alldata::mix( )
        {
        char c;
        do{      //do1
        cout<<"\nMixture system";
        alldata::getdata( );
        do{      //do2
        cout<<"Enter Temperature(K): ";cin>>T;
        cout<<"Enter Pressure:(Bar) ";cin>>P;
        alldata::showdata( );
        for(int i=0; i<n; i++){
        Tri[i]=T/Tci[i];}
        alldata::findab( );
        sumai0=sumai;
        if(r<3){//Soave,Peng
        sumbi0=sumbi;}
        if(r==3){//ALS
        for(int k=0; k<3; k++){
        sumbb0[k]=sumbb[k];}}
        if(r==4){//TCC
        a0=a;b0=b;c0=c;}
        for(i=0; i<n; i++){
        Tci0[i]=Tci[i];
        Pci0[i]=Pci[i];
        wi0[i]=wi[i];
        Zci0[i]=Zc[i];    //TCC
        Vci0[i]=Vc[i];    //SBC
        for(int j=0; j<n; j++){
        kij0[i][j]=kij[i][j];}//end for(j)
        }//end for(i)
        do{      //do3
        alldata::para( );
        if(r<4){
        alldata::findab( );
        alldata::newab( );}
        if(r==4){
        alldata::findC( );          //use Zc
        alldata::finda( );//Tc,Pc,T
        alldata::findbc( );          //Tc,Pc,T
        alldata::newabc( );}
        cout<<"\nDo you want to change any properties(y/n)?";
        cin>>c;
        }//end do3
        while(c!='n');
        cout<<"\nDo you want to change condition system(T,P)(y/n)?";
        cin>>c;
        for(i=0; i<n; i++){
                Tci[i]=Tci0[i];
                Pci[i]=Pci0[i];
                wi[i]=wi0[i];
                Zc[i]=Zci0[i];    //TCC
                Vc[i]=Vci0[i];    //SBC
                for(int j=0; j<n; j++){
```

```
                    kij[i][j]=kij0[i][j];}//end for(j)
                    }//end for(i)
            }//end do2
            while(c!='n');
            cout<<"\nDo you want to change a new mixture(y/n)?";
            cin>>c;
            }//end do1
            while(c!='n');
            }//end function mix( )

void alldata::para( )
            {
                    float devT[N],devP[N],devw[N];
                    float devk[N][N];
                    int t;
                    char ch;
                    sumai=sumai0;
                    if(r<3){//Soave,Peng
                    sumbi=sumbi0;}
                    if(r==3){//ALS
                    for(int k=0; k<3; k++){
                    sumbb[k]=sumbb0[k];}}
                    if(r==4){//TCC
                    a=a0;b=b0;c=c0;}
                    for(int i=0; i<n; i++){
                    Tci[i]=Tci0[i];
                    Pci[i]=Pci0[i];
                    wi[i]=wi0[i];
                    Zc[i]=Zci0[i];   //TCC
                    Vc[i]=Vci0[i];   //SBC
                    for(int j=0; j<n; j++){
                    kij[i][j]=kij0[i][j];}//end for(j)
                    }//end for(i)
                    do{do{
                    cout<<"\n          Parameters Change: ";
                    cout<<"\n          0:Quit";
                    cout<<"\n          1:Critical Temperature(Tc)";
                    cout<<"\n          2:Critical Pressure(Pc)   ";
                    cout<<"\n          3:Acentric Factor(w)      ";
                    cout<<"\n          4:Binary Interaction(kij) ";
                    cout<<"\n          Which ones?[0-4]: ";cin>>t;
                    switch(t)
                    {
                    case 1:
                    do{
                            for(int i=0; i<n; i++){
                            cout<<"\nComponent: "<<(i+1);
                            cout<<"\nWhat Percentage Deviation of(+,-)(%)?";
                            cin>>devT[i];
                            cout<<"\nTci = "<<setiosflags(ios::showpoint)<<setw(10)
                                <<setiosflags(ios::fixed)<<setprecision(2)<<Tci0[i];
                            Tci[i]= Tci0[i]+(devT[i]*Tci0[i])/100;
                            cout<<"\nThen new Tci = "<<setiosflags(ios::showpoint)
                                <<setw(10)<<setiosflags(ios::fixed)
                                <<setprecision(2)<<Tci[i];
```

```cpp
            }//end for(i)
            cout<<"\nDo you want to change other percentages(y/n)?";
            cin>>ch;
            }//end do
            while (ch!='n');
            break;
    case 2:
    do{
            for(int i=0; i<n; i++){
            cout<<"\nComponent: "<<(i+1);
            cout<<"\nWhat Percentage Deviation of(+,-)(%)?";
            cin>>devP[i];
            cout<<"\nPci = "<<setiosflags(ios::showpoint)<<setw(10)
                    <<setiosflags(ios::fixed)<<setprecision(2)<<Pci0[i];
            Pci[i]= Pci0[i]+(devP[i]*Pci0[i])/100;//Pc old-new
            cout<<"\nThen new Pci = "<<setiosflags(ios::showpoint)
                    <<setw(10)<<setiosflags(ios::fixed)
                    <<setprecision(2)<<Pci[i];
            }//end for(i)
            cout<<"\nDo you want to change other percentages(y/n)?";
            cin>>ch;
            }//end do
            while (ch!='n');
            break;
    case 3:
    do{
            for(int i=0; i<n; i++){
            cout<<"\nComponent: "<<(i+1);
            cout<<"\nWhat Percentage Deviation of(+,-)(%)?";
            cin>>devw[i];
            cout<<"\nwi = "<<setiosflags(ios::showpoint)<<setw(10)
                    <<setiosflags(ios::fixed)<<setprecision(2)<<wi0[i];
            wi[i]= wi0[i]+(devw[i]*wi0[i])/100;//wi old-new
            cout<<"\nThen new Acentric Factor = "<<setw(10)
                    <<setiosflags(ios::showpoint)<<setprecision(4)
                    <<setiosflags(ios::fixed)<<wi[i];
            }//end for(i)
            cout<<"\nDo you want to change other percentages(y/n)?";
            cin>>ch;
            }//end do
            while (ch!='n');
            break;
    case 4:
    do{
            for(int i=0; i<n; i++){
            cout<<"\nWhat Percentage Deviation of(+,-)( %)?";
            for(int j=0; j<n; j++){
            if(i!=j){
            cin>>devk[i][j];
            kij[i][j]= kij0[i][j]
                            +(devk[i][j]*kij0[i][j])/100;//kij old-new
            cout<<"\nComponent:"<<(i+1)<<" interact with "<<(j+1);
            cout<<"\nkij = "<<setiosflags(ios::showpoint)<<setw(10)
                <<setiosflags(ios::fixed)<<setprecision(2)<<kij0[i][j];
            cout<<"\nThen new kij = "<<setiosflags(ios::showpoint)
```

```
                    <<setw(10)<<setiosflags(ios::fixed)
                    <<setprecision(4)<<kij[i][j];}//end if
                }//end for(j)
                }//end for(i)
                cout<<"\nDo you want to change other percentages(y/n)?";
                cin>>ch;
                }//end do
                while (ch!='n');
                break;
                default:
                if(t>4)
                cout<<"\nMistake! Try again!";
            }//end case
            }//end do
            while(t!= 0);
            cout<<"\nAre you sure?(y/n) : ";cin>>ch;
            }//end do
            while(ch!='y');
        }//end function para( )


void alldata::crit( )
        {
        float TbR[N],API[N];
        int i,t;
        cout<<"\nWhich components do you want to know? ";cin>>i;
        TbR[i]= Tb[i]-32;        //convert Tb from F to R//Mistake!
        API[i]= 141.5/SG[i] -131.5;
        do{
        cout<<"\nTo Find Critical Temperature:";
        cout<<"\n0. To Quit.";
        cout<<"\n1. Cavett Correlation(1962).";
        cout<<"\n2. Kesler and Lee Correlation(1976).";
        cout<<"\n3. Riazi and Daubert Correlation(1980).";
        cout<<"\n4. Brule Correlation(1982).";
        cout<<"\n5. Twu Correlation(1984).";
        cout<<"\nType Number of Correlation Methods: ";
        cin>>t;
        //cout<<"\nMid-volume boiling point of fraction(F),T50 = ";
        //cin>>Tm[i];
        switch(t)
                {
                case 1:  //Cavett Correlation(1962)//input data: Tb(F),SG to find Tc(R)
                cout<<"\nCavett Correlation To Find Critical Temperature";
                Tc[i]= 768.07121+1.7133693*Tb[i]-(0.10834003e-2)*pow(Tb[i],2)
                        +(0.38890584e-6)*pow(Tb[i],3)-(0.89212579e-2)*Tb[i]*API[i]
                        +(0.53094920e-5)*(pow(Tb[i],2))*API[i]
                        +(0.32711600e-7)*pow((Tb[i]*API[i]),2);
                //convert Tc from R to K
                break;
                case 2:  //Kesler and Lee Correlation(1976)
                //input data Tb(R),SG to find Tc(R)
                cout<<"\nKesler&Lee Correlation To Find Critical Temperature";
                Tc[i]= 341.7+811*SG[i]+(0.42244+0.1174*SG[i])*TbR[i]
                        +(0.4669-3.2623*SG[i])*1.0e5/TbR[i];
                //convert Tc from R to K
```

```cpp
                break;
        case 3:  //Riazi and Daubert Correlation(1980)
        //input data Tb(R),SG to find Tc(R)
        cout<<"\nRiazi&Daubert Correlation To Find Critical Temperature";
        Tc[i]= 24.2787*pow(Tb[i],0.58848)*pow(SG[i],0.3596);
        //convert Tc from R to K
        break;
        case 4:  //Brule Correlation(1982) For Nonpolar coal fluids
        //input data Tb(F),SG to find Tc(K)
        cout<<"\nBrule Correlation To Find Critical Temperature";
        Tc[i]= 429.138+0.886861*Tb[i]-4.596433e-4*pow(Tb[i],2)
                -2.410089e-3*API[i]*Tb[i]+1.630489e-7*pow(Tb[i],3)
                -9.323778e-7*API[i]*pow(Tb[i],2)
                -1.430628e-8*pow((API[i]*Tb[i]),2);

        break;
        case 5:  //Twu Correlation(1984)For both petroleum&coal-tar fluids
        //input data Tb(R),SG to find Tc(R)
        cout<<"\nTwu Correlation To Find Critical Temperature";
        float Tco[N],alpha[N],SGo[N],delSG[N],fT[N];
        Tco[i]= Tb[i]/(0.533272+0.191017e-3*Tb[i]
                +0.779681e-7*pow(Tb[i],2)
                -0.284376e-10*pow(Tb[i],3)
                +0.959468e228/pow(Tb[i],13));
        alpha[i]= 1-Tb[i]/Tco[i];
        SGo[i]= 0.843593-0.128624*alpha[i]-3.36159*pow(alpha[i],3)
                -13749.5*pow(alpha[i],12);
        delSG[i]= exp(5*(SGo[i]-SG[i]))-1;
        fT[i]= delSG[i]*(-0.362456/pow(Tb[i],0.5)
                +(0.0398285-0.948125/pow(Tb[i],0.5))*delSG[i]);
        Tc[i]= Tco[i]*pow((((1+2*fT[i])/(1-2*fT[i])),2);
        //convert Tc from R to K
        break;
        default:
                if((t>5)||(t<1))
                cout<<"\nMistake! Try again!";
        }//end case
        }//end do
        while(t!=0);
        cout<<"\nCritical Temperature(K) = "<<Tc[i];
        Pc[i]= exp(2.829+(0.9412e-3)*Tb[i]-(0.30475e-5)*pow(Tb[i],2)
                +(0.15141e-8)*pow(Tb[i],3)-(0.20876e-4)*Tb[i]*API[i]
                +(0.11048e-7)*(pow(Tb[i],2))*API[i]
                +(0.1395e-9)*pow((Tb[i]*API[i]),2)
                -(0.4827e-7)*Tb[i]*pow(API[i],2));
        cout<<"\nComponent: "<<name[i];
        cout<<"\nAPI = "<<API[i];
        cout<<"\nThen Tc = "<<Tc[i];
        cout<<"\nCavett Correlation To Find Critical Pressure:";
        cout<<"\n        Pc = "<<Pc[i];
        }//end function critical to find properties Tc,Pc


void alldata::acen( )
        {
        float Tbr[N],Pbr[N];
        int i,t;
```

```
cout<<"\nWhich components do you want to know? ";cin>>i;
cout<<"\nTo Find Acentric Factor:";
cout<<"\n1. Edmister(1958).";
cout<<"\n2. Lee and Kesler(1975).";
cout<<"\n3. Chen et. al(1992).";
cout<<"\nType Number of Acentric Factor Correlation Methods: ";
cin>>t;
//input data Tc,Pc,Tb
switch(t)
{
case 1:  //Edmister(1958)
//Tb,Tc(K),Pc(atm)
cout<<"\nEdmister(1958) To Find Acentric Factor";
//convert Pc from bar to atm
Pc[i]= Pc[i]/1.01325;
Tbr[i]= Tb[i]/Tc[i];
w[i]= 3/7*Tbr[i]/(1-Tbr[i])*log10(Pc[i])-1;
break;
case 2:  //Lee&Kesler(1975)
//Tb,Tc(K),Pc(atm)
cout<<"\nLee and Kesler(1975) To Find Acentric Factor";
//convert Pc from bar to atm
Pc[i]= Pc[i]/1.01325;
Tbr[i]= Tb[i]/Tc[i];
w[i]= -log10(Pc[i])-5.922714+6.09648*pow(Tbr[i],-1)
        +(1.28862*log(Tbr[i]))-0.169347*pow(Tbr[i],6);
w[i]= w[i]/(15.2518-15.6875/Tbr[i]-(13.4721*log(Tbr[i]))
        +0.43577*pow(Tbr[i],6));
//Tb(R),Pb(Psia)
//convert Tb from F to R
//Tb[i]= Tb[i]-32;
//convert Pb from bar to Psia
float wL1[N],wL2[N],wL[N],K[N];;
Pb[i]= Pb[i]*14.696/1.01325;
Tbr[i]= Tb[i]/Tc[i];
Pbr[i]= Pb[i]/Pc[i];
K[i]= (pow(Tb[i],1/3))/SG[i];//Watson characterization factor
cout<<"\nComponent: "<<name[i];
cout<<"\nThen Tbr = "<<Tbr[i];
cout<<"\n        Pbr = "<<Pbr[i];
cout<<"\n        K   = "<<K[i];
if(Tbr[i]<0.8){
wL1[i]= log(Pbr[i])-5.92714+6.09648/Tbr[i]
        +(1.28862*log(Tbr[i]))-0.169347*pow(Tbr[i],6);
wL2[i]= 15.2518-15.6875/Tbr[i]-(13.4721*log(Tbr[i]))
        +0.43577*pow(Tbr[i],6);
wL[i]= wL1[i]/wL2[i];
cout<<"\nTbr < 0.8; w = "<<wL[i];}//end if
else if(Tbr[i]>0.8){
wL[i]= -7.904+0.1352*K[i]-0.0007465*pow(K[i],2)+8.359*Tbr[i]
        +(1.408-0.01063*K[i])/Tbr[i];
cout<<"\nTbr > 0.8; w = "<<wL[i];}//end else
break;
case 3:  //Chen et. al(1992)
//Tb,Tc(K),Pc(atm)
```

```cpp
        cout<<"\nChen(1992) To Find Acentric Factor";
        //convert Pc from bar to atm
        Pc[i]= Pc[i]/1.01325;
        Tbr[i]= Tb[i]/Tc[i];
        w[i]= 0.3*(0.2803+0.4789*Tbr[i])*(log10(Pc[i]));
        w[i]= (w[i]/((1-Tbr[i])*(0.9803-0.5211*Tbr[i])))-1;
        break;
        default:
                if((t>3)||(t<1))
                cout<<"\nMistake! Try again!";
        }//end case
        cout<<"\nAcentric Factor = "<<w[i];
        }//end function acentric to find acentric factor

//Quartic Equation of State
void alldata::findabce( )
        {
        Dc=1/Vc;
        //find beta
        betac= 0.165*Vc;
        b= exp(-0.03125*log(Tr)-0.0054*pow(log(Tr),2));
        beta= betac*pow(b,3);
        //find a,c
        x2=x21+x22*w;x3=x31+x32*w;
        x4=x41+x42*w;x5=x51+x52*w;
        x6=x61+x62*w;x7=x71+x72*w;
        if(Tr<=1)
        {alpha=1+x2*(1-sqrt(Tr))+x3*pow((1-sqrt(Tr)),2)
                +x4*pow((1-sqrt(Tr)),3);
        alpha= pow(alpha,2);}//end if
        else if(Tr>1)
        {alpha=1+x2*(1-sqrt(Tr))+x5*pow((1-sqrt(Tr)),2)
                +x6*pow((1-sqrt(Tr)),3);
        alpha= pow(alpha,2);}//end else
        delta=pow(1+x7*(1-sqrt(Tr)),2);
        ar=1.84713*(1-0.05218*w+1.06446*pow(w,2));
        cr=1.78336*(1-1.29690*w+2.78945*pow(w,2));
        //find e
        er=0.63189*(1-0.81660*w+3.25246*pow(w,2));
        ac=ar*R*Tc/Dc;
        cc=cr*R*Tc/Dc;
        e =er/Dc;
        a= ac*alpha;
        c= cc*delta;
        bet=pow((k0*beta),2);
        }//end function find_abce( )

void alldata::findZZ( )
        {
        float q0,q1,q2,q3;
        float V1,fV,dfV;
        //find V
        bet=pow((k0*beta),2);
        q3=-2*k0*beta+e-(R*T)/P;
        q2=(R*T)/P*(beta*(k0-k1)-e)
```

```
                +k0*beta*(k0*beta-2*e)+a/P;
q1=e*(bet+((R*T)/P)*beta*(k0-k1))+k0*beta*(c-a)/P;
q0=-c*bet/P;
for(vl=0; vl<2; vl++){
if(vl!=1){z=zV;}
else{z=zL;}
V=z*R*T/P;
do{
V1=V;
fV=pow(V,4)+q3*pow(V,3)+q2*pow(V,2)+q1*V+q0;
dfV=4*pow(V,3)+3*q3*pow(V,2)+2*q2*V+q1;
if(dfV!=0)
V=V-fV/dfV;
}//end do
while(fabs(V/V1-1)>=1.0e-10);
cout<<"\nV = "<<V;
z=P*V/(R*T);
if(vl!=1){zV=z;
else{zL=z;}
}//end for(vl)
}//end function findZZ( )

void alldata::ent( )
    {
    float dalpha,ddelta,dbeta,Trr;
    //differentiate with T
    dbeta=b*(1)*(-0.01325-0.0054*2*(log(Tr)));
    dbeta= betac*3*pow(b,2)*dbeta;
    Trr=1-sqrt(Tr);
    x2=x21+x22*w;x3=x31+x32*w;
    x4=x41+x42*w;x5=x51+x52*w;
    x6=x61+x62*w;x7=x71+x72*w;
    if(Tr<=1){
    dalpha=x2*(-sqrt(Tr))+x3*2*Trr*(-sqrt(Tr))+x4*3*(-sqrt(Tr))*pow(Trr,2);
    }//end if
    else{
    dalpha=x2*(-sqrt(Tr))+x5*2*Trr*(-sqrt(Tr))+x6*3*(-sqrt(Tr))*pow(Trr,2);
    }//end else
    dalpha=dalpha*sqrt(alpha);
    ddelta=x7*(-sqrt(Tr*delta));
    for(vl=0; vl<2; vl++){
    if(vl!=1){z=zV;}
    else {z=zL;}
    V=z*R*T/P;
    dH=0;
    Vkb=V-k0*beta;
    Ve=V+e;
    kbe=k0*beta+e;
    dH=z-1-(1/Vkb)*dbeta*(k0+k1);
    dH=dH-k0*k1*beta*dbeta/(pow(Vkb,2));
        +(1/(e*R*T))*(c-cc*ddelta)*log(1+e/V);
        +(1/(kbe*R*T))*((a+c)-(ac*dalpha+cc*ddelta))*log(Vkb/Ve);
        +((k0*(a+c)*dbeta)/(pow(kbe,2)*R*T))*(log(Vkb/Ve));
        +((k0*(a+c)*dbeta)/(kbe*R*T))*((1/(2*Vkb))+k0*beta/(3*pow(Vkb,2)));
    dH=(R*T)*dH;
```

```
float P0=1.01325;        //bar unit
dS=0;
dS=log(z-(P*k0*beta/(R*T)));
    -(1/Vkb)*(k1*beta+(k0+k1)*dbeta);
    -k0*k1*beta*dbeta/pow(Vkb,2);
    -(1/(e*R*T))*(cc*ddelta)*log(1+e/V);
    -(1/(kbe*R*T))*(ac*dalpha+cc*ddelta)*log(Vkb/Ve);
    +((k0*(a+c)*dbeta)/(pow(kbe,2)*R*T))*log(Vkb/Ve);
    +((k0*(a+c)*dbeta)/(kbe*R*T))*((1/(2*Vkb))+k0*beta/(3*pow(Vkb,2)))
    -log(P/P0);
dS=R*dS;
if(vl!=1){zV=z;dHV=dH;dSV=dS;}//end if
else{zL=z;dHL=dH;dSL=dS;}//end else
}//end for(vl)
}//end  function ent( )


void alldata::findf( )
    {//find fugacity
    for(vl=0; vl<2; vl++){
    if(vl!=1){z=zV;}
    else {z=zL;}
    V=z*R*T/P;
    Vkb=V-k0*beta;
    Ve=V+e;
    kbe=k0*beta+e;
    fi=-log(z-(P*k0*beta/(R*T)));
        +((k0+2*k1)*beta)/Vkb;
        +(k0*k1*pow(beta,2))/(pow(Vkb,2));
        +(c/(R*T*Ve))+(c/(e*R*T))*log(1+e/V);
        -((a+c)/(kbe*R*T))*((k0*beta/Vkb)+(e/Ve));
        +((a+c)/(kbe*R*T))*log(Vkb/Ve);
    fi=exp(fi);
    if(vl!=1){
    zV=z;fVi=fi;}//end if
    else{zL=z;fLi=fi;}//end else
    }//end for(vl)
    Ki=fLi/fVi;
    }//end function findf( )


void alldata::BP1( )        //For Pure Component
    {
    double Ps1,U,zz,z2V,z2L;
    double qq0,qq1,qq2,qq3;
    double V,V0,V1,fV,fVV,fV0,dfV;
    double fV1i,fL1i,f1i;
    cout<<"\nIsothermal Calculations:";
    //Find Pure Vapor Pressure
    do{      //do1
    Ps1=Ps;
    //find V
    qq3=-2*k0*beta+e-(R*T)/Ps;
    qq2=(R*T)/Ps*(beta*(k0-k1)-e)
            +k0*beta*(k0*beta-2*e)+a/Ps;
    qq1=e*(bet+((R*T)/Ps)*beta*(k0-k1))+k0*beta*(c-a)/Ps;
    qq0=-c*bet/Ps;
```

```
for(vl=0; vl<2; vl++){
if(vl!=1){
zz=1;
V=zz*R*T/Ps;fV=0;
do{
V0=V;fV0=fV;
V=V-0.1;
fV=pow(V,4)+qq3*pow(V,3)+qq2*pow(V,2)+qq1*V+qq0;
}//end do
while((fV*fV0)>=0);}//end if(vl)
else{
zz=0;
V=zz*R*T/Ps;fV=0;
do{
V0=V;fV0=fV;
V=V+0.01;
fV=pow(V,4)+qq3*pow(V,3)+qq2*pow(V,2)+qq1*V+qq0;
}//end do
while((fV*fV0)>=0);}//end else(vl)
if(V>0){
do{
V1=V;
fVV=pow(V,4)+qq3*pow(V,3)+qq2*pow(V,2)+qq1*V+qq0;
dfV=4*pow(V,3)+3*qq3*pow(V,2)+2*qq2*V+qq1;
if(dfV!=0)
V=V-fVV/dfV;
}//end do
while(fabs(V/V1-1)>=1.0e-10);
cout<<"\nV = "<<V;}//end if(V>0)
zz=Ps*V/(R*T);
if(vl!=1){
z2V=zz;
V=z2V*R*T/Ps;
Vkb=V-k0*beta;
Ve=V+e;}//end if
else{
z2L=zz;
V=z2L*R*T/Ps;
Vkb=V-k0*beta;
Ve=V+e;}//end else
//find fugacity coeff.
kbe=k0*beta+e;
fli= -log(zz-(Ps*k0*beta/(R*T)));
    +((k0+2*k1)*beta)/Vkb;
    +(k0*k1*pow(beta,2))/(pow(Vkb,2));
    +(c/(R*T*Ve))+(c/(e*R*T))*log(1+e/V);
    -((a+c)/(kbe*R*T))*((k0*beta/Vkb)+(e/Ve));
    +((a+c)/(kbe*R*T))*log(Vkb/Ve);
fli=exp(fli);
if(vl!=1){
fVli=fli;}
else{
fLli=fli;}
}//end for(vl)
U=log(fVli/fLli);
```

```
            if((z2V-z2L)!=0)
            Ps=Ps*(1-U/(z2V-z2L));
            }//end do1
            while(fabs((Ps/Ps1)-1)>=1.0e-6);
            cout<<endl<<"\nPure component:";
            cout<<"\nZV = "<<setprecision(8)<<z2V;
            cout<<"\nZL = "<<z2L;
            cout<<"\nFV = "<<fV1i;
            cout<<"\nFL = "<<fL1i;
            cout<<"\nBubble Point Pressure = "<<setiosflags(ios::scientific)
                <<setw(14)<<setiosflags(ios::showpoint)<<setprecision(4)<<Ps;
            PB=0;
            PB=PB+Ps;
            }//end function BP1( )

void main( )
        {
        alldata a;
        a.pureVP( );
        a.pure( );
        a.mix( );
        }//end main( )
```

APPENDIX B

TABLES

Table B.1 SRK EOS; methane; % deviation of thermodynamic properties as parameter a(T) varies.

%Dev	P(atm)	1					$0.8P_c$				
in a(T)	T(K)	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	0.74	0.34	0.19	0.12	-	-	-	21.17	6.57
-10		-	0.37	0.17	0.10	0.06	-	-	-	11.92	3.40
-5	Z^V	-	0.19	0.08	0.05	0.03	-	-	-	6.44	1.73
5		-	-0.19	-0.08	-0.05	-0.03	-	-	-	-8.18	-1.80
10		-	-0.38	-0.17	-0.10	-0.06	-	-	-	-21.60	-3.68
20		-	-0.76	-0.34	-0.19	-0.12	-	-	-	-80.33	-7.72
-20		1.20	9.61	25505.69	-	-	1.14	8.34	29.54	163.97	-
-10		0.53	3.88	15.65	-	-	0.51	3.46	9.74	143.83	-
-5	Z^L	0.25	1.77	6.04	-	-	0.24	1.59	4.21	131.89	-
5		-0.22	-1.52	-4.34	-	-	-0.21	-1.38	-3.34	-35.54	-
10		-0.42	-2.83	-7.67	-	-	-0.41	-2.59	-6.06	-49.37	-
20		-0.77	-4.99	-12.54	-99.60	-	-0.75	-4.59	-10.27	-57.15	-
-20		-	21.44	21.56	21.92	22.43	-	-	-	34.69	27.13
-10		-	10.76	10.80	10.97	11.22	-	-	-	19.78	14.07
-5	dH^V	-	5.39	5.40	5.49	5.61	-	-	-	10.77	7.17
5		-	-5.41	-5.41	-5.49	-5.62	-	-	-	-14.05	-7.48
10		-	-10.84	-10.83	-10.99	-11.23	-	-	-	-38.34	-15.32
20		-	-21.77	-21.71	-22.01	-22.48	-	-	-	-324.90	-32.28
-20		-	20.81	20.36	20.20	20.13	-	-	-	6.75	2.60
-10		-	10.46	10.20	10.11	10.07	-	-	-	3.94	1.36
-5	dS^V	-	5.24	5.11	5.06	5.04	-	-	-	2.18	0.70
5		-	-5.27	-5.12	-5.07	-5.04	-	-	-	-2.98	-0.74
10		-	-10.57	-10.25	-10.14	-10.09	-	-	-	-8.49	-1.51
20		-	-21.25	-20.55	-20.31	-20.19	-	-	-	-76.07	-3.23
-20		20.14	22.66	99.48	-	-	20.35	22.56	30.43	67.77	-
-10		10.17	11.21	16.43	-	-	10.17	11.20	14.14	60.41	-
-5	dH^L	5.03	5.58	7.70	-	-	5.09	5.58	6.92	55.97	-
5		-5.03	-5.55	-7.21	-	-	-5.08	-5.56	-6.73	-42.21	-
10		-10.07	-11.06	-14.13	-	-	-10.17	-11.10	-13.31	-74.35	-
20		-20.13	-22.04	-27.46	-20521.00	-	-20.34	-22.12	-26.19	-109.70	-
-20		10.17	9.83	99.76	-	-	10.10	9.31	13.73	26.71	-
-10		5.03	4.68	7.83	-	-	4.99	4.48	5.92	24.51	-
-5	dS^L	2.50	2.29	3.49	-	-	2.49	2.20	2.82	23.13	-
5		-2.48	-2.22	-3.06	-	-	-2.46	-2.14	-2.62	-16.23	-
10		-4.93	-4.37	-5.84	-	-	-4.23	-4.23	-5.08	-27.69	-
20		-9.79	-8.52	-10.86	-51628.00	-	-8.26	-8.26	-9.67	-38.37	-
-20		-	0.70	0.33	0.19	0.13	-	-	-	9.63	4.97
-10		-	0.35	0.16	0.09	0.06	-	-	-	4.92	2.49
-5	ϕ^V	-	0.18	0.08	0.05	0.03	-	-	-	2.50	1.25
5		-	-0.18	-0.08	-0.05	-0.03	-	-	-	-2.61	-1.25
10		-	-0.35	-0.16	-0.09	-0.06	-	-	-	-5.43	-2.52
20		-	-0.70	-0.33	-0.19	-0.13	-	-	-	-25.86	-5.06
-20		50604.93	224.58	-89.43	-	-	50843.29	228.85	87.05	4.36	-
-10		2166.92	82.00	36.65	-	-	2171.61	82.98	38.88	-0.12	-
-5	ϕ^L	376.83	35.20	17.42	-	-	373.30	35.53	18.20	-2.43	-
5		-79.08	-26.31	-15.39	-	-	-79.10	-26.47	-15.82	-4.83	-
10		-95.64	-45.89	-28.80	-	-	-95.64	-46.10	-29.44	-12.83	-
20		-99.81	-71.09	-50.20	1668.00	-	-99.81	-71.26	-50.95	-28.95	-
-20		-	222.31	-89.47	-	-	-	-	-	-4.81	-
-10		-	81.36	36.43	-	-	-	-	-	-4.81	-
-5	K_i	-	34.96	17.32	-	-	-	-	-	-4.81	-
5		-	-26.18	-15.32	-	-	-	-	-	-2.28	-
10		-	-45.69	-28.68	-	-	-	-	-	-7.83	-
20		-	-70.86	-50.03	1672.00	-	-	-	-	-4.81	-

Table B.1 (continued).

%Dev in a(T)	P(atm)	Pc					1.2Pc				
	T(K)	0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20		-	-	-	113.49	9.26	-	-	-	149.66	12.54
-10		-	-	-	85.40	4.85	-	-	-	92.06	6.67
-5	Z^V	-	-	-	64.80	2.49	-	-	-	34.75	3.46
5		-	-	-	-40.04	-2.64	-	-	-	-13.15	-3.76
10		-	-	-	-46.85	-5.46	-	-	-	-20.66	-7.91
20		-	-	-	-53.65	-11.84	-	-	-	-29.50	-18.13
-20		1.13	8.07	25.57	-	-	1.12	7.82	22.77	-	-
-10		0.50	3.36	8.97	-	-	0.50	3.27	8.33	-	-
-5	Z^L	0.24	1.55	3.93	-	-	0.23	1.51	3.68	-	-
5		-0.21	-1.35	-3.16	-	-	-0.21	-1.32	-3.00	-	-
10		-0.41	-2.53	-5.77	-	-	-0.40	-2.48	-5.50	-	-
20		-0.74	-4.50	-9.84	-	-	-0.73	-4.41	-9.44	-	-
-20		-	-	-	59.17	28.80	-	-	-	61.75	30.66
-10		-	-	-	47.10	15.16	-	-	-	45.39	16.44
-5	dH^V	-	-	-	37.67	7.80	-	-	-	23.27	8.56
5		-	-	-	-51.36	-8.33	-	-	-	-15.08	-9.43
10		-	-	-	-70.94	-17.29	-	-	-	-27.43	-20.00
20		-	-	-	-101.90	-37.85	-	-	-	-48.79	-46.96
-20		-	-	-	21.98	3.38	-	-	-	26.74	4.29
-10		-	-	-	18.06	1.80	-	-	-	20.05	2.34
-5	dS^V	-	-	-	14.78	0.93	-	-	-	10.15	1.23
5		-	-	-	-19.72	-1.01	-	-	-	-5.97	-1.38
10		-	-	-	-26.14	-2.12	-	-	-	-10.49	-2.97
20		-	-	-	-35.22	-4.74	-	-	-	-17.64	-7.20
-20		20.40	22.55	29.23	-	-	20.45	22.55	28.38	-	-
-10		10.20	11.20	13.86	-	-	10.22	11.21	13.63	-	-
-5	dH^L	5.10	5.59	6.81	-	-	5.11	5.59	6.72	-	-
5		-5.10	-5.56	-6.65	-	-	-5.11	-5.57	-6.58	-	-
10		-10.20	-11.11	-13.17	-	-	-10.22	-11.12	-13.06	-	-
20		-20.39	-22.15	-25.97	-	-	-20.44	-22.18	-25.79	-	-
-20		10.08	9.20	12.72	-	-	10.07	9.09	11.98	-	-
-10		4.99	4.43	5.65	-	-	4.98	4.39	5.44	-	-
-5	dS^L	2.48	2.18	2.71	-	-	2.48	2.16	2.62	-	-
5		-2.46	-2.12	-2.54	-	-	-2.46	-2.10	-2.47	-	-
10		-4.90	-4.19	-4.94	-	-	-4.89	-4.16	-4.82	-	-
20		-9.73	-8.20	-9.44	-	-	-9.72	-8.15	-9.23	-	-
-20		-	-	-	14.48	6.46	-	-	-	23.54	8.08
-10		-	-	-	7.76	3.25	-	-	-	13.81	4.07
-5	ϕ^V	-	-	-	4.14	1.63	-	-	-	7.81	2.05
5		-	-	-	-7.72	-1.64	-	-	-	-8.53	-2.07
10		-	-	-	-16.01	-3.30	-	-	-	-17.06	-4.19
20		-	-	-	-31.89	-6.69	-	-	-	-33.02	-8.58
-20		50902.88	229.86	88.78	-	-	50962.08	230.84	90.29	-	-
-10		2172.79	83.21	39.32	-	-	2173.95	83.44	39.72	-	-
-5	ϕ^L	377.42	35.61	18.36	-	-	377.53	35.69	18.51	-	-
5		-79.11	-26.51	-15.91	-	-	-79.11	-26.54	-16.00	-	-
10		-95.65	-46.15	-29.58	-	-	-95.65	-46.20	-29.71	-	-
20		-99.81	-71.31	-51.11	-	-	-99.81	-71.36	-51.27	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.2 SRK EOS; methane; % deviation of thermodynamic properties as parameter b varies.

%Dev	P(atm)	1					$0.8P_c$				
in b	T(K)	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-0.07	-0.05	-0.04	-0.03	-	-	-	-15.39	-2.88
-10		-	-0.04	-0.03	-0.02	-0.02	-	-	-	-6.16	-1.42
-5	Z^V	-	-0.02	-0.01	-0.01	-0.01	-	-	-	-2.87	-0.70
5		-	0.02	0.01	0.01	0.01	-	-	-	2.58	0.69
10		-	0.04	0.03	0.02	0.02	-	-	-	4.93	1.38
20		-	0.07	0.05	0.04	0.03	-	-	-	9.16	2.71
-20		-20.74	-24.71	-31.51	-99.71	-	-20.71	-24.28	-29.34	-67.02	-
-10		-10.42	-12.79	-17.47	-98.90	-	-10.40	-12.49	-15.75	-54.64	-
-5	Z^L	-5.22	-6.51	-9.30	-	-	-5.21	-6.34	-8.19	111.60	-
5		5.25	6.77	10.96	-	-	5.23	6.53	8.92	123.47	-
10		10.52	13.81	24.74	-	-	10.49	13.26	18.72	128.60	-
20		21.14	28.88	25432.43	-	-	21.07	27.37	41.75	137.81	-
-20		-	-0.98	-1.38	-1.85	-2.40	-	-	-	-21.32	-6.78
-10		-	-0.49	-0.69	-0.92	-1.20	-	-	-	-8.10	-3.32
-5	dH^V	-	-0.25	-0.35	-0.46	-0.60	-	-	-	-3.71	-1.64
5		-	0.25	0.35	0.46	0.59	-	-	-	3.25	1.61
10		-	0.49	0.69	0.92	1.20	-	-	-	6.15	3.19
20		-	0.98	1.38	1.85	2.39	-	-	-	11.21	6.26
-20		-	-0.19	-0.13	-0.10	-0.08	-	-	-	-4.70	-0.53
-10		-	-0.09	-0.06	-0.05	-0.04	-	-	-	-1.72	-0.26
-5	dS^V	-	-0.05	-0.03	-0.02	-0.02	-	-	-	-0.78	-0.13
5		-	0.05	0.03	0.02	0.02	-	-	-	0.66	0.12
10		-	0.09	0.06	0.05	0.04	-	-	-	1.24	0.24
20		-	0.19	0.13	0.10	0.08	-	-	-	2.22	0.47
-20		-25.17	-27.51	-33.95	-22739.00		-25.75	-27.84	-14.40	-123.70	-
-10		-11.19	-12.29	-15.64	-9954.00	-	-11.40	-12.43	-6.78	-76.91	-
-5	dH^L	-5.30	-5.84	-7.58	-	-	-5.41	-5.90	-3.31	48.82	-
5		4.80	5.32	7.32	-	-	4.90	5.36	3.17	52.26	-
10		9.16	10.18	14.70	-	-	9.35	10.26	6.24	53.69	-
20		16.79	18.81	99.35	-	-	17.16	18.91	12.18	56.19	-
-20		-13.96	-12.98	-16.01	-55870.00	-	-13.85	-12.58	-14.40	-45.64	-
-10		-6.31	-6.00	-7.75	-35691.00	-	-6.26	-5.78	-6.78	-29.97	-
-5	dS^L	-3.01	-2.90	-3.85	-	-	-2.99	-2.78	-3.31	20.80	-
5		2.77	2.72	3.92	-	-	2.74	2.59	3.17	21.93	-
10		5.32	5.29	8.13	-	-	5.27	5.02	6.24	22.39	-
20		9.88	10.05	99.70	-	-	9.78	9.45	12.18	23.16	-
-20		-	-0.07	-0.05	-0.04	-0.03	-	-	-	-3.14	-1.66
-10		-	-0.03	-0.02	-0.02	-0.02	-	-	-	-1.51	-0.83
-5	ϕ^V	-	-0.02	-0.01	-0.01	-0.01	-	-	-	-0.74	-0.41
5		-	0.02	0.01	0.01	0.01	-	-	-	0.73	0.41
10		-	0.03	0.02	0.02	0.02	-	-	-	1.44	0.83
20		-	0.07	0.05	0.04	0.03	-	-	-	2.84	1.65
-20		-99.95	-73.67	-48.24	1895.00	-	-99.96	-74.59	-50.30	-22.39	-
-10		-96.58	-43.90	-23.94	1726.00	-	-99.72	-44.93	-25.60	-6.56	-
-5	ϕ^L	-79.74	-23.70	-11.75	-	-	-80.16	-24.41	-12.77	-5.51	-
5		321.84	26.97	11.02	-	-	330.80	28.20	12.48	-4.11	-
10		1454.31	56.87	21.00	-	-	1521.15	60.01	24.47	-3.43	-
20		14956.61	123.85	-89.46	-	-	16285.71	133.22	46.41	-2.11	-
-20		-	-73.65	-48.22	1896.00	-	-	-	-	-19.87	-
-10		-	-43.89	-23.92	1727.00	-	-	-	-	-5.12	-
-5	K_i	-	-23.68	-11.74	-	-	-	-	-	-4.81	-
5		-	26.94	11.00	-	-	-	-	-	-4.81	-
10		-	56.82	20.97	-	-	-	-	-	-4.81	-
20		-	123.69	-89.47	-	-	-	-	-	-4.81	-

Table B.2 (continued).

%Dev	P(atm)	P_c					$1.2P_c$				
in b	T(K)	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-	-	-64.09	-4.79	-	-	-	-45.09	-7.91
-10		-	-	-	-52.19	-2.31	-	-	-	-28.46	-3.70
-5	Z^V	-	-	-	-42.24	-1.14	-	-	-	-16.63	-1.80
5		-	-	-	49.54	1.11	-	-	-	25.59	1.71
10		-	-	-	63.49	2.19	-	-	-	57.75	3.35
20		-	-	-	81.78	4.27	-	-	-	101.70	6.44
-20		-20.70	-24.17	-28.91	-	-	-20.69	-24.08	-28.52	-	-
-10		-10.39	-12.42	-15.42	-	-	-10.39	-12.35	-15.13	-	-
-5	Z^L	-5.21	-6.30	-7.99	-	-	-5.21	-6.26	-7.81	-	-
5		5.23	6.48	8.61	-	-	5.23	6.43	8.34	-	-
10		10.48	13.14	17.92	-	-	10.47	13.02	17.26	-	-
20		21.05	27.05	39.08	-	-	21.03	26.75	37.03	-	-
-20		-	-	-	-114.80	-9.25	-	-	-	-57.97	-13.17
-10		-	-	-	-73.11	-4.43	-	-	-	-28.93	-6.05
-5	dH^V	-	-	-	-50.59	-2.17	-	-	-	-14.80	-2.91
5		-	-	-	29.15	2.09	-	-	-	16.17	2.73
10		-	-	-	35.18	4.11	-	-	-	30.44	5.30
20		-	-	-	42.27	7.95	-	-	-	44.41	10.06
-20		-	-	-	-41.93	-1.01	-	-	-	-23.20	-1.87
-10		-	-	-	-28.17	-0.47	-	-	-	-12.14	-0.84
-5	dS^V	-	-	-	-20.04	-0.23	-	-	-	-6.36	-0.40
5		-	-	-	11.71	0.22	-	-	-	7.24	0.37
10		-	-	-	13.97	0.43	-	-	-	13.73	0.71
20		-	-	-	16.49	0.81	-	-	-	19.92	1.31
-20		-25.75	-27.93	-32.47	-	-	-25.87	-28.03	-32.30	-	-
-10		-11.46	-12.47	-14.66	-	-	-11.52	-12.51	-14.56	-	-
-5	dH^L	-5.43	-5.92	-7.01	-	-	-5.46	-5.94	-6.95	-	-
5		4.92	5.38	6.46	-	-	4.95	5.40	6.37	-	-
10		9.40	10.29	12.44	-	-	9.45	10.32	12.26	-	-
20		17.26	18.95	23.27	-	-	17.36	19.00	22.78	-	-
-20		-13.85	-12.43	-14.09	-	-	-13.83	-12.39	-13.80	-	-
-10		-6.25	-5.73	-6.60	-	-	-6.24	-5.68	-6.44	-	-
-5	dS^L	-2.98	-2.76	-3.21	-	-	-2.98	-2.73	-3.12	-	-
5		2.74	2.56	3.05	-	-	2.73	2.54	2.95	-	-
10		5.26	4.96	5.97	-	-	5.25	4.90	5.75	-	-
20		9.75	9.33	11.49	-	-	9.73	9.20	10.95	-	-
-20		-	-	-	-26.12	-2.32	-	-	-	-27.84	-3.15
-10		-	-	-	-10.29	-1.15	-	-	-	-11.73	-1.56
-5	ϕ^V	-	-	-	-4.28	-0.58	-	-	-	-5.27	-0.77
5		-	-	-	1.56	0.57	-	-	-	4.02	0.77
10		-	-	-	2.88	1.14	-	-	-	6.94	1.53
20		-	-	-	5.24	2.28	-	-	-	11.19	3.03
-20		-99.96	-74.82	-50.78	-	-	-99.96	-75.05	-51.24	-	-
-10		-99.76	-45.19	-25.98	-	-	-99.79	-45.44	-26.36	-	-
-5	ϕ^L	-81.26	-24.59	-13.01	-	-	-80.37	-24.76	-13.23	-	-
5		333.12	28.52	12.81	-	-	335.46	28.82	13.13	-	-
10		1538.75	60.80	25.24	-	-	1556.52	61.58	25.97	-	-
20		16644.97	135.61	48.40	-	-	17011.63	137.98	50.29	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.3 SRK EOS; n-nonane; % deviation of thermodynamic properties as parameter a(T) varies.

%Dev in a(T)	P(atm) T(K)	1					$0.8P_c$				
		$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	1.17	0.80	0.39	0.21	-	-	-	21.17	5.14
-10		-	0.59	0.40	0.20	0.11	-	-	-	11.92	2.64
-5	Z^V	-	0.30	0.20	0.10	0.05	-	-	-	6.44	1.34
5		-	-0.30	-0.20	-0.10	-0.05	-	-	-	-8.18	-1.38
10		-	-0.60	-0.41	-0.20	-0.11	-	-	-	-21.60	-2.80
20		-	-1.20	-0.82	-0.39	-0.39	-	-	-	-80.33	-5.78
-20		0.91	11.80	25.80	-	-	0.88	10.17	17.96	163.97	-
-10		0.40	4.65	8.40	-	-	0.39	4.14	6.74	143.83	-
-5	Z^L	0.19	2.11	3.64	-	-	0.18	1.89	3.01	131.89	-
5		-0.17	-1.78	-2.89	-	-	-0.17	-1.62	-2.48	-35.54	-
10		-0.32	-3.31	-5.27	-	-	-0.32	-3.03	-4.57	-49.37	-
20		-0.59	-5.79	-8.95	-99.20	-	-0.58	-5.35	-7.90	-57.15	-
-20		-	21.69	21.57	21.70	22.16	-	-	-	34.40	25.84
-10		-	10.91	10.83	10.87	11.09	-	-	-	19.64	13.28
-5	dH^V	-	5.47	5.43	5.44	5.55	-	-	-	10.71	6.74
5		-	-5.51	-5.45	-5.45	-5.55	-	-	-	-14.01	-6.96
10		-	-11.05	-10.92	-10.91	-11.11	-	-	-	-38.35	-14.15
20		-	-22.24	-21.93	-21.87	-22.25	-	-	-	-344.38	-29.34
-20		-	21.17	20.80	20.38	20.20	-	-	-	10.03	3.63
-10		-	10.67	10.45	10.22	10.11	-	-	-	5.84	1.87
-5	dS^V	-	5.36	5.24	5.11	5.06	-	-	-	3.22	0.95
5		-	-5.40	-5.27	-5.13	-5.07	-	-	-	-4.36	-0.99
10		-	-10.84	-10.57	-10.27	-10.27	-	-	-	-12.34	-2.02
20		-	-21.86	-21.24	-20.58	-20.58	-	-	-	-115.98	-4.22
-20		20.16	24.17	29.55	-	-	20.26	23.78	27.02	67.75	-
-10		10.08	11.89	13.75	-	-	10.13	11.77	13.10	60.49	-
-5	dH^L	5.04	5.91	6.75	-	-	5.07	5.86	6.49	56.10	-
5		-5.04	-5.86	-6.58	-	-	-5.07	-5.82	-6.39	-45.01	-
10		-10.08	-11.68	-13.03	-	-	-10.13	-11.62	-12.70	-79.85	-
20		-20.15	-23.22	-25.70	-10640.76	-	-20.26	-23.14	-25.16	-118.47	-
-20		14.31	14.57	18.54	-	-	14.28	13.87	15.86	34.91	-
-10		7.12	6.99	8.20	-	-	7.11	6.72	7.45	31.87	-
-5	dS^L	5.55	3.44	3.95	-	-	3.55	3.32	3.64	29.98	-
5		-3.54	-3.35	-3.75	-	-	-3.53	-3.25	-3.51	-22.82	-
10		-7.06	-6.62	-7.35	-	-	-7.05	-6.44	-6.92	-39.59	-
20		-14.08	-13.00	-14.22	-19964.07	-	-14.06	-12.67	-13.50	-56.26	-
-20		-	1.08	0.76	0.38	0.21	-	-	-	9.63	4.20
-10		-	0.54	0.38	0.19	0.10	-	-	-	4.92	2.10
-5	ϕ^V	-	0.27	0.19	0.10	0.05	-	-	-	2.50	1.05
5		-	-0.27	-0.19	-0.10	-0.05	-	-	-	-2.61	-1.06
10		-	-0.54	-0.38	-0.19	-0.10	-	-	-	-5.43	-2.11
20		-	-1.08	-0.76	-0.38	-0.21	-	-	-	-25.36	-4.24
-20		320011.38	184.43	111.48	-	-	320922.19	188.20	116.89	4.36	-
-10		5595.19	70.52	47.76	-	-	5602.35	71.42	49.08	-0.12	-
-5	ϕ^L	655.77	30.89	21.93	-	-	656.22	31.20	22.41	-2.43	-
5		-86.80	-23.90	-18.40	-	-	-86.81	-24.06	-18.66	-4.83	-
10		-98.26	-42.30	-33.70	-	-	-98.26	-42.52	-34.09	-12.83	-
20		-99.97	-67.11	-56.70	795.89	-	-99.97	-67.33	-57.13	-28.95	-
-20		-	181.40	109.89	-	-	-	-	-	-4.81	-
-10		-	69.60	47.20	-	-	-	-	-	-4.81	-
-5	K_i	-	30.53	21.70	-	-	-	-	-	-4.81	-
5		-	-23.70	-18.25	-	-	-	-	-	-2.28	-
10		-	-41.98	-33.45	-	-	-	-	-	-7.83	-
20		-	-66.76	-56.36	799.32	-	-	-	-	-4.81	-

Table B.3 (continued).

%Dev	P(atm)	P_c					$1.2P_c$				
in a(T)	T(K)	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-	-	112.31	6.94	-	-	-	149.66	8.94
-10		-	-	-	84.38	3.59	-	-	-	92.06	4.66
-5	Z^V	-	-	-	63.89	1.83	-	-	-	34.75	2.39
5		-	-	-	-40.37	-1.90	-	-	-	-13.15	-2.52
10		-	-	-	-47.15	-3.89	-	-	-	-20.66	-5.18
20		-	-	-	-53.91	-8.17	-	-	-	-29.50	-11.10
-20		0.88	9.82	16.76	-	-	0.87	9.49	15.73	-	-
-10		0.39	4.02	6.41	-	-	0.39	3.91	6.12	-	-
-5	Z^L	0.18	1.84	2.88	-	-	0.18	1.80	2.76	-	-
5		-0.17	-1.58	-2.39	-	-	-0.16	-1.55	-2.31	-	-
10		-0.31	-2.96	-4.42	-	-	-0.31	-2.90	-4.28	-	-
20		-0.58	-5.24	-7.67	-	-	-0.57	-5.14	-7.45	-	-
-20		-	-	-	59.23	27.02	-	-	-	62.47	28.25
-10		-	-	-	47.28	14.03	-	-	-	46.38	14.83
-5	dH^V	-	-	-	37.88	7.16	-	-	-	24.09	7.62
5		-	-	-	-54.92	-7.49	-	-	-	-15.85	-8.10
10		-	-	-	-76.08	-15.35	-	-	-	-28.91	-16.76
20		-	-	-	-109.65	-32.44	-	-	-	-51.61	-36.32
-20		-	-	-	29.20	4.44	-	-	-	35.06	5.31
-10		-	-	-	23.88	2.32	-	-	-	26.42	2.81
-5	dS^V	-	-	-	19.46	1.19	-	-	-	13.61	1.45
5		-	-	-	-27.85	-1.25	-	-	-	-8.69	-1.56
10		-	-	-	-37.49	-2.58	-	-	-	-14.97	-3.24
20		-	-	-	-51.76	-5.51	-	-	-	-25.77	-7.12
-20		20.29	23.71	26.64	-	-	20.32	23.64	26.31	-	-
-10		10.15	11.74	12.98	-	-	10.16	11.72	120.88	-	-
-5	dH^L	5.07	5.85	6.43	-	-	5.08	5.84	6.39	-	-
5		-5.07	-5.82	-6.35	-	-	-5.08	-5.81	-6.32	-	-
10		-10.15	-11.61	-12.63	-	-	-10.16	-11.60	-12.57	-	-
20		-20.29	-23.12	-25.05	-	-	-20.32	-23.11	-24.95	-	-
-20		14.27	13.71	15.43	-	-	14.26	13.57	15.05	-	-
-10		7.10	6.66	7.31	-	-	7.10	6.60	7.17	-	-
-5	dS^L	3.54	3.29	3.58	-	-	3.54	3.26	3.52	-	-
5		-3.53	-3.22	-3.46	-	-	-3.53	-3.20	-3.41	-	-
10		-7.05	-6.39	-6.83	-	-	-7.05	-6.35	-6.74	-	-
20		-14.06	-12.59	-13.34	-	-	-14.05	-12.51	-13.18	-	-
-20		-	-	-	14.48	5.39	-	-	-	23.54	6.64
-10		-	-	-	7.76	2.70	-	-	-	13.81	3.33
-5	ϕ^V	-	-	-	4.14	1.35	-	-	-	7.81	1.67
5		-	-	-	-7.72	-1.36	-	-	-	-8.53	-1.68
10		-	-	-	-16.01	-2.73	-	-	-	-17.06	-3.38
20		-	-	-	-31.89	-5.49	-	-	-	-33.02	-6.82
-20		321160.11	189.12	118.06	-	-	321395.96	190.00	119.15	-	-
-10		5604.20	71.64	49.39	-	-	5606.06	71.86	49.68	-	-
-5	ϕ^L	656.34	31.28	22.52	-	-	656.45	31.35	22.63	-	-
5		-86.81	-24.10	-18.72	-	-	-86.81	-24.13	-18.78	-	-
10		-98.26	-42.57	-34.18	-	-	-98.27	-42.62	-34.27	-	-
20		-99.97	-67.39	-57.23	-	-	-99.97	-67.44	-57.33	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.4 SRK EOS; n-nonane; % deviation of thermodynamic properties as parameter b varies.

%Dev	P(atm)	1					0.8P$_c$				
in a(T)	T(K)	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$
-20		-	-0.13	-0.11	-0.08	-0.07	-	-	-	-15.39	-2.43
-10		-	-0.07	-0.06	-0.04	-0.03	-	-	-	-6.16	-1.20
-5	Z^V	-	-0.03	-0.03	-0.02	-0.02	-	-	-	-2.87	-0.60
5		-	0.03	0.03	0.02	0.02	-	-	-	2.58	0.59
10		-	0.07	0.07	0.04	0.03	-	-	-	4.93	1.17
20		-	0.13	0.11	0.08	0.07	-	-	-	9.16	2.32
-20		-20.57	-25.45	-28.33	-99.42	-	-20.55	-24.97	-27.27	-67.02	-
-10		-10.32	-13.25	-15.16	-	-	-10.31	-12.92	-14.37	-54.64	-
-5	Z^L	-5.17	-6.77	-7.87	-	-	-5.16	-6.57	-7.39	111.60	-
5		5.19	7.10	8.60	-	-	5.18	6.82	7.85	123.47	-
10		10.40	14.56	18.14	-	-	10.38	13.90	16.22	128.60	-
20		20.87	30.79	41.48	-	-	20.83	28.93	34.80	137.82	-
-20		-	-0.99	-1.12	-1.53	-2.11	-	-	-	-20.69	-5.74
-10		-	-0.50	-0.56	-0.77	-1.06	-	-	-	-7.80	-2.82
-5	dH^V	-	-0.25	-0.28	-0.38	-0.53	-	-	-	-3.57	-1.40
5		-	0.25	0.28	0.38	0.53	-	-	-	3.11	1.38
10		-	0.50	0.56	0.77	1.06	-	-	-	5.88	2.73
20		-	0.99	1.12	1.53	2.11	-	-	-	10.68	5.37
-20		-	-0.29	-0.24	-0.18	-0.14	-	-	-	-6.61	-0.61
-10		-	-0.14	-0.12	-0.09	-0.07	-	-	-	-2.42	-0.30
-5	dS^V	-	-0.07	-0.06	-0.04	-0.03	-	-	-	-1.09	-0.15
5		-	0.07	0.06	0.04	0.03	-	-	-	0.93	0.14
10		-	0.14	0.12	0.09	0.07	-	-	-	1.75	0.28
20		-	0.29	0.24	0.18	0.14	-	-	-	3.13	0.55
-20		-25.19	-28.97	-31.95	-11838.15	-	-25.44	-28.99	-31.41	-133.55	-
-10		-11.20	-12.97	-14.45	-	-	-11.32	-12.95	-14.11	-82.46	-
-5	dH^L	-5.30	-6.17	-6.92	-	-	-5.36	-6.15	-6.72	49.08	-
5		4.80	5.63	6.42	-	-	4.85	5.60	6.16	52.36	-
10		9.16	10.80	12.45	-	-	9.27	10.72	11.84	53.72	-
20		16.80	20.01	23.80	-	-	17.00	19.76	22.02	56.09	-
-20		-18.67	-18.18	-19.82	-21897.76	-	-18.62	-17.68	-18.79	-65.78	-
-10		-8.36	-8.31	-9.21	-	-	-8.34	-8.05	-8.63	-42.20	-
-5	dS^L	-3.97	-3.99	-4.47	-	-	-3.96	-3.85	-4.15	26.86	-
5		3.62	3.72	4.25	-	-	3.61	3.56	3.88	28.32	-
10		6.93	7.21	8.36	-	-	6.91	6.88	7.53	28.91	-
20		12.79	13.63	16.47	-	-	12.75	12.87	14.27	29.91	-
-20		-	-0.12	-0.10	-0.08	-0.06	-	-	-	-3.14	-1.56
-10		-	-0.06	-0.05	-0.04	-0.03	-	-	-	-1.51	-0.78
-5	ϕ_i^V	-	-0.03	-0.03	-0.02	-0.02	-	-	-	-0.74	-0.39
5		-	0.03	0.03	0.02	0.02	-	-	-	0.73	0.39
10		-	0.06	0.05	0.04	0.03	-	-	-	1.44	0.78
20		-	0.12	0.10	0.08	0.06	-	-	-	2.84	1.56
-20		-100.00	-69.13	-56.50	909.55	-	-100.00	-70.05	-57.91	-22.39	-
-10		-98.77	-39.77	-29.74	-	-	-98.81	-40.72	-30.96	-6.56	-
-5	ϕ_i^L	-87.53	-21.08	-15.06	-	-	-87.73	-21.71	-15.82	-5.51	-
5		554.34	23.12	15.09	-	-	565.20	24.16	16.22	-4.11	-
10		3493.73	47.90	29.88	-	-	3614.22	50.46	32.55	-3.43	-
20		69915.08	100.76	57.39	-	-	74705.76	108.10	64.60	-2.11	-
-20		-	-69.09	-56.46	910.34	-	-	-	-	-19.87	-
-10		-	-39.74	-29.70	-	-	-	-	-	-5.12	-
-5	K_i	-	-21.05	-15.04	-	-	-	-	-	-4.81	-
5		-	23.09	15.06	-	-	-	-	-	-4.81	-
10		-	47.82	29.82	-	-	-	-	-	-4.81	-
20		-	100.52	57.23	-	-	-	-	-	-4.81	-

Table B.4 (continued).

%Dev	P(atm)			P_c					$1.2P_c$		
in a(T)	T(K)	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-	-	-64.29	-3.72	-	-	-	-45.09	-5.49
-10		-	-	-	-52.45	-1.82	-	-	-	-28.46	-2.65
-5	Z^V	-	-	-	-42.56	-0.90	-	-	-	-16.63	-1.30
5		-	-	-	48.72	0.88	-	-	-	25.59	1.26
10		-	-	-	62.59	1.75	-	-	-	57.75	2.49
20		-	-	-	80.78	3.44	-	-	-	101.70	4.85
-20		-20.55	-24.86	-27.03	-	-	-20.54	-24.74	-26.80	-	-
-10		-10.31	-12.84	-14.20	-	-	-10.31	-12.76	-14.04	-	-
-5	Z^L	-5.16	-6.53	-7.29	-	-	-5.16	-6.48	-7.19	-	-
5		5.18	6.76	7.70	-	-	5.18	6.70	7.56	-	-
10		10.38	13.75	15.85	-	-	10.37	13.62	15.52	-	-
20		20.82	28.53	33.69	-	-	20.81	28.16	32.74	-	-
-20		-	-	-	-123.33	-7.45	-	-	-	-61.08	-9.73
-10		-	-	-	-78.22	-3.61	-	-	-	-30.32	-4.62
-5	dH^V	-	-	-	-53.98	-1.78	-	-	-	-15.47	-2.25
5		-	-	-	29.24	1.73	-	-	-	16.70	2.16
10		-	-	-	35.22	3.42	-	-	-	31.20	4.23
20		-	-	-	42.16	6.66	-	-	-	45.08	8.15
-20		-	-	-	-60.43	-1.04	-	-	-	-32.59	-1.68
-10		-	-	-	-39.76	-0.50	-	-	-	-16.71	-0.79
-5	dS^V	-	-	-	-27.98	-0.24	-	-	-	-8.66	-0.38
5		-	-	-	15.30	0.23	-	-	-	9.62	0.36
10		-	-	-	18.26	0.46	-	-	-	18.05	0.70
20		-	-	-	21.56	0.89	-	-	-	25.96	1.33
-20		-25.51	-29.01	-31.31	-	-	-25.58	-29.03	-31.22	-	-
-10		-11.35	-12.96	-14.05	-	-	-11.38	-12.96	-13.99	-	-
-5	dH^L	-5.38	-6.15	-6.69	-	-	-5.39	-6.15	-6.66	-	-
5		4.87	5.59	6.11	-	-	4.88	5.59	6.07	-	-
10		9.30	10.71	11.73	-	-	9.33	10.70	11.65	-	-
20		17.06	19.73	21.75	-	-	17.11	19.70	21.53	-	-
-20		-18.61	-17.56	-18.56	-	-	-18.60	-17.44	-18.34	-	-
-10		-8.33	-7.98	-8.50	-	-	-8.33	-7.92	-8.38	-	-
-5	dS^L	-3.96	-3.82	-4.09	-	-	-3.96	-3.79	-4.02	-	-
5		3.61	3.53	3.81	-	-	3.60	3.49	3.74	-	-
10		6.91	6.80	7.37	-	-	6.90	6.73	7.22	-	-
20		12.74	12.71	13.88	-	-	12.73	12.55	13.54	-	-
-20		-	-	-	-26.12	-2.12	-	-	-	-27.84	-2.78
-10		-	-	-	-10.29	-1.06	-	-	-	-11.73	-1.38
-5	ϕ_i^V	-	-	-	-4.28	-0.53	-	-	-	-5.27	-0.69
5		-	-	-	1.56	0.53	-	-	-	4.02	0.69
10		-	-	-	2.88	1.06	-	-	-	6.94	1.37
20		-	-	-	5.24	2.11	-	-	-	11.19	2.73
-20		-100.00	-70.29	-58.27	-	-	-100.00	-70.52	-58.61	-	-
-10		-98.82	-40.96	-31.26	-	-	-98.83	-41.20	-31.56	-	-
-5	ϕ_i^L	-87.78	-21.87	-16.02	-	-	-87.83	-22.03	-16.20	-	-
5		568.09	24.43	16.50	-	-	571.01	24.69	16.77	-	-
10		3646.71	51.12	33.21	-	-	3679.49	51.77	33.85	-	-
20		76025.29	110.00	66.36	-	-	77367.40	111.89	68.07	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.5 SRK EOS; n-decane; % deviation of thermodynamic properties as parameter a(T) varies.

%Dev in a(T)	P(atm)	1					0.8P$_c$				
T(K)		0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$
-20		-	1.25	0.89	0.43	0.23	-	-	-	21.17	5.02
-10		-	0.63	0.45	0.21	0.11	-	-	-	11.92	2.57
-5	Z^V	-	0.32	0.22	0.11	0.06	-	-	-	6.44	1.30
5		-	-0.32	-0.23	-0.11	-0.06	-	-	-	-8.18	-1.34
10		-	-0.64	-0.45	-0.21	-0.11	-	-	-	-21.60	-2.72
20		-	-1.28	-0.91	-0.43	-0.23	-	-	-	-80.33	-5.62
-20		1.45	12.15	24.00	-	-	0.86	10.44	17.30	163.97	-
-10		0.64	4.77	8.03	-	-	0.38	4.24	6.53	143.83	-
-5	Z^L	0.30	2.16	3.49	-	-	0.18	1.94	2.92	131.89	-
5		-0.27	-1.82	-2.80	-	-	-0.16	-1.66	-2.42	-35.54	-
10		-0.51	-3.38	-5.10	-	-	-0.31	-3.09	-4.45	-49.37	-
20		-0.94	-5.91	-8.69	-99.13	-	-0.57	-5.45	-7.72	-57.15	-
-20		-	21.74	21.61	21.69	22.14	-	-	-	34.38	25.73
-10		-	10.94	10.85	10.87	11.08	-	-	-	19.63	13.22
-5	dH^V	-	5.49	5.44	5.44	5.54	-	-	-	10.70	6.70
5		-	-5.53	-5.47	-5.45	-5.55	-	-	-	-14.00	-6.91
10		-	-11.09	-10.96	-10.92	-11.11	-	-	-	-38.35	-14.05
20		-	-22.33	-22.02	-21.88	-22.24	-	-	-	-345.92	-29.10
-20		-	21.24	20.83	20.41	20.22	-	-	-	10.44	3.76
-10		-	10.94	10.50	10.23	10.12	-	-	-	6.04	1.94
-5	dS^V	-	5.38	5.27	5.12	5.06	-	-	-	3.35	0.99
5		-	-5.42	-5.30	-5.14	-5.07	-	-	-	-4.53	-1.02
10		-	-10.89	-10.63	-10.29	-10.15	-	-	-	-12.82	-2.09
20		-	-21.97	-21.38	-20.63	-20.33	-	-	-	-120.90	-4.35
-20		20.30	24.37	28.99	-	-	20.26	23.94	26.81	67.75	-
-10		10.15	11.98	13.61	-	-	10.13	11.84	13.03	60.50	-
-5	dH^L	5.07	5.95	6.69	-	-	5.06	5.89	6.45	56.11	-
5		-5.07	-5.90	-6.53	-	-	-5.06	-5.86	-6.36	-45.24	-
10		-10.15	-11.75	-12.95	-	-	-10.13	-11.68	-12.65	-80.29	-
20		-20.29	-23.37	-25.56	-9817.29	-	-20.25	-23.26	-25.07	-119.17	-
-20		14.01	15.05	18.49	-	-	14.57	14.31	16.11	35.84	-
-10		8.96	7.21	8.26	-	-	7.26	6.93	7.60	32.71	-
-5	dS^L	3.47	3.55	4.01	-	-	3.62	3.42	3.72	30.76	-
5		-3.45	-3.46	-3.82	-	-	-3.61	-3.35	-3.59	-23.55	-
10		-6.89	-6.84	-7.49	-	-	-7.20	-6.64	-7.09	-40.92	-
20		-13.73	-13.42	-14.53	-17961.31	-	-14.37	-13.08	-13.84	-58.26	-
-20		-	1.14	0.84	0.41	0.22	-	-	-	9.63	4.12
-10		-	0.57	0.42	0.21	0.11	-	-	-	4.92	2.08
-5	ϕ_i^V	-	0.29	0.21	0.10	0.06	-	-	-	2.50	1.03
5		-	-0.29	-0.21	-0.10	-0.06	-	-	-	-2.61	-1.04
10		-	-0.57	-0.42	-0.21	-0.11	-	-	-	-5.43	-2.08
20		-	-1.14	-0.84	-0.41	-0.22	-	-	-	-25.36	-4.17
-20		17950.61	179.73	115.20	-	-	389701.42	183.48	120.21	4.36	-
-10		1252.71	69.13	48.94	-	-	6183.62	70.03	50.19	-0.12	-
-5	ϕ_i^L	268..85	30.35	22.40	-	-	693.83	30.67	22.86	-2.43	-
5		-72.93	-23.60	-18.71	-	-	-87.44	-23.75	-18.95	-4.83	-
10		-92.69	-41.83	-34.20	-	-	-98.42	-42.05	-34.56	-12.83	-
20		-99.47	-66.58	-57.33	726.43	-	-99.98	-66.81	-57.74	-28.95	-
-20		-	176.57	113.31	-	-	-	-	-	-4.81	-
-10		-	68.17	48.31	-	-	-	-	-	-4.81	-
-5	K$_i$	-	29.98	22.15	-	-	-	-	-	-4.81	-
5		-	-23.38	-18.54	-	-	-	-	-	-2.28	-
10		-	-41.50	-33.92	-	-	-	-	-	-7.83	-
20		-	-66.20	-56.97	729.87	-	-	-	-	-4.81	-

Table B.5 (continued).

%Dev in a(T)	P(atm) T(K)	Pc					1.2Pc				
		0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20		-	-	-	113.49	6.74	-	-	-	149.66	8.26
-10		-	-	-	85.40	3.49	-	-	-	92.06	4.51
-5	Z^V	-	-	-	64.80	1.77	-	-	-	34.75	2.31
5		-	-	-	-40.04	-1.84	-	-	-	-13.15	-2.43
10		-	-	-	-46.85	-3.77	-	-	-	-20.66	-4.99
20		-	-	-	-53.65	-7.90	-	-	-	-29.50	-10.65
-20		0.86	10.08	16.17	-	-	0.85	9.73	15.23	-	-
-10		0.38	4.11	6.22	-	-	0.38	4.00	5.95	-	-
-5	Z^L	0.18	1.89	2.80	-	-	0.18	1.84	2.69	-	-
5		-0.16	-1.62	-2.33	-	-	-0.16	-1.58	-2.26	-	-
10		-0.31	-3.02	-4.31	-	-	-0.31	-2.96	-4.18	-	-
20		-0.56	-5.34	-7.49	-	-	-0.56	-5.24	-7.28	-	-
-20		-	-	-	59.43	26.87	-	-	-	62.52	28.05
-10		-	-	-	47.55	13.94	-	-	-	46.45	14.70
-5	dH^V	-	-	-	38.20	7.11	-	-	-	24.16	7.55
5		-	-	-	-54.46	-7.48	-	-	-	-15.91	-8.00
10		-	-	-	-75.64	-15.20	-	-	-	-29.03	-16.53
20		-	-	-	-109.26	-32.04	-	-	-	-51.83	-35.66
-20		-	-	-	30.19	4.58	-	-	-	35.93	5.44
-10		-	-	-	24.73	2.39	-	-	-	27.09	2.87
-5	dS^V	-	-	-	20.20	1.22	-	-	-	13.97	1.48
5		-	-	-	-28.41	-1.29	-	-	-	-8.65	-1.58
10		-	-	-	-38.38	-2.64	-	-	-	-15.43	-3.29
20		-	-	-	-53.17	-5.63	-	-	-	-26.61	-7.19
-20		20.29	23.86	26.45	-	-	20.31	23.98	26.15	-	-
-10		10.14	11.81	12.91	-	-	10.16	11.79	12.82	-	-
-5	dH^L	5.07	5.88	6.40	-	-	5.08	5.87	6.36	-	-
5		-5.07	-5.85	-6.32	-	-	-5.08	-5.84	-6.29	-	-
10		-10.14	-11.67	-12.58	-	-	-10.16	-11.66	-12.52	-	-
20		-20.28	-23.24	-24.96	-	-	-20.31	-23.22	-24.87	-	-
-20		-18.95	14.14	15.69	-	-	14.56	13.99	15.33	-	-
-10		-8.48	6.87	7.46	-	-	7.25	6.81	7.33	-	-
-5	dS^L	-4.03	3.39	3.66	-	-	3.62	3.37	3.60	-	-
5		3.67	-3.33	-3.54	-	-	-3.60	-3.30	-3.50	-	-
10		6.98	-6.60	-7.00	-	-	-7.20	-6.55	-6.91	-	-
20		13.04	-13.00	-13.68	-	-	-14.35	-12.92	-13.54	-	-
-20		-	-	-	14.48	5.29	-	-	-	23.54	6.51
-10		-	-	-	7.76	2.65	-	-	-	13.81	3.27
-5	ϕ_i^V	-	-	-	4.14	1.33	-	-	-	7.81	1.64
5		-	-	-	-7.72	-1.33	-	-	-	-8.53	-1.65
10		-	-	-	-16.01	-2.67	-	-	-	-17.06	-3.31
20		-	-	-	-31.89	-5.38	-	-	-	-33.02	-6.67
-20		389978.84	184.40	121.38	-	-	390253.68	185.28	122.45	-	-
-10		6185.58	70.25	50.50	-	-	6187.54	70.47	50.78	-	-
-5	ϕ_i^L	693.94	30.75	22.97	-	-	694.06	30.82	23.07	-	-
5		-87.44	-23.79	-19.02	-	-	-87.44	-23.83	-19.07	-	-
10		-98.43	-42.11	-34.65	-	-	-98.43	-42.16	-34.74	-	-
20		-99.98	-66.86	-57.84	-	-	-99.98	-66.92	-57.93	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.6 SRK EOS; n-decane; % deviation of thermodynamic properties as parameter b varies.

%Dev in a(T)	P(atm) T(K)	1					0.8P$_c$				
		0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$
-20	Z^V	-	-0.14	-0.12	-0.09	-0.07	-	-	-	-15.39	-2.39
-10		-	-0.07	-0.06	-0.04	-0.04	-	-	-	-6.16	-1.18
-5		-	-0.04	-0.03	-0.02	-0.02	-	-	-	-2.87	-0.59
5		-	0.04	0.03	0.02	0.02	-	-	-	2.58	0.58
10		-	0.07	0.06	0.04	0.04	-	-	-	4.93	1.16
20		-	0.14	0.12	0.09	0.07	-	-	-	9.16	2.29
-20	Z^L	-20.89	-25.56	-28.09	-99.37	-	-20.54	-25.07	-27.10	-67.02	-
-10		-10.51	-13.32	-14.99	-	-	-10.30	-12.98	-14.27	-54.64	-
-5		-5.27	-6.81	-7.78	-	-	-5.16	-6.61	-7.33	111.60	-
5		5.30	7.15	8.46	-	-	5.18	6.86	7.77	123.47	-
10		10.63	14.67	17.78	-	-	10.37	13.99	16.04	128.60	-
20		21.39	31.08	40.28	-	-	20.81	29.15	34.35	137.82	-
-20	dH^V	-	-1.00	-1.11	-1.52	-2.09	-	-	-	-20.64	-5.65
-10		-	-0.50	-0.56	-0.76	-1.05	-	-	-	-7.78	-2.78
-5		-	-0.25	-0.28	-0.38	-0.52	-	-	-	-3.56	-1.38
5		-	0.25	0.28	0.38	0.52	-	-	-	3.10	1.36
10		-	0.50	0.56	0.76	1.05	-	-	-	5.85	2.69
20		-	1.00	1.11	1.52	2.09	-	-	-	10.64	5.30
-20	dS^V	-	-0.31	-0.26	-0.19	-0.15	-	-	-	-6.85	-0.62
-10		-	-0.15	-0.13	-0.10	-0.07	-	-	-	-2.50	-0.30
-5		-	-0.08	-0.07	-0.05	-0.04	-	-	-	-1.13	-0.15
5		-	0.08	0.07	0.05	0.04	-	-	-	0.97	0.15
10		-	0.15	0.13	0.09	0.07	-	-	-	1.81	0.29
20		-	0.31	0.26	0.19	0.15	-	-	-	3.24	0.56
-20	dH^L	-25.37	-29.14	-31.79	-10922.48	-	-25.43	-29.14	-31.30	-134.32	-
-10		-11.28	-13.05	-14.37	-	-	-11.31	-13.02	-14.05	-82.90	-
-5		-5.34	-6.21	-6.87	-	-	-5.36	-6.19	-6.69	49.10	-
5		4.83	5.67	6.36	-	-	4.85	5.63	6.13	52.37	-
10		9.23	10.88	12.32	-	-	9.26	10.78	11.78	53.73	-
20		16.92	20.17	23.46	-	-	16.99	19.86	21.88	56.08	-
-20	dS^L	-18.35	-18.68	-20.16	-19723.69	-	-18.96	-18.16	-19.19	-68.03	-
-10		-8.23	-8.54	-9.35	-	-	-8.49	-8.26	-8.80	-43.57	-
-5		-3.92	-4.10	-4.53	-	-	-4.03	-3.96	-4.23	27.55	-
5		3.57	3.82	4.30	-	-	3.67	3.66	3.95	29.05	-
10		6.84	7.40	8.43	-	-	7.03.	7.06	7.66	29.66	-
20		12.64	13.99	16.50	-	-	12.96	13.21	14.48	30.68	-
-20	ϕ_i^V	-	-0.12	-0.11	-0.09	-0.07	-	-	-	-3.14	-1.55
-10		-	-0.06	-0.06	-0.04	-0.04	-	-	-	-1.51	-0.78
-5		-	-0.03	-0.03	-0.02	-0.02	-	-	-	-0.74	-0.39
5		-	0.03	0.03	0.02	0.02	-	-	-	0.73	0.39
10		-	0.06	0.06	0.04	0.04	-	-	-	1.44	0.78
20		-	0.12	0.11	0.09	0.07	-	-	-	2.84	1.55
-20	ϕ_i^L	-99.82	-68.51	-57.30	831.10	-	-100.00	-69.44	-58.65	-22.39	-
-10		-93.94	-39.24	-30.32	-	-	-98.93	-40.18	-31.50	-6.56	-
-5		-73.42	-20.74	-15.40	-	-	-88.34	-21.37	-16.14	-5.51	-
5		229.95	22.65	15.52	-	-	596.47	23.67	16.61	-4.11	-
10		872.37	46.81	30.82	-	-	3954.57	49.33	33.41	-3.43	-
20		6271.46	98.03	59.58	-	-	87742.39	105.22	66.60	-2.11	-
-20	K_i	-	-68.47	-57.25	831.89	-	-	-	-	-19.87	-
-10		-	-39.20	-30.29	-	-	-	-	-	-5.12	-
-5		-	-20.72	-15.38	-	-	-	-	-	-4.81	-
5		-	22.61	15.49	-	-	-	-	-	-4.81	-
10		-	46.72	30.75	-	-	-	-	-	-4.81	-
20		-	97.78	59.41	-	-	-	-	-	-4.81	-

Table B.6 (continued).

%Dev in a(T)	P(atm) / T(K)	Pc					1.2Pc				
		0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20	Z^V	-	-	-	-64.09	-3.63	-	-	-	-45.09	-5.33
-10		-	-	-	-52.19	-1.78	-	-	-	-28.46	-2.57
-5		-	-	-	-42.24	-0.88	-	-	-	-16.63	-1.27
5		-	-	-	49.54	0.86	-	-	-	25.59	1.23
10		-	-	-	63.49	1.71	-	-	-	57.75	2.43
20		-	-	-	81.78	3.37	-	-	-	101.70	4.73
-20	Z^L	-20.53	-24.95	-26.87	-	-	-20.53	-24.84	-26.65	-	-
-10		-10.30	-12.90	-14.10	-	-	-10.30	-12.82	-13.95	-	-
-5		-5.16	-6.56	-7.23	-	-	-5.16	-6.51	-7.14	-	-
5		5.18	6.80	7.63	-	-	5.17	6.73	7.50	-	-
10		10.37	13.84	15.69	-	-	10.37	13.70	15.38	-	-
20		20.80	28.74	33.29	-	-	20.80	28.36	32.40	-	-
-20	dH^V	-	-	-	-122.93	-7.31	-	-	-	-61.31	-9.49
-10		-	-	-	-77.76	-3.55	-	-	-	-30.43	-4.51
-5		-	-	-	-53.51	-1.75	-	-	-	-15.52	-2.21
5		-	-	-	29.59	1.70	-	-	-	16.74	2.11
10		-	-	-	35.54	3.36	-	-	-	31.25	4.15
20		-	-	-	42.43	6.56	-	-	-	45.13	8.00
-20	dS^V	-	-	-	-62.05	-1.05	-	-	-	-33.57	-1.68
-10		-	-	-	-40.68	-0.50	-	-	-	-17.18	-0.79
-5		-	-	-	-28.52	-0.25	-	-	-	-8.89	-0.38
5		-	-	-	15.92	0.24	-	-	-	9.86	0.36
10		-	-	-	18.95	0.47	-	-	-	18.51	0.70
20		-	-	-	22.33	0.90	-	-	-	26.59	1.33
-20	dH^L	-25.49	-29.15	-31.20	-	-	-25.56	-29.16	-31.12	-	-
-10		-11.34	-13.02	-13.99	-	-	-11.37	-13.02	-13.94	-	-
-5		-5.37	-6.18	-6.66	-	-	-5.39	-6.18	-6.63	-	-
5		4.86	5.62	6.08	-	-	4.88	5.62	6.05	-	-
10		9.29	10.76	11.68	-	-	9.32	10.75	11.59	-	-
20		17.05	19.83	21.63	-	-	17.10	19.79	21.42	-	-
-20	dS^L	-18.95	-18.04	-18.96	-	-	-18.94	-17.92	-18.75	-	-
-10		-8.48	-8.19	-8.67	-	-	-8.48	-8.13	-8.56	-	-
-5		-4.03	-3.92	-4.17	-	-	-4.03	-3.89	-4.11	-	-
5		3.67	3.62	3.87	-	-	3.67	3.59	3.81	-	-
10		7.02	6.98	7.49	-	-	7.02	6.91	7.35	-	-
20		12.95	13.04	14.10	-	-	12.94	12.87	13.78	-	-
-20	ϕ_i^V	-	-	-	-26.12	-2.10	-	-	-	-27.84	-2.75
-10		-	-	-	-10.28	-1.05	-	-	-	-11.73	-1.37
-5		-	-	-	-4.28	-0.52	-	-	-	-5.27	-0.68
5		-	-	-	1.56	0.52	-	-	-	4.02	0.68
10		-	-	-	2.88	1.05	-	-	-	6.94	1.36
20		-	-	-	5.24	2.09	-	-	-	11.19	2.71
-20	ϕ_i^L	-100.00	-69.68	-59.00	-	-	390253.68	-69.91	-59.34	-	-
-10		-98.94	-40.42	-31.81	-	-	6187.54	-40.66	-32.10	-	-
-5		-88.39	-21.53	-16.33	-	-	694.06	-21.69	-16.52	-	-
5		599.49	23.94	16.90	-	-	-87.44	24.20	17.17	-	-
10		3989.46	49.98	34.09	-	-	-98.43	50.63	34.73	-	-
20		89265.02	107.09	68.39	-	-	-99.98	108.94	70.09	-	-
-20	K_i	-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5		-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.7 SRK EOS; methane, n-nonane, and n-decane% deviation of vapor pressure as parameter a(T) and b varie.

methane

substance	%dev. of b						%dev. of a(T)					
T	-20	-10	-5	5	10	20	-20	-10	-5	5	10	20
0.1T$_c$	-1.00E+02	-9.99E+01	-9.65E+01	1.59E+03	2.18E+04	1.92E+06	1.71E+07	4.16E+04	1.94E+04	-9.51E+01	-9.98E+01	-1.00E+02
0.3T$_c$	-9.78E+01	-8.14E+01	-5.48E+01	1.04E+02	2.88E+02	1.08E+03	2.30E+03	3.94E+02	1.23E+02	-5.52E+01	-8.00E+01	-9.60E+01
0.5T$_c$	-8.31E+01	-5.40E+01	-3.06E+01	3.85E+01	8.56E+01	2.06E+02	3.76E+02	1.19E+02	4.82E+01	-3.27E+01	-5.48E+01	-7.97E+01
0.6T$_c$	-7.29E+01	-4.34E+01	-2.35E+01	2.69E+01	5.72E+01	1.27E+02	2.33E+02	8.26E+01	3.52E+01	-2.61E+01	-4.55E+01	-7.05E+01
0.8T$_c$	-5.43E+01	-2.90E+01	-1.49E+01	1.55E+01	3.14E+01	6.43E+01	1.26E+02	5.00E+01	2.24E+01	-1.83E+01	-3.32E+01	-5.53E+01

n-nonane

substance	%dev. of b						%dev. of a(T)					
T	-20	-10	-5	5	10	20	-20	-10	-5	5	10	20
0.1T$_c$	-1.00E+02	-1.00E+02	-9.96E+01	1.53E+04	1.49E+06	4.40E+09	1.84E+11	4.32E+06	2.07E+04	-9.95E+01	-1.00E+00	-1.00E+02
0.3T$_c$	-9.98E+01	-9.32E+01	-7.99E+01	2.14E+02	7.82E+02	5.23E+03	1.45E+04	1.12E+03	2.49E+02	-7.15E+01	-9.19E+01	-9.93E+01
0.5T$_c$	-9.23E+01	-6.76E+01	-4.12E+01	6.09E+01	1.47E+02	4.16E+02	7.87E+02	2.00E+02	7.34E+01	-4.25E+01	-6.70E+01	-8.92E+01
0.6T$_c$	-8.31E+01	-5.41E+01	-3.06E+01	3.86E+01	8.57E+01	2.07E+02	3.77E+02	1.19E+02	4.83E+01	-3.27E+01	-5.48E+01	-7.98E+01
0.8T$_c$	-6.00E+01	-3.30E+01	-1.72E+01	1.83E+01	3.76E+01	7.83E+01	1.49E+02	5.77E+01	2.56E+01	-2.03E+01	-3.66E+01	-5.98E+01

n-decane

substance	%dev. of b						%dev. of a(T)					
T	-20	-10	-5	5	10	20	-20	-10	-5	5	10	20
0.1T$_c$	-1.00E+02	-1.00E+02	-9.97E+01	2.00E+04	2.48E+06	1.12E+10	5.67E+11	7.58E+06	2.75E+04	-9.96E+01	-1.00E+02	-1.00E+02
0.3T$_c$	-9.98E+01	-9.39E+01	-7.34E+01	2.30E+02	8.71E+02	6.25E+03	1.79E+04	1.25E+03	2.68E+02	-7.29E+01	-9.27E+01	-9.95E+01
0.5T$_c$	-9.30E+01	-6.89E+01	-4.23E+01	6.37E+01	1.55E+02	4.48E+02	8.53E+02	2.11E+02	7.66E+01	-4.35E+01	-6.82E+01	-9.00E+01
0.6T$_c$	-8.40E+01	-5.51E+01	-3.14E+01	4.00E+01	8.93E+01	2.18E+02	3.97E+02	1.24E+02	4.99E+01	-3.34E+01	-5.58E+01	-8.00E+01
0.8T$_c$	-6.06E+01	-3.34E+01	-1.74E+01	1.86E+01	3.83E+01	8.00E+01	1.52E+02	5.86E+01	2.59E+01	-2.06E+01	-3.69E+01	-6.03E+01

Table B.8 SRK EOS; methane, n-nonane, and n-decane; vapor and liquid compreesibility factor, vapor and liquid fugacity coefficient, and vapor pressure.

substance	methane				
T	Z^V	Z^L	ϕ_i^V	ϕ_i^L	P^{sat}(bar)
$0.1T_c$	1	0	1	1	5.0184E-24
$0.3T_c$	0.99998976	0.00000047	0.99998976	0.99998976	6.86967E-05
$0.5T_c$	0.9912799	0.00087252	0.99135204	0.99135204	0.19235
$0.6T_c$	0.96345085	0.00497946	0.96468495	0.96468543	1.2305
$0.8T_c$	0.80972128	0.04417267	0.84036935	0.84036937	11.758
substance	n-nonane				
T	Z^V	Z^L	ϕ_i^V	ϕ_i^L	P^{sat}(bar)
$0.1T_c$	1	0	1	1.00000001	0.00031435
$0.3T_c$	1	0	1	1	6.7232E-09
$0.5T_c$	0.9992945	0.00004864	0.99929498	0.99929527	0.0056826
$0.6T_c$	0.99134447	0.00086487	0.99141555	0.99141555	0.11463
$0.8T_c$	0.8782877	0.02377665	0.89126554	0.89126554	3.4628
substance	n-decane				
T	Z^V	Z^L	ϕ_i^V	ϕ_i^L	P^{sat}(bar)
$0.1T_c$	1	0	1	1	1.0949E-46
$0.3T_c$	1	0	1	1	2.2472E-09
$0.5T_c$	0.99947581	0.0000349	0.99947607	0.9994762	0.0037693
$0.6T_c$	0.99267247	0.00071409	0.99272351	0.99272351	0.087164
$0.8T_c$	0.88400214	0.02227803	0.8958266	0.8958266	3.0096

Table B.9 PR EOS; methane; % deviation of thermodynamic properties as parameter a(T) varies.

%Dev	P(atm)	1					0.8P$_c$				
in a(T)	T(K)	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$
-20		-	0.76	0.35	0.21	0.13	-	-	-	23.31	7.34
-10		-	0.38	0.18	0.10	0.07	-	-	-	13.20	3.81
-5	Z^V	-	0.19	0.09	0.05	0.03	-	-	-	7.16	1.94
5		-	-0.19	-0.09	-0.05	-0.03	-	-	-	-9.31	-2.03
10		-	-0.39	-0.18	-0.10	-0.07	-	-	-	-27.24	-4.15
20		-	-0.78	-0.36	-0.21	-0.13	-	-	-	-82.15	-8.77
-20		1.15	9.97	28944.58	-	-	1.11	8.72	34.67	187.11	-
-10		0.50	3.97	16.98	-	-	0.49	3.56	10.71	163.57	-
-5	Z^L	0.24	1.80	6.41	-	-	0.23	1.63	4.56	149.51	-
5		-0.21	-1.53	-4.52	-	-	-0.21	-1.40	-3.54	-38.82	-
10		-0.41	-2.84	-7.94	-	-	-0.39	-2.61	-6.39	-50.77	-
20		-0.74	-4.97	-12.85	-99.66	-	-0.72	-4.61	-10.70	-58.45	-
-20		-	21.37	21.45	21.70	22.09	-	-	-	35.02	27.16
-10		-	10.72	10.73	10.86	11.05	-	-	-	20.11	14.13
-5	dH^V	-	5.37	5.37	5.43	5.53	-	-	-	11.02	7.22
5		-	-5.39	-5.38	-5.44	-5.53	-	-	-	-14.78	-7.56
10		-	-10.81	-10.77	-10.88	-11.07	-	-	-	-45.53	-15.53
20		-	-21.71	-21.57	-21.79	-22.15	-	-	-	-321.00	-32.95
-20		-	20.84	20.39	20.22	20.14	-	-	-	6.90	2.66
-10		-	10.47	10.22	10.13	10.08	-	-	-	4.07	1.40
-5	dS^V	-	5.25	5.12	5.07	5.04	-	-	-	2.27	0.72
5		-	-5.28	-5.13	-5.07	-5.05	-	-	-	-3.20	-0.76
10		-	-10.59	-10.27	-10.15	-10.10	-	-	-	-10.48	-1.58
20		-	-21.30	-20.59	-20.34	-20.21	-	-	-	-76.19	-3.41
-20		20.15	22.85	99.47	-	-	20.34	22.73	31.66	68.19	-
-10		10.07	11.27	16.78	-	-	10.17	11.26	14.46	60.89	-
-5	dH^L	5.03	5.61	7.82	-	-	5.08	5.61	7.05	56.44	-
5		-5.03	-5.57	-7.28	-	-	-5.08	-5.28	-6.82	-43.97	-
10		-10.07	-11.11	-14.25	-	-	-10.16	-11.13	-13.47	-71.96	-
20		-20.13	-22.11	-27.62	-20505.00	-	-20.33	-22.18	-26.43	-106.10	-
-20		9.20	9.39	99.76	-	-	9.14	8.88	14.21	27.44	-
-10		4.54	4.42	7.84	-	-	4.51	4.23	5.92	25.24	-
-5	dS^L	2.25	2.16	3.44	-	-	2.24	2.07	2.79	23.83	-
5		-2.23	-2.07	-2.97	-	-	-2.22	-2.00	-2.56	-17.20	-
10		-4.43	-4.07	-5.64	-	-	-4.41	-3.94	-4.94	-27.10	-
20		-8.79	-7.89	-10.41	-52668.00	-	-8.74	-7.67	-9.31	-37.31	-
-20		-	0.72	0.35	0.20	0.13	-	-	-	10.29	5.43
-10		-	0.36	0.17	0.10	0.06	-	-	-	5.26	2.72
-5	$\phi_i{}^V$	-	0.18	0.09	0.05	0.03	-	-	-	2.67	1.37
5		-	-0.18	-0.09	-0.05	-0.03	-	-	-	-2.80	-1.37
10		-	-0.36	-0.17	-0.10	-0.06	-	-	-	-5.89	-2.75
20		-	-0.72	-0.35	-0.20	-0.13	-	-	-	-27.85	-5.55
-20		42427.31	233.17	-89.32	-	-	42599.85	237.22	91.84	4.85	-
-10		1976.34	84.54	38.78	-	-	1980.04	85.44	40.97	0.07	-
-5	$\phi_i{}^L$	356.36	36.16	18.38	-	-	356.74	36.46	19.13	-2.39	-
5		-78.15	-26.85	-16.13	-	-	-78.16	-26.99	-16.52	-5.65	-
10		-95.24	-46.68	-30.06	-	-	-95.24	-46.87	-30.64	-14.32	-
20		-99.78	-71.92	-52.01	1592.40	-	-99.78	-72.10	-52.67	-31.41	-
-20		-	230.79	-89.36	-	-	-	-	-	-4.93	-
-10		-	83.87	38.55	-	-	-	-	-	-4.93	-
-5	K$_i$	-	35.91	18.28	-	-	-	-	-	-4.93	-
5		-	-26.72	-16.06	-	-	-	-	-	-2.93	-
10		-	-46.49	-29.94	-	-	-	-	-	-8.96	-
20		-	-71.72	-51.84	1595.90	-	-	-	-	-4.93	-

Table B.9 (continued).

%Dev	P(atm)			P_c					$1.2P_c$		
in a(T)	T(K)	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-	-	123.20	10.37	-	-	-	168.23	14.07
-10		-	-	-	92.26	5.45	-	-	-	105.85	7.51
-5	Z^V	-	-	-	69.62	2.80	-	-	-	43.34	3.90
5		-	-	-	-42.96	-2.99	-	-	-	-14.71	-4.27
10		-	-	-	-49.83	-6.21	-	-	-	-22.73	-9.05
20		-	-	-	-56.52	-13.62	-	-	-	-31.84	-21.21
-20		1.10	8.46	26.66	-	-	1.09	8.20	26.24	-	-
-10		0.48	3.47	9.88	-	-	0.48	3.39	9.19	-	-
-5	Z^L	0.23	1.59	4.26	-	-	0.23	1.56	4.01	-	-
5		-0.20	-1.37	-3.36	-	-	-0.20	-1.34	-3.21	-	-
10		-0.39	-2.56	-6.10	-	-	-0.39	-2.51	-5.83	-	-
20		-0.71	-4.53	-10.28	-	-	-0.71	-4.45	-9.89	-	-
-20		-	-	-	58.96	28.91	-	-	-	62.00	30.83
-10		-	-	-	46.88	15.29	-	-	-	46.40	16.62
-5	dH^V	-	-	-	37.41	7.89	-	-	-	25.49	8.69
5		-	-	-	-52.76	-8.48	-	-	-	-15.75	-9.66
10		-	-	-	-72.55	-17.29	-	-	-	-28.41	-20.66
20		-	-	-	-103.70	-39.26	-	-	-	-50.08	-49.96
-20		-	-	-	21.92	3.47	-	-	-	26.91	4.41
-10		-	-	-	18.03	1.86	-	-	-	20.59	2.42
-5	dS^V	-	-	-	14.74	0.97	-	-	-	11.24	1.28
5		-	-	-	-20.34	-1.06	-	-	-	-6.24	-1.46
10		-	-	-	-26.76	-2.24	-	-	-	-10.83	-3.16
20		-	-	-	-35.70	-5.09	-	-	-	-17.93	-7.96
-20		20.39	22.71	30.25	-	-	20.44	22.70	29.27	-	-
-10		10.19	11.26	14.16	-	-	10.22	11.26	13.91	-	-
-5	dH^L	5.10	5.61	6.94	-	-	5.11	5.62	6.84	-	-
5		-5.09	-5.58	-6.74	-	-	-5.11	-5.59	-6.67	-	-
10		-10.19	-11.14	-13.33	-	-	-10.21	-11.15	-13.22	-	-
20		-20.38	-22.21	-26.22	-	-	-20.43	-22.23	-26.04	-	-
-20		9.12	8.77	13.05	-	-	9.11	8.67	12.22	-	-
-10		4.50	4.19	5.65	-	-	4.50	4.15	5.42	-	-
-5	dS^L	2.24	2.05	2.68	-	-	2.23	2.03	2.59	-	-
5		-2.21	-1.98	-2.48	-	-	-2.21	-1.97	-2.41	-	-
10		-4.41	-3.91	-4.80	-	-	-4.40	-3.88	-4.68	-	-
20		-8.73	-7.61	-9.10	-	-	-8.72	-7.56	-8.90	-	-
-20		-	-	-	15.39	7.06	-	-	-	24.64	8.81
-10		-	-	-	8.25	3.55	-	-	-	14.43	4.44
-5	ϕ_i^V	-	-	-	4.41	1.78	-	-	-	8.23	2.23
5		-	-	-	-8.31	-1.80	-	-	-	-9.12	-2.27
10		-	-	-	-17.19	-3.62	-	-	-	-18.22	-4.58
20		-	-	-	-34.01	-7.34	-	-	-	-35.08	-9.42
-20		42643.20	238.18	93.66	-	-	42686.19	239.11	95.25	-	-
-10		1980.97	85.65	41.40	-	-	1981.89	85.86	41.79	-	-
-5	ϕ_i^L	356.84	36.53	19.29	-	-	356.93	36.61	19.43	-	-
5		-78.17	-27.02	-16.61	-	-	-78.17	-27.06	-16.69	-	-
10		-95.24	-46.91	-30.77	-	-	-95.25	-46.96	-30.89	-	-
20		-99.78	-72.14	-52.81	-	-	-99.78	-72.18	-52.95	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.10 PR EOS; methane; % deviation of thermodynamic properties as parameter b varies.

%Dev	P(atm)	1					0.8P$_c$				
in a(T)	T(K)	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$
-20		-	-0.07	-0.05	-0.04	-0.03	-	-	-	-22.89	-3.24
-10		-	-0.03	-0.02	-0.02	-0.01	-	-	-	-7.63	-1.58
-5	Z^V	-	-0.02	-0.01	-0.01	-0.01	-	-	-	-3.47	-0.78
5		-	0.02	0.01	0.01	0.01	-	-	-	3.03	0.76
10		-	0.03	0.02	0.02	0.01	-	-	-	5.74	1.51
20		-	0.07	0.05	0.04	0.03	-	-	-	10.51	2.96
-20		-20.71	-24.68	-31.76	-99.75	-	-20.68	-24.30	-29.74	-68.11	-
-10		-10.40	-12.79	-17.72	-	-	-10.38	-12.52	-16.08	-56.06	-
-5	Z^L	-5.21	-6.52	-9.48	-	-	-5.20	-6.36	-8.40	-39.55	-
5		5.24	6.79	11.33	-	-	5.23	6.57	9.28	139.89	-
10		10.50	13.89	25.91	-	-	10.47	13.38	19.64	146.21	-
20		21.10	29.16	28855.53	-	-	21.03	27.72	44.89	157.32	-
-20		-	-0.93	-1.25	-1.63	-2.06	-	-	-	-31.62	-7.42
-10		-	-0.46	-0.63	-0.81	-1.03	-	-	-	-9.69	-3.60
-5	dH^V	-	-0.23	-0.31	-0.41	-0.52	-	-	-	-4.32	-1.77
5		-	0.23	0.31	0.41	0.52	-	-	-	3.66	1.72
10		-	0.46	0.63	0.81	1.03	-	-	-	6.87	3.40
20		-	0.93	1.25	1.63	2.06	-	-	-	12.33	6.63
-20		-	-0.23	-0.16	-0.12	-0.10	-	-	-	-7.42	-0.66
-10		-	-0.11	-0.08	-0.06	-0.05	-	-	-	-2.15	-0.32
-5	dS^V	-	-0.06	-0.04	-0.03	-0.02	-	-	-	-0.94	-0.15
5		-	0.06	0.04	0.03	0.02	-	-	-	0.78	0.15
10		-	0.11	0.08	0.06	0.05	-	-	-	1.44	0.29
20		-	0.23	0.16	0.12	0.10	-	-	-	2.54	0.56
-20		-25.17	-27.58	-34.13	-22417.00		-25.61	-27.89	-32.94	-120.00	-
-10		-11.19	-12.34	-15.76	-	-	-11.39	-12.46	-14.97	-74.81	-
-5	dH^L	-5.30	-5.86	-7.65	-	-	-5.40	-5.92	-7.18	-40.92	-
5		4.80	5.34	7.42	-	-	4.89	5.39	6.68	52.84	-
10		9.16	10.24	14.99	-	-	9.34	10.31	12.95	54.41	-
20		16.79	18.95	99.33	-	-	17.15	19.02	24.64	57.09	-
-20		-12.82	-12.24	-15.44	-56487.00	-	-12.74	-11.88	-13.99	-44.52	-
-10		-5.81	-5.69	-7.55	-	-	-5.77	-5.49	-6.65	-29.52	-
-5	dS^L	-2.78	-2.75	-3.77	-	-	-2.75	-2.65	-3.26	-16.62	-
5		2.56	2.60	3.88	-	-	2.54	2.48	3.16	22.67	-
10		4.92	5.07	8.12	-	-	4.88	4.82	6.26	23.19	-
20		9.17	9.70	99.70	-	-	9.08	9.14	12.39	24.04	-
-20		-	-0.06	-0.04	-0.03	-0.03	-	-	-	-3.51	-1.69
-10		-	-0.03	-0.02	-0.02	-0.01	-	-	-	-1.64	-0.84
-5	ϕ_i^V	-	-0.02	-0.01	-0.01	-0.01	-	-	-	-0.80	-0.42
5		-	0.02	0.01	0.01	0.01	-	-	-	0.78	0.42
10		-	0.03	0.02	0.02	0.01	-	-	-	1.53	0.83
20		-	0.06	0.04	0.03	0.03	-	-	-	2.99	1.66
-20		-99.94	-74.65	-50.61	1788.10	-	-99.94	-75.44	-52.36	-25.55	-
-10		-96.23	-44.82	-25.43	-	-	-96.37	-45.72	-26.90	-8.15	-
-5	ϕ_i^L	-78.78	-24.28	-12.56	-	-	-79.17	-24.91	-13.47	-1.94	-
5		304.55	27.82	11.88	-	-	312.22	28.93	13.23	-4.19	-
10		1334.89	58.86	22.73	-	-	1389.93	61.69	25.99	-3.48	-
20		12901.81	128.86	-89.35	-	-	137.44	137.44	49.31	-2.09	-
-20		-	-74.64	-50.59	1788.70	-	-	-	-	-22.84	-
-10		-	-44.80	-25.42	-	-	-	-	-	-6.62	-
-5	K$_i$	-	-24.27	-12.55	-	-	-	-	-	-1.15	-
5		-	27.80	11.87	-	-	-	-	-	-4.93	-
10		-	58.81	22.70	-	-	-	-	-	-4.93	-
20		-	128.72	-89.36	-	-	-	-	-	-4.93	-

Table B.10 (continued).

%Dev in a(T)	P(atm) T(K)	P_c					$1.2P_c$				
		$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-	-	-66.43	-5.57	-	-	-	-47.12	-9.50
-10		-	-	-	-55.02	-2.65	-	-	-	-30.54	-4.34
-5	Z^V	-	-	-	-45.20	-1.30	-	-	-	-18.25	-2.09
5		-	-	-	53.98	1.25	-	-	-	30.81	1.96
10		-	-	-	69.47	2.46	-	-	-	69.25	3.81
20		-	-	-	89.66	4.75	-	-	-	117.22	7.24
-20		-20.67	-24.21	-29.33	-	-	-20.67	-24.12	-28.95	-	-
-10		-10.38	-12.46	-15.77	-	-	-10.38	-12.40	-15.48	-	-
-5	Z^L	-5.20	-6.33	-8.20	-	-	-5.20	-6.29	-8.03	-	-
5		5.22	6.53	8.95	-	-	5.22	6.48	8.68	-	-
10		10.47	13.26	18.79	-	-	10.46	13.15	18.09	-	-
20		21.02	27.41	41.82	-	-	21.00	27.12	39.49	-	-
-20		-	-	-	-116.90	-10.43	-	-	-	-59.50	-15.26
-10		-	-	-	-75.03	-4.91	-	-	-	-30.10	-6.81
-5	dH^V	-	-	-	-52.28	-2.39	-	-	-	-15.59	-3.25
5		-	-	-	29.40	2.28	-	-	-	17.77	2.99
10		-	-	-	35.59	4.45	-	-	-	32.66	5.77
20		-	-	-	42.82	8.54	-	-	-	45.92	10.82
-20		-	-	-	-42.48	-1.26	-	-	-	-23.56	-2.34
-10		-	-	-	-28.93	-0.58	-	-	-	-12.60	-1.02
-5	dS^V	-	-	-	-20.79	-0.28	-	-	-	-6.70	-0.48
5		-	-	-	11.88	0.26	-	-	-	8.02	0.43
10		-	-	-	14.20	0.51	-	-	-	14.85	0.83
20		-	-	-	16.78	0.96	-	-	-	20.72	1.52
-20		-25.72	-27.98	-32.74	-	-	-25.83	-28.07	-32.58	-	-
-10		-11.45	-12.50	-14.84	-	-	-11.50	-12.54	-14.73	-	-
-5	dH^L	-5.43	-5.94	-7.10	-	-	-5.45	-5.95	-7.04	-	-
5		4.92	5.40	6.57	-	-	4.94	5.41	6.49	-	-
10		9.39	10.34	12.70	-	-	9.44	10.36	12.50	-	-
20		17.24	19.05	23.89	-	-	17.33	19.09	23.35	-	-
-20		-12.72	-11.80	-13.70	-	-	-12.70	-11.71	-13.43	-	-
-10		-5.76	-5.45	-6.48	-	-	-5.75	-5.40	-6.32	-	-
-5	dS^L	-2.75	-2.63	-3.16	-	-	-2.75	-2.60	-3.08	-	-
5		2.53	2.46	3.04	-	-	2.53	2.43	2.94	-	-
10		4.87	4.77	5.99	-	-	4.86	4.72	5.76	-	-
20		9.06	9.01	11.66	-	-	9.03	8.90	11.09	-	-
-20		-	-	-	-28.82	-2.42	-	-	-	-30.39	-3.37
-10		-	-	-	-11.53	-1.20	-	-	-	-12.90	-1.65
-5	ϕ_i^V	-	-	-	-4.82	-0.60	-	-	-	-5.79	-0.82
5		-	-	-	1.70	0.59	-	-	-	4.33	0.80
10		-	-	-	3.10	1.18	-	-	-	7.36	1.59
20		-	-	-	5.59	2.33	-	-	-	11.73	3.15
-20		-99.94	-75.64	-52.78	-	-	-99.95	-75.83	-53.18	-	-
-10		-96.40	-45.94	-27.24	-	-	-96.44	-46.14	-27.58	-	-
-5	ϕ_i^L	-79.27	-25.07	-13.68	-	-	-79.37	-25.22	-13.89	-	-
5		314.21	29.21	13.54	-	-	316.21	29.49	13.83	-	-
10		1404.39	62.40	26.70	-	-	1418.98	63.11	27.39	-	-
20		14197.77	139.61	51.23	-	-	14477.56	141.78	53.05	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.11 PR EOS; n-nonane; % deviation of thermodynamic properties as parameter a(T) varies.

%Dev in a(T)	P(atm) T(K)	1					0.8P$_c$				
		0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$
-20		-	1.21	0.84	0.42	0.23	-	-	-	23.31	5.77
-10		-	0.61	0.42	0.21	0.12	-	-	-	13.20	2.97
-5	Z^V	-	0.31	0.21	0.10	0.06	-	-	-	7.16	1.51
5		-	-0.31	-0.21	-0.11	-0.06	-	-	-	-9.31	-1.56
10		-	-0.62	-0.43	-0.21	-0.12	-	-	-	-27.24	-3.16
20		-	-1.24	-0.85	-0.42	-0.23	-	-	-	-82.15	-6.57
-20		0.86	12.29	28.36	-	-	0.84	10.68	19.74	187.11	-
-10		0.38	4.76	8.83	-	-	0.37	4.27	7.17	163.57	-
-5	Z^L	0.18	2.14	3.78	-	-	0.18	1.94	3.17	149.51	-
5		-0.16	-1.79	-2.97	-	-	-0.16	-1.65	-2.58	-38.82	-
10		-0.31	-3.31	-5.37	-	-	-0.30	-3.06	-4.72	-50.77	-
20		-0.56	-5.77	-9.06	-99.33	-	-0.55	-5.37	-8.09	-58.45	-
-20		-	21.64	21.49	21.54	21.88	-	-	-	34.81	25.87
-10		-	10.89	10.79	10.79	10.95	-	-	-	20.02	13.34
-5	dH^V	-	5.46	5.41	5.40	5.48	-	-	-	10.98	6.78
5		-	-5.50	-5.43	-5.41	-5.49	-	-	-	-14.79	-7.02
10		-	-11.03	-10.89	-10.84	-10.98	-	-	-	-45.81	-14.31
20		-	-22.20	-21.87	-21.72	-21.98	-	-	-	-342.80	-29.81
-20		-	21.22	20.84	20.41	20.23	-	-	-	10.30	3.73
-10		-	10.70	10.48	10.23	10.13	-	-	-	6.05	1.94
-5	dS^V	-	5.37	5.25	5.12	5.07	-	-	-	3.36	0.99
5		-	-5.41	-5.28	-5.14	-5.07	-	-	-	-4.70	-1.03
10		-	-10.87	-10.60	-10.29	-10.16	-	-	-	-15.24	-2.11
20		-	-21.94	-21.31	-20.63	-20.34	-	-	-	-117.20	-4.42
-20		20.16	24.41	30.24	-	-	20.26	24.02	27.57	68.34	-
-10		10.08	11.98	13.92	-	-	10.13	11.86	13.29	61.16	-
-5	dH^L	5.04	5.95	6.82	-	-	5.06	5.90	6.57	56.77	-
5		-5.04	-5.89	-6.63	-	-	-5.06	-5.85	-6.45	-47.14	-
10		-10.08	-11.73	-13.12	-	-	-10.13	-11.67	-12.81	-77.63	-
20		-20.15	-23.31	-25.84	-10738.00	-	-20.25	-23.23	-25.34	-115.10	-
-20		13.79	14.38	18.79	-	-	13.76	13.69	16.01	35.90	-
-10		6.85	6.84	8.15	-	-	6.84	6.59	7.43	32.86	-
-5	dS^L	3.42	3.36	3.91	-	-	3.41	3.25	3.62	30.94	-
5		-3.40	-3.26	-3.69	-	-	-3.40	-3.17	-3.47	-24.31	-
10		-6.79	-6.44	-7.21	-	-	-6.78	-6.27	-6.81	-39.00	-
20		-13.54	-12.60	-13.89	-20419.00	-	-13.52	-12.30	-13.23	-55.18	-
-20		-	1.11	0.79	0.41	0.23	-	-	-	10.29	4.62
-10		-	0.55	0.40	0.20	0.11	-	-	-	5.26	2.32
-5	ϕ_i^V	-	0.28	0.20	0.10	0.06	-	-	-	2.67	1.16
5		-	-0.28	-0.20	-0.10	-0.06	-	-	-	-2.80	-1.16
10		-	-0.56	-0.40	-0.20	-0.11	-	-	-	-5.89	-2.33
20		-	-1.11	-0.79	-0.41	-0.23	-	-	-	-27.85	-4.68
-20		262616.08	193.97	118.30	-	-	263252.22	197.58	123.71	4.85	-
-10		5055.89	73.51	50.37	-	-	5065.38	74.34	51.62	0.07	-
-5	ϕ_i^L	619.39	32.05	23.03	-	-	619.75	32.34	23.48	-2.39	-
5		-86.14	-24.59	-19.16	-	-	-86.14	-24.73	-19.40	-5.65	-
10		-98.08	-43.35	-34.95	-	-	-98.08	-43.54	-35.30	-14.32	-
20		-99.96	-68.33	-58.36	757.60	-	-99.96	-68.52	-58.73	-31.41	-
-20		-	190.75	116.59	-	-	-	-	-	-4.93	-
-10		-	72.55	49.78	-	-	-	-	-	-4.93	-
-5	K$_i$	-	31.68	22.79	-	-	-	-	-	-4.93	-
5		-	-24.38	-19.00	-	-	-	-	-	-2.93	-
10		-	-43.03	-34.70	-	-	-	-	-	-8.96	-
20		-	-67.97	-58.03	761.20	-	-	-	-	-4.93	-

Table B.11 (continued).

%Dev in a(T)	P(atm) T(K)	P_c					1.2P_c				
		$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-	-	122.71	7.80	-	-	-	168.23	10.05
-10		-	-	-	91.84	4.05	-	-	-	105.85	5.26
-5	Z^V	-	-	-	69.25	2.06	-	-	-	43.34	2.70
5		-	-	-	-43.09	-2.16	-	-	-	-14.71	-2.86
10		-	-	-	-49.94	-4.42	-	-	-	-22.73	-5.90
20		-	-	-	-56.61	-9.34	-	-	-	-31.84	-12.75
-20		0.84	10.33	18.42	-	-	0.83	10.00	17.30	-	-
-10		0.37	4.16	6.84	-	-	0.37	4.05	6.55	-	-
-5	Z^L	0.17	1.89	3.04	-	-	0.17	1.85	2.92	-	-
5		-0.16	-1.61	-2.49	-	-	-0.16	-1.58	-2.41	-	-
10		-0.30	-3.00	-4.57	-	-	-0.30	-2.94	-4.44	-	-
20		-0.55	-5.27	-7.87	-	-	-0.54	-5.18	-7.66	-	-
-20		-	-	-	59.26	27.12	-	-	-	62.83	28.40
-10		-	-	-	47.33	14.13	-	-	-	47.49	14.98
-5	dH^V	-	-	-	37.91	7.23	-	-	-	26.43	7.71
5		-	-	-	-56.25	-7.60	-	-	-	-16.62	-8.25
10		-	-	-	-77.68	-15.62	-	-	-	-30.07	-17.14
20		-	-	-	-111.60	-33.25	-	-	-	-53.19	-37.58
-20		-	-	-	29.37	4.58	-	-	-	35.43	5.47
-10		-	-	-	24.06	2.41	-	-	-	27.23	2.91
-5	dS^V	-	-	-	19.62	1.24	-	-	-	15.10	1.51
5		-	-	-	-28.72	-1.31	-	-	-	8.84	-1.63
10		-	-	-	-38.48	-2.71	-	-	-	-15.60	-3.41
20		-	-	-	-52.77	-5.83	-	-	-	-26.51	-7.60
-20		20.29	23.94	27.17	-	-	20.32	23.87	26.83	-	-
-10		10.14	11.83	13.17	-	-	10.16	11.81	13.06	-	-
-5	dH^L	5.07	5.89	6.52	-	-	5.08	5.88	6.47	-	-
5		-5.07	-5.85	-6.41	-	-	-5.08	-5.84	-6.38	-	-
10		-10.14	-11.66	-12.74	-	-	-10.16	-11.65	-12.69	-	-
20		-20.28	-23.22	-25.23	-	-	-20.31	-23.21	-25.14	-	-
-20		13.75	13.54	15.56	-	-	13.74	13.40	15.17	-	-
-10		6.84	6.54	7.29	-	-	6.84	6.48	7.15	-	-
-5	dS^L	3.41	3.22	3.55	-	-	3.41	3.20	3.50	-	-
5		-3.40	-3.15	-3.42	-	-	-3.40	-3.37	-3.37	-	-
10		-6.78	-6.23	-6.72	-	-	-6.78	-6.19	-6.64	-	-
20		-13.52	-12.23	-13.08	-	-	-13.51	-12.16	-12.94	-	-
-20		-	-	-	15.39	27.12	-	-	-	24.64	7.29
-10		-	-	-	8.25	2.97	-	-	-	14.43	3.66
-5	ϕ_i^V	-	-	-	4.41	1.49	-	-	-	8.23	1.84
5		-	-	-	-8.31	-1.50	-	-	-	-9.12	-1.85
10		-	-	-	-17.19	-3.00	-	-	-	-18.22	-3.72
20		-	-	-	-34.01	-6.05	-	-	-	-35.08	-7.52
-20		263418.34	198.46	124.88	-	-	263583.45	199.31	125.98	-	-
-10		5066.82	74.55	51.92	-	-	5068.25	74.75	52.19	-	-
-5	ϕ_i^L	619.85	32.41	23.58	-	-	619.94	32.48	23.68	-	-
5		-86.14	-24.77	-19.45	-	-	-86.15	-24.80	-19.51	-	-
10		-98.08	-43.59	-35.38	-	-	-98.09	-43.64	-35.64	-	-
20		-99.96	-68.56	-58.82	-	-	-99.96	-68.61	-58.91	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.12 PR EOS; n-nonane; % deviation of thermodynamic properties as parameter b varies.

%Dev	P(atm)	1					0.8P_c				
in a(T)	T(K)	0.3T_b	T_b	0.8T_c	T_c	1.2T_c	0.3T_b	T_b	0.8T_c	T_c	1.2T_c
-20	Z^V	-	-0.13	-0.10	-0.08	-0.06	-	-	-	-22.89	-2.66
-10		-	-0.06	-0.05	-0.04	-0.03	-	-	-	-7.63	-1.31
-5		-	-0.03	-0.03	-0.02	-0.02	-	-	-	-3.47	-0.65
5		-	0.03	0.03	0.02	0.02	-	-	-	3.03	0.64
10		-	0.06	0.05	0.04	0.03	-	-	-	5.74	1.26
20		-	0.13	0.10	0.08	0.06	-	-	-	10.51	2.49
-20	Z^L	-20.53	-25.41	-28.40	-99.51	-	-20.52	-24.99	-27.44	-68.11	-
-10		-10.30	-13.26	-15.26	-	-	-10.29	-12.96	-14.53	-56.06	-
-5		-5.16	-6.78	-7.95	-	-	-5.16	-6.60	-7.49	-39.55	-
5		5.18	7.13	8.75	-	-	5.17	6.88	8.02	139.89	-
10		10.37	14.65	18.53	-	-	10.36	14.05	16.65	146.21	-
20		20.82	31.16	43.11	-	-	20.79	29.38	36.18	157.32	-
-20	dH^V	-	-0.97	-1.07	-1.38	-1.84	-	-	-	-31.10	-6.24
-10		-	-0.48	-0.53	-0.70	-0.92	-	-	-	-9.42	-3.04
-5		-	-0.24	-0.27	-0.35	-0.46	-	-	-	-4.19	-1.50
5		-	0.24	0.27	0.35	0.46	-	-	-	3.54	1.47
10		-	0.48	0.53	0.69	0.92	-	-	-	6.62	2.91
20		-	0.96	1.06	1.39	1.84	-	-	-	11.84	5.70
-20	dS^V	-	-0.35	-0.29	-0.22	-0.17	-	-	-	-10.48	-0.76
-10		-	-0.17	-0.15	-0.11	-0.08	-	-	-	-3.03	-0.37
-5		-	-0.09	-0.07	-0.05	-0.04	-	-	-	-1.33	-0.18
5		-	0.09	0.07	0.05	0.04	-	-	-	1.10	0.17
10		-	0.17	0.15	0.11	0.08	-	-	-	2.04	0.34
20		-	0.35	0.29	0.21	0.17	-	-	-	3.60	0.66
-20	dH^L	-25.19	-29.07	-32.10	-11795.00	-	-25.43	-29.09	-31.61	-130.00	-
-10		-11.20	-13.03	-14.55	-	-	-11.31	-13.01	-14.23	-80.58	-
-5		-5.30	-6.20	-6.97	-	-	-5.36	-6.18	-6.79	-43.75	-
5		4.80	5.66	6.48	-	-	4.85	5.63	6.24	53.15	-
10		9.16	10.87	12.60	-	-	9.26	10.79	12.01	54.65	-
20		16.80	20.19	24.22	-	-	16.99	19.94	22.41	57.18	-
-20	dS^L	-18.05	-17.69	-19.40	-22175.00	-	-18.01	-17.25	-18.48	-64.68	-
-10		-8.09	-8.12	-9.06	-	-	-8.07	-7.88	-8.53	-41.81	-
-5		-3.85	-3.91	-4.40	-	-	-3.84	-3.78	-4.12	-23.17	-
5		3.51	3.65	4.22	-	-	3.50	3.51	3.87	29.33	-
10		6.72	7.09	8.32	-	-	6.70	6.79	7.53	30.00	-
20		12.40	13.46	16.55	-	-	12.37	12.75	14.37	31.11	-
-20	ϕ_i^V	-	-0.11	-0.09	-0.07	-0.06	-	-	-	-3.51	-1.56
-10		-	-0.05	-0.05	-0.04	-0.03	-	-	-	-1.64	-0.78
-5		-	-0.03	-0.02	-0.02	-0.01	-	-	-	-0.80	-0.39
5		-	0.03	0.02	0.02	0.01	-	-	-	0.78	0.39
10		-	0.05	0.05	0.04	0.03	-	-	-	1.53	0.78
20		-	0.11	0.09	0.07	0.06	-	-	-	2.99	1.55
-20	ϕ_i^L	-99.99	-70.55	-28.60	855.90	-	-99.99	-71.33	-59.79	-25.55	-
-10		-98.63	-40.99	-31.21	-	-	-98.67	-41.81	-32.28	-8.15	-
-5		-86.86	-21.81	-15.89	-	-	-87.05	-22.38	-16.57	-1.94	-
5		524.24	24.16	16.08	-	-	533.50	25.09	17.10	-4.19	-
10		3184.67	50.25	31.96	-	-	3282.98	52.57	34.41	-3.48	-
20		59265.19	106.44	61.76	-	-	62884.30	113.19	68.55	-2.09	-
-20	K_i	-	-70.52	-58.56	856.60	-	-	-	-	-22.84	-
-10		-	-40.96	-31.18	-	-	-	-	-	-6.62	-
-5		-	-21.81	-15.87	-	-	-	-	-	-1.15	-
5		-	24.13	16.05	-	-	-	-	-	-4.93	-
10		-	50.17	31.90	-	-	-	-	-	-4.93	-
20		-	106.21	61.62	-	-	-	-	-	-4.93	-

Table B.12 (continued).

%Dev in a(T)	P(atm) T(K)	P_c					$1.2P_c$				
		$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-	-	-66.51	-4.19	-	-	-	-47.12	-6.34
-10		-	-	-	-55.12	-2.03	-	-	-	-30.54	-3.01
-5	Z^V	-	-	-	-45.32	-1.00	-	-	-	-18.25	-1.47
5		-	-	-	53.65	0.97	-	-	-	30.81	1.41
10		-	-	-	69.10	1.92	-	-	-	69.25	2.77
20		-	-	-	89.25	3.75	-	-	-	117.22	5.35
-20		-20.52	-24.89	-27.22	-	-	-20.52	-24.79	-27.01	-	-
-10		-10.29	-12.89	-14.37	-	-	-10.29	-12.82	-14.22	-	-
-5	Z^L	-5.15	-6.56	-7.40	-	-	-5.15	-6.52	-7.30	-	-
5		5.17	6.82	7.87	-	-	5.17	6.76	7.74	-	-
10		10.36	13.91	16.29	-	-	10.36	13.78	15.95	-	-
20		20.79	28.99	35.02	-	-	20.78	28.63	34.02	-	-
-20		-	-	-	-125.60	-8.29	-	-	-	-62.98	-11.01
-10		-	-	-	-80.18	-3.97	-	-	-	-31.71	-5.14
-5	dH^V	-	-	-	-55.62	-1.95	-	-	-	-16.36	-2.49
5		-	-	-	29.79	1.88	-	-	-	18.42	2.36
10		-	-	-	35.92	3.69	-	-	-	33.55	4.60
20		-	-	-	42.99	7.14	-	-	-	46.71	8.77
-20		-	-	-	-61.62	-1.29	-	-	-	-33.50	-2.07
-10		-	-	-	-40.96	-0.61	-	-	-	-17.50	-0.95
-5	dS^V	-	-	-	-29.03	-0.30	-	-	-	-9.20	-0.46
5		-	-	-	15.71	0.28	-	-	-	10.70	0.43
10		-	-	-	18.77	0.55	-	-	-	19.58	0.82
20		-	-	-	22.16	1.05	-	-	-	27.09	1.55
-20		-25.49	-29.11	-31.52	-	-	-25.55	-29.13	-31.44	-	-
-10		-11.34	-13.01	-14.17	-	-	-11.37	-13.02	-14.12	-	-
-5	dH^L	-5.37	-6.18	-6.75	-	-	-5.39	-6.18	-6.72	-	-
5		4.86	5.63	6.19	-	-	4.88	5.63	6.15	-	-
10		9.29	10.78	11.90	-	-	9.32	10.77	11.81	-	-
20		17.04	19.89	22.13	-	-	17.10	19.86	21.89	-	-
-20		-18.00	-17.15	-18.27	-	-	-17.99	-17.04	-18.07	-	-
-10		-8.07	-7.82	-8.41	-	-	-8.06	-7.77	-8.30	-	-
-5	dS^L	-3.84	-3.75	-4.05	-	-	-3.83	-3.72	-4.00	-	-
5		3.50	3.48	3.80	-	-	3.49	3.45	3.73	-	-
10		6.70	6.72	7.37	-	-	6.69	6.65	7.23	-	-
20		12.36	12.59	13.98	-	-	12.35	12.44	13.64	-	-
-20		-	-	-	-28.82	-2.17	-	-	-	-30.39	-2.90
-10		-	-	-	-11.53	-1.08	-	-	-	-12.90	-1.43
-5	ϕ_i^V	-	-	-	-4.82	-0.54	-	-	-	-5.79	-0.71
5		-	-	-	1.70	0.53	-	-	-	4.33	0.71
10		-	-	-	3.10	1.07	-	-	-	7.36	1.41
20		-	-	-	5.59	2.13	-	-	-	11.73	2.79
-20		-99.99	-71.53	-60.09	-	-	-99.99	-71.73	-60.38	-	-
-10		-98.68	-42.02	-32.54	-	-	-98.69	-42.23	-32.81	-	-
-5	ϕ_i^L	-87.10	-22.53	-16.74	-	-	-87.15	-22.67	-16.91	-	-
5		535.97	25.33	17.35	-	-	538.45	25.57	17.60	-	-
10		3309.44	53.17	35.02	-	-	3336.10	53.76	35.61	-	-
20		63876.89	114.95	70.20	-	-	64884.82	116.69	71.80	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.13 PR EOS; n-decane; % deviation of thermodynamic properties as parameter a(T) varies.

%Dev	P(atm)	1					0.8P_c				
in a(T)	T(K)	0.3T_b	T_b	0.8T_c	T_c	1.2T_c	0.3T_b	T_b	0.8T_c	T_c	1.2T_c
-20		-	1.29	0.93	0.46	0.25	-	-	-	23.31	5.64
-10		-	0.65	0.47	0.23	0.12	-	-	-	13.20	2.90
-5	Z^V	-	0.33	0.23	0.11	0.06	-	-	-	7.16	1.47
5		-	-0.33	-0.24	-0.11	-0.06	-	-	-	-9.31	-1.52
10		-	-0.66	-0.47	-0.23	-0.13	-	-	-	-27.24	-3.08
20		-	-1.33	-0.95	-0.46	-0.25	-	-	-	-82.15	-6.39
-20		0.84	12.70	26.27	-	-	0.82	11.00	18.92	187.11	-
-10		0.37	4.89	8.43	-	-	0.36	4.38	6.93	163.57	-
-5	Z^L	0.17	2.20	3.63	-	-	0.17	1.99	3.07	149.51	-
5		-0.16	-1.83	-2.87	-	-	-0.15	-1.68	-2.51	-38.82	-
10		-0.30	-3.39	-5.20	-	-	-0.29	-3.13	-4.59	-50.77	-
20		-0.54	-5.89	-8.79	-99.27	-	-0.54	-5.48	-7.89	-58.45	-
-20		-	21.69	21.54	21.54	21.87	-	-	-	34.80	25.76
-10		-	10.92	10.82	10.80	10.95	-	-	-	20.01	13.27
-5	dH^V	-	5.48	5.42	5.40	5.48	-	-	-	10.98	6.74
5		-	-5.52	-5.45	-5.42	-5.48	-	-	-	-14.79	-6.97
10		-	-11.07	-10.93	-10.85	-10.98	-	-	-	-45.83	-14.21
20		-	-22.30	-21.96	-21.75	-21.98	-	-	-	-344.50	-29.56
-20		-	14.10	20.93	20.45	20.24	-	-	-	10.71	3.87
-10		-	7.01	10.53	10.25	10.14	-	-	-	6.29	2.00
-5	dS^V	-	3.50	5.28	5.13	5.07	-	-	-	3.49	1.02
5		-	-3.48	-5.31	-5.15	-5.07	-	-	-	-4.88	-1.06
10		-	-6.95	-10.66	-10.31	-10.17	-	-	-	-15.82	-2.17
20		-	-13.85	-21.45	-20.69	-20.37	-	-	-	-122.10	-4.56
-20		20.16	24.63	29.62	-	-	20.26	24.19	27.33	68.35	-
-10		10.08	12.07	13.78	-	-	10.13	11.93	13.21	61.18	-
-5	dH^L	5.04	5.99	6.76	-	-	5.06	5.94	6.53	56.79	-
5		-5.04	-5.93	-6.58	-	-	-5.06	-5.89	-6.42	-47.38	-
10		-10.08	-11.81	-13.04	-	-	-10.13	-11.74	-12.75	-78.06	-
20		-20.15	-23.46	-25.70	-9912.00	-	-20.25	-23.36	-25.24	-115.70	-
-20		21.29	14.87	18.69	-	-	14.07	14.15	16.23	36.84	-
-10		10.74	7.08	8.24	-	-	7.00	6.82	7.57	33.71	-
-5	dS^L	5.39	3.47	3.97	-	-	3.49	3.36	3.69	31.73	-
5		-5.44	-3.37	-3.76	-	-	-3.48	-3.27	-3.55	-25.09	-
10		-10.93	-6.66	-7.35	-	-	-6.94	-6.48	-6.98	-40.29	-
20		-22.05	-13.03	-14.20	-18383.00	-	-13.84	-12.72	-13.57	-57.12	-
-20		-	1.18	0.87	0.44	0.25	-	-	-	10.29	4.55
-10		-	0.59	0.44	0.22	0.12	-	-	-	5.26	2.28
-5	ϕ_i^V	-	0.29	0.22	0.11	0.06	-	-	-	2.67	1.14
5		-	-0.29	-0.22	-0.11	-0.06	-	-	-	-2.80	-1.14
10		-	-0.59	-0.44	-0.22	-0.12	-	-	-	-5.89	-2.29
20		-	-1.18	-0.87	-0.44	-0.25	-	-	-	-27.85	-4.60
-20		313916.16	188.98	122.01	-	-	314641.98	192.58	127.14	4.85	-
-10		5541.16	72.05	51.54	-	-	5546.90	72.89	52.74	0.07	-
-5	ϕ_i^L	652.19	31.50	23.50	-	-	652.55	31.79	23.93	-2.39	-
5		-86.74	-24.28	-19.46	-	-	-86.75	-24.42	-19.69	-5.65	-
10		-98.25	-42.88	-35.43	-	-	-98.25	-43.08	-35.76	-14.32	-
20		-99.97	-67.81	-58.96	691.20	-	-99.97	-68.00	-59.31	-31.41	-
-20		-	185.62	120.09	-	-	-	-	-	-4.93	-
-10		-	71.05	50.88	-	-	-	-	-	-4.93	-
-5	K_i	-	31.11	23.23	-	-	-	-	-	-4.93	-
5		-	-24.06	-19.29	-	-	-	-	-	-2.93	-
10		-	-42.54	-35.15	-	-	-	-	-	-8.96	-
20		-	-67.42	-58.60	694.70	-	-	-	-	-4.93	-

Table B.13 (continued).

%Dev in a(T)	P(atm) T(K)	Pc					1.2Pc				
		0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20		-	-	-	122.71	7.59	-	-	-	168.23	9.75
-10		-	-	-	91.84	3.93	-	-	-	105.85	5.09
-5	Z^V	-	-	-	69.25	2.01	-	-	-	43.34	2.61
5		-	-	-	-43.09	-2.09	-	-	-	-14.71	-2.76
10		-	-	-	-49.94	-4.28	-	-	-	-22.73	-5.69
20		-	-	-	-56.61	-9.03	-	-	-	-31.84	-12.23
-20		0.82	10.63	17.73	-	-	0.81	10.28	16.71	-	-
-10		0.36	4.26	6.63	-	-	0.36	4.15	6.36	-	-
-5	Z^L	0.17	1.94	2.95	-	-	0.17	1.89	2.84	-	-
5		-0.15	-1.65	-2.43	-	-	-0.15	-1.61	-2.35	-	-
10		-0.29	-3.07	-4.46	-	-	-0.29	-3.01	-4.33	-	-
20		-0.53	-5.38	-7.68	-	-	-0.53	-5.29	-7.48	-	-
-20		-	-	-	59.29	26.94	-	-	-	62.89	28.20
-10		-	-	-	47.37	14.04	-	-	-	47.58	14.85
-5	dH^V	-	-	-	37.95	7.17	-	-	-	26.50	7.64
5		-	-	-	-56.49	-7.53	-	-	-	-16.69	-8.15
10		-	-	-	-78.05	-15.46	-	-	-	-30.19	-16.90
20		-	-	-	-112.10	-32.83	-	-	-	-53.42	-36.87
-20		-	-	-	30.19	4.72	-	-	-	36.30	5.61
-10		-	-	-	24.72	2.47	-	-	-	27.91	2.98
-5	dS^V	-	-	-	20.16	1.27	-	-	-	15.49	1.54
5		-	-	-	-29.62	-1.34	-	-	-	-9.11	-1.66
10		-	-	-	-39.73	-2.77	-	-	-	-16.08	-3.47
20		-	-	-	-54.59	-5.95	-	-	-	-27.37	-7.67
-20		20.28	24.10	26.96	-	-	20.31	24.02	26.65	-	-
-10		10.14	11.91	13.10	-	-	10.15	11.88	13.00	-	-
-5	dH^L	5.07	5.93	6.48	-	-	5.08	5.91	6.44	-	-
5		-5.07	-5.88	-6.38	-	-	-5.08	-5.87	-6.35	-	-
10		-10.14	-11.73	-12.69	-	-	-10.15	-11.72	-12.64	-	-
20		-20.28	-23.34	-25.14	-	-	-20.30	-23.33	-25.05	-	-
-20		14.06	13.99	15.81	-	-	14.06	13.84	15.44	-	-
-10		7.00	6.76	7.43	-	-	6.99	6.70	7.31	-	-
-5	dS^L	3.49	3.33	3.63	-	-	3.49	3.30	3.58	-	-
5		-3.48	-3.25	-3.50	-	-	-3.48	-3.23	-3.46	-	-
10		-6.94	-6.44	-6.89	-	-	-6.94	-6.40	-6.81	-	-
20		-13.84	-12.65	-13.43	-	-	-13.83	-12.58	-13.29	-	-
-20		-	-	-	15.39	5.83	-	-	-	24.64	7.16
-10		-	-	-	8.25	2.92	-	-	-	14.43	3.59
-5	ϕ_i^V	-	-	-	4.41	1.46	-	-	-	8.23	1.80
5		-	-	-	-8.31	-1.47	-	-	-	-9.12	-1.81
10		-	-	-	-17.19	-2.95	-	-	-	-18.22	-3.64
20		-	-	-	-34.01	-5.94	-	-	-	-35.08	-7.36
-20		314832.85	193.46	128.28	-	-	315023.17	194.31	129.34	-	-
-10		5548.41	73.10	53.03	-	-	5549.91	73.30	53.30	-	-
-5	ϕ_i^L	652.64	31.86	24.03	-	-	652.74	31.93	24.13	-	-
5		-86.75	-24.46	-19.74	-	-	-86.75	-24.49	-19.79	-	-
10		-98.25	-43.13	-35.83	-	-	-98.25	-43.17	-35.91	-	-
20		-99.97	-68.05	-59.39	-	-	-99.97	-68.09	-59.48	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.14 PR EOS; n-decane; % deviation of thermodynamic properties as parameter b varies.

%Dev	P(atm)	1					0.8P$_c$				
in a(T)	T(K)	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$
-20		-	-0.14	-0.11	-0.08	-0.07	-	-	-	-22.89	-2.61
-10		-	-0.07	-0.06	-0.04	-0.03	-	-	-	-7.63	-1.28
-5	Z^V	-	-0.03	-0.03	-0.02	-0.02	-	-	-	-3.47	-0.64
5		-	0.03	0.03	0.02	0.02	-	-	-	3.03	0.63
10		-	0.07	0.06	0.04	0.03	-	-	-	5.74	1.24
20		-	0.14	0.11	0.08	0.07	-	-	-	10.51	2.45
-20		-20.52	-25.53	-28.16	-99.46	-	-20.51	-25.10	-27.26	-68.11	-
-10		-10.30	-13.33	-15.09	-	-	-10.29	-13.02	-14.41	-56.06	-
-5	Z^L	-5.16	-6.82	-7.85	-	-	-5.15	-6.64	-7.43	-39.55	-
5		5.17	7.18	8.60	-	-	5.17	6.92	7.93	139.89	-
10		10.37	14.78	18.16	-	-	10.35	14.15	16.45	146.21	-
20		20.80	31.49	41.77	-	-	20.78	29.64	35.62	157.32	-
-20		-	-0.98	-1.06	-1.38	-1.83	-	-	-	-31.06	-6.15
-10		-	-0.49	-0.53	-0.69	-0.92	-	-	-	-9.40	-3.00
-5	dH^V	-	-0.25	-0.27	-0.35	-0.46	-	-	-	-4.18	-1.48
5		-	0.25	0.27	0.35	0.46	-	-	-	3.53	1.45
10		-	0.49	0.53	0.69	0.92	-	-	-	6.60	2.87
20		-	0.98	1.06	1.38	1.83	-	-	-	11.80	5.62
-20		-	-18.40	-0.32	-0.23	-0.18	-	-	-	-10.85	-0.77
-10		-	-8.24	-0.16	-0.12	-0.09	-	-	-	-3.14	-0.37
-5	dS^V	-	-3.92	-0.08	-0.06	-0.05	-	-	-	-1.38	-0.18
5		-	3.57	0.08	0.06	0.05	-	-	-	1.14	0.18
10		-	6.84	0.16	0.12	0.09	-	-	-	2.11	0.35
20		-	12.63	0.32	0.23	0.18	-	-	-	3.73	0.68
-20		-25.20	-29.25	-31.94	-10889.00		-25.46	-29.25	-31.50	-130.80	-
-10		-11.20	-13.11	-14.46	-	-	-11.30	-13.08	-14.17	-81.02	-
-5	dH^L	-5.31	-6.24	-6.92	-	-	-5.36	-6.22	-6.76	-43.96	-
5		4.80	5.71	6.43	-	-	4.85	5.67	6.20	53.17	-
10		9.16	10.96	12.47	-	-	9.26	10.86	11.93	54.66	-
20		16.80	20.36	23.86	-	-	16.98	20.06	22.26	57.19	-
-20		-0.37	-18.21	-19.75	-19986.00	-	-18.37	-17.75	-18.87	-66.87	-
-10		-0.19	-8.35	-9.20	-	-	-8.23	-8.10	-8.70	-43.15	-
-5	dS^L	-0.09	-4.02	-4.46	-	-	-3.91	-3.89	-4.19	-23.88	-
5		0.09	3.76	4.26	-	-	3.56	3.61	3.93	30.07	-
10		0.19	7.29	8.39	-	-	6.83	6.97	7.65	30.76	-
20		0.37	13.84	16.56	-	-	12.59	13.10	14.56	31.90	-
-20		-	-0.12	-0.10	-0.08	-0.06	-	-	-	-3.51	-1.55
-10		-	-0.06	-0.05	-0.04	-0.03	-	-	-	-1.64	-0.77
-5	ϕ_i^V	-	-0.03	-0.03	-0.02	-0.02	-	-	-	-0.80	-0.39
5		-	0.03	0.03	0.02	0.02	-	-	-	0.78	0.39
10		-	0.06	0.05	0.04	0.03	-	-	-	1.53	0.77
20		-	0.12	0.10	0.08	0.06	-	-	-	2.99	1.54
-20		-100.00	-69.95	-59.34	781.70	-	-100.00	-70.74	-60.49	-25.55	-
-10		-98.76	-40.45	-31.77	-	-	-98.79	-41.27	-32.81	-8.15	-
-5	ϕ_i^L	-87.46	-21.49	-16.22	-	-	-87.64	-22.04	-16.88	-1.94	-
5		551.36	23.67	16.50	-	-	560.80	24.59	17.50	-4.19	-
10		3462.45	49.12	32.90	-	-	3566.68	51.39	35.30	-3.48	-
20		68794.37	103.55	63.99	-	-	72898.70	110.17	70.62	-2.09	-
-20		-	-69.91	-59.30	782.40	-	-	-	-	-22.84	-
-10		-	-40.42	-31.74	-	-	-	-	-	-6.62	-
-5	K_i	-	-21.47	-16.20	-	-	-	-	-	-1.15	-
5		-	23.63	16.47	-	-	-	-	-	-4.93	-
10		-	49.03	32.84	-	-	-	-	-	-4.93	-
20		-	103.32	63.82	-	-	-	-	-	-4.93	-

Table B.14 (continued).

%Dev	P(atm)	P_c					$1.2P_c$				
in a(T)	T(K)	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-	-	-66.51	-4.09	-	-	-	-47.12	-6.14
-10		-	-	-	-55.12	-1.98	-	-	-	-30.54	-2.92
-5	Z^V	-	-	-	-45.32	-0.98	-	-	-	-18.25	-1.43
5		-	-	-	53.65	0.95	-	-	-	30.81	1.37
10		-	-	-	69.10	1.88	-	-	-	69.25	2.69
20		-	-	-	89.25	3.68	-	-	-	117.22	5.21
-20		-20.51	-24.99	-27.05	-	-	-20.50	-24.89	-26.85	-	-
-10		-10.29	-12.95	-14.26	-	-	-10.28	-12.88	-14.12	-	-
-5	Z^L	-5.15	-6.60	-7.33	-	-	-5.15	-6.56	-7.25	-	-
5		5.17	6.86	7.79	-	-	5.17	6.80	7.67	-	-
10		10.35	14.01	16.10	-	-	10.35	13.87	15.79	-	-
20		20.77	29.23	34.55	-	-	20.76	28.86	33.62	-	-
-20		-	-	-	-126.30	-8.14	-	-	-	-63.24	-10.74
-10		-	-	-	-80.55	-3.90	-	-	-	-31.83	-5.02
-5	dH^V	-	-	-	-55.86	-1.91	-	-	-	-16.42	-2.44
5		-	-	-	29.83	1.85	-	-	-	18.46	2.31
10		-	-	-	35.95	3.63	-	-	-	33.62	4.51
20		-	-	-	43.01	7.03	-	-	-	46.77	8.61
-20		-	-	-	-63.67	-1.30	-	-	-	-34.51	-2.07
-10		-	-	-	-42.25	-0.61	-	-	-	-18.00	-0.95
-5	dS^V	-	-	-	-29.92	-0.30	-	-	-	-9.45	-0.46
5		-	-	-	16.14	0.29	-	-	-	10.97	0.43
10		-	-	-	19.28	0.56	-	-	-	20.06	0.83
20		-	-	-	22.75	1.07	-	-	-	27.74	1.56
-20		-25.48	-29.26	-31.41	-	-	-25.54	-29.27	-31.33	-	-
-10		-11.33	-13.08	-14.11	-	-	-11.36	-13.08	-14.06	-	-
-5	dH^L	-5.37	-6.22	-6.73	-	-	-5.38	-6.22	-6.70	-	-
5		4.86	5.66	6.16	-	-	4.87	5.66	6.12	-	-
10		9.28	10.84	11.84	-	-	9.31	10.83	11.75	-	-
20		17.03	20.01	21.99	-	-	17.08	19.97	21.78	-	-
-20		-18.36	-17.64	-18.67	-	-	-18.35	-17.53	-18.48	-	-
-10		-8.22	-8.04	-8.58	-	-	-8.22	-7.98	-8.48	-	-
-5	dS^L	-3.91	-3.86	-4.13	-	-	-3.91	-3.83	-4.08	-	-
5		3.56	3.57	3.86	-	-	3.56	3.54	3.80	-	-
10		6.82	6.90	7.50	-	-	6.82	6.83	7.36	-	-
20		12.58	12.93	14.19	-	-	12.57	12.78	13.86	-	-
-20		-	-	-	-28.82	-2.15	-	-	-	-30.39	-2.86
-10		-	-	-	-11.53	-1.07	-	-	-	-12.90	-1.41
-5	ϕ_i^V	-	-	-	-4.82	-0.53	-	-	-	-5.79	-0.70
5		-	-	-	1.70	0.53	-	-	-	4.33	0.70
10		-	-	-	3.10	1.06	-	-	-	7.36	1.39
20		-	-	-	5.59	2.11	-	-	-	11.73	2.76
-20		-100.00	-70.94	-60.78	-	-	-100.00	-71.14	-61.06	-	-
-10		-98.80	-41.48	-33.07	-	-	-98.81	-41.69	-33.32	-	-
-5	ϕ_i^L	-87.69	-22.18	-17.05	-	-	-87.74	-22.32	-17.21	-	-
5		563.33	24.83	17.75	-	-	565.87	25.06	18.00	-	-
10		3594.87	51.99	35.90	-	-	3623.27	52.57	36.48	-	-
20		74029.18	111.89	72.26	-	-	75176.74	113.60	73.85	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.15 PR EOS; methane, n-nonane, and n-decane% deviation of vapor pressure as parameter a(T) and b varie.

substance methane

T	%dev. ofa(T)						%dev.of b					
	-20	-10	-5	5	10	20	-20	-10	-5	5	10	20
$0.1T_c$	1.05E+07	3.26E+04	1.71E+03	-9.45E+01	-9.97E+01	-1.00E+02	-1.00E+02	-9.98E+01	-9.50E+01	1.40E+03	1.75E+04	1.28E+06
$0.3T_c$	2.22E+03	3.85E+02	1.21E+02	-5.48E+01	-7.96E+01	-9.59E+01	-9.77E+01	-8.10E+01	-5.44E+01	1.02E+02	2.82E+02	1.05E+03
$0.5T_c$	3.87E+02	1.22E+02	4.90E+01	-3.31E+01	-5.53E+01	-8.02E+01	-8.36E+01	-5.46E+01	-3.10E+01	3.93E+01	8.74E+01	2.12E+02
$0.6T_c$	2.44E+02	8.57E+01	3.63E+01	-2.67E+01	-4.64E+01	-7.14E+01	-7.40E+01	-4.44E+01	-2.41E+01	2.79E+01	5.96E+01	1.33E+02
$0.8T_c$	1.38E+02	5.37E+01	2.39E+01	-1.92E+01	-3.46E+01	-5.72E+01	-5.67E+01	-3.07E+01	-1.59E+01	1.68E+01	3.43E+01	7.12E+01

substance n-nonane

T	%dev. ofa(T)						%dev.of b					
	-20	-10	-5	5	10	20	-20	-10	-5	5	10	20
$0.1T_c$	8.16E+10	2.87E+06	1.69E+04	-9.94E+01	-1.00E+02	-1.00E+02	-1.00E+02	-1.00E+02	-9.95E+01	1.26E+04	1.03E+06	2.23E+09
$0.3T_c$	1.35E+04	1.07E+03	2.43E+02	-7.09E+01	-9.16E+01	-9.93E+01	-9.97E+01	-9.29E+01	-7.13E+01	2.08E+02	7.53E+02	4.90E+03
$0.5T_c$	8.00E+02	2.02E+02	7.41E+01	-4.27E+01	-6.73E+01	-8.94E+01	-9.25E+01	-6.79E+01	-4.15E+01	6.15E+01	1.49E+02	4.22E+02
$0.6T_c$	3.91E+02	1.23E+02	4.94E+01	-3.32E+01	-5.55E+01	-8.04E+01	-8.38E+01	-5.48E+01	-3.12E+01	3.96E+01	8.83E+01	2.15E+02
$0.8T_c$	1.62E+02	6.13E+01	2.70E+01	-2.12E+01	-3.79E+01	-6.15E+01	-6.21E+01	-3.46E+01	-1.81E+01	1.96E+01	4.04E+01	8.54E+01

substance n-decane

T	%dev. ofa(T)						%dev.of b					
	-20	-10	-5	5	10	20	-20	-10	-5	5	10	20
$0.1T_c$	2.32E+11	4.85E+06	2.20E+04	-9.95E+01	-1.00E+02	-1.00E+02	-1.00E+02	-1.00E+02	-9.96E+01	1.61E+04	1.65E+06	5.34E+09
$0.3T_c$	1.64E+04	1.20E+03	2.60E+02	-7.23E+01	-9.24E+01	-9.94E+01	-9.98E+01	-9.36E+01	-7.28E+01	2.23E+02	8.33E+02	5.81E+03
$0.5T_c$	8.64E+02	2.13E+02	7.71E+01	-4.37E+01	-6.84E+01	-9.01E+01	-9.31E+01	-6.91E+01	-4.25E+01	6.42E+01	1.56E+02	4.53E+02
$0.6T_c$	4.11E+02	1.27E+02	5.09E+01	-3.39E+01	-5.64E+01	-8.12E+01	-8.46E+01	-5.59E+01	-3.19E+01	4.09E+01	9.18E+01	2.26E+02
$0.8T_c$	1.64E+02	6.22E+01	2.73E+01	-2.14E+01	-3.83E+01	-6.19E+01	-6.26E+01	-3.50E+01	-1.83E+01	1.99E+01	4.11E+01	8.70E+01

Table B.16 PR EOS; methane, n-nonane, and n-decane; vapor and liquid compreesibility factor, vapor and liquid fugacity coefficient, and vapor pressur

substance	methane				
T	Z^V	Z^L	ϕ^V_i	ϕ^L_i	P^{sat}(bar)
$0.1T_c$	1	0	1	1	6.7293E-23
$0.3T_c$	0.99998551	0.0000006	0.99998551	0.99998551	0.0000983
$0.5T_c$	0.99041532	0.0008321	0.99049947	0.99049948	0.2066
$0.6T_c$	0.96108031	0.00452355	0.96241849	0.96241901	1.2626
$0.8T_c$	0.80010656	0.0387246	0.83182434	0.83182437	11.683
substance	n-nonane				
T	Z^V	Z^L	ϕ^V_i	ϕ^L_i	P^{sat}(bar)
$0.1T_c$	1	0	1	1	2.1738E-42
$0.3T_c$	0.99999999	0	0.99999999	1	1.1685E-08
$0.5T_c$	0.99920654	0.00004803	0.99920714	0.9992075	0.0063056
$0.6T_c$	0.99079332	0.00079358	0.99087102	0.99087102	0.11858
$0.8T_c$	0.87327529	0.02068645	0.88656373	0.88656373	3.4188
substance	n-decane				
T	Z^V	Z^L	ϕ^V_i	ϕ^L_i	P^{sat}(bar)
$0.1T_c$	1	0	1	1	1.1222E-44
$0.3T_c$	1	0	1	1	4.1493E-09
$0.5T_c$	0.99940201	0.00003503	0.99940235	0.99940251	0.0042505
$0.6T_c$	0.99215491	0.00065758	0.99221148	0.99221148	0.090915
$0.8T_c$	0.87911578	0.01941831	0.89125204	0.89125204	2.976

Table B.17 ALS EOS; Methane; % deviation of thermodynamic properties as parameter a(T) varies.

%Dev	P(atm)	1					0.8P_c				
in a(T)	T(K)	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20	Z^V	-	0.76	0.35	0.20	0.13	-	-	-	22.44	7.07
-10		-	0.38	0.18	0.10	0.06	-	-	-	12.69	3.66
-5		-	0.19	0.09	0.05	0.03	-	-	-	6.88	1.87
5		-	-0.19	-0.09	-0.05	-0.03	-	-	-	-8.88	-1.95
10		-	-0.38	-0.18	-0.10	-0.06	-	-	-	-25.03	-3.99
20		-	-0.77	-0.35	-0.20	-0.13	-	-	-	-80.71	-8.4
-20	Z^L	1.04	9.04	26082.35	-	-	1	7.88	30.78	-	-
-10		0.46	3.61	15.45	-	-	0.44	3.23	9.7	-	-
-5		0.22	1.64	5.88	-	-	0.209	1.48	4.15	-	-
5		-0.19	-1.39	-4.16	-	-	-0.188	-1.28	-3.24	-72.05	-
10		-0.37	-2.60	-7.33	-	-	-0.357	-2.38	-5.86	-77.37	-
20		-0.67	-4.56	-11.91	-99.63	-	-0.652	-4.22	-9.84	-	-
-20	dH^V	-	21.48	21.60	21.95	22.44	-	-	-	35.15	27.43
-10		-	10.78	10.82	10.99	11.23	-	-	-	20.15	14.26
-5		-	5.40	5.41	5.5	5.62	-	-	-	11.02	7.28
5		-	-5.42	-5.42	-5.5	-5.62	-	-	-	-14.67	-7.62
10		-	-10.87	-10.86	-11.01	-11.24	-	-	-	-43.22	-15.63
20		-	-21.82	-21.75	-22.04	-22.5	-	-	-	-324.18	-33.09
-20	dS^V	-	20.83	20.38	20.22	20.14	-	-	-	6.86	2.65
-10		-	10.47	10.21	10.12	10.08	-	-	-	4.04	1.39
-5		-	5.25	5.11	5.06	5.04	-	-	-	2.25	0.714
5		-	-5.28	-5.13	-5.07	-5.04	-	-	-	-3.14	-0.757
10		-	-10.58	-10.26	-10.15	-10.09	-	-	-	-9.78	-1.56
20		-	-21.29	-20.58	-20.33	-20.21	-	-	-	-76.22	-3.36
-20	dH^L	20.15	22.79	99.47	-	-	20.36	22.71	31.34	-	-
-10		10.07	11.26	16.67	-	-	10.18	11.26	14.39	-	-
-5		5.03	5.60	7.78	-	-	5.09	5.61	7.03	-	-
5		-5.03	-5.56	-7.26	-	-	-5.09	-5.58	-6.8	-194.3	-
10		-10.07	-11.09	-14.21	-	-	-10.18	-11.14	-13.45	-253.51	-
20		-20.13	-22.09	-27.57	-20721.03	-	-20.35	-22.2	-26.41	-	-
-20	dS^L	9.49	8.52	99.76	-	-	9.42	9.01	14.06	-	-
-10		4.68	4.50	7.83	-	-	4.65	4.3	5.92	-	-
-5		2.33	2.20	3.46	-	-	2.31	2.11	2.8	-	-
5		-2.30	-2.11	-3.00	-	-	-2.29	-2.04	-2.57	-49.87	-
10		-4.58	-4.16	-5.70	-	-	-4.56	-4.02	-4.98	-62.97	-
20		-9.08	-8.08	-10.55	-52383.61	-	-9.04	-7.84	-9.42	-	-
-20	ϕ^V	-	0.72	0.34	0.20	0.13	-	-	-	10.11	5.3
-10		-	0.36	0.17	0.10	0.06	-	-	-	5.17	2.66
-5		-	0.18	0.09	0.05	0.03	-	-	-	2.62	1.33
5		-	-0.18	-0.09	-0.05	-0.03	-	-	-	-2.75	-1.34
10		-	-0.36	-0.17	-0.10	-0.06	-	-	-	-5.76	-2.69
20		-	-0.72	-0.34	-0.20	-0.13	-	-	-	-27.17	-5.41
-20	ϕ^L	44818.19	231.08	-89.34	-	-	45007.16	235.18	90.58	-	-
-10		2033.88	83.91	38.22	-	-	2037.8	84.83	40.41	-	-
-5		362.62	35.92	18.12	-	-	363.06	36.23	18.88	-	-
5		-78.44	-26.72	-15.93	-	-	-78.46	-26.86	-16.34	-0.55	-
10		-95.36	-46.49	-29.72	-	-	-95.37	-46.68	-30.32	-9.47	-
20		-99.79	71.71	-51.53	1613.42	-	-99.79	-71.89	-52.21	-	-
-20	K_i	-	228.72	-89.38	-	-	-	-	-	-	-
-10		-	83.26	37.98	-	-	-	-	-	-	-
-5		-	35.68	18.02	-	-	-	-	-	-	-
5		-	-26.59	-15.86	-	-	-	-	-	2.26	-
10		-	-46.29	-29.60	-	-	-	-	-	-3.94	-
20		-	-71.51	-51.37	1616.84	-	-	-	-	-	-

Table B.17 (continue).

%Dev in a(T)	P(atm) T(K)	Pc					1.2Pc				
		0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20		-	-	-	116.52	9.95	-	-	-	155.76	13.45
-10		-	-	-	87.32	5.23	-	-	-	97.45	7.18
-5	Z^V	-	-	-	65.93	2.69	-	-	-	39.01	3.72
5		-	-	-	-41.1	-2.86	-	-	-	-13.64	-4.07
10		-	-	-	-47.75	-5.93	-	-	-	-21.18	-8.6
20		-	-	-	-54.27	-12.97	-	-	-	-29.82	-20.04
-20		0.994	7.64	26.42	-	-	0.985	7.4	23.41	-	-
-10		0.438	3.15	8.94	-	-	0.434	3.07	8.3	-	-
-5	Z^L	0.207	1.45	3.87	-	-	0.205	1.41	3.64	-	-
5		-0.186	-1.25	-3.07	-	-	-0.185	-1.22	-2.92	-	-
10		-0.354	-2.34	-5.58	-	-	-0.352	-2.29	-5.33	-	-
20		-0.647	-4.14	-9.44	-	-	-0.642	-4.06	-9.07	-	-
-20		-	-	-	59.17	29.17	-	-	-	62.15	31.08
-10		-	-	-	47.02	15.14	-	-	-	46.3	16.73
-5	dH^V	-	-	-	37.51	7.94	-	-	-	24.96	8.73
5		-	-	-	-52.87	-8.52	-	-	-	-15.62	-9.69
10		-	-	-	-72.72	-17.75	-	-	-	-28.24	-20.67
20		-	-	-	-103.97	-39.23	-	-	-	-49.9	-49.52
-20		-	-	-	21.89	3.45	-	-	-	26.88	4.38
-10		-	-	-	17.99	1.85	-	-	-	20.46	2.4
-5	dS^V	-	-	-	14.69	0.96	-	-	-	10.94	1.26
5		-	-	-	-20.27	-1.05	-	-	-	-6.17	-1.44
10		-	-	-	-26.71	-2.21	-	-	-	-10.75	-3.11
20		-	-	-	-35.71	-4.99	-	-	-	-17.87	-7.73
-20		20.42	22.7	30.01	-	-	20.48	22.7	29.08	-	-
-10		10.21	11.26	14.1	-	-	10.24	11.27	13.86	-	-
-5	dH^L	5.1	5.62	6.91	-	-	5.12	5.62	6.82	-	-
5		-5.1	-5.59	-6.73	-	-	-5.12	-5.59	-6.66	-	-
10		-10.21	-11.15	-13.32	-	-	-10.23	-11.17	-13.21	-	-
20		-20.41	-22.23	-26.21	-	-	-20.47	-22.27	-26.04	-	-
-20		9.41	8.9	12.96	-	-	9.39	8.79	12.15	-	-
-10		4.65	4.26	5.65	-	-	4.64	4.22	5.43	-	-
-5	dS^L	2.31	2.09	2.69	-	-	2.31	2.07	2.6	-	-
5		-2.29	-2.02	-2.5	-	-	-2.28	-2.01	-2.43	-	-
10		-4.55	-3.99	-4.84	-	-	-4.55	-3.96	-4.72	-	-
20		-9.03	-7.79	-9.2	-	-	-9.02	-7.73	-9	-	-
-20		-	-	-	15.14	6.89	-	-	-	24.34	8.6
-10		-	-	-	8.12	3.47	-	-	-	14.26	4.34
-5	ϕ^V	-	-	-	4.34	1.74	-	-	-	8.11	2.18
5		-	-	-	-8.15	-1.75	-	-	-	-8.96	-2.21
10		-	-	-	-16.86	-3.53	-	-	-	-17.9	-4.47
20		-	-	-	-33.43	-7.15	-	-	-	-34.51	-9.18
-20		45054.2	236.15	92.38	-	-	45104.73	237.1	93.94	-	-
-10		2038.68	85.05	40.84	-	-	2039.9	85.27	41.24	-	-
-5	ϕ^L	363.13	36.31	19.04	-	-	363.27	36.38	19.19	-	-
5		-78.46	-26.9	-16.42	-	-	-78.47	-26.93	-16.5	-	-
10		-95.37	-46.73	-30.45	-	-	-95.37	-46.77	-30.58	-	-
20		-99.79	-71.94	-52.36	-	-	-99.79	-71.98	-52.51	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.18 ALS EOS; Methane; % deviation of thermodynamic properties as parameter b_1 varies.

%Dev in b_1	P(atm) T(K)	1					0.8P_c				
		0.3T_b	T_b	0.8T_c	T_c	1.2T_c	0.3T_b	T_b	0.8T_c	T_c	1.2T_c
-20	Z^V	-	-0.07	-0.05	-0.20	-0.03	-	-	-	-10.84	-2.56
-10		-	-0.04	-0.03	-0.04	-0.02	-	-	-	-4.81	-1.27
-5		-	-0.02	-0.01	-0.01	-0.01	-	-	-	-2.3	-0.63
5		-	0.02	0.01	0.01	0.01	-	-	-	2.13	0.624
10		-	0.04	0.03	0.02	0.02	-	-	-	4.14	1.24
20		-	0.07	0.05	0.04	0.03	-	-	-	7.83	2.47
-20	Z^L	-20.74	-24.41	-30.46	-99.70	-	-20.71	-24.05	-28.59	-84.46	-
-10		-10.40	-12.47	-16.43	-	-	-10.38	-12.23	-15.01	-78.32	-
-5		-5.20	-6.31	-8.59	-	-	-5.2	-6.17	-7.7	-	-
5		5.22	6.46	9.62	-	-	5.21	6.28	8.15	-	-
10		10.45	13.09	20.76	-	-	10.43	12.68	16.81	-	-
20		20.96	26.88	54.45	-	-	20.9	25.83	35.97	-	-
-20	dH^V	-	-0.96	-1.38	-1.84	-2.38	-	-	-	-13.6	-5.4
-10		-	-0.48	-0.69	-0.92	-1.19	-	-	-	-5.83	-2.66
-5		-	-0.24	-0.35	-0.46	-0.60	-	-	-	-2.75	-1.32
5		-	0.24	0.35	0.46	0.59	-	-	-	2.5	1.31
10		-	0.48	0.69	0.92	1.19	-	-	-	4.79	2.59
20		-	0.96	1.38	1.84	2.38	-	-	-	8.92	5.13
-20	dS^V	-	-0.13	0.10	-0.07	-0.06	-	-	-	-2.89	-0.382
-10		-	-0.07	-0.04	-0.03	-0.03	-	-	-	-1.2	-0.186
-5		-	-0.03	-0.02	-0.02	-0.01	-	-	-	-0.56	-9.20E-02
5		-	0.03	0.02	0.02	0.01	-	-	-	0.498	8.98E-02
10		-	0.07	0.04	0.03	0.03	-	-	-	0.946	0.178
20		-	0.13	0.09	0.07	0.06	-	-	-	1.73	0.347
-20	dH^L	-22.27	-24.22	-29.62	-20818.00		-22.74	-24.57	-28.59	-325.99	-
-10		-9.78	-10.68	-13.42	-	-	-9.99	-10.83	-12.76	-238.01	-
-5		-4.62	-5.05	-6.46	-	-	-4.72	-5.12	-6.08	-	-
5		4.16	4.58	6.12	-	-	4.26	4.64	5.58	-	-
10		7.94	8.76	12.09	-	-	8.14	8.87	10.75	-	-
20		14.56	16.15	25.35	-	-	14.94	16.33	20.14	-	-
-20	dS^L	-12.41	-11.81	-14.44	-54009.30	-	-12.33	-11.46	-13.04	-80.88	-
-10		-5.52	-5.34	-6.80	-	-	-5.48	-5.15	-5.99	-61.35	-
-5		-2.62	-2.56	-3.34	-	-	-2.6	-2.46	-2.89	-	-
5		2.39	2.37	3.29	-	-	2.37	2.27	2.72	-	-
10		4.58	4.59	6.65	-	-	4.54	4.37	5.31	-	-
20		8.49	8.65	14.77	-	-	8.4	8.18	10.18	-	-
-20	ϕ^V	-	-0.07	-0.05	-0.04	-0.03	-	-	-	-2.66	-1.56
-10		-	-0.03	-0.03	-0.02	-0.02	-	-	-	-1.3	-0.78
-5		-	-0.02	-0.01	-0.01	-0.01	-	-	-	-0.648	-0.39
5		-	0.02	0.01	0.01	0.01	-	-	-	0.64	0.391
10		-	0.03	0.03	0.02	0.02	-	-	-	1.27	0.782
20		-	0.07	0.05	0.04	0.03	-	-	-	2.52	1.57
-20	ϕ^L	-99.85	-67.36	-41.35	2011.39	-	-99.86	-68.5	-43.57	-12.39	-
-10		-94.24	-38.22	-19.85	-	-	-94.48	-39.33	-21.47	0.48	-
-5		-73.95	-20.16	-9.64	-	-	-74.5	-20.89	-10.6	-	-
5		235.26	22.04	8.97	-	-	242.54	23.18	10.23	-	-
10		902.76	45.73	17.15	-	-	946.75	48.5	20.02	-	-
20		6689.72	97.02	30.65	-	-	7299.85	104.75	38.09	-	-
-20	K_i	-	-67.34	-41.32	2012.23	-	-	-	-	-10	-
-10		-	-38.20	-19.83	-	-	-	-	-	1.81	-
-5		-	-20.15	-9.63	-	-	-	-	-	-	-
5		-	22.02	8.95	-	-	-	-	-	-	-
10		-	45.68	17.12	-	-	-	-	-	-	-
20		-	96.89	30.59	-	-	-	-	-	-	-

Table B.18 (continued).

%Dev	P(atm)	P_c					$1.2P_c$				
in b_1	T(K)	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-	-	-63.12	-4.09	-	-	-	-43.36	-6.49
-10		-	-	-	-50.77	-2.01	-	-	-	-26.31	-3.12
-5	Z^V	-	-	-	-40.82	-0.993	-	-	-	-14.9	-1.53
5		-	-	-	44.86	0.976	-	-	-	20.48	1.48
10		-	-	-	57.87	1.94	-	-	-	46.11	2.92
20		-	-	-	75.15	3.81	-	-	-	88.11	5.68
-20		-20.7	-23.97	-28.22	-	-	-20.7	-23.88	-27.88	-	-
-10		-10.37	-12.18	-14.74	-	-	-10.37	-12.12	-14.49	-	-
-5	Z^L	-5.19	-6.14	-7.54	-	-	-5.19	-6.11	-7.39	-	-
5		5.2	6.24	7.91	-	-	5.2	6.2	7.71	-	-
10		10.42	12.59	16.23	-	-	10.41	12.5	15.75	-	-
20		20.89	25.6	34.27	-	-	20.87	25.38	32.9	-	-
-20		-	-	-	-104.93	-7.09	-	-	-	-50.68	-9.7
-10		-	-	-	-67.06	-3.45	-	-	-	-24.72	-4.59
-5	dH^V	-	-	-	-46.72	-1.7	-	-	-	-12.45	-2.24
5		-	-	-	26.37	1.66	-	-	-	12.96	2.14
10		-	-	-	32.02	3.28	-	-	-	25.08	4.19
20		-	-	-	38.7	6.41	-	-	-	39.46	8.06
-20		-	-	-	-39.2	-0.717	-	-	-	-20.84	-1.31
-10		-	-	-	-26.16	-0.343	-	-	-	-10.54	-0.605
-5	dS^V	-	-	-	-18.64	-0.168	-	-	-	-5.4	-0.292
5		-	-	-	10.62	0.162	-	-	-	5.8	0.274
10		-	-	-	12.75	0.317	-	-	-	11.31	0.532
20		-	-	-	15.14	0.612	-	-	-	17.74	1.01
-20		-22.86	-24.67	-28.44	-	-	-22.98	-24.77	-28.32	-	-
-10		-10.05	-10.88	-12.66	-	-	-10.11	-10.92	-12.58	-	-
-5	dH^L	-4.75	-5.14	-6.02	-	-	-4.78	-5.17	-5.98	-	-
5		4.29	4.66	5.51	-	-	4.31	4.68	4.45	-	-
10		8.19	8.9	10.59	-	-	8.24	8.94	10.46	-	-
20		15.04	16.39	19.71	-	-	15.14	16.46	19.39	-	-
-20		-12.31	-11.37	-12.76	-	-	-12.29	-11.29	-12.51	-	-
-10		-5.47	-5.11	-5.83	-	-	-5.46	-5.07	-5.69	-	-
-5	dS^L	-2.59	-2.44	-2.81	-	-	-2.59	-2.42	-2.73	-	-
5		2.36	2.24	2.63	-	-	2.36	2.22	2.54	-	-
10		4.53	4.32	5.1	-	-	4.52	4.28	4.93	-	-
20		8.38	8.08	9.69	-	-	8.36	7.98	9.29	-	-
-20		-	-	-	-20.39	-2.13	-	-	-	-22.13	-2.82
-10		-	-	-	-7.89	-1.06	-	-	-	-9.22	-1.4
-5	ϕ^V	-	-	-	-3.29	-0.531	-	-	-	-4.17	-0.699
5		-	-	-	1.33	0.531	-	-	-	3.32	0.697
10		-	-	-	2.47	1.06	-	-	-	5.9	1.39
20		-	-	-	4.57	2.12	-	-	-	9.79	2.78
-20		-99.87	-68.78	-44.09	-	-	-99.87	-69.05	-44.6	-	-
-10		-94.54	-39.6	-21.86	-	-	-94.6	-39.88	-22.23	-	-
-5	ϕ^L	-74.64	-21.07	-10.82	-	-	-74.78	-21.25	-11.04	-	-
5		244.42	23.47	10.52	-	-	246.34	23.76	10.8	-	-
10		958.32	49.2	20.67	-	-	970.07	49.9	21.3	-	-
20		7464.65	106.73	39.7	-	-	7633.41	108.7	41.24	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5											
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.19 ALS EOS; Methane; % deviation of thermodynamic properties as parameter b_2 varies.

%Dev	P(atm)	1					$0.8P_c$				
in b_2	T(K)	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	1.10E-03	3.63E-04	1.68E-04	8.38E-05	-	-	-	1.44	0.23
-10		-	5.48E-04	1.81E-04	8.41E-05	4.19E-05	-	-	-	0.74	0.12
-5	Z^V	-	2.77E-04	9.07E-05	4.21E-05	1.80E-05	-	-	-	0.37	0.06
5		-	-2.71E-04	-9.07E-05	-4.21E-05	-2.40E-05	-	-	-	-0.38	-0.06
10		-	-5.48E-04	-1.81E-04	-8.41E-05	-4.19E-05	-	-	-	-0.78	-0.12
20		-	-1.10E-03	-3.63E-04	-1.62E-04	-8.98E-05	-	-	-	-1.59	-0.24
-20		0.542	3.09E+00	7.77E+00	-	-	0.52	2.82	5.83	-	-
-10		0.271	1.53E+00	3.72E+00	-	-	0.26	1.40	2.87	-	-
-5	Z^L	0.135	7.61E-01	1.82E+00	-	-	0.13	0.70	1.42	-	-
5		-0.135	-7.54E-01	-1.75E+00	-	-	-0.13	-0.70	-1.40	-	-
10		-0.27	-1.50E+00	-3.44E+00	-	-	-0.26	-1.39	-2.77	-	-
20		-0.539	-2.98E+00	-6.65E+00	-	-	-0.52	-2.76	-5.45	-	-
-20		-	2.26E-02	1.60E-02	1.29E-02	1.05E-02	-	-	-	2.00	0.69
-10		-	1.13E-02	8.02E-03	6.45E-03	5.26E-03	-	-	-	1.03	0.35
-5	dH^V	-	5.68E-03	4.01E-03	3.22E-03	2.43E-03	-	-	-	0.52	0.18
5		-	-5.61E-03	-4.00E-03	-3.23E-03	-2.84E-03	-	-	-	-0.53	-0.18
10		-	-1.13E-02	-8.02E-03	-6.45E-03	-5.26E-03	-	-	-	-1.08	-0.35
20		-	-2.26E-02	-1.60E-02	-1.26E-02	-1.09E-02	-	-	-	-2.23	-0.71
-20		-	2.70E-02	1.84E-02	1.44E-02	1.12E-02	-	-	-	0.46	0.08
-10		-	1.35E-02	9.22E-03	7.19E-03	5.59E-03	-	-	-	0.24	0.04
-5	dS^V	-	6.81E-03	4.61E-03	3.59E-03	2.47E-03	-	-	-	0.12	0.02
5		-	-6.68E-03	-4.60E-03	-3.59E-03	-3.12E-03	-	-	-	-0.12	-0.02
10		-	-1.35E-02	-9.21E-03	-7.19E-03	-5.59E-03	-	-	-	-0.25	-0.04
20		-	-2.70E-02	-1.84E-02	-1.40E-02	-1.18E-02	-	-	-	-0.52	-0.08
-20		4.93	5.39	7.08	-	-	4.99	5.38	6.37	-	-
-10		2.56	2.80	3.62	-	-	2.59	2.79	3.29	-	-
-5	dH^L	1.31	1.43	1.83	-	-	1.32	1.42	1.68	-	-
5		-1.36	-1.48	-1.89	-	-	-1.38	-1.48	-1.74	-	-
10		-2.79	-3.03	-3.83	-	-	-2.82	-3.03	-3.55	-	-
20		-5.83	-6.33	-7.93	-	-	-5.89	-6.34	-7.39	-	-
-20		2.94	2.90	3.90	-	-	2.91	2.77	3.23	-	-
-10		1.52	1.50	1.98	-	-	1.51	1.43	1.66	-	-
-5	dS^L	0.775	0.76	1.00	-	-	0.77	0.73	0.84	-	-
5		-0.806	-0.79	-1.01	-	-	-0.80	-0.76	-0.87	-	-
10		-1.65	-1.60	-2.05	-	-	-1.63	-1.54	-1.77	-	-
20		-3.44	-3.33	-4.19	-	-	-3.41	-3.21	-3.66	-	-
-20		-	5.14E-04	1.76E-04	7.90E-05	4.65E-05	-	-	-	0.25	0.08
-10		-	2.57E-04	8.78E-05	3.95E-05	2.33E-05	-	-	-	0.13	0.04
-5	ϕ^V	-	1.26E-04	4.39E-05	1.98E-05	1.46E-05	-	-	-	0.06	0.02
5		-	-1.32E-04	-4.39E-05	-1.98E-05	-8.66E-06	-	-	-	-0.06	-0.02
10		-	-2.57E-04	-8.79E-05	-3.95E-05	-2.33E-05	-	- '	-	-0.13	-0.04
20		-	-5.15E-04	-1.76E-04	-8.50E-05	-4.06E-05	-	-	-	-0.26	-0.08
-20		314.45	25.23	9.67	-	-	315.35	25.77	10.64	-	-
-10		109.4	12.46	5.00	-	-	109.63	12.70	5.45	-	-
-5	ϕ^L	45.8	6.19	2.54	-	-	45.88	6.30	2.76	-	-
5		-32.52	-6.09	-2.63	-	-	-32.55	-6.19	-2.83	-	-
10		-55.25	-12.09	-5.35	-	-	-55.30	-12.27	-5.73	-	-
20		-81.44	-23.74	-11.04	-	-	-81.48	-24.06	-11.74	-	-
-20		-	25.23	9.67	-	-	-	-	-	-	-
-10		-	12.46	5.00	-	-	-	-	-	-	-
-5	K_i	-	6.19	2.54	-	-	-	-	-	-	-
5		-	-6.09	-2.63	-	-	-	-	-	-	-
10		-	-12.09	-5.35	-	-	-	-	-	-	-
20		-	-23.74	-11.04	-	-	-	-	-	-	-

Table B.19 (continued).

%Dev	P(atm)	P_c					$1.2P_c$				
in b_2	T(K)	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-	-	43.1	0.45	-	-	-	19.99	0.806
-10		-	-	-	34.07	0.227	-	-	-	9.26	0.409
-5	Z^V	-	-	-	26.88	0.114	-	-	-	4.44	0.206
5		-	-	-	-26.75	-0.115	-	-	-	-4.09	-0.209
10		-	-	-	-33.23	-0.231	-	-	-	-7.87	-0.421
20		-	-	-	-41.14	-0.466	-	-	-	-14.59	-0.854
-20		0.518	2.76	5.52	-	-	0.514	2.7	5.24	-	-
-10		0.259	1.37	2.72	-	-	0.257	1.34	2.59	-	-
-5	Z^L	0.13	0.685	1.35	-	-	0.129	0.671	1.29	-	-
5		-0.13	-0.682	-1.33	-	-	-0.129	-0.669	-1.28	-	-
10		-0.259	-1.36	-2.65	-	-	-0.257	-1.34	-2.54	-	-
20		-0.519	-2.71	-5.23	-	-	-0.515	-2.67	-5.03	-	-
-20		-	-	-	25.97	1.04	-	-	-	13.69	1.52
-10		-	-	-	21.39	0.525	-	-	-	6.93	0.771
-5	dH^V	-	-	-	17.5	0.264	-	-	-	3.48	0.388
5		-	-	-	-26.38	-0.266	-	-	-	-3.5	-0.394
10		-	-	-	-35.58	-0.535	-	-	-	-7.03	-0.794
20		-	-	-	-49.7	-1.08	-	-	-	-14.19	-1.61
-20		-	-	-	10.54	0.146	-	-	-	6.23	0.253
-10		-	-	-	8.72	7.37E-02	-	-	-	3.14	0.129
-5	dS^V	-	-	-	7.16	3.71E-02	-	-	-	1.57	#####
5		-	-	-	-10.75	-3.74E-02	-	-	-	-1.57	#####
10		-	-	-	-14.42	-7.52E-02	-	-	-	-3.14	-0.133
20		-	-	-	-19.91	-0.152	-	-	-	-6.28	-0.27
-20		5	5.38	6.26	-	-	5.01	5.38	6.18	-	-
-10		2.6	2.79	3.24	-	-	2.61	2.8	3.2	-	-
-5	dH^L	1.33	1.43	1.65	-	-	1.33	1.43	1.63	-	-
5		-1.38	-1.48	-1.72	-	-	-1.39	-1.49	-1.7	-	-
10		-2.82	-3.03	-3.5	-	-	-2.83	-3.04	-3.46	-	-
20		-5.91	-6.35	-7.3	-	-	-5.93	-6.35	-7.23	-	-
-20		2.9	2.74	3.12	-	-	2.9	2.72	3.03	-	-
-10		1.51	1.42	1.61	-	-	1.5	1.4	1.56	-	-
-5	dS^L	0.767	0.722	0.817	-	-	0.765	0.715	0.793	-	-
5		-0.798	-0.749	-0.844	-	-	-0.796	-0.742	-0.821	-	-
10		-1.63	-1.53	-1.72	-	-	-1.63	-1.51	-1.67	-	-
20		-3.4	-3.18	-3.56	-	-	-3.39	-3.15	-3.47	-	-
-20		-	-	-	0.821	0.138	-	-	-	2.76	0.222
-10		-	-	-	0.454	6.95E-02	-	-	-	1.51	0.112
-5	ϕ^V	-	-	-	0.247	3.48E-02	-	-	-	0.788	0.06
5		-	-	-	-0.55	-3.50E-02	-	-	-	-0.861	-0.06
10		-	-	-	-1.26	-7.02E-02	-	-	-	-1.8	-0.113
20		-	-	-	-3.04	-0.141	-	-	-	-3.92	-0.228
-20		315.59	25.9	10.84	-	-	315.82	26.03	11.04	-	-
-10		109.68	12.76	5.55	-	-	109.74	12.81	5.64	-	-
-5	ϕ^L	45.9	6.33	2.81	-	-	45.92	6.35	2.85	-	-
5		-32.57	-6.22	-2.87	-	-	-32.57	-6.24	-2.91	-	-
10		-55.32	-12.32	-5.81	-	-	-55.32	-12.36	-5.89	-	-
20		-81.49	-24.14	-11.89	-	-	-81.5	-24.21	-12.04	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.20 ALS EOS; Methane; % deviation of thermodynamic properties as parameter b_3 varies.

%Dev in b_3	P(atm) / T(K)	1					0.8P$_c$				
		0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$
-20	Z^V	-	-4.59E-03	-1.52E-03	-6.97E-04	-3.71E-04	-	-	-	-6.12	-0.889
-10		-	-2.30E-03	-7.62E-04	-3.42E-04	-1.86E-04	-	-	-	-2.75	-0.436
-5		-	-1.15E-03	-3.81E-04	-1.68E-04	-8.98E-05	-	-	-	-1.32	-0.216
5		-	1.15E-03	3.81E-04	1.80E-04	8.98E-05	-	-	-	1.22	0.211
10		-	2.30E-03	7.62E-04	3.48E-04	1.80E-04	-	-	-	2.35	0.419
20		-	4.58E-03	1.52E-03	6.91E-04	3.65E-04	-	-	-	4.42	0.822
-20	Z^L	-0.508	-3.33	-8.63	-	-	-0.492	-3.08	-7.02	-77.57	-
-10		-0.255	-1.71	-4.69	-	-	-0.247	-1.57	-3.71	-	-
-5		-0.128	-0.87	-2.45	-	-	-0.124	-0.796	-1.91	-	-
5		0.128	0.90	2.72	-	-	0.124	0.814	2.03	-	-
10		0.257	1.82	5.76	-	-	0.248	1.65	4.18	-	-
20		0.517	3.75	13.24	-	-	0.498	3.38	8.94	-	-
-20	dH^V	-	-9.47E-02	-6.73E-02	-5.38E-02	-4.56E-02	-	-	-	-8.79	-2.69
-10		-	-4.74E-02	-3.37E-02	-2.66E-02	-2.28E-02	-	-	-	-3.92	-1.32
-5		-	-2.37E-02	-1.68E-02	-1.32E-02	-1.12E-02	-	-	-	-1.86	-0.652
5		-	2.36E-02	1.68E-02	1.37E-02	1.12E-02	-	-	-	1.71	0.639
10		-	4.73E-02	3.37E-02	2.69E-02	2.24E-02	-	-	-	3.3	1.27
20		-	9.45E-02	6.71E-02	5.35E-02	4.51E-02	-	-	-	6.16	2.49
-20	dS^V	-	-1.13E-01	-7.74E-02	-5.97E-02	-4.90E-02	-	-	-	-2.04	-0.307
-10		-	-5.65E-02	-3.87E-02	-2.94E-02	-2.45E-02	-	-	-	-0.899	-0.15
-5		-	-2.83E-02	-1.94E-02	-1.45E-02	-1.19E-02	-	-	-	-0.427	-0.07
5		-	2.82E-02	1.93E-02	1.54E-02	1.19E-02	-	-	-	0.289	0.07
10		-	5.65E-02	3.87E-02	2.98E-02	2.38E-02	-	-	-	0.747	0.144
20		-	1.13E-01	7.71E-02	5.93E-02	4.83E-02	-	-	-	1.39	0.282
-20	dH^L	-8.83	-9.82	-12.85	-		-8.93	-9.84	-12.03	-244.89	-
-10		-4.19	-4.68	-6.25	-	-	-4.24	-4.68	-5.79	-	-
-5		-2.04	-2.29	-3.09	-	-	-2.07	-2.29	-2.84	-	-
5		1.95	2.19	3.05	-	-	1.97	2.19	2.75	-	-
10		3.81	4.28	6.07	-	-	3.85	4.28	5.41	-	-
20		7.29	8.23	-6.06	-	-	7.37	8.21	10.53	-	-
-20	dS^L	-4.47	-4.38	-3.02	-	-	-4.44	-4.22	-5.27	-62.71	-
-10		-2.13	-2.11	-1.51	-	-	-2.12	-2.03	-2.58	-	-
-5		-1.04	-1.04	1.53	-	-	-1.04	-1	-1.28	-	-
5		1	1.01	3.10	-	-	0.992	0.966	1.26	-	-
10		1.96	1.99	6.41	-	-	1.94	1.9	2.51	-	-
20		3.76	3.88	14.77	-	-	3.73	3.69	4.97	-	-
-20	ϕ^V	-	-2.16E-03	-7.36E-04	-3.41E-04	-1.77E-04	-	-	-	-0.99	-0.314
-10		-	-1.08E-03	-3.67E-04	-1.76E-04	-8.82E-05	-	-	-	-0.476	-0.155
-5		-	-5.35E-04	-1.84E-04	-9.11E-05	-4.71E-05	-	-	-	-0.234	######
5		-	5.39E-04	1.83E-04	7.92E-05	4.70E-05	-	-	-	0.227	######
10		-	1.07E-03	3.67E-04	1.70E-04	9.40E-05	-	-	-	0.447	0.152
20		-	2.15E-03	7.38E-04	3.46E-04	1.82E-04	-	-	-	0.869	0.3
-20	ϕ^L	-92.86	-38.8	-21.97	2011.39	-	-92.88	-39.09	-22.76	-1.33	-
-10		-71.4	-20.64	-10.84	-	-	-71.43	-20.83	-11.33	-	-
-5		-45.67	-10.62	-5.37	-	-	-45.7	-10.73	-5.64	-	-
5		78.8	11.21	5.26	-	-	78.91	11.35	5.58	-	-
10		211.21	22.98	10.37	-	-	211.54	23.3	11.08	-	-
20		776.4	48.12	20.08	-	-	778.26	48.9	21.78	-	-
-20	K_i	-	-38.8	-21.97	2012.23	-	-	-	-	-0.348	-
-10		-	-20.64	-10.84	-	-	-	-	-	-	-
-5		-	-10.62	-5.37	-	-	-	-	-	-	-
5		-	11.21	5.26	-	-	-	-	-	-	-
10		-	22.98	10.37	-	-	-	-	-	-	-
20		-	48.12	20.07	-	-	-	-	-	-	-

Table B.20 (continued).

%Dev in b₃	P(atm) T(K)	Pc					1.2Pc				
		0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20		-	-	-	-48.35	-1.69	-	-	-	-22.15	-3.01
-10		-	-	-	-40.44	-0.818	-	-	-	-13.34	-1.43
-5	Zⱽ	-	-	-	-33.4	-0.403	-	-	-	-7.46	-0.699
5		-	-	-	38.54	0.391	-	-	-	9.79	0.668
10		-	-	-	49.11	0.77	-	-	-	22.8	1.31
20		-	-	-	62.38	1.5	-	-	-	54.62	2.51
-20		-0.489	-3.02	-6.72	-	-	-0.485	-2.96	-6.44	-	-
-10		-0.245	-1.54	-3.53	-	-	-0.243	-1.51	-3.37	-	-
-5	Zᴸ	-0.123	-0.779	-1.81	-	-	-0.122	-0.763	-1.72	-	-
5		0.123	0.796	1.91	-	-	0.122	0.778	1.81	-	-
10		0.246	1.61	3.93	-	-	0.244	1.57	3.7	-	-
20		0.494	3.29	8.32	-	-	0.489	3.21	7.79	-	-
-20		-	-	-	-69	-3.99	-	-	-	-25.66	-5.82
-10		-	-	-	-48.98	-1.93	-	-	-	-13.36	-2.76
-5	dHⱽ	-	-	-	-36.11	-0.949	-	-	-	-6.88	-1.35
5		-	-	-	23.74	0.921	-	-	-	7.46	1.28
10		-	-	-	28.91	1.81	-	-	-	15.53	2.51
20		-	-	-	34.93	3.53	-	-	-	30.22	4.82
-20		-	-	-	-26.67	-0.558	-	-	-	-10.77	-0.971
-10		-	-	-	-19.45	-0.269	-	-	-	-5.75	-0.458
-5	dSⱽ	-	-	-	-14.55	-0.132	-	-	-	-3	-0.223
5		-	-	-	9.65	0.128	-	-	-	3.33	0.212
10		-	-	-	11.68	0.252	-	-	-	7	0.413
20		-	-	-	13.99	0.488	-	-	-	13.77	0.789
-20		-8.95	-9.85	-11.89	-	-	-8.98	-9.86	-11.77	-	-
-10		-4.25	-4.68	-5.71	-	-	-4.26	-4.69	-5.64	-	-
-5	dHᴸ	-2.07	-2.29	-2.8	-	-	-2.08	-2.29	-2.77	-	-
5		1.98	2.19	2.7	-	-	1.98	2.19	2.66	-	-
10		3.86	4.28	5.32	-	-	3.87	4.28	5.23	-	-
20		7.39	8.21	10.31	-	-	7.41	8.21	10.12	-	-
-20		-4.43	-4.18	-5.12	-	-	-4.42	-4.14	-4.99	-	-
-10		-2.11	-2.01	-2.5	-	-	-2.11	-2	-2.43	-	-
-5	dSᴸ	-1.03	-0.989	-1.24	-	-	-1.03	-0.98	-1.2	-	-
5		0.99	0.956	1.22	-	-	0.988	0.947	1.18	-	-
10		1.94	1.88	2.41	-	-	1.94	1.86	2.33	-	-
20		3.73	3.65	4.76	-	-	3.72	3.61	4.58	-	-
-20		-	-	-	-9.42	-0.534	-	-	-	-10.59	-0.843
-10		-	-	-	-3.94	-0.262	-	-	-	-4.76	-0.411
-5	φⱽ	-	-	-	-1.72	-0.13	-	-	-	-2.24	-0.203
5		-	-	-	0.693	0.128	-	-	-	1.95	0.199
10		-	-	-	1.25	0.254	-	-	-	3.61	0.394
20		-	-	-	2.21	0.501	-	-	-	6.09	0.771
-20		-92.88	-39.16	-22.93	-	-	-92.89	-39.22	-23.1	-	-
-10		-76.44	-20.88	-11.43	-	-	-71.44	-20.92	-11.53	-	-
-5	φᴸ	-45.71	-10.76	-5.7	-	-	-45.71	-10.78	-5.75	-	-
5		78.92	11.38	5.65	-	-	78.95	11.41	5.71	-	-
10		211.64	23.37	11.22	-	-	211.73	23.44	11.36	-	-
20		778.73	49.08	22.12	-	-	779.23	49.26	22.44	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	Kᵢ	-	-	-	-	-	-	-	-	-	-
5											
10											
20		-	-	-	-	-	-	-	-	-	-

Table B.21 ALS EOS; n-nonane; % deviation of thermodynamic properties as parameter a(T) varies.

%Dev in a(T)	P(atm) T(K)	1					0.8P$_c$				
		0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$
-20		-	1.23	0.852	0.428	0.24	-	-	-	24.1	6
-10		-	0.617	0.428	0.215	0.12	-	-	-	13.67	3.09
-5	Z^V	-	0.309	0.215	0.107	0.06	-	-	-	7.43	1.57
5		-	-0.311	-0.215	-0.108	-0.06	-	-	-	-9.74	-1.62
10		-	-0.625	-0.432	-0.215	-0.121	-	-	-	-31.79	-3.3
20		-	-1.26	-0.868	-0.432	-0.241	-	-	-	-82.73	-6.86
-20		0.838	12.4	29.21	-	-	0.82	10.81	20.32	-	-
-10		0.369	4.76	8.93	-	-	0.362	4.29	7.29	-	-
-5	Z^L	0.174	2.14	3.81	-	-	0.171	1.95	3.21	-	-
5		-0.156	-1.78	-2.98	-	-	-0.153	-1.64	-2.6	-74.68	-
10		-0.297	-3.29	-5.38	-	-	-0.292	-3.05	-4.74	-79.53	-
20		-0.542	-5.72	-9.04	-99.36	-	-0.533	-5.34	-8.1	-	-
-20		-	21.63	21.47	21.5	21.8	-	-	-	34.97	25.91
-10		-	10.88	10.78	10.77	10.91	-	-	-	20.17	13.37
-5	dH^V	-	5.46	5.4	5.39	5.46	-	-	-	11.09	6.8
5		-	-5.49	-5.43	-5.4	-5.47	-	-	-	-15.09	-7.05
10		-	-11.02	-10.88	-10.82	-10.94	-	-	-	-51.99	-14.38
20		-	-22.2	-21.86	-21.69	-21.91	-	-	-	-342.45	-30.02
-20		-	21.24	20.86	20.43	20.24	-	-	-	10.39	3.77
-10		-	10.71	10.49	10.24	10.13	-	-	-	6.12	1.96
-5	dS^V	-	5.38	5.26	5.13	5.07	-	-	-	3.41	1
5		-	-5.42	-5.29	-5.14	-5.08	-	-	-	-4.83	-1.04
10		-	-10.89	-10.61	-10.3	-10.16	-	-	-	-17.58	-2.14
20		-	-21.96	-21.34	-20.65	-20.36	-	-	-	-117.59	-4.5
-20		20.16	24.5	30.49	-	-	20.26	24.11	27.79	-	-
-10		10.08	12.01	13.98	-	-	10.13	11.89	13.36	-	-
-5	dH^L	5.04	5.96	6.84	-	-	5.06	5.91	6.59	-	-
5		-5.04	-5.9	-6.64	-	-	-5.06	-5.87	-6.47	-204.83	-
10		-10.08	-11.75	-13.15	-	-	-10.13	-11.69	-12.85	-265.84	-
20		-20.15	-23.34	-25.88	-10758.6	-	-20.25	-23.27	-25.4	-	-
-20		13.59	14.3	18.88	-	-	13.56	13.63	16.07	-	-
-10		6.76	6.79	8.13	-	-	6.74	6.55	7.42	-	-
-5	dS^L	3.37	3.33	3.9	-	-	3.36	3.22	3.61	-	-
5		-3.35	-3.23	-3.66	-	-	-3.35	-3.14	-3.45	-75.09	-
10		-6.69	-6.37	-7.15	-	-	-6.68	-6.2	-6.77	-95.07	-
20		-13.34	-12.45	-13.77	-20558.02	-	-13.32	-12.17	-13.13	-	-
-20		-	1.12	0.803	0.417	0.237	-	-	-	10.53	4.78
-10		-	0.561	0.401	0.208	0.119	-	-	-	5.39	2.39
-5	ϕ^V	-	0.28	0.201	0.104	0.06	-	-	-	2.74	1.2
5		-	-0.281	-0.201	-0.104	-0.06	-	-	-	-2.88	-1.2
10		-	-0.561	-0.402	-0.208	-0.119	-	-	-	-6.06	-2.41
20		-	-1.12	-0.803	-0.417	-0.237	-	-	-	-28.75	-4.84
-20		246068.6	197.61	120.88	-	-	246635.35	201.16	126.28	-	-
-10		4894.75	74.63	51.35	-	-	4900.03	75.44	52.58	-	-
-5	ϕ^L	607.81	32.49	23.44	-	-	608.15	32.76	23.88	-	-
5		-85.91	-24.85	-19.44	-	-	-85.92	-24.98	-19.67	-1.04	-
10		-98.02	-43.74	-35.41	-	-	-98.02	-43.92	-35.74	-10.4	-
20		-99.96	-68.77	-58.96	743.58	-	-99.96	-68.95	-59.31	-	-
-20		-	194.31	112.12	-	-	-	-	-	-	-
-10		-	73.66	50.74	-	-	-	-	-	-	-
-5	K$_i$	-	32.12	23.2	-	-	-	-	-	-	-
5		-	-24.64	-19.28	-	-	-	-	-	1.89	-
10		-	-43.42	-35.15	-	-	-	-	-	-4.62	-
20		-	-68.41	-58.63	747.11	-	-	-	-	-	-

Table B.21 (continue).

%Dev in a(T)	P(atm) T(K)	Pc					1.2Pc				
		0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20		-	-	-	129.92	8.12	-	-	-	174.98	10.46
-10		-	-	-	97.49	4.22	-	-	-	110.85	5.48
-5	Z^V	-	-	-	73.78	2.15	-	-	-	46.76	2.81
5		-	-	-	-43.15	-2.25	-	-	-	-15.27	-2.98
10		-	-	-	-50.12	-4.62	-	-	-	-23.44	-6.17
20		-	-	-	-56.83	-9.78	-	-	-	-32.6	-13.37
-20		0.816	10.46	18.97	-	-	0.811	10.13	17.82	-	-
-10		0.36	4.18	6.96	-	-	0.358	4.08	6.67	-	-
-5	Z^L	0.17	1.9	3.08	-	-	0.169	1.86	2.97	-	-
5		-0.153	-1.61	-2.51	-	-	-0.152	-1.58	-2.43	-	-
10		-0.291	-2.99	-4.6	-	-	-0.29	-2.94	-4.47	-	-
20		-0.531	-5.25	-7.89	-	-	-0.529	-5.16	-7.69	-	-
-20		-	-	-	59.74	27.18	-	-	-	62.97	28.48
-10		-	-	-	47.94	14.18	-	-	-	47.87	15.04
-5	dH^V	-	-	-	38.62	7.26	-	-	-	27.3	7.75
5		-	-	-	-55	-7.64	-	-	-	-16.92	-8.31
10		-	-	-	-76.31	-15.73	-	-	-	-30.5	-17.3
20		-	-	-	-109.93	-33.59	-	-	-	-53.77	-38.09
-20		-	-	-	29.85	4.63	-	-	-	35.56	5.53
-10		-	-	-	24.58	2.43	-	-	-	27.5	2.95
-5	dS^V	-	-	-	20.16	1.25	-	-	-	15.65	1.53
5		-	-	-	-28.27	-1.33	-	-	-	-9.01	-1.66
10		-	-	-	-38.01	-2.75	-	-	-	-15.83	-3.48
20		-	-	-	-52.21	-5.95	-	-	-	-26.78	-7.79
-20		20.29	24.03	27.37	-	-	20.31	23.96	27.02	-	-
-10		10.14	11.86	13.24	-	-	10.16	11.84	13.13	-	-
-5	dH^L	5.07	5.9	6.55	-	-	5.08	5.9	6.5	-	-
5		-5.07	-5.86	-6.43	-	-	-5.08	-5.85	-6.4	-	-
10		-10.14	-11.68	-12.78	-	-	-10.15	-11.68	-12.73	-	-
20		-20.28	-23.25	-25.3	-	-	-20.31	-23.24	-25.21	-	-
-20		13.56	13.48	15.62	-	-	13.55	13.34	15.22	-	-
-10		6.74	6.49	7.28	-	-	6.74	6.44	7.15	-	-
-5	dS^L	3.36	3.2	3.55	-	-	3.36	3.17	3.49	-	-
5		-3.35	-3.12	-3.4	-	-	-3.35	-3.1	-3.36	-	-
10		-6.68	-6.17	-6.68	-	-	-6.68	-6.13	-6.6	-	-
20		-13.31	-12.1	-12.99	-	-	-13.31	-12.03	-12.85	-	-
-20		-	-	-	15.72	6.13	-	-	-	25.03	7.53
-10		-	-	-	8.43	3.07	-	-	-	14.64	3.78
-5	ϕ^V	-	-	-	4.51	1.54	-	-	-	8.37	1.9
5		-	-	-	-8.53	-1.55	-	-	-	-9.33	-1.91
10		-	-	-	-17.62	-3.1	-	-	-	-18.64	-3.84
20		-	-	-	-34.78	-6.25	-	-	-	-35.82	-7.77
-20		246766.3	202.03	127.45	-	-	246928.15	202.86	128.55	-	-
-10		4901.04	75.65	52.86	-	-	4902.37	75.84	53.14	-	-
-5	ϕ^L	608.16	32.83	23.98	-	-	608.34	32.9	24.08	-	-
5		-85.92	-25.01	-19.72	-	-	-85.92	-25.05	-19.78	-	-
10		-98.02	-43.97	-35.82	-	-	-98.02	-44.01	-35.9	-	-
20		-99.96	-68.99	-59.4	-	-	-99.96	-69.03	-59.48	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.22 ALS EOS; n-nonane; % deviation of thermodynamic properties as parameter b_1 varies.

%Dev in b_1	P(atm) T(K)	1					$0.8P_c$				
		$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-0.11	-0.09	-0.07	-0.06	-	-	-	-9.59	-1.94
-10		-	-0.06	-0.05	-0.04	-0.03	-	-	-	-4.34	-0.964
-5	Z^V	-	-0.03	-0.02	-0.02	-0.01	-	-	-	-2.08	-0.481
5		-	0.03	0.02	0.02	0.01	-	-	-	1.95	0.478
10		-	0.06	0.05	0.04	0.03	-	-	-	3.79	0.953
20		-	0.11	0.09	0.07	0.06	-	-	-	7.2	1.9
-20		-20.7	-25.87	-28.63	-99.48	-	-20.68	-25.47	-27.74	-85.94	-
-10		-10.37	-13.24	-14.94	-	-	-10.36	-12.97	-14.3	-79.74	-
-5	Z^L	-5.19	-6.70	-7.65	-	-	-5.18	-6.55	-7.27	-	-
5		5.2	6.88	8.06	-	-	5.19	6.68	7.52	-	-
10		10.4	13.96	16.61	-	-	10.39	13.49	15.31	-	-
20		20.84	28.76	35.59	-	-	20.81	27.54	31.79	-	-
-20		-	-0.79	-0.90	-1.24	-1.68	-	-	-	-10.9	-3.81
-10		-	-0.39	-0.45	-0.62	-0.84	-	-	-	-4.77	-1.89
-5	dH^V	-	-0.20	-0.23	-0.31	-0.42	-	-	-	-2.26	-0.94
5		-	0.20	0.23	0.31	0.42	-	-	-	2.07	0.932
10		-	0.39	0.45	0.62	0.84	-	-	-	3.97	1.85
20		-	0.79	0.90	1.24	1.68	-	-	-	7.42	3.68
-20		-	-0.17	-0.14	-0.11	-0.08	-	-	-	-3.44	-0.382
-10		-	-0.09	-0.07	-0.05	-0.04	-	-	-	-1.47	-0.188
-5	dS^V	-	-0.04	-0.04	-0.03	-0.02	-	-	-	-0.693	-0.09
5		-	0.04	0.04	0.03	0.02	-	-	-	0.624	0.09
10		-	0.09	0.07	0.05	0.04	-	-	-	1.19	0.182
20		-	0.17	0.14	0.11	0.08	-	-	-	2.2	0.358
-20		-22.07	-25.11	-27.46	-10461.7		-22.29	-25.13	-27.04	-335.51	-
-10		-9.54	-10.91	-12.04	-	-	-9.64	-10.91	-11.79	-240.3	-
-5	dH^L	-4.48	-5.14	-5.7	-	-	-4.53	-5.13	-5.56	-	-
5		4.01	4.63	5.19	-	-	4.05	4.62	5.02	-	-
10		7.63	8.84	9.98	-	-	7.72	8.8	9.61	-	-
20		13.94	16.27	18.68	-	-	14.11	16.15	17.72	-	-
-20		-16.41	-16.26	-17.6	-20736.43	-	-16.37	-15.85	-16.77	-120.64	-
-10		-7.13	-7.17	-7.86	-	-	-7.11	-6.96	-7.42	-88.69	-
-5	dS^L	-3.35	-3.4	-3.76	-	-	-3.35	-3.29	-3.52	-	-
5		3.02	3.1	3.48	-	-	3.01	2.99	3.22	-	-
10		5.75	5.97	6.75	-	-	5.73	5.73	6.19	-	-
20		10.55	11.12	12.87	-	-	10.52	10.6	11.55	-	-
-20		-	-9.84E-02	-0.09	-0.07	-0.06	-	-	-	-2.28	-1.27
-10		-	-4.92E-02	-0.04	-0.03	-0.03	-	-	-	-1.12	-0.636
-5	ϕ^V	-	-2.46E-02	-0.02	-0.02	-0.01	-	-	-	-0.558	-0.318
5		-	2.46E-02	0.02	0.02	0.01	-	-	-	0.551	0.319
10		-	4.92E-02	0.04	0.03	0.03	-	-	-	1.1	0.638
20		-	9.84E-02	0.09	0.07	0.06	-	-	-	2.18	1.28
-20		-99.97	-61.28	-48.14	977.99	-	-99.98	-62.28	-49.59	-10.64	-
-10		-97.16	-33.06	-23.96	-	-	-97.24	-33.95	-25.07	1.19	-
-5	ϕ^L	-81.2	-17.02	-11.88	-	-	-81.46	-17.58	-12.53	-	-
5		345.16	17.79	11.55	-	-	351.53	18.61	12.43	-	-
10		1610.74	36.15	22.68	-	-	1660.27	38.07	24.66	-	-
20		17668.99	73.86	43.39	-	-	18716.77	78.95	48.3	-	-
-20		-	-61.24	-48.09	978.72	-	-	-	-	-8.55	-
-10		-	-33.02	-23.93	-	-	-	-	-	2.34	-
-5	K_i	-	-17	-11.86	-	-	-	-	-	-	-
5		-	17.76	11.53	-	-	-	-	-	-	-
10		-	36.08	22.63	-	-	-	-	-	-	-
20		-	73.69	43.27	-	-	-	-	-	-	-

Table B.22 (continued).

%Dev in b₁	P(atm) T(K)	P_c					1.2P_c				
		$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20	Z^V		-	-	-64.91	-2.91	-	-	-	-45.25	-4.22
-10			-	-	-51.98	-1.44	-	-	-	-27.24	-2.07
-5			-	-	-41.56	-0.716	-	-	-	-15.31	-1.02
5			-	-	47.68	0.709	-	-	-	20.42	1.01
10			-	-	61.09	1.41	-	-	-	45.57	2
20			-	-	78.83	2.79	-	-	-	88.96	3.93
-20	Z^L	-20.68	-25.37	-27.53	-	-	-20.68	-25.28	-27.33	-	-
-10		-10.36	-12.91	-14.16	-	-	-10.35	-12.85	-14.03	-	-
-5		-5.18	-6.51	-7.18	-	-	-5.18	-6.48	-7.11	-	-
5		5.19	6.63	7.41	-	-	5.19	6.58	7.3	-	-
10		10.39	13.38	15.05	-	-	10.38	13.28	14.81	-	-
20		20.8	27.26	31.08	-	-	20.8	27.01	30.45	-	-
-20	dH^V	-	-	-	-106.92	-4.83	-	-	-	-51.75	-6.15
-10		-	-	-	-67	-2.37	-	-	-	-24.67	-2.98
-5		-	-	-	-46.09	-1.18	-	-	-	-12.28	-1.48
5		-	-	-	26.35	1.16	-	-	-	12.39	1.43
10		-	-	-	31.67	2.3	-	-	-	23.82	2.83
20		-	-	-	37.88	4.52	-	-	-	37.94	5.52
-20	dS^V	-	-	-	-54.39	-0.648	-	-	-	-28.61	-1.04
-10		-	-	-	-35.04	-0.315	-	-	-	-13.94	-0.497
-5		-	-	-	-24.46	-0.155	-	-	-	-7.01	-0.243
5		-	-	-	14.07	0.152	-	-	-	7.2	0.234
10		-	-	-	16.79	0.299	-	-	-	13.92	0.46
20		-	-	-	19.84	0.584	-	-	-	22.13	0.888
-20	dH^L	-22.35	-25.15	-26.96	-	-	-22.4	-25.17	-26.89	-	-
-10		-9.66	-10.91	-11.74	-	-	-9.69	-10.92	-11.7	-	-
-5		-4.54	-5.14	-5.54	-	-	-4.55	-5.14	-5.51	-	-
5		4.07	4.61	4.99	-	-	4.08	4.61	4.97	-	-
10		7.74	8.8	9.54	-	-	7.77	8.8	9.48	-	-
20		14.16	16.13	17.56	-	-	14.2	16.12	17.42	-	-
-20	dS^L	-16.36	-15.75	-16.58	-	-	-16.35	-15.65	-16.4	-	-
-10		-7.1	-6.91	-7.31	-	-	-7.1	-6.86	-7.22	-	-
-5		-3.34	-3.27	-3.47	-	-	-3.34	-3.24	-3.42	-	-
5		3	2.96	3.16	-	-	3	2.94	3.11	-	-
10		5.73	5.67	6.07	-	-	5.72	5.62	5.97	-	-
20		10.51	10.49	11.29	-	-	10.5	10.38	11.06	-	-
-20	ϕ^V	-	-	-	-18.6	-1.7	-	-	-	-20.28	-2.19
-10		-	-	-	-7.04	-0.85	-	-	-	-8.3	-1.09
-5		-	-	-	-2.91	-0.425	-	-	-	-3.74	-0.547
5		-	-	-	1.17	0.426	-	-	-	2.98	0.547
10		-	-	-	2.18	0.852	-	-	-	5.32	1.09
20		-	-	-	4.03	1.7	-	-	-	8.85	2.19
-20	ϕ^L	-99.98	-62.54	-49.95	-	-	-99.98	-62.79	-50.31	-	-
-10		-97.26	-34.18	-25.35	-	-	-97.28	-34.41	-25.62	-	-
-5		-81.53	-17.72	-12.7	-	-	-81.6	-17.87	-12.86	-	-
5		353.25	18.82	12.65	-	-	354.95	19.03	12.87	-	-
10		1673.49	38.57	25.16	-	-	1687.06	39.07	25.65	-	-
20		19002.11	80.27	49.53	-	-	19295.75	81.59	50.74	-	-
-20	K_i	-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5		-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.23 ALS EOS; n-nonane; % deviation of thermodynamic properties as parameter b_2 varies.

%Dev in b_2	P(atm) T(K)	1					$0.8P_c$				
		$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	2.93E-03	1.81E-03	7.04E-04	3.31E-04	-	-	-	1.61	0.19
-10		-	1.49E-03	9.02E-04	3.46E-04	1.62E-04	-	-	-	0.827	0.10
-5	Z^V	-	7.47E-04	4.57E-04	1.70E-04	8.42E-05	-	-	-	0.419	0.05
5		-	-7.41E-04	-4.45E-04	-1.76E-04	-8.42E-05	-	-	-	-0.43	-0.05
10		-	-1.43E-03	-8.96E-04	-3.58E-04	-1.68E-04	-	-	-	-0.873	-0.10
20		-	-2.97E-03	-1.80E-03	-7.10E-04	-3.25E-04	-	-	-	-1.8	-0.194
-20		0.593	4.88	7.29	-	-	0.581	4.48	6.3	-	-
-10		0.296	2.41	3.56	-	-	0.291	2.23	3.11	-	-
-5	Z^L	0.148	1.2	1.76	-	-	0.145	1.11	1.55	-	-
5		-0.148	-1.18	-1.72	-	-	-0.145	-1.1	-1.53	-	-
10		-0.296	-2.35	-3.4	-	-	-0.291	-2.2	-3.04	-	-
20		-0.591	-4.65	-6.66	-	-	-0.582	-4.36	-6	-74.72	-
-20		-	3.68E-02	3.15E-02	2.39E-02	1.98E-02	-	-	-	2.06	0.592
-10		-	1.85E-02	1.57E-02	1.19E-02	9.79E-03	-	-	-	1.06	0.297
-5	dH^V	-	9.23E-03	7.92E-03	5.87E-03	5.00E-03	-	-	-	0.536	0.149
5		-	-9.19E-03	-7.79E-03	-5.98E-03	-4.98E-03	-	-	-	-0.553	-0.15
10		-	-1.84E-02	-1.57E-02	-1.21E-02	-9.97E-03	-	-	-	-1.12	-0.3
20		-	-3.68E-02	-3.14E-02	-2.40E-02	-1.96E-02	-	-	-	-2.32	-0.603
-20		-	4.20E-02	3.52E-02	2.57E-02	2.05E-02	-	-	-	0.691	0.10
-10		-	2.11E-02	1.76E-02	1.27E-02	1.01E-02	-	-	-	0.356	0.05
-5	dS^V	-	1.05E-02	8.87E-03	6.27E-03	5.17E-03	-	-	-	0.181	0.02
5		-	-1.05E-02	-8.70E-03	-6.41E-03	-5.17E-03	-	-	-	-0.186	-0.02
10		-	-2.09E-02	-1.75E-02	-1.30E-02	-1.03E-02	-	-	-	-0.379	-0.05
20		-	-4.19E-02	-3.52E-02	-2.58E-02	-2.02E-02	-	-	-	-0.785	-0.10
-20		5.95	6.81	7.59	-	-	5.98	6.73	7.27	-	-
-10		3.12	3.57	3.96	-	-	3.14	3.53	3.81	-	-
-5	dH^L	1.6	1.83	2.02	-	-	1.61	1.81	1.95	-	-
5		-1.69	-1.93	-2.13	-	-	-1.7	-1.91	-2.05	-	-
10		-3.48	-3.96	-4.36	-	-	-3.5	-3.93	-4.22	-	-
20		-7.41	-8.41	-9.23	-	-	-7.45	-8.34	-8.96	-198.23	-
-20		4.56	4.68	5.2	-	-	4.55	4.5	4.8	-	-
-10		2.39	2.44	2.7	-	-	2.38	2.35	2.51	-	-
-5	dS^L	1.23	1.25	1.38	-	-	1.22	1.21	1.28	-	-
5		-1.29	-1.31	-1.44	-	-	-1.29	-1.27	-1.34	-	-
10		-2.66	-2.69	-2.94	-	-	-2.65	-2.6	-2.76	-	-
20		-5.65	-5.69	-6.19	-	-	-5.64	-5.51	-5.83	-73.97	-
-20		-	1.34E-03	8.34E-04	3.47E-04	1.58E-04	-	-	-	0.266	######
-10		-	6.64E-04	4.20E-04	1.79E-04	8.21E-05	-	-	-	0.135	######
-5	ϕ^V	-	3.32E-04	2.02E-04	9.27E-05	3.81E-05	-	-	-	0.07	######
5		-	-3.38E-04	-2.16E-04	-8.68E-05	-3.81E-05	-	-	-	-0.07	######
10		-	-6.76E-04	-4.27E-04	-1.68E-04	-7.62E-05	-	-	-	-0.137	######
20		-	-1.35E-03	-8.42E-04	-3.42E-04	-1.64E-04	-	-	-	-0.278	######
-20		800.6	25.63	16	-	-	802.17	26.23	16.79	-	-
-10		217.3	12.81	8.21	-	-	217.54	13.08	8.57	-	-
-5	ϕ^L	80.84	6.4	4.15	-	-	80.93	6.53	4.33	-	-
5		-46.53	-6.39	-4.26	-	-	-46.55	-6.5	-4.41	-	-
10		-72.45	-12.75	-8.62	-	-	-72.47	-12.95	-8.91	-	-
20		-93.57	-25.34	-17.65	-	-	-93.58	-25.68	-18.18	4.32	-
-20		-	25.63	16	-	-	-	-	-	-	-
-10		-	12.81	8.21	-	-	-	-	-	-	-
-5	K_i	-	6.4	4.15	-	-	-	-	-	-	-
5		-	-6.39	-4.26	-	-	-	-	-	-	-
10		-	-12.75	-8.62	-	-	-	-	-	-	-
20		-	-25.34	-17.65	-	-	-	-	-	4.62	-

Table B.23 (continued).

%Dev in b_2	P(atm) T(K)	P_c					$1.2P_c$				
		$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-	-	49.38	0.345	-	-	-	26.05	0.573
-10		-	-	-	39.3	0.174	-	-	-	12.09	0.29
-5	Z^V	-	-	-	31.27	8.73E-02	-	-	-	5.79	0.146
5		-	-	-	-29	-8.79E-02	-	-	-	-5.29	-0.147
10		-	-	-	-36.33	-0.177	-	-	-	-10.13	-0.296
20		-	-	-	-45.32	-0.356	-	-	-	-18.63	-0.599
-20		0.579	4.39	6.09	-	-	0.576	4.3	5.9	-	-
-10		0.289	2.18	3.02	-	-	0.288	2.14	2.93	-	-
-5	Z^L	0.145	1.09	1.5	-	-	0.144	1.07	1.46	-	-
5		-0.145	-1.08	-1.49	-	-	-0.144	-1.06	-1.45	-	-
10		-0.29	-2.16	-2.96	-	-	-0.288	-2.12	-2.88	-	-
20		-0.579	-4.29	-5.86	-	-	-0.577	-4.23	-5.72	-	-
-20		-	-	-	27.51	0.855	-	-	-	16.31	1.18
-10		-	-	-	22.94	0.43	-	-	-	8.43	0.598
-5	dH^V	-	-	-	19	0.216	-	-	-	4.26	0.301
5		-	-	-	-28.2	-0.218	-	-	-	-4.35	-0.304
10		-	-	-	-38.91	-0.437	-	-	-	-8.79	-0.612
20		-	-	-	-56.03	-0.881	-	-	-	-18.01	-1.24
-20		-	-	-	14.75	0.164	-	-	-	9.61	0.259
-10		-	-	-	12.34	8.26E-02	-	-	-	4.95	0.131
-5	dS^V	-	-	-	10.25	4.15E-02	-	-	-	2.5	0.07
5		-	-	-	-15.17	-4.18E-02	-	-	-	-2.53	-0.07
10		-	-	-	-20.82	-8.40E-02	-	-	-	-5.11	-0.134
20		-	-	-	-29.71	-0.169	-	-	-	-10.4	-0.272
-20		5.98	6.71	7.2	-	-	5.99	6.69	7.15	-	-
-10		3.14	3.52	3.77	-	-	3.15	3.51	3.75	-	-
-5	dH^L	1.61	1.8	1.93	-	-	1.61	1.8	1.92	-	-
5		-1.7	-1.9	-2.04	-	-	-1.7	-1.9	-2.03	-	-
10		-3.5	-3.92	-4.19	-	-	-3.51	-3.91	-4.17	-	-
20		-7.45	-8.33	-8.91	-	-	-7.46	-8.32	-8.86	-	-
-20		4.54	4.46	4.72	-	-	4.54	4.42	4.64	-	-
-10		2.38	2.33	2.46	-	-	2.38	2.31	2.42	-	-
-5	dS^L	1.22	1.2	1.26	-	-	1.22	1.19	1.24	-	-
5		-1.29	-1.26	-1.32	-	-	-1.29	-1.25	-1.3	-	-
10		-2.65	-2.58	-2.72	-	-	-2.65	-2.56	-2.68	-	-
20		-5.63	-5.47	-5.75	-	-	-5.63	-5.43	-5.67	-	-
-20		-	-	-	0.878	0.117	-	-	-	3	0.181
-10		-	-	-	0.488	5.88E-02	-	-	-	1.67	####
-5	ϕ^V	-	-	-	0.266	2.94E-02	-	-	-	0.881	####
5		-	-	-	-0.633	-2.96E-02	-	-	-	-0.983	####
10		-	-	-	-1.48	-5.92E-02	-	-	-	-2.08	####
20		-	-	-	-3.68	-0.119	-	-	-	-4.65	-0.185
-20		802.43	26.38	16.98	-	-	802.85	26.53	17.17	-	-
-10		217.54	13.15	8.66	-	-	217.67	13.22	8.74	-	-
-5	ϕ^L	80.93	6.56	4.37	-	-	80.97	6.59	4.41	-	-
5		-46.56	-6.52	-4.45	-	-	-46.56	-6.55	-4.49	-	-
10		-72.48	-13	-8.99	-	-	-72.49	-13.05	-9.06	-	-
20		-93.59	-25.77	-18.3	-	-	-93.59	-25.85	-18.43	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5											
10											
20		-	-	-	-	-	-	-	-	-	-

Table B.24 ALS EOS; n-nonane; % deviation of thermodynamic properties as parameter b_3 varies.

%Dev in b_3	P(atm)	1					0.8P_c				
	T(K)	0.3T_b	T_b	0.8T_c	T_c	1.2T_c	0.3T_b	T_b	0.8T_c	T_c	1.2T_c
-20	Z^V	-	-1.72E-02	-1.04E-02	-4.11E-03	-1.91E-03	-	-	-	-9.86	-0.978
-10		-	-8.58E-03	-5.21E-03	-2.06E-03	-9.56E-04	-	-	-	-4.16	-0.477
-5		-	-4.28E-03	-2.60E-03	-1.03E-03	-4.81E-04	-	-	-	-1.95	-0.236
5		-	4.28E-03	2.60E-03	1.02E-03	4.75E-04	-	-	-	1.75	0.23
10		-	8.55E-03	5.20E-03	2.04E-03	9.50E-04	-	-	-	3.34	0.455
20		-	1.71E-02	1.04E-02	4.09E-03	1.89E-03	-	-	-	6.15	0.891
-20	Z^L	-0.479	-4.9	-7.67	-	-	-0.471	-4.56	-6.86	-81.07	-
-10		-0.241	-2.56	-4.12	-	-	-0.237	-2.37	-3.63	-75.98	-
-5		-0.121	-1.31	-2.14	-	-	-0.119	-1.21	-1.87	-	-
5		0.121	1.37	2.32	-	-	0.119	1.26	1.99	-	-
10		0.243	2.82	4.86	-	-	0.238	2.57	4.1	-	-
20		0.488	5.94	10.73	-	-	0.479	5.35	8.79	-	-
-20	dH^V	-	-0.213	-0.182	-0.139	-0.115	-	-	-	-13.33	-3.11
-10		-	-0.11	-0.09	-0.07	-0.06	-	-	-	-5.5	-1.52
-5		-	-0.05	-0.05	-0.03	-0.03	-	-	-	-2.56	-0.75
5		-	0.05	0.05	0.03	0.03	-	-	-	2.27	0.734
10		-	0.11	0.09	0.07	0.06	-	-	-	4.31	1.45
20		-	0.212	0.181	0.139	0.114	-	-	-	7.87	2.84
-20	dS^V	-	-0.243	-0.204	-0.15	-0.118	-	-	-	-4.54	-0.507
-10		-	-0.121	-0.102	-0.07	-0.06	-	-	-	-1.85	-0.247
-5		-	-0.06	-0.05	-0.04	-0.03	-	-	-	-0.858	-0.122
5		-	0.06	0.05	0.04	0.03	-	-	-	0.755	0.119
10		-	0.121	0.101	0.07	0.06	-	-	-	1.43	0.236
20		-	0.241	0.202	0.149	0.118	-	-	-	2.6	0.46
-20	dH^L	-11.12	-13.1	-14.78	-	-	-11.17	-13.02	-14.39	-279.6	-
-10		-5.21	-6.19	-7.04	-	-	-5.24	-6.14	-6.82	-211.72	-
-5		-2.53	-3.01	-3.44	-	-	-2.54	-2.99	-3.33	-	-
5		2.39	2.86	3.31	-	-	2.4	2.83	3.18	-	-
10		4.65	5.59	6.51	-	-	4.67	5.53	6.22	-	-
20		8.82	10.7	12.65	-	-	8.86	10.55	11.96	-	-
-20	dS^L	-7.68	-7.76	-8.81	-	-	-7.67	-7.54	-8.3	-101.37	-
-10		-3.62	-3.71	-4.27	-	-	-3.61	-3.59	-3.99	-78.42	-
-5		-1.76	-1.82	-2.1	-	-	-1.75	-1.76	-1.96	-	-
5		1.66	1.75	2.06	-	-	1.66	1.69	1.9	-	-
10		3.24	3.44	4.09	-	-	3.23	3.31	3.74	-	-
20		6.17	6.66	8.08	-	-	6.15	6.37	7.3	-	-
-20	ϕ^V	-	-7.79E-03	-4.88E-03	-9.36E-04	-9.36E-04	-	-	-	-1.45	-0.372
-10		-	-3.89E-03	-2.44E-03	-4.64E-04	-4.64E-04	-	-	-	-0.683	-0.183
-5		-	-1.94E-03	-1.22E-03	-2.29E-04	-2.29E-04	-	-	-	-0.333	-0.09
5		-	1.94E-03	1.22E-03	2.34E-04	2.34E-04	-	-	-	0.319	0.09
10		-	3.88E-03	2.43E-03	4.68E-04	4.68E-04	-	-	-	0.625	0.178
20		-	7.75E-03	4.87E-03	9.39E-04	9.39E-04	-	-	-	1.21	0.352
-20	ϕ^L	-98.6	-43.55	-34.13	-	-	-98.6	-43.83	-34.61	-5.84	-
-10		-86.48	-23.29	-17.47	-	-	-86.48	-23.48	-17.79	2.21	-
-5		-62.09	-12	-8.81	-	-	-62.1	-12.12	-8.99	-	-
5		149.64	12.68	8.9	-	-	149.74	12.83	9.14	-	-
10		492.73	25.98	17.84	-	-	493.19	26.32	18.37	-	-
20		2821.45	54.22	35.64	-	-	2825.14	55.11	36.97	-	-
-20	K_i	-	-43.55	-34.12	-	-	-	-	-	-4.46	-
-10		-	-23.29	-17.47	-	-	-	-	-	2.91	-
-5		-	-12	-8.81	-	-	-	-	-	-	-
5		-	12.67	8.9	-	-	-	-	-	-	-
10		-	25.97	17.84	-	-	-	-	-	-	-
20		-	54.21	35.63	-	-	-	-	-	-	-

Table B.24 (continued).

%Dev in b_3	P(atm) T(K)	P_c					$1.2P_c$				
		$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-	-	-53.33	-1.73	-	-	-	-27.84	-2.8
-10		-	-	-	-45.02	-0.833	-	-	-	-17.58	-1.33
-5	Z^V	-	-	-	-37.35	-0.41	-	-	-	-10.18	-0.651
5		-	-	-	47.69	0.396	-	-	-	14.97	0.622
10		-	-	-	60.51	0.78	-	-	-	36.81	1.22
20		-	-	-	76.6	1.51	-	-	-	80.41	2.34
-20		-0.469	-4.48	-6.67	-	-	-0.467	-4.41	-6.5	-	-
-10		-0.236	-2.32	-3.52	-	-	-0.234	-2.28	-3.42	-	-
-5	Z^L	-0.118	-1.18	-1.81	-	-	-0.117	-1.16	-1.75	-	-
5		0.118	1.23	1.91	-	-	0.118	1.2	1.85	-	-
10		0.237	2.51	3.95	-	-	0.236	2.45	3.8	-	-
20		0.476	5.22	8.4	-	-	0.474	5.09	8.05	-	-
-20		-	-	-	-81.76	-4.4	-	-	-	-34.01	-6
-10		-	-	-	-56.71	-2.12	-	-	-	-17.85	-2.85
-5	dH^V	-	-	-	-41.09	-1.04	-	-	-	-9.29	-1.39
5		-	-	-	26.84	1.01	-	-	-	10.45	1.33
10		-	-	-	32.31	1.99	-	-	-	21.79	2.6
20		-	-	-	38.57	3.85	-	-	-	37.61	4.98
-20		-	-	-	-41.78	-0.841	-	-	-	-18.64	-1.31
-10		-	-	-	-29.72	-0.404	-	-	-	-10.01	-0.619
-5	dS^V	-	-	-	-21.83	-0.198	-	-	-	-5.27	-0.302
5		-	-	-	14.38	0.192	-	-	-	6.07	0.287
10		-	-	-	17.22	0.377	-	-	-	12.76	0.561
20		-	-	-	20.4	0.729	-	-	-	22.11	1.07
-20		-11.19	-13	-14.3	-	-	-11.2	-12.99	-14.23	-	-
-10		-5.25	-6.13	-6.77	-	-	-5.25	-6.12	-6.73	-	-
-5	dH^L	-2.55	-2.98	-3.3	-	-	-2.55	-2.97	-3.28	-	-
5		2.4	2.83	3.15	-	-	2.41	2.82	3.12	-	-
10		4.68	5.51	6.16	-	-	4.68	5.5	6.11	-	-
20		8.88	10.52	11.83	-	-	8.89	10.49	11.71	-	-
-20		-7.67	-7.49	-8.19	-	-	-7.66	-7.43	-8.08	-	-
-10		-3.61	-3.57	-3.93	-	-	-3.6	-3.54	-3.87	-	-
-5	dS^L	-1.75	-1.74	-1.93	-	-	-1.75	-1.73	-1.9	-	-
5		1.66	1.67	1.86	-	-	1.66	1.66	1.83	-	-
10		3.23	3.27	3.67	-	-	3.23	3.25	3.61	-	-
20		6.15	6.31	7.14	-	-	6.14	6.25	6.99	-	-
-20		-	-	-	-13.61	-0.61	-	-	-	-14.83	-0.924
-10		-	-	-	-5.66	-0.299	-	-	-	-6.58	-0.45
-5	ϕ^V	-	-	-	-2.45	-0.148	-	-	-	-3.06	-0.222
5		-	-	-	0.923	0.146	-	-	-	2.57	0.217
10		-	-	-	1.65	0.289	-	-	-	4.61	0.429
20		-	-	-	2.9	0.568	-	-	-	7.45	0.839
-20		-98.6	-43.9	-34.72	-	-	-98.6	-43.96	-34.83	-	-
-10		-86.49	-23.53	-17.87	-	-	-86.49	-23.58	-17.94	-	-
-5	ϕ^L	-61.22	-12.15	-9.03	-	-	-62.11	-12.17	-9.08	-	-
5		149.75	12.87	9.19	-	-	149.79	12.9	8.25	-	-
10		493.22	26.41	18.5	-	-	493.33	26.49	18.62	-	-
20		2826.18	55.34	37.28	-	-	2827.26	55.55	37.57	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.25 ALS EOS; n-decane; % deviation of thermodynamic properties as parameter a(T) varies.

%Dev	P(atm)	1					0.8P$_c$				
in a(T)	T(K)	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$
-20		-	1.31	0.949	0.469	0.26	-	-	-	24.3	5.91
-10		-	0.659	0.477	0.235	0.13	-	-	-	13.79	3.04
-5	Z^V	-	0.331	0.239	0.118	0.07	-	-	-	7.5	1.54
5		-	-0.333	-0.24	-0.118	-0.07	-	-	-	-9.84	-1.59
10		-	-0.669	-0.482	-0.236	-0.13	-	-	-	-33.11	-3.24
20		-	-1.35	-0.968	-0.474	-0.261	-	-	-	-	-6.74
-20		0.82	12.95	27.32	-	-	0.806	11.26	19.72	-	-
-10		0.362	4.94	8.61	-	-	0.355	4.45	7.13	-	-
-5	Z^L	0.171	2.22	3.69	-	-	0.168	2.01	3.14	-	-
5		-0.153	-1.84	-2.9	-	-	-0.151	-1.7	-2.55	-74.97	-
10		-0.292	-3.4	-5.25	-	-	-0.287	-3.15	-4.66	-79.77	-
20		-0.532	-5.89	-8.84	-99.32	-	-0.524	-5.5	-4.97	-82.95	-
-20		-	21.67	21.51	21.48	21.76	-	-	-	34.98	25.78
-10		-	10.91	10.81	10.76	10.89	-	-	-	20.18	13.29
-5	dH^V	-	5.47	5.42	5.39	5.45	-	-	-	11.11	6.76
5		-	-5.51	-5.44	-5.4	-5.46	-	-	-	-15.16	-7
10		-	-11.06	-10.91	-10.82	-10.92	-	-	-	-55.32	-14.28
20		-	-22.29	-21.94	-21.69	-21.87	-	-	-	-	-29.77
-20		-	21.32	20.95	20.46	20.25	-	-	-	10.83	3.92
-10		-	10.75	10.54	10.26	10.14	-	-	-	6.38	2.03
-5	dS^V	-	5.4	5.29	5.14	5.08	-	-	-	3.56	1.04
5		-	-5.45	-5.32	-5.15	-5.08	-	-	-	-5.05	-1.08
10		-	-10.94	-10.67	-10.32	-10.18	-	-	-	-19.54	-2.21
20		-	-22.09	-21.49	-20.71	-20.38	-	-	-	-	-4.65
-20		20.16	24.73	29.88	-	-	20.25	24.3	27.56	-	-
-10		10.08	12.1	13.84	-	-	10.13	11.97	13.28	-	-
-5	dH^L	5.04	6.01	6.78	-	-	5.06	5.95	6.56	-	-
5		-5.04	-5.94	-6.6	-	-	-5.06	-5.9	-6.44	-205.84	-
10		-10.08	-11.83	-13.07	-	-	-10.12	-11.77	-12.79	-266.93	-
20		-20.15	-23.49	-25.75	-9930.57	-	-20.25	-23.4	-25.31	-344.01	-
-20		13.88	14.8	18.78	-	-	13.86	14.09	16.3	-	-
-10		6.9	7.02	8.22	-	-	6.89	6.77	7.56	-	-
-5	dS^L	3.44	3.44	3.95	-	-	3.44	3.33	3.68	-	-
5		-3.43	-3.33	-3.73	-	-	-3.42	-3.24	-3.53	-78.29	-
10		-6.84	-6.58	-7.29	-	-	-6.83	-6.41	-6.93	-99.1	-
20		-13.64	-12.89	-14.06	-18529.64	-	-13.62	-12.57	-13.46	-122.75	-
-20		-	1.19	0.888	0.455	0.256	-	-	-	10.58	4.73
-10		-	0.596	0.444	0.228	0.128	-	-	-	5.42	2.37
-5	ϕ^V	-	0.298	0.222	0.114	0.06	-	-	-	2.75	1.19
5		-	-0.298	-0.222	-0.114	-0.06	-	-	-	-2.89	-1.19
10		-	-0.597	-0.444	-0.228	-0.128	-	-	-	-6.1	-2.38
20		-	-1.19	-0.889	-0.455	-0.256	-	-	-	-	-4.79
-20		292937.09	193.57	125.34	-	-	293556.06	197.09	130.45	-	-
-10		5349.68	73.48	52.78	-	-	5355.23	74.29	53.95	-	-
-5	ϕ^L	639.36	32.05	24.02	-	-	639.66	32.33	24.43	-	-
5		-86.51	-24.61	-19.81	-	-	-86.51	-24.74	-20.02	-1.09	-
10		-98.18	-43.38	-36	-	-	-98.19	-43.56	-36.3	-10.51	-
20		-99.97	-68.37	-59.69	675.51	-	-99.97	-68.55	-60.02	-28.94	-
-20		-	190.11	123.36	-	-	-	-	-	-	-
-10		-	72.46	52.11	-	-	-	-	-	-	-
-5	K$_i$	-	31.66	23.75	-	-	-	-	-	-	-
5		-	-24.38	-19.63	-	-	-	-	-	1.85	-
10		-	-43.04	-35.71	-	-	-	-	-	-4.7	-
20		-	-67.99	-59.33	679.06	-	-	-	-	-	-

Table B.25 (continue).

%Dev in a(T)	P(atm) T(K)	P_c					$1.2P_c$				
		$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-	-	128.56	7.97	-	-	-	177.35	10.23
-10		-	-	-	96.16	4.13	-	-	-	112.5	5.35
-5	Z^V	-	-	-	72.48	2.11	-	-	-	47.75	2.75
5		-	-	-	-44.13	-2.2	-	-	-	-15.47	-2.91
10		-	-	-	-51.04	-4.52	-	-	-	-23.72	-6
20		-	-	-	-57.69	-9.54	-	-	-	-32.93	-12.95
-20		0.802	10.89	18.49	-	-	0.798	10.55	17.43	-	-
-10		0.354	4.33	6.82	-	-	0.352	4.22	6.55	-	-
-5	Z^L	0.167	1.97	3.02	-	-	0.166	1.92	2.92	-	-
5		-0.15	-1.66	-2.47	-	-	-0.149	-1.63	-2.4	-	-
10		-0.286	-3.09	-4.53	-	-	-0.285	-3.03	-4.4	-	-
20		-0.522	-5.4	-7.77	-	-	-0.52	-5.31	-7.58	-	-
-20		-	-	-	59.42	27.01	-	-	-	63.04	28.26
-10		-	-	-	47.54	14.08	-	-	-	48.02	14.91
-5	dH^V	-	-	-	38.15	7.2	-	-	-	27.55	7.68
5		-	-	-	-56.66	-7.57	-	-	-	-17.05	-8.21
10		-	-	-	-78.28	-15.57	-	-	-	-30.72	-17.06
20		-	-	-	-112.42	-33.18	-	-	-	-54.13	-37.35
-20		-	-	-	30.38	4.78	-	-	-	36.48	5.68
-10		-	-	-	24.93	2.51	-	-	-	28.26	3.02
-5	dS^V	-	-	-	20.37	1.29	-	-	-	16.19	1.56
5		-	-	-	-29.84	-1.37	-	-	-	-9.33	-1.69
10		-	-	-	-40	-2.83	-	-	-	-16.39	-3.54
20		-	-	-	-54.85	-6.1	-	-	-	-27.74	-7.89
-20		20.28	24.21	27.19	-	-	20.3	24.13	26.86	-	-
-10		10.14	11.94	13.17	-	-	10.15	11.92	13.07	-	-
-5	dH^L	5.07	5.94	6.51	-	-	5.08	5.93	6.47	-	-
5		-5.07	-5.9	-6.41	-	-	-5.07	-5.89	-6.38	-	-
10		-10.14	-11.75	-12.74	-	-	-10.15	-11.74	-12.68	-	-
20		-20.27	-23.38	-25.21	-	-	-20.3	-23.37	-25.13	-	-
-20		13.85	13.94	15.87	-	-	13.84	13.79	15.5	-	-
-10		6.89	6.71	7.43	-	-	6.89	6.65	7.3	-	-
-5	dS^L	3.44	3.3	3.62	-	-	3.43	3.28	3.57	-	-
5		-3.42	-3.22	-3.48	-	-	-3.42	-3.2	-3.44	-	-
10		-6.83	-6.37	-6.85	-	-	-6.83	-6.33	-6.77	-	-
20		-13.61	-12.5	-13.32	-	-	-13.61	-12.43	-13.19	-	-
-20		-	-	-	15.79	6.06	-	-	-	25.11	7.44
-10		-	-	-	8.47	3.04	-	-	-	14.69	3.73
-5	ϕ^V	-	-	-	4.53	1.52	-	-	-	8.4	1.87
5		-	-	-	-8.57	-1.53	-	-	-	-9.38	-1.89
10		-	-	-	-17.71	-3.07	-	-	-	-18.73	-3.79
20		-	-	-	-34.94	-6.18	-	-	-	-35.98	-7.66
-20		293716.1	197.95	131.59	-	-	293902.2	198.79	132.65	-	-
-10		5356.01	74.49	54.23	-	-	5357.83	74.68	54.49	-	-
-5	ϕ^L	639.73	32.4	24.53	-	-	639.82	32.47	24.63	-	-
5		-86.52	-24.77	-20.08	-	-	-86.52	-24.81	-20.12	-	-
10		-98.19	-43.61	-36.38	-	-	-98.19	-43.65	-36.45	-	-
20		-99.97	-68.6	-60.1	-	-	-99.97	-68.64	-60.18	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.26 ALS EOS; n-decane; % deviation of thermodynamic properties as parameter b_1 varies.

%Dev in b_1	P(atm)	1					0.8P$_c$				
	T(K)	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$
-20		-	-0.117	-1.00E-01	-7.52E-02	-6.08E-02	-	-	-	-9.46	-1.88
-10		-	-5.83E-02	-5.02E-02	-3.76E-02	-3.04E-02	-	-	-	-4.28	-0.937
-5	Z^V	-	-2.91E-02	-2.51E-02	-1.88E-02	-1.52E-02	-	-	-	-2.06	-0.467
5		-	2.91E-02	2.51E-02	1.88E-02	1.52E-02	-	-	-	1.93	0.464
10		-	5.83E-02	5.02E-02	3.76E-02	3.04E-02	-	-	-	3.75	0.926
20		-	0.117	1.00E-01	7.52E-02	6.08E-02	-	-	-	7.13	1.84
-20		-20.69	-26.08	-28.53	-99.44	-	-20.68	-25.67	-27.69	-86.11	-
-10		-10.36	-13.35	-14.85	-	-	-10.36	-13.08	-14.26	-79.9	-
-5	Z^L	-5.19	-6.76	-7.59	-	-	-5.18	-6.6	-7.24		-
5		5.19	6.94	7.98	-	-	5.19	6.73	7.48	-	-
10		10.4	14.08	16.4	-	-	10.39	13.6	15.21	-	-
20		20.83	29.03	34.94	-	-	20.81	27.77	31.52	-	-
-20		-	-0.774	-0.87	-1.19	-1.62	-	-	-	-10.64	-3.68
-10		-	-0.387	-0.435	-0.596	-0.811	-	-	-	-4.67	-1.82
-5	dH^V	-	-0.193	-0.218	-0.298	-0.405	-	-	-	-2.21	-0.908
5		-	0.193	0.218	0.298	0.405	-	-	-	2.03	0.9
10		-	0.387	0.435	0.596	0.81	-	-	-	3.9	1.79
20		-	0.773	0.87	1.19	1.62	-	-	-	7.28	3.55
-20		-	-0.179	-0.153	-0.112	-8.77E-02	-	-	-	-3.5	-0.383
-10		-	-8.95E-02	-7.64E-02	-5.59E-02	-4.40E-02	-	-	-	-1.5	-0.188
-5	dS^V	-	-4.47E-02	-3.82E-02	-2.79E-02	-2.19E-02	-	-	-	-0.707	-0.09
5		-	4.47E-02	3.82E-02	2.73E-02	2.19E-02	-	-	-	0.638	0.09
10		-	8.93E-02	7.63E-02	5.56E-02	4.35E-02	-	-	-	1.22	0.182
20		-	0.178	0.153	0.111	8.75E-02	-	-	-	2.25	0.359
-20		-22.06	-25.22	-27.29	-9622.54		-22.26	-25.22	-26.91	-336.07	-
-10		-9.51	-10.94	-11.93	-	-	-9.6	-10.93	-11.7	-240.27	-
-5	dH^L	-4.46	-5.15	-5.64	-	-	-4.51	-5.14	-5.52		-
5		3.99	4.64	5.13	-	-	4.04	4.62	4.98	-	-
10		7.6	8.85	9.85	-	-	7.68	8.8	9.51	-	-
20		13.87	16.29	18.37	-	-	14.03	16.14	17.52	-	-
-20		-16.69	-16.68	-17.89	-18638.81	-	-16.66	-16.26	-17.1	-125.51	-
-10		-7.23	-7.34	-7.96	-	-	-7.22	-7.12	-7.54	-92.02	-
-5	dS^L	-3.4	-3.48	-3.79	-	-	-3.39	-3.37	-3.57		-
5		3.05	3.17	3.51	-	-	3.05	3.05	3.26	-	-
10		5.82	6.09	6.79	-	-	5.81	5.85	6.26	-	-
20		10.67	11.34	12.87	-	-	10.64	10.82	11.66	-	-
-20		-	-1.03E-01	-9.21E-02	-7.20E-02	-5.94E-02	-	-	-	-2.24	-1.24
-10		-	-5.17E-02	-4.60E-02	-3.60E-02	-2.97E-02	-	-	-	-1.1	-0.622
-5	ϕ^V	-	-2.59E-02	-2.30E-02	-1.80E-02	-1.49E-02	-	-	-	-0.548	-0.311
5		-	2.59E-02	2.30E-02	1.80E-02	1.49E-02	-	-	-	0.542	0.311
10		-	5.18E-02	4.61E-02	3.60E-02	2.97E-02	-	-	-	1.08	0.623
20		-	1.04E-01	9.21E-02	7.21E-02	5.95E-02	-	-	-	2.14	1.25
-20		-99.98	-60.48	-48.8	895.15	-	-99.98	-61.48	-50.18	-10.45	-
-10		-97.35	-32.42	-24.36	-	-	-97.42	-33.3	-25.43	1.26	-
-5	ϕ^L	-81.79	-16.64	-12.09	-	-	-82.03	-17.19	-12.73		-
5		357.45	17.3	11.8	-	-	363.77	18.1	12.65	-	-
10		1700.18	35.08	23.22	-	-	1750.28	36.94	25.13	-	-
20		19364.41	71.37	44.59	-	-	20462.27	76.25	49.33	-	-
-20		-	-60.44	-48.75	895.87	-	-	-	-	-8.4	-
-10		-	-32.39	-24.33	-	-	-	-	-	2.39	-
-5	K$_i$	-	-16.62	-12.07	-	-	-	-	-	-	-
5		-	17.27	11.78	-	-	-	-	-	-	-
10		-	35.01	23.16	-	-	-	-	-	-	-
20		-	71.19	44.45	-	-	-	-	-	-	-

Table B.26 (continued).

%Dev in b_1	P(atm) T(K)	P_c					$1.2P_c$				
		$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-	-	-65.57	-2.82	-	-	-	-45.48	-4.05
-10		-	-	-	-52.74	-1.39	-	-	-	-27.35	-1.99
-5	Z^V	-	-	-	-42.4	-0.693	-	-	-	-15.36	-0.986
5		-	-	-	46.09	0.686	-	-	-	20.41	0.97
10		-	-	-	59.38	1.37	-	-	-	45.52	1.92
20		-	-	-	76.94	2.71	-	-	-	89.04	3.79
-20		-20.68	-25.57	-27.49	-	-	-20.68	-25.47	-27.31	-	-
-10		-10.35	-13.01	-14.13	-	-	-10.35	-12.95	-14	-	-
-5	Z^L	-5.18	-6.56	-7.16	-	-	-5.18	-6.53	-7.09	-	-
5		5.19	6.68	7.37	-	-	5.19	6.64	7.27	-	-
10		10.38	13.49	14.97	-	-	10.38	13.39	14.74	-	-
20		20.8	27.49	30.87	-	-	20.79	27.23	30.28	-	-
-20		-	-	-	-108.94	-4.64	-	-	-	-51.8	-5.89
-10		-	-	-	-68.48	-2.28	-	-	-	-24.62	-2.86
-5	dH^V	-	-	-	-47.35	-1.13	-	-	-	-12.24	-1.41
5		-	-	-	25.63	1.11	-	-	-	12.31	1.38
10		-	-	-	30.98	2.21	-	-	-	23.67	2.72
20		-	-	-	37.2	4.36	-	-	-	37.75	5.32
-20		-	-	-	-56.83	-0.643	-	-	-	-29.41	-1.02
-10		-	-	-	-36.69	-0.313	-	-	-	-14.28	-0.489
-5	dS^V	-	-	-	-25.73	-0.155	-	-	-	-7.17	-0.24
5		-	-	-	14	0.151	-	-	-	7.33	0.231
10		-	-	-	16.79	0.298	-	-	-	14.16	0.455
20		-	-	-	19.93	0.583	-	-	-	22.55	0.88
-20		-22.31	-25.22	-26.83	-	-	-22.36	-25.23	-26.76	-	-
-10		-9.63	-10.93	-11.66	-	-	-9.65	-10.93	-11.62	-	-
-5	dH^L	-4.52	-5.14	-5.49	-	-	-4.53	-5.14	-5.47	-	-
5		4.05	4.61	4.95	-	-	4.06	4.61	4.92	-	-
10		7.7	8.79	9.45	-	-	7.72	8.79	9.39	-	-
20		14.08	16.12	17.37	-	-	14.12	16.1	17.24	-	-
-20		-16.65	-16.16	-16.92	-	-	-16.64	-16.06	-16.75	-	-
-10		-7.21	-7.07	-7.44	-	-	-7.21	-7.02	-7.35	-	-
-5	dS^L	-3.39	-3.34	-3.52	-	-	-3.39	-3.32	-3.48	-	-
5		3.04	3.03	3.21	-	-	3.04	3	3.16	-	-
10		5.8	5.79	6.15	-	-	5.8	5.74	6.05	-	-
20		10.63	10.7	11.42	-	-	10.62	10.58	11.2	-	-
-20		-	-	-	-18.4	-1.66	-	-	-	-20.07	-2.13
-10		-	-	-	-6.95	-0.83	-	-	-	-8.2	-1.07
-5	ϕ^V	-	-	-	-2.87	-0.415	-	-	-	-3.69	-0.533
5		-	-	-	1.16	0.415	-	-	-	2.94	0.533
10		-	-	-	2.15	0.831	-	-	-	5.26	1.07
20		-	-	-	3.97	1.66	-	-	-	8.75	2.13
-20		-99.98	-61.74	-50.53	-	-	-99.98	-61.99	-50.88	-	-
-10		-97.44	-33.53	-25.7	-	-	-97.46	-33.75	-25.96	-	-
-5	ϕ^L	-82.1	-17.34	-12.89	-	-	-82.16	-17.48	-13.05	-	-
5		365.43	18.31	12.86	-	-	367.13	18.51	13.07	-	-
10		1763.73	37.42	25.61	-	-	1777.33	37.91	26.09	-	-
20		20765.32	77.53	50.53	-	-	21072.6	78.8	51.71	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.27 ALS EOS; n-decane; % deviation of thermodynamic properties as parameter b_2 varies.

%Dev in b_2	P(atm) T(K)	1					$0.8P_c$				
		$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20	Z^V	-	3.40E-03	2.18E-03	8.32E-04	3.79E-04	-	-	-	1.62	0.186
-10		-	1.70E-03	1.09E-03	4.13E-04	1.93E-04	-	-	-	0.833	0.09
-5		-	8.51E-04	5.46E-04	2.07E-04	9.03E-05	-	-	-	0.422	0.05
5		-	-8.44E-04	-5.46E-04	-2.13E-04	-1.02E-04	-	-	-	-0.434	-0.05
10		-	-1.70E-03	-1.09E-03	-4.25E-04	-1.93E-04	-	-	-	-0.88	-0.09
20		-	-3.40E-03	-2.18E-03	-8.45E-04	-3.85E-04	-	-	-	-1.81	-0.189
-20	Z^L	0.598	5.11	7.29	-	-	0.587	4.7	6.35	-	-
-10		0.299	2.52	3.56	-	-	0.294	2.33	3.14	-	-
-5		0.149	1.25	1.76	-	-	0.147	1.16	1.56	-	-
5		-0.149	-1.24	-1.72	-	-	-0.147	-1.15	-1.54	-	-
10		-0.298	-2.46	-3.41	-	-	-0.294	-2.3	-3.06	-	-
20		-0.596	-4.87	-6.68	-	-	-0.587	-4.57	-6.06	-75.29	-
-20	dH^V	-	3.93E-02	3.41E-02	2.57E-02	2.10E-02	-	-	-	2.05	0.58
-10		-	1.96E-02	1.70E-02	1.28E-02	1.06E-02	-	-	-	1.06	0.291
-5		-	9.84E-03	8.54E-03	6.41E-03	5.12E-03	-	-	-	0.536	0.146
5		-	-9.80E-03	-8.53E-03	-6.50E-03	-5.46E-03	-	-	-	-0.552	-0.147
10		-	-1.97E-02	-1.71E-02	-1.30E-02	-1.06E-02	-	-	-	-1.12	-0.294
20		-	-3.93E-02	-3.41E-02	-2.59E-02	-2.12E-02	-	-	-	-2.32	-0.591
-20	dS^V	-	4.47E-02	3.81E-02	2.76E-02	2.16E-02	-	-	-	0.718	0.10
-10		-	2.23E-02	1.90E-02	1.37E-02	1.09E-02	-	-	-	0.369	0.05
-5		-	1.12E-02	9.54E-03	6.86E-03	5.25E-03	-	-	-	0.188	0.02
5		-	-1.11E-02	-9.54E-03	-7.00E-03	-5.68E-03	-	-	-	-0.194	-0.03
10		-	-2.24E-02	-1.91E-02	-1.40E-02	-1.09E-02	-	-	-	-0.394	-0.05
20		-	-4.47E-02	-3.82E-02	-2.79E-02	-2.19E-02	-	-	-	-0.815	-0.101
-20	dH^L	6.03	6.95	7.64	-	-	6.06	6.86	7.34	-	-
-10		3.17	3.64	3.99	-	-	3.19	3.6	3.85	-	-
-5		1.63	1.87	2.04	-	-	1.64	1.85	1.97	-	-
5		-1.72	-1.97	-2.15	-	-	-1.73	-1.95	-2.08	-	-
10		-3.55	-4.06	-4.42	-	-	-3.56	-4.02	-4.28	-	-
20		-7.56	-8.63	-9.36	-	-	-7.59	-8.55	-9.11	-201.93	-
-20	dS^L	4.7	4.87	5.34	-	-	4.69	4.68	4.96	-	-
-10		2.47	2.54	2.78	-	-	2.46	2.45	2.59	-	-
-5		1.27	1.3	1.42	-	-	1.26	1.26	1.33	-	-
5		-1.34	-1.37	-1.48	-	-	-1.33	-1.32	-1.39	-	-
10		-2.75	-2.81	-3.04	-	-	-2.75	-2.72	-2.86	-	-
20		-5.86	-5.95	-6.4	-	-	-5.85	-5.77	-6.06	-77.97	-
-20	ϕ^V	-	1.52E-03	1.01E-03	4.11E-04	1.91E-04	-	-	-	0.267	0.07
-10		-	7.62E-04	5.08E-04	2.09E-04	9.28E-05	-	-	-	0.135	0.03
-5		-	3.78E-04	2.51E-04	1.04E-04	5.23E-05	-	-	-	0.07	0.02
5		-	-3.84E-04	-2.51E-04	-9.86E-05	-4.05E-05	-	-	-	-0.07	-0.02
10		-	-7.57E-04	-5.03E-04	-1.94E-04	-9.29E-05	-	-	-	-0.138	-0.03
20		-	-1.52E-03	-1.01E-03	-4.00E-04	-1.86E-04	-	-	-	-0.279	-0.07
-20	ϕ^L	878.54	25.4	16.71	-	-	880.15	26.01	17.49	-	-
-10		231.8	12.72	8.56	-	-	232.09	12.99	8.92	-	-
-5		85.12	6.36	4.33	-	-	85.21	6.49	4.5	-	-
5		-47.89	-6.36	-4.44	-	-	-47.9	-6.47	-4.59	-	-
10		-73.89	-12.7	-8.98	-	-	-73.91	-12.91	-9.27	-	-
20		-94.29	-25.3	-18.38	-	-	-94.3	-25.65	-18.88	4.28	-
-20	K_i	-	25.4	16.71	-	-	-	-	-	-	-
-10		-	12.72	8.56	-	-	-	-	-	-	-
-5		-	6.36	4.33	-	-	-	-	-	-	-
5		-	-6.36	-4.44	-	-	-	-	-	-	-
10		-	-12.7	-8.98	-	-	-	-	-	-	-
20		-	-25.3	-18.38	-	-	-	-	-	4.57	-

Table B.27 (continued).

%Dev	P(atm)	P_c					$1.2P_c$				
in b_2	T(K)	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-	-	48.1	0.335	-	-	-	26.66	0.553
-10		-	-	-	38.05	0.165	-	-	-	12.38	0.28
-5	Z^V	-	-	-	30.04	8.47E-02	-	-	-	5.92	0.141
5		-	-	-	-30.13	-8.54E-02	-	-	-	-5.41	-0.142
10		-	-	-	-37.46	-0.171	-	-	-	-10.36	-0.286
20		-	-	-	-46.45	-0.345	-	-	-	-19.05	-0.578
-20		0.584	4.6	6.15	-	-	0.582	4.51	5.96	-	-
-10		0.292	2.29	3.04	-	-	0.291	2.24	2.96	-	-
-5	Z^L	0.146	1.14	1.52	-	-	0.145	1.12	1.47	-	-
5		-0.146	-1.13	-1.5	-	-	-0.146	-1.11	-1.46	-	-
10		-0.292	-2.26	-2.99	-	-	-0.291	-2.22	-2.91	-	-
20		-0.585	-4.5	-5.92	-	-	-0.583	-4.43	-5.78	-	-
-20		-	-	-	26.94	0.835	-	-	-	16.52	1.15
-10		-	-	-	22.32	0.421	-	-	-	8.55	0.582
-5	dH^V	-	-	-	18.35	0.211	-	-	-	4.33	0.293
5		-	-	-	-29.55	-0.213	-	-	-	-4.42	-0.292
10		-	-	-	-40.49	-0.427	-	-	-	-8.95	-0.595
20		-	-	-	-58.05	-0.86	-	-	-	-18.36	-1.2
-20		-	-	-	14.77	0.166	-	-	-	9.97	0.26
-10		-	-	-	12.28	8.36E-02	-	-	-	5.14	0.131
-5	dS^V	-	-	-	10.12	4.19E-02	-	-	-	2.6	0.07
5		-	-	-	-16.26	-4.23E-02	-	-	-	-2.64	-0.07
10		-	-	-	-22.17	-8.49E-02	-	-	-	-5.33	-0.135
20		-	-	-	-31.5	-0.171	-	-	-	-10.87	-0.273
-20		6.07	6.84	7.28	-	-	6.08	6.82	7.23	-	-
-10		3.19	3.59	3.82	-	-	3.19	3.58	3.79	-	-
-5	dH^L	1.64	1.84	1.96	-	-	1.64	1.84	1.95	-	-
5		-1.73	-1.95	-2.07	-	-	-1.73	-1.94	-2.06	-	-
10		-3.57	-4.01	-4.26	-	-	-3.57	-4	-4.23	-	-
20		-7.6	-8.53	-9.06	-	-	-7.61	-8.52	-9.01	-	-
-20		4.69	4.64	4.87	-	-	4.68	4.6	4.8	-	-
-10		2.46	2.43	2.55	-	-	2.46	2.41	2.51	-	-
-5	dS^L	1.26	1.24	1.31	-	-	1.26	1.23	1.29	-	-
5		-1.33	-1.31	-1.37	-	-	-1.33	-1.3	-1.35	-	-
10		-2.74	-2.7	-2.82	-	-	-2.74	-2.67	-2.78	-	-
20		-5.84	-5.72	-5.98	-	-	-5.84	-5.68	-5.9	-	-
-20		-	-	-	0.881	0.115	-	-	-	3.01	0.177
-10		-	-	-	0.489	5.75E-02	-	-	-	1.68	0.09
-5	ϕ^V	-	-	-	0.267	2.88E-02	-	-	-	0.887	0.04
5		-	-	-	-0.639	-2.89E-02	-	-	-	-0.992	-0.04
10		-	-	-	-1.49	-5.80E-02	-	-	-	-2.1	-0.09
20		-	-	-	-3.73	-0.116	-	-	-	-4.7	-0.181
-20		880.5	26.16	17.68	-	-	880.97	26.31	17.86	-	-
-10		232.16	13.06	9	-	-	232.21	13.13	9.09	-	-
-5	ϕ^L	85.2	6.52	4.54	-	-	85.24	6.55	4.58	-	-
5		-47.9	-6.5	-4.63	-	-	-47.91	-6.52	-4.66	-	-
10		-73.92	-12.96	-9.34	-	-	-73.92	-13.01	-9.41	-	-
20		-94.31	-25.74	-19.01	-	-	-94.31	-25.82	-19.13	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.28 ALS EOS; n-decane; % deviation of thermodynamic properties as parameter b_3 varies.

%Dev in b_3	P(atm)	1					0.8P_c				
	T(K)	0.3T_b	T_b	0.8T_c	T_c	1.2T_c	0.3T_b	T_b	0.8T_c	T_c	1.2T_c
-20		-	-2.03E-02	-1.31E-02	-5.04E-03	-2.30E-03	-	-	-	-10.35	-0.986
-10		-	-1.01E-02	-6.52E-03	-2.52E-03	-1.16E-03	-	-	-	-4.32	-0.481
-5	Z^V	-	-5.06E-03	-3.26E-03	-1.26E-03	-5.78E-04	-	-	-	-2.02	-0.238
5		-	5.05E-03	3.25E-03	1.26E-03	5.72E-04	-	-	-	1.81	0.232
10		-	1.01E-02	6.50E-03	2.50E-03	1.14E-03	-	-	-	3.45	0.459
20		-	2.02E-02	1.30E-02	5.01E-03	2.29E-03	-	-	-	6.34	0.897
-20		-0.477	-5.11	-7.6	-	-	-0.469	-4.76	-6.84	-81.41	-
-10		-0.239	-2.68	-4.08	-	-	-0.236	-2.48	-3.62	-76.46	-
-5	Z^L	-0.12	-1.37	-2.12	-	-	-0.118	-1.26	-1.86	-	-
5		0.121	1.44	2.3	-	-	0.118	1.32	1.98	-	-
10		0.242	2.96	4.8	-	-	0.237	2.69	4.1	-	-
20		0.486	6.26	10.59	-	-	0.477	5.64	8.77	-	-
-20		-	-0.235	-0.205	-0.155	-0.127	-	-	-	-13.92	-3.15
-10		-	-0.118	-1.02E-01	-7.77E-02	-6.37E-02	-	-	-	-5.68	-1.54
-5	dH^V	-	-5.87E-02	-5.11E-02	-3.89E-02	-3.18E-02	-	-	-	-2.63	-0.76
5		-	5.86E-02	5.10E-02	3.88E-02	3.17E-02	-	-	-	2.33	0.743
10		-	0.117	1.02E-01	7.74E-02	6.33E-02	-	-	-	4.41	1.47
20		-	0.234	0.204	0.155	0.127	-	-	-	8.05	2.88
-20		-	-0.267	-0.228	-0.167	-0.131	-	-	-	-4.93	-0.535
-10		-	-0.133	-0.114	-8.34E-02	-6.57E-02	-	-	-	-1.99	-0.261
-5	dS^V	-	-6.66E-02	-5.70E-02	-4.17E-02	-3.28E-02	-	-	-	-0.919	-0.129
5		-	6.65E-02	5.69E-02	4.16E-02	3.26E-02	-	-	-	0.806	0.125
10		-	0.133	0.114	8.29E-02	6.53E-02	-	-	-	1.52	0.248
20		-	0.265	0.227	0.166	0.131	-	-	-	2.76	0.485
-20		-11.34	-13.46	-14.97	-	-	-11.39	-13.37	-14.61	-282.87	-
-10		-5.31	-6.35	-7.12	-	-	-5.34	-6.3	-6.92	-214.7	-
-5	dH^L	-2.58	-3.09	-3.48	-	-	-2.59	-3.06	-3.37	-	-
5		2.43	2.94	3.34	-	-	2.44	2.9	3.22	-	-
10		4.73	5.74	6.57	-	-	4.75	5.66	6.29	-	-
20		8.96	10.98	12.78	-	-	9.01	10.81	12.09	-	-
-20		-7.99	-8.14	-9.1	-	-	-7.98	-7.91	-8.62	-106.83	-
-10		-3.75	-3.89	-4.4	-	-	-3.75	-3.77	-4.14	-82.44	-
-5	dS^L	-1.82	-1.9	-2.17	-	-	-1.82	-1.84	-2.03	-	-
5		1.72	1.83	2.12	-	-	1.72	1.77	1.96	-	-
10		3.36	3.6	4.19	-	-	3.35	3.46	3.87	-	-
20		6.38	6.97	8.28	-	-	6.37	6.68	7.53	-	-
-20		-	-9.13E-03	-6.06E-03	-2.43E-03	-1.14E-03	-	-	-	-1.5	-0.377
-10		-	-4.56E-03	-3.02E-03	-1.21E-03	-5.61E-04	-	-	-	-0.706	-0.186
-5	ϕ^V	-	-2.28E-03	-1.51E-03	-6.03E-04	-2.80E-04	-	-	-	-0.344	######
5		-	2.27E-03	1.51E-03	6.07E-04	2.85E-04	-	-	-	0.329	######
10		-	4.55E-03	3.02E-03	1.22E-03	5.70E-04	-	-	-	0.645	0.181
20		-	9.09E-03	6.03E-03	2.44E-03	1.13E-03	-	-	-	1.24	0.357
-20		-98.84	-43.85	-35.42	-	-	-98.84	-44.12	-35.87	-6.35	-
-10		-87.57	-23.44	-18.2	-	-	-87.58	-23.64	-18.51	2.01	-
-5	ϕ^L	-63.59	-12.08	-9.2	-	-	-63.61	-12.2	-9.37	-	-
5		159.12	12.75	9.33	-	-	159.2	12.9	9.56	-	-
10		536.67	26.11	18.73	-	-	537.15	26.46	19.25	-	-
20		3237.07	54.44	37.54	-	-	3241.49	55.35	38.83	-	-
-20		-	-43.84	-35.41	-	-	-	-	-	-4.92	-
-10		-	-23.44	-18.2	-	-	-	-	-	2.74	-
-5	K_i	-	-12.08	-9.2	-	-	-	-	-	-	-
5		-	12.75	9.33	-	-	-	-	-	-	-
10		-	26.11	18.73	-	-	-	-	-	-	-
20		-	54.43	37.53	-	-	-	-	-	-	-

Table B.28 (continued).

%Dev in b_3	P(atm) T(K)	P_c					$1.2P_c$				
		$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-	-	-54.44	-1.73	-	-	-	-28.44	-2.79
-10		-	-	-	-46.2	-0.835	-	-	-	-18.04	-1.33
-5	Z^V	-	-	-	-38.57	-0.41	-	-	-	-10.48	-0.648
5		-	-	-	46.81	0.397	-	-	-	15.62	0.619
10		-	-	-	59.72	0.781	-	-	-	38.59	1.21
20		-	-	-	75.92	1.51	-	-	-	83.22	2.33
-20		-0.467	-4.68	-6.66	-	-	-0.465	-4.6	-6.5	-	-
-10		-0.234	-2.43	-3.51	-	-	-0.233	-2.38	-3.42	-	-
-5	Z^L	-0.117	-1.24	-1.81	-	-	-0.117	-1.21	-1.75	-	-
5		0.118	1.29	1.91	-	-	0.117	1.26	1.85	-	-
10		0.236	2.63	3.95	-	-	0.235	2.57	3.81	-	-
20		0.474	5.49	8.4	-	-	0.472	5.35	8.07	-	-
-20		-	-	-	-84.73	-4.44	-	-	-	-34.86	-6.02
-10		-	-	-	-58.94	-2.14	-	-	-	-18.31	-2.86
-5	dH^V	-	-	-	-42.91	-1.05	-	-	-	-9.54	-1.39
5		-	-	-	26.44	1.02	-	-	-	10.78	1.33
10		-	-	-	31.98	2	-	-	-	22.46	2.61
20		-	-	-	38.33	3.88	-	-	-	38.23	5
-20		-	-	-	-44.32	-0.878	-	-	-	-19.57	-1.36
-10		-	-	-	-31.61	-0.422	-	-	-	-10.52	-0.641
-5	dS^V	-	-	-	-23.33	-0.207	-	-	-	-5.55	-0.312
5		-	-	-	14.48	0.2	-	-	-	6.41	0.297
10		-	-	-	17.43	0.393	-	-	-	13.47	0.58
20		-	-	-	20.73	0.761	-	-	-	23.01	1.11
-20		-11.41	-13.35	-14.53	-	-	-11.42	-13.33	-14.46	-	-
-10		-5.34	-6.28	-6.87	-	-	-5.35	-6.27	-6.83	-	-
-5	dH^L	-2.59	-3.35	-3.35	-	-	-2.59	-3.05	-3.33	-	-
5		2.44	2.9	3.19	-	-	2.45	2.89	3.17	-	-
10		4.75	5.65	6.24	-	-	4.76	5.63	6.19	-	-
20		9.02	10.77	11.96	-	-	9.03	10.74	11.85	-	-
-20		-7.97	-7.86	-8.51	-	-	-7.97	-7.8	-8.41	-	-
-10		-3.75	-3.74	-4.08	-	-	-3.74	-3.71	-4.02	-	-
-5	dS^L	-1.82	-1.83	-2	-	-	-1.82	-1.81	-1.97	-	-
5		1.72	1.75	1.93	-	-	1.72	1.73	1.9	-	-
10		3.35	3.43	3.8	-	-	3.35	3.4	3.74	-	-
20		6.37	6.61	7.38	-	-	6.36	6.54	7.24	-	-
-20		-	-	-	-14.07	-0.618	-	-	-	-15.29	-0.932
-10		-	-	-	-5.85	-0.303	-	-	-	-6.78	-0.454
-5	ϕ^V	-	-	-	-2.53	-0.15	-	-	-	-3.15	-0.224
5		-	-	-	0.948	0.147	-	-	-	2.63	0.219
10		-	-	-	1.7	0.292	-	-	-	4.71	0.432
20		-	-	-	2.97	0.574	-	-	-	7.59	0.846
-20		-98.84	-44.19	-35.98	-	-	-98.84	-44.26	-36.09	-	-
-10		-87.58	-23.69	-18.58	-	-	-87.58	-23.74	-18.66	-	-
-5	ϕ^L	-63.3	-12.22	-9.41	-	-	-63.61	-12.25	-9.46	-	-
5		152.22	12.94	8.61	-	-	159.24	12.98	9.66	-	-
10		537.26	26.55	19.37	-	-	537.4	26.64	19.49	-	-
20		3242.71	55.58	39.14	-	-	3243.64	55.8	39.43	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.29 ALS EOS; methane, n-nonane, and n-decane; % deviation of vapor preesure as parameters a(T), b_1, b_2, and b_3 varie.

%dev. of substance	T	methane					n-nonane				
		$0.1T_c$	$0.3T_c$	$0.5T_c$	$0.6T_c$	$0.8T_c$	$0.1T_c$	$0.3T_c$	$0.5T_c$	$0.6T_c$	$0.8T_c$
a(T)	-20	1.22E+07	2.25E+03	3.84E+02	2.41E+02	1.35E+02	6.22E+10	1.31E+04	8.06E+02	3.97E+02	1.66E+02
	-10	3.51E+04	3.88E+02	1.21E+02	8.49E+01	5.27E+01	2.51E+06	1.06E+03	2.03E+02	1.24E+02	6.27E+01
	-5	1.78E+03	1.21E+02	4.88E+01	3.61E+01	2.35E+01	1.58E+04	2.41E+02	7.44E+01	4.98E+01	2.75E+01
	5	-9.47E+01	-5.49E+01	-3.30E+01	-2.66E+01	-1.89E+01	-9.94E+01	-7.08E+01	-4.28E+01	-3.34E+01	-2.15E+01
	10	-9.97E+01	-9.98E+01	-5.52E+01	-4.62E+01	-3.42E+01	-1.00E+02	-9.15E+01	-6.74E+01	-5.58E+01	-3.84E+01
	20	-1.00E+02	-9.59E+01	-8.01E+01	-7.12E+01	-5.67E+01	-1.00E+02	9.93E+01	-8.95E+01	-8.06E+01	-6.21E+01
b_1	-20	-1.00E+02	-9.62E+01	-7.78E+01	-6.66E+01	-4.75E+01	-1.00E+02	-9.94E+01	-8.81E+01	-7.68E+01	-5.19E+01
	-10	-9.96E+01	-7.59E+01	-4.79E+01	-3.78E+01	-2.44E+01	-1.00E+02	-8.87E+01	-5.99E+01	-4.65E+01	-2.69E+01
	-5	-9.28E+01	-4.88E+01	-2.64E+01	-2.00E+01	-1.23E+01	-9.88E+01	-6.40E+01	-3.48E+01	-2.53E+01	-1.36E+01
	5	9.66E+02	8.22E+01	3.14E+01	2.20E+01	1.25E+01	5.18E+03	1.49E+02	4.62E+01	2.96E+01	1.39E+01
	10	9.02E+03	2.13E+02	6.80E+01	4.59E+01	2.51E+01	1.89E+05	4.65E+02	1.05E+02	6.35E+01	2.81E+01
	20	3.89E+05	7.04E+02	1.57E+02	9.88E+01	5.05E+01	9.63E+07	2.25E+03	2.70E+02	1.44E+02	5.69E+01
b_2	-20	1.54E+03	1.01E+02	3.67E+01	2.52E+01	1.37E+01	3.53E+04	2.80E+02	7.29E+01	4.47E+01	1.96E+01
	-10	3.27E+02	4.39E+01	1.77E+01	1.24E+01	6.8828	2.08E+03	1.02E+02	3.34E+01	2.15E+01	9.86
	-5	1.10E+02	2.04E+01	8.6564	6.1504	3.4552	3.86E+02	4.34E+01	1.59E+01	1.05E+01	4.95
	5	-5.38E+01	-1.76E+01	-8.3094	-6.0456	-3.4828	-8.12E+01	-3.17E+01	-1.45E+01	-1.00E+01	-4.98
	10	-7.94E+01	-3.27E+01	-1.63E+01	-1.20E+01	-6.9933	-9.68E+01	-5.44E+01	-2.76E+01	-1.96E+01	-9.99
	20	-9.63E+01	-5.64E+01	-3.11E+01	-2.35E+01	-1.41E+01	-9.99E+01	-8.12E+01	-4.98E+01	-3.72E+01	-2.01E+01
b_3	-20	-9.94E+01	-7.40E+01	-4.77E+01	-3.85E+01	-2.68E+01	-1.00E+02	-9.30E+01	-6.92E+01	-5.68E+01	-3.77E+01
	-10	-9.11E+01	-4.71E+01	-2.64E+01	-2.06E+01	-1.38E+01	-9.95E+01	-7.12E+01	-4.23E+01	-3.24E+01	-1.99E+01
	-5	-6.92E+01	-2.67E+01	-1.38E+01	-1.06E+01	-6.9702	-9.20E+01	-4.53E+01	-2.34E+01	-1.73E+01	-1.02E+01
	5	2.08E+02	3.44E+01	1.52E+01	1.12E+01	7.1393	9.90E+02	7.66E+01	2.85E+01	1.95E+01	1.07E+01
	10	7.98E+02	7.81E+01	3.18E+01	2.31E+01	1.44E+01	1.03E+04	2.02E+02	6.27E+01	4.13E+01	2.18E+01
	20	6.56E+03	2.01E+02	6.93E+01	4.87E+01	2.95E+01	6.74E+05	7.13E+02	1.51E+02	9.23E+01	4.54E+01

Table B.29 (continued).

%dev. of	substance	n-decane				
	T	$0.1T_c$	$0.3T_c$	$0.5T_c$	$0.6T_c$	$0.8T_c$
a(T)	-20	1.70E+11	1.60E+04	8.74E+02	4.19E+02	1.70E+02
	-10	4.15E+06	1.18E+03	2.14E+02	1.29E+02	6.39E+01
	-5	2.03E+04	2.58E+02	7.76E+01	5.15E+01	2.80E+01
	5	-9.95E+01	-7.22E+01	-4.39E+01	-3.42E+01	-2.18E+01
	10	-1.00E+02	-9.23E+01	-6.86E+01	-5.68E+01	-3.89E+01
	20	-1.00E+02	-9.94E+01	-9.02E+01	-8.15E+01	-6.26E+01
b_1	-20	-1.00E+02	-9.95E+01	-8.89E+01	-7.78E+01	-5.23E+01
	-10	-1.00E+02	-8.96E+01	-6.10E+01	-4.74E+01	-2.72E+01
	-5	-9.90E+01	-6.54E+01	-3.56E+01	-2.59E+01	-1.38E+01
	5	6.23E+03	1.58E+02	4.79E+01	3.05E+01	1.41E+01
	10	2.67E+05	5.03E+02	1.10E+02	6.55E+01	2.84E+01
	20	1.79E+08	2.54E+03	2.85E+02	1.49E+02	5.76E+01
b_2	-20	5.20E+04	3.11E+02	7.78E+01	4.72E+01	2.02E+01
	-10	2.58E+03	1.10E+02	3.54E+01	2.26E+01	1.02E+01
	-5	4.41E+02	4.65E+01	1.69E+01	1.10E+01	5.1096
	5	-8.32E+01	-3.32E+01	-1.52E+01	-1.05E+01	-5.1417
	10	-9.75E+01	-5.65E+01	-2.89E+01	-2.05E+01	-1.03E+01
	20	-1.00E+02	-8.31E+01	-5.17E+01	-3.87E+01	-2.07E+01
b_3	-20	-1.00E+02	-9.41E+01	-7.12E+01	-5.86E+01	-3.88E+01
	-10	-9.96E+01	-7.33E+01	-4.40E+01	-3.37E+01	-2.05E+01
	-5	-9.33E+01	-4.73E+01	-2.45E+01	-1.80E+01	-1.05E+01
	5	1.18E+03	8.27E+01	3.02E+01	2.05E+01	1.11E+01
	10	1.42E+04	2.23E+02	6.69E+01	4.37E+01	2.27E+01
	20	1.22E+06	8.19E+02	1.63E+02	9.83E+01	4.74E+01

Table B.30 ALS EOS; methane, n-nonane, and n-decane; vapor and liquid compressbility fac

vapor and liquid fugacity coeficient, and vapor pressure.

substance	methane				
T	Z^V	Z^L	ϕ_i^V	ϕ_i^L	P^{sat}(bar)
$0.1T_c$	1	0	1	1	3.10E-23
$0.3T_c$	0.99998705	0.00000061	0.99998705	0.99998705	8.79E-05
$0.5T_c$	0.99078076	0.00091934	0.99085999	0.99085999	0.20154
$0.6T_c$	0.96225271	0.00504599	0.96353949	0.96354	1.2496
$0.8T_c$	0.80578745	0.04302874	0.8366771	0.83667713	11.691
substance	n-nonane				
T	Z^V	Z^L	ϕ_i^V	ϕ_i^L	P^{sat}(bar)
$0.1T_c$	1	0	1	1	9.03E-42
$0.3T_c$	0.99999999	0	0.99999999	1	1.41E-08
$0.5T_c$	0.99917577	0.00077183	0.9991764	0.99917679	6.52E-03
$0.6T_c$	0.99061323	0.00077183	0.9906931	0.9906931	0.11981
$0.8T_c$	0.87173205	0.01974294	0.88510337	0.88510337	3.4012
substance	n-decane				
T	Z^V	Z^L	ϕ_i^V	ϕ_i^L	P^{sat}(bar)
$0.1T_c$	1	0	1	1.00000003	5.78E-44
$0.3T_c$	1	0	1	1	5.09E-09
$0.5T_c$	0.99937801	0.00003423	0.99937837	0.99937855	4.39E-03
$0.6T_c$	0.99200009	0.00062561	0.9920581	0.9920581	9.16E-02
$0.8T_c$	0.87739217	0.0181446	0.88959917	0.88959917	2.9518

Table B.31 TCC EOS; methane; % deviation of thermodynamic properties as parameter a(T) varies.

%Dev	P(atm)	1					0.8P$_c$				
in a(T)	T(K)	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$
-20		-	0.79	0.38	0.22	0.15	-	-	-	25.53	8.37
-10		-	0.40	0.19	0.11	0.07	-	-	-	14.56	4.36
-5	Z^V	-	0.20	0.09	0.06	0.04	-	-	-	7.95	2.23
5		-	-0.20	-0.09	-0.06	-0.04	-	-	-	-10.69	-2.34
10		-	-0.40	-0.19	-0.11	-0.07	-	-	-	-	-4.82
20		-	-0.80	-0.38	-0.22	-0.15	-	-	-	-	-10.28
-20		0.70	7.72	27297.75	-	-	0.69	6.83	35.03	-	-
-10		0.31	3.00	15.04	-	-	0.30	2.73	9.58	-	-
-5	Z^L	0.15	1.35	5.49	-	-	0.14	1.24	3.98	-	-
5		-0.13	-1.13	-3.75	-	-	-0.13	-1.05	-3.00	-74.48	-
10		-0.25	-2.09	-6.53	-	-	-0.24	-1.95	-5.34	-78.54	-
20		-0.45	-3.64	-10.43	-99.67	-	-0.44	-3.41	-8.81	-81.36	-
-20		-	19.46	19.40	19.60	19.91	-	-	-	34.07	25.68
-10		-	9.77	9.72	9.81	9.96	-	-	-	19.83	13.44
-5	dH^V	-	4.89	4.87	4.91	4.98	-	-	-	10.98	6.89
5		-	-4.91	-4.87	-4.91	-4.99	-	-	-	-15.52	-7.28
10		-	-9.85	-9.76	-9.83	-9.98	-	-	-	-	-15.03
20		-	-19.78	-19.55	-19.69	-19.97	-	-	-	-	-32.34
-20		-	17.29	16.60	16.26	16.04	-	-	-	6.48	2.33
-10		-	8.70	8.32	8.15	8.03	-	-	-	3.91	1.24
-5	dS^V	-	4.36	4.17	4.08	4.01	-	-	-	2.21	0.64
5		-	-4.39	-4.18	-4.08	-4.02	-	-	-	-3.34	-0.69
10		-	-8.80	-8.37	-8.17	-8.05	-	-	-	-	-1.44
20		-	-17.71	-16.79	-16.37	-16.11	-	-	-	-	-3.39
-20		17.27	20.13	99.45	-	-	17.45	20.01	31.60	-	-
-10		8.62	9.81	15.96	-	-	8.72	9.81	13.55	-	-
-5	dH^L	4.31	4.86	7.24	-	-	4.36	4.87	6.50	-	-
5		-4.31	-4.79	-6.57	-	-	-4.35	-4.81	-6.15	-198.50	-
10		-8.61	-9.52	-12.74	-	-	-8.70	-9.56	-12.06	-248.00	-
20		-17.21	-18.85	-24.35	-20233.00	-	-17.40	-18.96	-23.37	-310.10	-
-20		2.18	6.11	99.76	-	-	2.14	5.61	13.50	-	-
-10		1.01	2.67	6.93	-	-	0.99	2.49	4.93	-	-
-5	dS^L	0.49	1.26	2.87	-	-	0.48	1.18	2.23	-	-
5		-0.46	-1.14	-2.28	-	-	-0.45	-1.08	-1.90	-51.45	-
10		-0.89	-2.18	-4.20	-	-	-0.88	-2.06	-3.56	-61.92	-
20		-1.69	-4.01	-7.32	-53278.00	-	-1.66	-3.82	-6.35	-72.47	-
-20		-	0.75	0.37	0.22	0.15	-	-	-	11.22	6.12
-10		-	0.37	0.18	0.11	0.07	-	-	-	5.75	3.07
-5	ϕ_i^V	-	0.19	0.09	0.06	0.04	-	-	-	2.92	1.54
5		-	-0.19	-0.09	-0.06	-0.04	-	-	-	-3.08	-1.55
10		-	-0.37	-0.18	-0.11	-0.07	-	-	-	-	-3.11
20		-	-0.75	-0.37	-0.22	-0.15	-	-	-	-	-6.28
-20		56311.36	249.37	-89.18	-	-	56479.57	253.08	98.46	-	-
-10		2291.64	89.17	41.81	-	-	2294.76	89.96	43.93	-	-
-5	ϕ_i^L	389.80	37.89	19.75	-	-	390.10	38.15	20.45	-	-
5		-79.64	-27.79	-17.16	-	-	-79.65	-27.91	-17.50	-1.85	-
10		-95.86	-48.06	-31.80	-	-	-95.87	-48.21	-32.30	-11.94	-
20		-99.83	-73.38	-54.46	1484.00	-	-99.83	-73.52	-55.00	-31.34	-
-20		-	246.78	-89.22	-	-	-	-	-	-	-
-10		-	88.47	41.55	-	-	-	-	-	-	-
-5	K$_i$	-	37.63	19.64	-	-	-	-	-	-	-
5		-	-27.66	-17.08	-	-	-	-	-	1.27	-
10		-	-47.86	-31.68	-	-	-	-	-	-	-
20		-	-73.18	-54.29	1488.00	-	-	-	-	-	-

Table B.31 (continued).

%Dev in a(T)	P(atm) T(K)	P_c					1.2P_c				
		$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-	-	128.44	11.82	-	-	-	169.72	15.96
-10		-	-	-	95.90	6.25	-	-	-	109.29	8.58
-5	Z^V	-	-	-	72.17	3.23	-	-	-	50.02	4.48
5		-	-	-	-42.10	-3.47	-	-	-	-14.69	-4.97
10		-	-	-	-48.42	-7.26	-	-	-	-22.13	-10.63
20		-	-	-	-54.35	-13.26	-	-	-	-30.16	-26.23
-20		0.68	6.64	29.10	-	-91.55	0.68	6.45	25.34	-	-
-10		0.30	2.66	8.84	-	-	0.30	2.60	8.23	-	-
-5	Z^L	0.14	1.21	3.73	-	-	0.14	1.19	3.51	-	-
5		-0.13	-1.03	-2.85	-	-	-0.13	-1.01	-2.73	-	-
10		-0.24	-1.91	-5.11	-	-	-0.24	-1.88	-4.91	-	-
20		-0.44	-3.35	-8.49	-	-	-0.44	-3.30	-8.19	-	-
-20		-	-	-	58.41	27.63	-	-	-	6.63	29.73
-10		-	-	-	46.87	14.74	-	-	-	47.20	16.21
-5	dH^V	-	-	-	37.68	7.64	-	-	-	28.32	8.53
5		-	-	-	-52.66	-8.33	-	-	-	-16.02	-9.68
10		-	-	-	-71.35	-17.55	-	-	-	-28.19	-21.04
20		-	-	-	-99.60	-40.10	-	-	-	-48.12	-54.77
-20		-	-	-	21.43	3.11	-	-	-	26.30	4.01
-10		-	-	-	17.86	1.69	-	-	-	20.69	2.25
-5	dS^V	-	-	-	14.75	0.89	-	-	-	12.43	1.20
5		-	-	-	-20.07	-1.00	-	-	-	-6.16	-1.41
10		-	-	-	-25.81	-2.13	-	-	-	-10.28	-3.13
20		-	-	-	-33.06	-5.07	-	-	-	-16.04	-8.69
-20		17.50	20.00	29.64	-	-	17.55	19.95	28.36	-	-
-10		8.74	9.81	13.22	-	-	8.76	9.81	12.96	-	-
-5	dH^L	4.37	4.87	6.39	-	-	4.38	4.87	6.29	-	-
5		-4.37	-4.81	-6.08	-	-	-4.38	-4.82	-6.02	-	-
10		-8.73	-9.57	-11.94	-	-	-8.75	-9.59	-11.84	-	-
20		-17.44	-18.99	-23.20	-	-	-17.49	-19.02	-23.04	-	-
-20		2.13	5.50	12.01	-	-	2.12	5.40	10.95	-	-
-10		0.99	2.45	4.64	-	-	0.99	2.41	4.40	-	-
-5	dS^L	0.48	1.16	2.12	-	-	0.48	1.15	2.02	-	-
5		-0.45	-1.06	-1.83	-	-	-0.45	-1.05	-1.76	-	-
10		-0.88	-2.04	-3.43	-	-	-0.87	-2.01	-3.32	-	-
20		-1.66	-3.78	-6.16	-	-	-1.65	-3.74	-5.98	-	-
-20		-	-	-	16.66	7.96	-	-	-	26.13	9.93
-10		-	-	-	8.94	4.00	-	-	-	15.25	5.01
-5	ϕ_i^V	-	-	-	4.78	2.01	-	-	-	8.77	2.52
5		-	-	-	-9.16	-2.03	-	-	-	-9.95	-2.57
10		-	-	-	-18.88	-4.09	-	-	-	-19.86	-5.19
20		-	-	-	-36.99	-8.34	-	-	-	-37.96	-10.78
-20		56521.89	253.97	100.47	-	-	56564.11	254.84	102.20	-	-
-10		2295.55	90.15	44.36	-	-	2296.33	90.34	44.75	-	-
-5	ϕ_i^L	390.20	38.21	20.59	-	-	390.30	38.27	20.73	-	-
5		-79.65	-27.93	-17.58	-	-	-79.66	-27.96	-17.65	-	-
10		-95.87	-48.25	-32.42	-	-	-95.87	-48.28	-32.52	-	-
20		-99.83	-73.55	-55.12	-	-	-99.83	-73.58	-55.24	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	1488.00	-	-	-	-	-	-

Table B.32 TCC EOS; methane; % deviation of thermodynamic properties as parameter b varies.

%Dev	P(atm)	1					0.8P$_c$				
in b	T(K)	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$
-20		-	-0.09	-0.06	-0.04	-0.04	-	-	-	-89.92	-6.04
-10		-	-0.05	-0.03	-0.02	-0.02	-	-	-	-22.83	-2.83
-5	Z^V	-	-0.20	-0.01	-0.01	-0.01	-	-	-	-7.36	-1.38
5		-	0.02	0.01	0.01	0.01	-	-	-	5.45	1.31
10		-	0.05	0.03	0.02	0.02	-	-	-	9.93	2.56
20		-	0.09	0.06	0.04	0.04	-	-	-	17.19	4.90
-20		-21.99	-31.35	-42.36	-99.83	-99.86	-21.97	-31.02	-40.80	-	-93.67
-10		-11.14	-17.05	-25.70	-99.75	-	-11.12	-16.71	-23.93	-85.36	-
-5	Z^L	-5.60	-8.93	-14.60	-	-	-5.59	-8.69	-13.15	-80.77	-
5		5.68	9.92	22.44	-	-	5.66	9.45	16.60	-	-
10		11.43	21.07	27203.20	-	-	11.38	19.76	38.63	-	-
20		23.18	48.84	27211.21	-	-	23.03	43.35	116.78	-	-
-20		-	-1.25	-1.61	-2.03	-2.52	-	-	-	-	-14.15
-10		-	-0.62	-0.80	-1.02	-1.26	-	-	-	-31.25	-6.56
-5	dH^V	-	-0.31	-0.40	-0.51	-0.63	-	-	-	-9.30	-3.17
5		-	0.31	0.40	0.51	0.63	-	-	-	6.53	2.99
10		-	0.62	0.80	1.02	1.26	-	-	-	11.69	5.82
20		-	1.24	1.61	2.03	2.52	-	-	-	19.72	11.06
-20		-	-0.42	-0.29	-0.23	-0.19	-	-	-	-	-1.43
-10		-	-0.21	-0.15	-0.11	-0.09	-	-	-	-7.47	-0.65
-5	dS^V	-	-0.11	-0.07	-0.06	-0.05	-	-	-	-2.11	-0.31
5		-	0.11	0.07	0.06	0.04	-	-	-	1.42	0.29
10		-	0.21	0.15	0.11	0.09	-	-	-	2.49	0.55
20		-	0.42	0.29	0.23	0.19	-	-	-	4.10	1.03
-20		-	-	-	-	-	-	-	-	-	-
-10		-33.41	-36.23	-43.47	-24101.00	-	-33.88	-36.63	-42.41	-379.80	-
-5	dH^L	-13.64	-14.90	-18.50	-	-	-13.84	-15.04	-17.75	-265.50	-
5		10.25	11.37	16.18	-	-	-10.41	11.43	14.13	-	-
10		18.35	20.53	99.32	-	-	18.65	20.57	26.25	-	-
20		30.51	34.92	99.32	-	-	31.05	34.57	47.99	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-19.97	-16.84	-19.92	-60297.00	-	-19.90	-16.46	-18.45	-92.17	-
-5	dS^L	-8.26	-7.18	-8.97	-	-	-8.22	-6.97	-8.08	-68.36	-
5		6.35	5.84	8.85	-	-	6.31	5.58	6.96	-	-
10		11.47	10.86	99.71	-	-	11.39	10.28	13.42	-	-
20		19.43	19.59	99.71	-	-	19.26	18.00	26.31	-	-
-20		-	-0.08	-0.05	-0.04	-0.07	-	-	-	-	-2.65
-10		-	-0.04	-0.03	-0.02	-0.02	-	-	-	-3.02	-1.30
-5	ϕ_i^V	-	-0.02	-0.01	-0.01	-0.01	-	-	-	-1.39	-0.65
5		-	0.02	0.01	0.01	0.01	-	-	-	1.28	0.64
10		-	0.04	0.03	0.02	0.02	-	-	-	2.49	1.27
20		-	0.08	0.05	0.04	0.04	-	-	-	4.74	2.50
-20		-	-	-	-	-	-	-	-	-	-
-10		-100.00	-82.31	-58.12	1636.00	-	-100.00	-82.74	-59.40	-26.67	-
-5	ϕ_i^L	-98.35	-49.83	-28.24	-	-	-98.39	-50.47	-29.48	-4.41	-
5		2046.95	63.94	23.65	-	-	2099.74	66.27	26.64	-	-
10		23741.76	137.39	-89.22	-	-	24936.39	144.55	49.21	-	-
20		854156.40	294.13	-89.21	-	-	94306.17	321.38	80.62	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-82.31	-58.11	1636.00	-	-	-	-	-24.39	-
-5	K$_i$	-	-49.82	-28.23	-	-	-	-	-	-3.06	-
5		-	63.90	23.63	-	-	-	-	-	-	-
10		-	137.30	-89.22	-	-	-	-	-	-	-
20		-	293.82	-89.22	-	-	-	-	-	-	-

Table B.32 (continued).

%Dev in b	P(atm) T(K)	P_c					$1.2P_c$				
		$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-	-	-75.07	-11.71	-	-	-	-61.50	-27.66
-10		-	-	-	-63.92	-5.10	-	-	-	-44.49	-9.04
-5	Z^V	-	-	-	-53.50	-2.42	-	-	-	-29.51	-4.09
5		-	-	-	68.50	2.21	-	-	-	66.72	3.53
10		-	-	-	87.89	4.26	-	-	-	110.16	6.68
20		-	-	-	112.80	7.98	-	-	-	156.47	12.15
-20		-21.96	-30.94	-40.46	-	-	-21.96	-30.86	-40.15	-	-89.14
-10		-11.11	-16.63	-23.56	-	-	-11.11	-16.56	-23.21	-	-
-5	Z^L	-5.59	-8.64	-12.86	-	-	-5.59	-8.58	-12.59	-	-
5		5.65	9.35	15.78	-	-	5.65	9.25	15.09	-	-
10		11.37	19.47	35.60	-	-	11.36	19.21	33.29	-	-
20		23.00	42.31	92.32	-	-	22.96	41.37	80.13	-	-
-20		-	-	-	-	-22.59	-	-	-	-	-48.69
-10		-	-	-	-132.95	-9.59	-	-	-	-72.54	-14.50
-5	dH^V	-	-	-	-79.54	-4.50	-	-	-	-34.14	-6.42
5		-	-	-	35.21	4.05	-	-	-	32.99	5.39
10		-	-	-	42.22	7.75	-	-	-	45.45	10.07
20		-	-	-	50.29	14.32	-	-	-	55.81	17.97
-20		-	-	-	-	-3.03	-	-	-	-	-8.53
-10		-	-	-	-47.88	-1.24	-	-	-	-28.68	-2.34
-5	dS^V	-	-	-	-30.58	-0.57	-	-	-	-14.31	-1.01
5		-	-	-	14.07	0.50	-	-	-	14.96	0.82
10		-	-	-	16.60	0.94	-	-	-	20.45	1.50
20		-	-	-	19.32	1.71	-	-	-	24.60	2.61
-20		-	-	-	-	-	-	-	-	-	-
-10		-34.00	-36.74	-42.23	-	-	-34.12	-36.85	-42.09	-	-
-5	dH^L	-13.90	-15.09	-17.62	-	-	-13.95	-15.13	-17.52	-	-
5		10.46	11.45	13.87	-	-	10.50	11.48	13.66	-	-
10		18.73	20.60	25.47	-	-	18.81	20.63	24.89	-	-
20		31.19	34.56	44.30	-	-	31.33	34.56	42.35	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-19.88	-16.37	-18.15	-	-	-19.86	-16.28	-17.86	-	-
-5	dS^L	-8.21	-6.92	-7.90	-	-	-8.20	-6.88	-7.74	-	-
5		6.63	5.52	6.68	-	-	6.29	5.47	6.44	-	-
10		11.37	10.15	12.66	-	-	11.35	10.03	12.06	-	-
20		19.21	17.68	23.19	-	-	19.17	17.39	21.38	-	-
-20		-	-	-	-	-4.05	-	-	-	-	-6.22
-10		-	-	-	-33.10	-1.95	-	-	-	-34.51	-2.82
-5	ϕ_i^V	-	-	-	-12.22	-0.96	-	-	-	-13.54	-1.37
5		-	-	-	2.78	0.93	-	-	-	6.85	1.31
10		-	-	-	4.94	1.85	-	-	-	10.74	2.57
20		-	-	-	8..65	3.62	-	-	-	16.60	4.97
-20		-	-	-	-	-	-	-	-	-	-
-10		-100.00	-82.85	-59.71	-	-	-100.00	-82.96	-60.01	-	-
-5	ϕ_i^L	-98.40	-50.63	-29.77	-	-	-98.41	-50.79	-30.05	-	-
5		2113.48	66.85	27.29	-	-	2127.30	67.43	27.92	-	-
10		25251.86	146.35	50.98	-	-	25571.26	148.14	52.63	-	-
20		967272.91	328.17	86.62	-	-	992067.11	334.91	91.75	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.33 TCC EOS; methane; % deviation of thermodynamic properties as parameter c varies.

%Dev	P(atm)	1					0.8P$_c$				
in c	T(K)	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$
-20		-	-1.00E-02	0.00	0.00	0.00	-1.97	-	-	-12.24	-1.44
-10		-	0.00E+00	0.00	0.00	0.00	-0.99	-	-	-4.82	-0.70
-5	Z^V	-	0.00E+00	0.00	0.00	0.00	-0.49	-	-	-2.22	-0.35
5		-	0.00E+00	0.00	0.00	0.00	0.49	-	-	1.96	0.34
10		-	0.00E+00	0.00	0.00	0.00	0.99	-	-	3.71	0.66
20		-	1.00E-02	0.00	0.00	0.00	1.97	-	-	6.76	1.29
-20		-2.00	-11.58	-23.58	-99.76	-		-11.17	-21.57	-85.83	-
-10		-1.00	-6.04	-13.34	0.00	-		-5.74	-11.65	-80.96	-
-5	Z^L	-0.50	-3.09	-7.18	0.00	-		-2.91	-6.07	-74.93	-
5		0.51	3.23	8.70		-		2.99	6.65		-
10		1.01	6.62	19.95		-		6.06	13.96		-
20		2.04	13.95	27195.73		-		12.46	31.07		-
-20		-	-0.12	-0.08	-0.07	-0.06	-57.13	-	-	-16.56	-3.86
-10		-	-0.06	-0.04	-0.03	-0.03	-17.50	-	-	-6.35	-1.87
-5	dH^V	-	-0.03	-0.02	-0.02	-0.01	-7.55	-	-	-2.90	-0.92
5		-	0.03	0.02	0.02	0.01	6.04	-	-	2.52	0.90
10		-	0.06	0.04	0.03	0.03	11.05	-	-	4.76	1.77
20		-	0.12	0.08	0.07	0.05	19.01	-	-	8.60	3.44
-20		-	-0.14	-0.10	-0.08	-0.06	-35.45	-	-	-3.97	-0.46
-10		-	-0.07	-0.05	-0.04	-0.03	-10.99	-	-	-1.49	-0.22
-5	dS^V	-	-0.04	-0.02	-0.02	-0.02	-4.76	-	-	-0.68	-0.11
5		-	0.04	0.02	0.02	0.01	3.84	-	-	0.58	0.11
10		-	0.07	0.05	0.04	0.03	7.04	-	-	1.09	0.21
20		-	0.14	0.10	0.08	0.06	12.17	-	-	1.96	0.40
-20		-56.52	-60.52	-70.04	-29129.30	-		-61.02	-68.66	-475.16	-
-10		-17.32	-18.69	-22.51	-0.03	-		-18.79	-21.60	-277.44	-
-5	dH^L	-7.47	-8.09	-9.96	-0.02	-		-8.12	-9.43	-198.53	-
5		5.98	6.52	8.51		-		6.53	7.73		-
10		10.94	11.98	16.34		-		11.97	14.32		-
20		18.81	20.75	99.31		-		20.65	25.27		-
-20		-35.56	-30.14	-33.51	-67601.46	-		-29.60	-31.63	-113.99	-
-10		-11.04	-9.66	-11.44	-0.04	-		-9.40	-10.42	-71.69	-
-5	dS^L	-4.78	-4.24	-5.19	-0.02	-		-4.11	-4.63	-52.70	-
5		3.86	3.50	4.65		-		3.37	3.91		-
10		7.09	6.50	9.17		-		6.22	7.34		-
20		12.26	11.50	99.71		-		10.90	13.28		-
-20		-	0.75	0.00	0.00	0.00	-100.00	-	-	-1.56	-0.47
-10		-	0.37	0.00	0.00	0.00	-99.42	-	-	-0.73	-0.23
-5	ϕ_i^V	-	0.19	0.00	0.00	0.00	-89.09	-	-	-0.35	-0.12
5		-	-0.19	0.00	0.00	0.00	486.52	-	-	0.34	0.11
10		-	-0.37	0.00	0.00	0.00	2435.38	-	-	0.65	0.23
20		-	-0.75	0.00	0.00	0.00	25632.25	-	-	1.26	0.44
-20		-100.00	-93.38	-72.54	1419.57	-		-93.49	-73.31	-36.01	-
-10		-99.41	-55.41	-30.45	0.00	-		-55.79	-31.53	-3.47	-
-5	ϕ_i^L	-89.06	-29.13	-14.00	0.00	-		-29.44	-14.71	3.68	-
5		485.26	31.01	11.83		-		31.60	12.90		-
10		2424.55	63.15	21.68		-		64.66	24.23		-
20		25412.15	128.67	-89.22		-		133.10	42.92		-
-20		-	-93.38	-72.54	1419.57	-	-	-	-	-35.00	-
-10		-	-55.41	-30.45	0.00	-	-	-	-	-2.76	-
-5	K$_i$	-	-29.13	-14.00	0.00	-	-	-	-	4.05	-
5		-	31.01	11.83		-	-	-	-	-	-
10		-	63.14	21.68		-	-	-	-	-	-
20		-	128.66	-89.22		-	-	-	-	-	-

Table B.33 (continued).

%Dev in c	P(atm) T(K)	Pc					1.2Pc				
		0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20		-1.96			-65.19	-2.90	-1.95	-	-		-5.57
-10		-0.98			-54.06	-1.38	-0.98	-	-		-2.54
-5	Z^V	-0.49			-44.36	-0.67	-0.49	-	-		-1.22
5		0.49			47.85	0.64	0.49	-	-		1.13
10		0.98			60.69	1.25	0.97	-	-		2.19
20		1.95			76.63	2.41	1.94	-	-		4.12
-20			-11.07	-21.14	-	-		-10.97	-20.73	-45.95	-
-10			-5.66	-11.31	-	-		-5.59	-10.99	-29.70	-
-5	Z^L		-2.86	-5.86	-	-		-2.82	-5.66	-17.58	-
5			2.93	6.30	-	-		2.88	6.00	26.52	-
10			5.93	13.10	-	-		5.81	12.36	55.82	-
20			12.13	28.33		-		11.82	26.18	93.50	-
-20		-57.29				-6.08	-57.45	-	-		-9.64
-10		-17.55				-2.88	-17.60	-	-		-4.36
-5	dH^V	-7.57				-1.40	-7.59	-	-		-2.09
5		6.06				1.34	6.08	-	-		1.93
10		11.08				2.61	11.11	-	-		3.72
20		19.06				5.01	19.11	-	-		6.98
-20		-35.42				-0.88	-35.39	-	-		-1.67
-10		-10.97				-0.41	-10.96	-	-		-0.75
-5	dS^V	-4.75				-0.20	-4.75	-	-		-0.36
5		3.83				0.19	3.82	-	-		0.33
10		7.03				0.37	7.01	-	-		0.63
20		12.15				0.71	12.12	-	-		1.17
-20			-61.15	-68.42		-		-61.29	-68.22	-106.23	-
-10			-18.82	-21.44		-		-18.85	-21.30	-38.11	-
-5	dH^L		-8.14	-9.34		-		-8.15	-9.26	-17.95	-
5			6.53	7.61		-		6.54	7.51	16.97	-
10			11.97	14.05		-		11.97	13.83	29.66	-
20			20.64	24.58		-		20.64	24.04	41.74	-
-20			-29.47	-31.23		-		-29.34	-30.85	-42.90	-
-10			-9.34	-10.21		-		-9.28	-10.02	-16.38	-
-5	dS^L		-4.08	-4.52		-		-4.05	-4.42	-7.90	-
5			3.33	3.78		-		3.30	3.67	7.72	-
10			6.15	7.06		-		6.09	6.82	13.56	-
20			10.76	12.61		-		10.63	12.07	19.02	-
-20		-100.00				-0.83	-100.00	-	-		-1.35
-10		-99.42				-0.40	-99.42	-	-		-0.65
-5	ϕ_i^V	-89.09				-0.20	-89.10	-	-		-0.32
5		486.83				0.19	487.15	-	-		0.31
10		2438.12				0.38	2440.84	-	-		0.61
20		25687.91				0.75	25743.21	-	-		1.17
-20		56311.36	-93.52	-73.49		-		-93.54	-73.66	-42.92	-
-10		2291.64	-55.88	-31.78		-		-55.98	-32.02	-12.71	-
-5	ϕ_i^L	389.80	-29.52	-14.87		-		-28.59	-15.03	-5.08	-
5		-79.64	31.75	13.13		-		31.89	13.35	3.26	-
10		-95.86	65.03	24.76		-		65.39	25.27	5.35	-
20		-99.83	134.17	44.27		-		135.22	45.52	8.11	-
-20		-				-	-	-	-	-	-
-10		-				-	-	-	-	-	-
-5	K_i	-				-	-	-	-	-	-
5		-				-	-	-	-	1.27	-
10		-				-	-	-	-	-	-
20		-				-	-	-	-	-	-

Table B.34 TCC EOS; n-nonane; % deviation of thermodynamic properties as parameter a(T) varies.

%Dev in a(T)	P(atm)	1					$0.8P_c$				
	T(K)	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	1.23	0.86	0.43	0.25	-	-	-	24.34	6.20
-10		-	0.62	0.43	0.22	0.12	-	-	-	13.81	3.19
-5	Z^V	-	0.31	0.22	0.11	0.06	-	-	-	7.51	1.62
5		-	-0.31	-0.22	-0.11	-0.06	-	-	-	-9.87	-1.68
10		-	-0.63	-0.43	-0.22	-0.12	-	-	-	-	-3.41
20		-	-1.26	-0.87	-0.44	-0.25	-	-	-	-	-7.12
-20		0.83	12.48	29.70	-	-	0.82	10.82	20.59	-	-
-10		0.37	4.76	9.01	-	-	0.36	4.29	7.36	-	-
-5	Z^L	0.17	2.14	3.84	-	-	0.17	1.94	3.23	-	-
5		-0.16	-1.78	-2.99	-	-	-0.15	-1.64	-2.61	-74.96	-
10		-0.30	-3.28	-5.40	-	-	-0.29	-3.04	-4.77	-79.73	-
20		-0.54	-5.70	-9.07	-99.37	-	-0.53	-5.32	-8.13	-82.90	-
-20		-	16.23	15.67	14.89	14.47	-	-	-	29.32	18.84
-10		-	8.17	7.87	7.46	7.24	-	-	-	17.12	9.75
-5	dH^V	-	4.10	3.94	3.73	3.62	-	-	-	9.49	4.97
5		-	-4.12	-3.96	-3.74	-3.63	-	-	-	-13.27	-5.17
10		-	-8.28	-7.94	-7.49	-7.26	-	-	-	-	-10.57
20		-	-16.67	-15.96	-15.02	-14.54	-	-	-	-	-22.17
-20		-	13.09	12.23	10.95	10.11	-	-	-	8.23	2.29
-10		-	6.61	6.16	5.49	5.06	-	-	-	4.95	1.20
-5	dS^V	-	3.32	3.32	2.75	2.53	-	-	-	2.80	0.62
5		-	-3.35	-3.35	-2.76	-2.54	-	-	-	-4.13	-0.65
10		-	-6.74	-6.74	-5.53	-5.08	-	-	-	-	-1.34
20		-	-13.61	-13.61	-11.09	-10.18	-	-	-	-	-2.85
-20		16.46	17.63	24.34	-	-	16.54	17.09	21.12	-	-
-10		8.22	8.38	10.41	-	-	8.26	8.21	9.69	-	-
-5	dH^L	4.11	4.11	4.98	-	-	4.13	4.04	4.70	-	-
5		-4.11	-3.99	-4.68	-	-	-4.13	-3.94	-4.48	-199.31	-
10		-8.21	-7.88	-9.14	-	-	-8.29	-7.79	-8.80	-252.00	-
20		-16.41	-15.44	-17.59	-10014.00	-	-16.49	-15.31	-17.06	-311.20	-
-20		1.82	7.49	13.44	-	-	1.79	6.74	10.23	-	-
-10		0.84	3.19	4.96	-	-	0.83	2.93	4.20	-	-
-5	dS^L	0.41	1.49	2.25	-	-	0.40	1.38	1.94	-	-
5		-0.38	-1.33	-1.92	-	-	-0.38	-1.24	-1.70	-72.68	-
10		-0.74	-2.52	-3.60	-	-	-0.74	-2.37	-3.22	-89.48	-
20		-1.41	-4.60	-6.42	-19671.00	-	-1.39	-4.34	-5.82	-105.40	-
-20		-	1.13	0.81	0.42	0.24	-	-	-	106.00	4.89
-10		-	0.56	0.40	0.21	0.12	-	-	-	5.43	2.45
-5	ϕ_i^V	-	0.28	0.20	0.11	0.06	-	-	-	2.76	1.23
5		-	-0.28	-0.20	-0.11	-0.06	-	-	-	-2.90	-1.23
10		-	-0.56	-0.40	-0.21	-0.12	-	-	-	-	-2.47
20		-	-1.13	-0.81	-0.42	-0.24	-	-	-	-	-4.95
-20		239226.24	199.28	121.29	-	-	239763.68	202.80	126.72	-	-
-10		4825.04	75.13	51.53	-	-	4829.92	75.94	52.75	-	-
-5	ϕ_i^L	602.84	32.68	23.52	-	-	603.16	32.95	23.95	-	-
5		-85.81	-24.96	-19.50	-	-	-85.82	-25.09	-19.72	-1.12	-
10		-97.99	-43.90	-35.50	-	-	-97.99	-44.08	-35.83	-10.56	-
20		-99.96	-68.96	-59.08	739.50	-	-99.96	-69.13	-59.43	-29.01	-
-20		-	195.94	119.52	-	-	-	-	-	-	-
-10		-	74.15	50.92	-	-	-	-	-	-	-
-5	K_i	-	32.30	23.27	-	-	-	-	-	-	-
5		-	-24.75	-19.34	-	-	-	-	-	1.83	-
10		-	-43.59	-35.24	-	-	-	-	-	-	-
20		-	-68.60	-58.75	743.10	-	-	-	-	-	-

Table B.34 (continued).

%Dev in a(T)	P(atm) T(K)	P_c					$1.2P_c$				
		$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-	-	128.54	8.41	-	-	-	177.07	10.88
-10		-	-	-	96.14	4.37	-	-	-	112.38	5.71
-5	Z^V	-	-	-	72.46	2.23	-	-	-	47.81	2.93
5		-	-	-	-44.06	-2.34	-	-	-	-15.44	-3.12
10		-	-	-	-50.95	-4.81	-	-	-	-23.66	-6.46
20		-	-	-	-57.58	-10.21	-	-	-	-32.84	-14.08
-20		0.81	10.47	19.22	-	-	0.81	10.15	18.05	-	-
-10		0.36	4.18	7.03	-	-	0.36	4.08	6.73	-	-
-5	Z^L	0.17	1.90	3.11	-	-	0.17	1.86	2.99	-	-
5		-0.15	-1.61	-2.53	-	-	-0.15	-1.58	-2.45	-	-
10		-0.29	-2.99	-4.63	-	-	-0.29	-2.93	-4.49	-	-
20		-0.53	-5.23	-7.92	-	-	-0.53	-5.14	-7.72	-	-
-20		-	-	-	55.78	20.21	-	-	-	59.62	21.62
-10		-	-	-	45.43	10.60	-	-	-	45.82	11.49
-5	dH^V	-	-	-	36.94	5.44	-	-	-	26.09	5.95
5		-	-	-	-53.36	-5.76	-	-	-	-14.74	-6.43
10		-	-	-	-71.23	-11.90	-	-	-	-25.74	-13.46
20		-	-	-	-97.00	-25.63	-	-	-	-43.17	-30.06
-20		-	-	-	27.42	2.94	-	-	-	33.31	3.67
-10		-	-	-	22.99	1.57	-	-	-	26.10	1.98
-5	dS^V	-	-	-	19.07	0.81	-	-	-	14.83	1.04
5		-	-	-	-27.11	-0.88	-	-	-	-7.62	-1.15
10		-	-	-	-34.88	-1.83	-	-	-	-12.80	-2.43
20		-	-	-	-44.64	-4.02	-	-	-	-20.05	-5.59
-20		16.56	16.98	20.61	-	-	16.59	16.87	20.18	-	-
-10		8.27	8.17	9.55	-	-	8.29	8.14	9.42	-	-
-5	dH^L	4.14	4.02	4.64	-	-	4.14	4.01	4.59	-	-
5		-4.13	-3.93	-4.44	-	-	-4.14	-3.92	-4.40	-	-
10		-8.26	-7.77	-8.73	-	-	-8.27	-7.76	-8.66	-	-
20		-16.52	-15.28	-16.95	-	-	-16.54	-15.25	-16.84	-	-
-20		1.79	6.58	9.71	-	-	1.78	6.42	9.26	-	-
-10		0.83	2.87	4.05	-	-	0.83	2.81	3.91	-	-
-5	dS^L	0.40	1.35	1.88	-	-	0.40	1.33	1.82	-	-
5		-0.38	-1.22	-1.66	-	-	-0.38	-1.20	-1.61	-	-
10		-0.73	-2.33	-3.14	-	-	-0.73	-2.29	-3.06	-	-
20		-1.39	-4.28	-5.68	-	-	-1.38	-4.22	-5.55	-	-
-20		-	-	-	15.82	6.28	-	-	-	25.14	7.73
-10		-	-	-	8.48	3.15	-	-	-	14.71	3.88
-5	ϕ_i^V	-	-	-	4.53	1.58	-	-	-	8.41	1.95
5		-	-	-	-8.59	-1.59	-	-	-	-9.39	-1.96
10		-	-	-	-17.75	-3.18	-	-	-	-18.76	-3.94
20		-	-	-	-35.00	-6.42	-	-	-	-36.04	-7.99
-20		239904.18	203.66	127.89	-	-	240044.66	204.49	128.99	-	-
-10		4831.18	76.13	53.04	-	-	4832.46	76.33	53.31	-	-
-5	ϕ_i^L	603.25	33.02	24.06	-	-	603.33	33.09	24.15	-	-
5		-85.82	-25.12	-19.78	-	-	-85.82	-25.15	-19.83	-	-
10		-97.99	-44.13	-35.91	-	-	-97.99	-44.17	-35.98	-	-
20		-99.96	-69.17	-59.51	-	-	-99.96	-69.21	-59.59	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	1488.00	-	-	-	-	-	-

Table B.35 TCC EOS; n-nonane; % deviation of thermodynamic properties as parameter b varies.

%Dev in b	P(atm) / T(K)	1					0.8P_c				
		$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-0.13	-0.11	-0.08	-0.06	-	-	-	-	-3.50
-10		-	-0.07	-0.05	-0.04	-0.03	-	-	-	-12.59	-1.69
-5	Z^V	-	-0.03	-0.03	-0.02	-0.01	-	-	-	-5.21	-0.83
5		-	0.03	0.03	0.02	0.01	-	-	-	4.20	0.81
10		-	0.07	0.05	0.04	0.03	-	-	-	7.77	1.59
20		-	0.13	0.11	0.08	0.06	-	-	-	13.76	3.10
-20		-21.26	-30.41	-34.93	-99.64	-	-21.24	-29.91	-33.85	-89.59	-
-10		-10.72	-16.41	-19.65	-99.43	-	-10.70	-16.00	-18.69	-84.65	-
-5	Z^L	-5.38	-8.56	-10.53	-	-	-5.37	-8.29	-9.87	-79.61	-
5		5.42	9.40	12.49	-	-	5.41	8.95	11.16	-	-
10		10.89	19.83	27.98	-	-	10.87	18.64	23.93	-	-
20		21.97	45.01	85.65	-	-	21.91	40.67	56.11	-	-
-20		-	-1.07	-1.14	-1.43	-1.85	-	-	-	-	-8.64
-10		-	-0.53	-0.57	-0.71	-0.93	-	-	-	-16.04	-4.14
-5	dH^V	-	-0.27	-0.29	-0.36	-0.46	-	-	-	-6.39	-2.03
5		-	0.27	0.29	0.36	0.46	-	-	-	4.92	1.96
10		-	0.53	0.57	0.71	0.92	-	-	-	8.98	3.85
20		-	1.06	1.14	1.42	1.85	-	-	-	15.50	7.44
-20		-	-0.51	-0.42	-0.31	-0.25	-	-	-	-	-1.15
-10		-	-0.25	-0.21	-0.16	-0.13	-	-	-	-5.32	-0.55
-5	dS^V	-	-0.13	-0.11	-0.08	-0.06	-	-	-	-2.08	-0.27
5		-	0.13	0.11	0.08	0.06	-	-	-	1.56	0.25
10		-	0.25	0.21	0.16	0.13	-	-	-	2.82	0.50
20		-	0.50	0.42	0.31	0.25	-	-	-	4.78	0.95
-20		-49.34	-56.29	-61.33	-15368.05	-	-49.71	-56.32	-60.65	-505.63	-
-10		-19.32	-22.29	-24.65	-	-	-19.47	-22.25	-24.19	-327.98	-
-5	dH^L	-8.74	-10.16	-11.34	-	-	-8.82	-10.12	-11.06	-243.14	-
5		7.37	8.69	9.97	-	-	7.44	8.62	9.54	-	-
10		13.69	16.28	19.08	-	-	13.81	16.08	17.93	-	-
20		23.98	29.15	38.12	-	-	24.21	28.47	32.32	-	-
-20		-33.06	-33.94	-36.31	-26706.79	-	-33.00	-33.30	-35.03	-169.12	-
-10		-13.16	-13.95	-15.28	-	-	-13.13	-13.60	-14.53	-116.78	-
-5	dS^L	-6.00	-6.46	-7.18	-	-	-5.98	-6.27	-6.76	-89.04	-
5		5.13	5.71	6.59	-	-	5.11	5.49	6.03	-	-
10		9.57	10.87	12.91	-	-	9.54	10.37	11.52	-	-
20		16.96	20.10	27.45	-	-	16.89	18.80	21.40	-	-
-20		-	-0.11	-0.09	-0.07	-0.06	-	-	-	-	-1.81
-10		-	-0.05	-0.05	-0.03	-0.03	-	-	-	-2.18	-0.90
-5	ϕ_i^V	-	-0.03	-0.02	-0.02	-0.01	-	-	-	-1.04	-0.45
5		-	0.03	0.02	0.02	0.01	-	-	-	0.98	0.44
10		-	0.05	0.05	0.03	0.03	-	-	-	1.91	0.89
20		-	0.11	0.09	0.07	0.06	-	-	-	3.68	1.76
-20		-100.00	-91.15	-82.86	547.00	-	-100.00	-91.41	-83.44	-47.44	-
-10		-99.93	-59.60	-47.44	946.95	-	-99.93	-60.25	-48.43	-12.36	-
-5	ϕ_i^L	-96.28	-33.04	-24.49	-	-	-96.33	-33.61	-25.25	0.13	-
5		1485.45	38.24	24.58	-	-	1508.98	39.52	26.05	-	-
10		16650.90	80.07	47.99	-	-	17153.90	83.61	51.82	-	-
20		760964.87	167.91	86.60	-	-	807739.78	179.72	99.33	-	-
-20		-	-91.14	-82.85	547.54	-	-	-	-	-	-
-10		-	-59.58	-47.41	947.32	-	-	-	-	-10.41	-
-5	K_i	-	-33.03	-24.47	-	-	-	-	-	1.19	-
5		-	38.20	24.55	-	-	-	-	-	-	-
10		-	79.98	47.92	-	-	-	-	-	-	-
20		-	167.62	86.42	-	-	-	-	-	-	-

Table B.35 (continued).

%Dev	P(atm)	P$_c$					1.2P$_c$				
in b	T(K)	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$
-20		-	-	-	-73.33	-5.84	-	-	-	-57.31	-9.42
-10		-	-	-	-61.94	-2.75	-	-	-	-39.77	-4.26
-5	Z^V	-	-	-	-51.54	-1.34	-	-	-	-25.25	-2.04
5		-	-	-	63.46	1.28	-	-	-	52.19	1.90
10		-	-	-	81.37	2.50	-	-	-	98.38	3.69
20		-	-	-	104.37	4.80	-	-	-	147.00	6.97
-20		-21.24	-29.79	-33.60	-	-	-21.24	-29.67	-33.35	-	-
-10		-10.70	-15.90	-18.48	-	-	-10.70	-15.80	-18.27	-	-
-5	Z^L	-5.37	-8.23	-9.73	-	-	-5.37	-8.17	-9.59	-	-
5		5.41	8.85	10.89	-	-	5.41	8.75	10.65	-	-
10		10.86	18.38	23.17	-	-	10.86	18.12	22.50	-	-
20		21.89	39.78	53.04	-	-	21.88	38.97	50.53	-	-
-20		-	-	-	-188.47	-12.09	-	-	-	-108.63	-17.06
-10		-	-	-	-105.33	-5.62	-	-	-	-49.41	-7.53
-5	dH^V	-	-	-	-69.07	-2.72	-	-	-	-24.97	-3.57
5		-	-	-	33.04	2.56	-	-	-	27.13	3.27
10		-	-	-	39.58	4.98	-	-	-	41.41	6.29
20		-	-	-	47.04	9.48	-	-	-	52.43	11.72
-20		-	-	-	-88.39	-2.02	-	-	-	-55.58	-3.42
-10		-	-	-	-52.72	-0.92	-	-	-	-26.82	-1.47
-5	dS^V	-	-	-	-35.68	-0.44	-	-	-	-13.93	-0.69
5		-	-	-	17.38	0.41	-	-	-	15.83	0.62
10		-	-	-	20.60	0.79	-	-	-	24.13	1.19
20		-	-	-	24.11	1.49	-	-	-	30.24	2.17
-20		-49.81	-56.34	-60.51	-	-	-49.91	-56.36	-60.39	-	-
-10		-19.51	-22.25	-24.09	-	-	-19.56	-22.25	-24.01	-	-
-5	dH^L	-8.83	-10.11	-11.00	-	-	-8.85	-10.11	-10.95	-	-
5		7.46	8.60	9.45	-	-	7.47	8.59	9.38	-	-
10		13.85	16.04	17.73	-	-	13.88	16.01	17.56	-	-
20		24.27	28.35	31.70	-	-	24.33	28.24	31.21	-	-
-20		-32.98	-33.15	-34.73	-	-	-32.97	-32.99	-34.44	-	-
-10		-13.12	-13.51	-14.36	-	-	-13.11	-13.43	-14.20	-	-
-5	dS^L	-5.98	-6.23	-6.67	-	-	-5.97	-6.18	-6.58	-	-
5		5.11	5.44	5.91	-	-	5.10	5.39	5.81	-	-
10		9.53	10.26	11.25	-	-	9.53	10.15	11.01	-	-
20		16.88	18.53	20.66	-	-	16.86	18.27	20.04	-	-
-20		-	-	-	-52.34	-2.62	-	-	-	-53.53	-3.64
-10		-	-	-	-19.97	-1.29	-	-	-	-21.44	-1.77
-5	ϕ_i^V	-	-	-	-7.93	-0.64	-	-	-	-9.11	-0.87
5		-	-	-	2.19	0.63	-	-	-	5.66	0.85
10		-	-	-	3.92	1.25	-	-	-	9.07	1.69
20		-	-	-	6.92	2.48	-	-	-	14.04	3.32
-20		-100.00	-91.48	-83.58	-	-	-100.00	-91.55	-83.73	-	-
-10		-99.93	-60.42	-48.68	-	-	-99.93	-60.59	-48.92	-	-
-5	ϕ_i^L	-96.34	-33.76	-25.44	-	-	-96.36	-33.90	-25.62	-	-
5		1515.26	39.86	26.41	-	-	1521.55	40.18	26.76	-	-
10		17289.40	84.51	52.75	-	-	17425.70	85.41	53.66	-	-
20		820566.44	182.73	102.18	-	-	833583.19	185.70	104.90	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K$_i$	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.36 TCC EOS; n-nonane; % deviation of thermodynamic properties as parameter c varies.

%Dev in c	P(atm) / T(K)	1					0.8P_c				
		0.3T_b	T_b	0.8T_c	T_c	1.2T_c	0.3T_b	T_b	0.8T_c	T_c	1.2T_c
-20	Z^V	-	-9.48E-02	-5.51E-03	-2.18E-03	-1.02E-03	-	-	-	-5.28	-0.57
-10		-	-4.75E-02	-2.76E-03	-1.09E-03	-5.05E-04	-	-	-	-2.42	-0.28
-5		-	-2.38E-02	-1.38E-03	-5.46E-04	-2.53E-04	-	-	-	-1.16	-0.14
5		-	2.38E-02	1.37E-03	5.40E-04	2.59E-04	-	-	-	1.09	0.14
10		-	4.78E-02	2.74E-03	1.08E-03	5.11E-04	-	-	-	2.11	0.27
20		-	9.51E-02	5.50E-03	2.17E-03	1.20E-03	-	-	-	3.98	0.54
-20	Z^L	-2.00	-7.61	-10.98		-	-0.93	-7.19	-10.01	-81.81	-
-10		-1.00	-3.92	-5.76		-	-0.47	-3.67	-5.17	-75.07	-
-5		-0.50	-1.99	-2.96		-	-0.23	-1.85	-2.63		-
5		0.51	2.05	3.12		-	0.23	1.89	2.72		-
10		1.01	4.16	6.44		-	0.47	3.82	5.54		-
20		2.04	8.59	13.74		-	0.94	7.80	11.50		-
-20	dH^V	-	-1.12E-01	-9.56E-02	-7.42E-02	-6.13E-02	-	-	-	-6.91	-1.75
-10		-	-5.60E-02	-4.76E-02	-3.73E-02	-3.07E-02	-	-	-	-3.13	-0.86
-5		-	-2.78E-02	-2.35E-02	-1.88E-02	-1.51E-02	-	-	-	-1.50	-0.43
5		-	2.82E-02	2.43E-02	1.81E-02	1.47E-02	-	-	-	1.39	0.42
10		-	5.60E-02	4.81E-02	3.60E-02	3.00E-02	-	-	-	2.69	0.84
20		-	1.12E-01	9.59E-02	7.26E-02	6.07E-02	-	-	-	5.05	1.66
-20	dS^V	-	-1.27E-01	-1.07E-01	-7.98E-02	-6.37E-02	-	-	-	-2.33	-0.28
-10		-	-6.36E-02	-5.33E-02	-4.01E-02	-3.17E-02	-	-	-	-1.05	-0.14
-5		-	-3.17E-02	-2.65E-02	-2.02E-02	-1.57E-02	-	-	-	-0.50	-0.07
5		-	3.20E-02	2.70E-02	1.96E-02	1.55E-02	-	-	-	0.46	0.07
10		-	6.36E-02	5.36E-02	3.90E-02	3.14E-02	-	-	-	0.89	0.14
20		-	1.27E-01	1.07E-01	7.85E-02	6.33E-02	-	-	-	1.67	0.27
-20	dH^L	-56.52	-16.62	-18.29		-	-14.61	-16.52	-17.84	-282.69	-
-10		-17.32	-7.48	-8.29		-	-6.54	-7.42	-8.04	-199.52	-
-5		-7.47	-3.57	-3.97		-	-3.11	-3.54	-3.84		-
5		5.98	3.28	3.68		-	2.85	3.25	3.54		-
10		10.94	6.32	7.12		-	5.47	6.24	6.82		-
20		18.81	11.78	13.42		-	10.15	11.61	12.73		-
-20	dS^L	-35.56	-10.90	-11.86		-	-10.26	-10.61	-11.24	-102.80	-
-10		-11.04	-4.95	-5.44		-	-4.61	-4.80	-5.12	-73.96	-
-5		-4.78	-2.37	-2.62		-	-2.20	-2.30	-2.46		-
5		3.86	2.20	2.46		-	2.02	2.12	2.28		-
10		7.09	4.25	4.79		-	3.88	4.09	4.41		-
20		12.26	7.99	9.13		-	7.21	7.66	8.31		-
-20	ϕ_i^V	-	-4.09E-03	-2.57E-03	-1.07E-03	-5.13E-04	-	-	-	-0.80	-0.21
-10		-	-2.06E-03	-1.27E-03	-5.40E-04	-2.59E-04	-	-	-	-0.39	-0.10
-5		-	-1.02E-03	-6.19E-04	-2.76E-04	-1.27E-04	-	-	-	-0.19	-0.05
5		-	1.05E-03	6.70E-04	2.57E-04	1.16E-04	-	-	-	0.19	0.05
10		-	2.06E-03	1.31E-03	5.08E-04	2.45E-04	-	-	-	0.37	0.10
20		-	4.11E-03	2.59E-03	1.03E-03	5.03E-04	-	-	-	0.72	0.20
-20	ϕ_i^L	-100.00	-46.32	-34.72	-	-	-99.56	-46.72	-35.39	-2.71	-
-10		-99.41	-24.05	-17.04	-	-	-91.15	-24.34	-17.48	3.80	-
-5		-89.06	-12.20	-8.42	-	-	-68.45	-12.37	-8.67		-
5		485.26	12.48	8.19	-	-	187.02	12.71	8.50		-
10		2424.55	25.18	16.13	-	-	656.60	25.68	16.82		-
20		25412.15	50.96	31.17	1484.00	-	4154.63	52.22	32.82		-
-20	K_i	-	-46.32	-34.72	-	-	-	-	-	-1.93	-
-10		-	-24.05	-17.04	-	-	-	-	-	4.20	-
-5		-	-12.20	-8.42	-	-	-	-	-		-
5		-	12.48	8.19	-	-	-	-	-		-
10		-	25.18	16.12	-	-	-	-	-		-
20		-	50.96	31.17	1488.00	-	-	-	-		-

Table B.36 (continued).

%Dev in c	P(atm) T(K)	P_c					$1.2P_c$				
		$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-0.93			-55.54	-1.03	-0.93	-	-		-1.71
-10		-0.47			-45.70	-0.50	-0.46	-	-		-0.83
-5	Z^V	-0.23			-37.29	-2.49	-0.23	-	-		-0.41
5		0.23			40.33	0.24	0.23	-	-		0.40
10		0.47			51.20	0.48	0.46	-	-		0.78
20		0.93			64.82	0.95	0.93	-	-		1.52
-20			-7.08	-9.79	-	-	-	-6.98	-9.58	-30.34	-
-10			-3.61	-5.04	-	-	-	-3.55	-4.91	-18.03	-
-5	Z^L		-1.82	-2.56	-	-	-	-1.79	-2.49	-9.98	-
5			1.85	2.64	-	-	-	1.82	2.56	12.61	-
10			3.74	5.35	-	-	-	3.66	5.18	28.16	-
20			7.62	11.05	-	-	-	7.45	10.64	61.10	-
-20		-14.63			-85.39	-2.53	-14.65	-	-		-3.52
-10		-6.55			-56.58	-1.24	-6.56	-	-		-1.70
-5	dH^V	-3.12			-40.20	-0.61	-3.12	-	-		-0.84
5		2.85			23.39	0.60	2.86	-	-		0.81
10		5.48			28.29	1.19	5.49	-	-		1.60
20		30.16			33.93	2.33	10.18	-	-		3.12
-20		-10.25			-43.90	-0.48	-10.25	-	-		-0.76
-10		-4.61			-29.66	-0.23	-4.60	-	-		-0.37
-5	dS^V	-2.20			-21.30	-0.12	-2.19	-	-		-0.18
5		2.01			12.46	0.11	2.01	-	-		0.18
10		3.87			15.01	0.22	3.87	-	-		0.34
20		7.20			17.90	0.44	7.19	-	-		0.67
-20			-16.50	-17.74		-	-	-16.48	-17.65	-35.81	-
-10			-7.41	-7.99		-	-	-7.40	-7.94	-17.43	-
-5	dH^L		-3.53	-3.81		-	-	-3.52	-3.79	-8.70	-
5			3.24	3.51		-	-	3.23	3.48	8.76	-
10			6.23	6.76		-	-	6.21	6.70	17.35	-
20			11.57	12.60		-	-	11.54	12.48	30.92	-
-20			-10.54	-11.10		-	-	-10.47	-10.97	-20.09	-
-10			-4.77	-5.05		-	-	-4.73	-4.98	-9.94	-
-5	dS^L		-2.28	-2.42		-	-	-2.26	-2.38	-4.99	-
5			2.10	2.24		-	-	2.09	2.21	5.10	-
10			4.06	4.33		-	-	4.02	4.26	10.15	-
20			7.59	8.14		-	-	7.51	7.99	18.15	-
-20		-99.56			-10.79	-0.35	-99.56	-	-		-0.54
-10		-91.15			-4.12	-0.17	-91.16	-	-		-0.26
-5	ϕ_i^V	-68.46			-1.71	-0.09	-68.46	-	-		-0.13
5		187.07			0.61	0.08	187.11	-	-		0.13
10		656.85			1.10	0.17	657.11	-	-		0.26
20		4157.50			1.94	0.33	4160.34	-	-		0.51
-20		56311.36	-46.82	-35.56	-	-	-	-46.92	-35.72	-12.12	-
-10		2291.64	-24.41	-17.59	-	-	-	-24.48	-17.70	-5.06	-
-5	ϕ_i^L	389.80	-12.42	-8.73	-	-	-	-12.46	-8.79	-2.30	-
5		-79.64	12.76	8.58	-	-	-	12.82	8.65	1.89	-
10		-95.86	25.81	16.98	-	-	-	25.93	17.14	3.42	-
20		-99.83	52.53	33.21	1484.00	-	-	52.83	33.58	5.64	-
-20		-				-	-	-	-	-	-
-10		-				-	-	-	-	-	-
-5	K_i	-				-	-	-	-	-	-
5		-				-	-	-	-	-	-
10		-				-	-	-	-	-	-
20		-				-	-	-	-	-	-

Table B.37 TCC EOS; n-decane; % deviation of thermodynamic properties as parameter a(T) varies.

%Dev	P(atm)	1					0.8P$_c$				
in a(T)	T(K)	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$	0.3T$_b$	T$_b$	0.8T$_c$	T$_c$	1.2T$_c$
-20		-	1.31	0.95	0.47	0.26	-	-	-	24.29	5.92
-10		-	0.66	0.48	0.24	0.13	-	-	-	13.78	3.04
-5	Z^V	-	0.33	0.24	0.12	0.07	-	-	-	7.49	1.55
5		-	-0.33	-0.24	-0.12	-0.07	-	-	-	-9.83	-1.60
10		-	-0.67	-0.48	-0.24	-0.13	-	-	-	-32.69	-3.25
20		-	-1.35	-0.97	-0.47	-0.26	-	-	-	-	-6.75
-20		0.74	12.98	27.43	-	-	0.72	11.29	19.79	-	-
-10		0.32	4.96	8.65	-	-	0.32	4.46	7.15	-	-
-5	Z^L	0.15	2.22	3.71	-	-	0.15	2.02	3.15	-	-
5		-0.14	-1.85	-2.91	-	-	-0.14	-1.70	-2.56	-74.99	-
10		-0.26	-3.41	-5.27	-	-	-0.26	-3.16	-4.68	-79.80	-
20		-0.48	-5.91	-8.88	-99.32	-	-0.47	-5.52	-8.00	-82.98	-
-20		-	16.05	15.51	14.45	13.62	-	-	-	28.90	17.81
-10		-	8.08	7.79	7.24	6.82	-	-	-	16.89	9.21
-5	dH^V	-	4.06	3.91	3.62	3.41	-	-	-	9.36	4.69
5		-	-4.08	-3.93	-3.63	-3.42	-	-	-	-13.11	-4.87
10		-	-8.20	-7.87	-7.28	-6.84	-	-	-	-49.26	-9.94
20		-	-16.52	-15.83	-14.59	-13.69	-	-	-	-	-20.80
-20		-	12.89	12.08	10.51	9.31	-	-	-	8.50	2.28
-10		-	6.51	6.09	5.27	4.66	-	-	-	5.12	1.19
-5	dS^V	-	3.27	3.05	2.64	2.33	-	-	-	2.89	0.61
5		-	-3.31	-3.08	-2.65	-2.34	-	-	-	-4.27	-0.64
10		-	-6.65	-6.18	-5.31	-4.68	-	-	-	-17.21	-1.32
20		-	-13.44	-12.45	-10.66	-9.38	-	-	-	-	-2.81
-20		13.90	17.61	23.24	-	-	13.95	17.02	20.51	-	-
-10		6.94	8.34	10.09	-	-	6.96	8.15	9.44	-	-
-5	dH^L	3.47	4.08	4.84	-	-	3.48	4.01	4.58	-	-
5		-3.46	-3.96	-4.55	-	-	-3.47	-3.90	-4.38	-199.72	-
10		-6.92	-7.81	-8.90	-	-	-6.95	-7.72	-8.59	-252.71	-
20		-13.83	-15.29	-17.15	-9215.36	-	-13.88	-15.14	-16.66	-311.69	-
-20		1.27	7.72	12.80	-	-	1.26	6.93	10.01	-	-
-10		0.59	3.27	4.84	-	-	0.58	3.00	4.14	-	-
-5	dS^L	0.28	1.53	2.20	-	-	0.28	1.41	1.92	-	-
5		-0.26	-1.36	-1.88	-	-	-0.26	-1.27	-1.68	-75.88	-
10		-0.51	-2.58	-3.53	-	-	-0.50	-2.42	-3.18	-93.59	-
20		-0.96	-4.70	-6.32	-17536.72	-	-0.95	-4.43	-5.75	-110.31	-
-20		-		0.89	0.46	0.26	-	-	-	10.58	4.73
-10		-		0.44	0.23	0.13	-	-	-	5.41	2.37
-5	ϕ_i^V	-		0.22	0.11	0.06	-	-	-	2.75	1.19
5		-		-0.22	-0.11	-0.06	-	-	-	-2.89	-1.19
10		-		-0.44	-0.23	-0.13	-	-	-	-6.10	-2.38
20		-		-0.89	-0.46	-0.26	-	-	-	-	-4.79
-20		727047.52	193.78	125.24	-	-	728437.51	197.30	130.35	-	-
-10		8484.12	73.54	52.74	-	-	8491.37	74.35	53.91	-	-
-5	ϕ_i^L	827.88	32.08	24.00	-	-	828.25	-32.35	24.42	-	-
5		-89.25	-24.62	-19.80	-	-	-89.26	-24.75	-20.01	-1.09	-
10		-98.85	-43.40	-35.98	-	-	-98.85	-43.58	-36.29	-10.50	-
20		-99.99	-68.39	-59.67	675.93	-	-99.99	-68.57	-60.00	-28.91	-
-20		-	190.31	123.26	-	-	-	-	-	-	-
-10		-	72.51	52.07	-	-	-	-	-	-	-
-5	K$_i$	-	31.68	23.73	-	-	-	-	-	-	-
5		-	-24.39	-19.62	-	-	-	-	-	1.86	-
10		-	-43.06	-35.69	-	-	-	-	-	-4.69	-
20		-	-68.01	-59.31	679.48	-	-	-	-	-	-

Table B.37 (continued).

%Dev in a(T)	P(atm) T(K)	Pc 0.3Tb	Tb	0.8Tc	Tc	1.2Tc	1.2Pc 0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20		-	-	-	131.53	7.98	-	-	-	177.56	10.25
-10		-	-	-	98.71	4.14	-	-	-	112.61	5.36
-5	Z^V	-	-	-	74.71	2.11	-	-	-	47.75	2.75
5		-	-	-	-43.46	-2.21	-	-	-	-15.49	-2.91
10		-	-	-	-50.46	-4.52	-	-	-	-23.75	-6.01
20		-	-	-	-57.21	-9.56	-	-	-	-32.99	-12.98
-20		0.72	10.92	18.56	-	-	0.72	10.58	17.50	-	-
-10		0.32	4.35	6.85	-	-	0.32	4.24	6.57	-	-
-5	Z^L	0.15	1.97	3.04	-	-	0.15	1.93	2.93	-	-
5		-0.14	-1.67	-2.48	-	-	-0.14	-1.64	-2.41	-	-
10		-0.26	-3.10	-4.55	-	-	-0.26	-3.04	-4.42	-	-
20		-0.47	-5.42	-7.80	-	-	-0.47	-5.33	-7.61	-	-
-20		-	-	-	55.98	19.11	-	-	-	59.48	20.42
-10		-	-	-	45.84	10.00	-	-	-	45.76	10.82
-5	dH^V	-	-	-	37.49	5.12	-	-	-	26.01	5.59
5		-	-	-	-52.08	-5.41	-	-	-	-14.67	-6.01
10		-	-	-	-69.74	-11.15	-	-	-	-25.59	-12.54
20		-	-	-	-95.07	-23.88	-	-	-	-42.83	-27.71
-20		-	-	-	28.60	2.91	-	-	-	34.21	3.61
-10		-	-	-	24.08	1.55	-	-	-	26.82	1.95
-5	dS^V	-	-	-	20.08	0.80	-	-	-	15.20	1.01
5		-	-	-	-27.41	-0.86	-	-	-	-7.83	-1.11
10		-	-	-	-35.42	-1.79	-	-	-	-13.15	-2.35
20		-	-	-	-45.46	-3.91	-	-	-	-20.61	-5.33
-20		13.96	16.90	20.05	-	-	13.97	16.78	19.66	-	-
-10		6.97	8.11	9.31	-	-	6.98	8.07	9.19	-	-
-5	dH^L	3.48	3.99	4.53	-	-	3.49	3.98	4.48	-	-
5		-3.48	-3.89	-4.34	-	-	-3.48	-3.88	-4.30	-	-
10		-6.95	-7.69	-8.52	-	-	-6.96	-7.67	-8.46	-	-
20		-13.89	-15.11	-16.56	-	-	-13.91	-15.08	-16.46	-	-
-20		1.25	6.75	9.53	-	-	1.25	6.58	9.11	-	-
-10		0.58	2.94	3.99	-	-	0.58	2.88	3.86	-	-
-5	dS^L	0.28	1.39	1.86	-	-	0.28	1.36	1.80	-	-
5		-0.26	-1.25	-1.64	-	-	-0.26	-1.23	-1.60	-	-
10		-0.50	-2.38	-3.10	-	-	-0.50	-2.34	-3.02	-	-
20		-0.95	-4.36	-5.62	-	-	-0.95	-4.30	-5.50	-	-
-20		-	-	-	15.78	6.06	-	-	-	25.10	7.44
-10		-	-	-	8.46	3.04	-	-	-	14.68	3.74
-5	ϕ_i^V	-	-	-	4.52	1.52	-	-	-	8.40	1.87
5		-	-	-	-8.56	-1.53	-	-	-	-9.37	-1.89
10		-	-	-	-17.70	-3.07	-	-	-	-18.71	-3.79
20		-	-	-	-34.92	-6.18	-	-	-	-35.96	-7.66
-20		728803.25	198.16	131.48	-	-	729167.31	198.99	132.55	-	-
-10		8493.27	74.55	54.19	-	-	8495.17	74.74	54.45	-	-
-5	ϕ_i^L	828.35	32.42	24.52	-	-	828.44	32.49	24.61	-	-
5		-89.26	-24.78	-20.07	-	-	-89.26	-24.82	-20.11	-	-
10		-98.85	-43.63	-36.36	-	-	-98.85	-43.67	-36.44	-	-
20		-99.99	-68.62	-60.08	-	-	-99.99	-68.66	-60.16	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	1488.00	-	-	-	-	-	-

Table B.38 TCC EOS; n-decane; % deviation of thermodynamic properties as parameter b varies.

%Dev in b	P(atm) T(K)	1					$0.8P_c$				
		$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-0.09	-0.06	-0.04	-0.04	-	-	-	-89.92	-6.04
-10		-	-0.05	-0.03	-0.02	-0.02	-	-	-	-22.83	-2.83
-5	Z^V	-	-0.20	-0.01	-0.01	-0.01	-	-	-	-7.36	-1.38
5		-	0.02	0.01	0.01	0.01	-	-	-	5.45	1.31
10		-	0.05	0.03	0.02	0.02	-	-	-	9.93	2.56
20		-	0.09	0.06	0.04	0.04	-	-	-	17.19	4.90
-20		-21.99	-31.35	-42.36	-99.83	-99.86	-21.97	-31.02	-40.80	-	-93.67
-10		-11.14	-17.05	-25.70	-99.75	-	-11.12	-16.71	-23.93	-85.36	-
-5	Z^L	-5.60	-8.93	-14.60	-	-	-5.59	-8.69	-13.15	-80.77	-
5		5.68	9.92	22.44	-	-	5.66	9.45	16.60	-	-
10		11.43	21.07	27203.20	-	-	11.38	19.76	38.63	-	-
20		23.18	48.84	27211.21	-	-	23.03	43.35	116.78	-	-
-20		-	-1.25	-1.61	-2.03	-2.52	-	-	-	-	-14.15
-10		-	-0.62	-0.80	-1.02	-1.26	-	-	-	-31.25	-6.56
-5	dH^V	-	-0.31	-0.40	-0.51	-0.63	-	-	-	-9.30	-3.17
5		-	0.31	0.40	0.51	0.63	-	-	-	6.53	2.99
10		-	0.62	0.80	1.02	1.26	-	-	-	11.69	5.82
20		-	1.24	1.61	2.03	2.52	-	-	-	19.72	11.06
-20		-	-0.42	-0.29	-0.23	-0.19	-	-	-	-	-1.43
-10		-	-0.21	-0.15	-0.11	-0.09	-	-	-	-7.47	-0.65
-5	dS^V	-	-0.11	-0.07	-0.06	-0.05	-	-	-	-2.11	-0.31
5		-	0.11	0.07	0.06	0.04	-	-	-	1.42	0.29
10		-	0.21	0.15	0.11	0.09	-	-	-	2.49	0.55
20		-	0.42	0.29	0.23	0.19	-	-	-	4.10	1.03
-20		-	-	-	-	-	-	-	-	-	-
-10		-33.41	-36.23	-43.47	-24101.00	-	-33.88	-36.63	-42.41	-379.80	-
-5	dH^L	-13.64	-14.90	-18.50	-	-	-13.84	-15.04	-17.75	-265.50	-
5		10.25	11.37	16.18	-	-	-10.41	11.43	14.13	-	-
10		18.35	20.53	99.32	-	-	18.65	20.57	26.25	-	-
20		30.51	34.92	99.32	-	-	31.05	34.57	47.99	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-19.97	-16.84	-19.92	-60297.00	-	-19.90	-16.46	-18.45	-92.17	-
-5	dS^L	-8.26	-7.18	-8.97	-	-	-8.22	-6.97	-8.08	-68.36	-
5		6.35	5.84	8.85	-	-	6.31	5.58	6.96	-	-
10		11.47	10.86	99.71	-	-	11.39	10.28	13.42	-	-
20		19.43	19.59	99.71	-	-	19.26	18.00	26.31	-	-
-20		-	-0.08	-0.05	-0.04	-0.07	-	-	-	-	-2.65
-10		-	-0.04	-0.03	-0.02	-0.02	-	-	-	-3.02	-1.30
-5	ϕ_i^V	-	-0.02	-0.01	-0.01	-0.01	-	-	-	-1.39	-0.65
5		-	0.02	0.01	0.01	0.01	-	-	-	1.28	0.64
10		-	0.04	0.03	0.02	0.02	-	-	-	2.49	1.27
20		-	0.08	0.05	0.04	0.04	-	-	-	4.74	2.50
-20		-	-	-	-	-	-	-	-	-	-
-10		-100.00	-82.31	-58.12	1636.00	-	-100.00	-82.74	-59.40	-26.67	-
-5	ϕ_i^L	-98.35	-49.83	-28.24	-	-	-98.39	-50.47	-29.48	-4.41	-
5		2046.95	63.94	23.65	-	-	2099.74	66.27	26.64	-	-
10		23741.76	137.39	-89.22	-	-	24936.39	144.55	49.21	-	-
20		854156.40	294.13	-89.21	-	-	94306.17	321.38	80.62	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-82.31	-58.11	1636.00	-	-	-	-	-24.39	-
-5	K_i	-	-49.82	-28.23	-	-	-	-	-	-3.06	-
5		-	63.90	23.63	-	-	-	-	-	-	-
10		-	137.30	-89.22	-	-	-	-	-	-	-
20		-	293.82	-89.22	-	-	-	-	-	-	-

Table B.38 (continued).

%Dev	P(atm)	P_c					$1.2P_c$				
in b	T(K)	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-	-	-75.07	-11.71	-	-	-	-61.50	-27.66
-10		-	-	-	-63.92	-5.10	-	-	-	-44.49	-9.04
-5	Z^V	-	-	-	-53.50	-2.42	-	-	-	-29.51	-4.09
5		-	-	-	68.50	2.21	-	-	-	66.72	3.53
10		-	-	-	87.89	4.26	-	-	-	110.16	6.68
20		-	-	-	112.80	7.98	-	-	-	156.47	12.15
-20		-21.96	-30.94	-40.46	-	-	-21.96	-30.86	-40.15	-	-89.14
-10		-11.11	-16.63	-23.56	-	-	-11.11	-16.56	-23.21	-	-
-5	Z^L	-5.59	-8.64	-12.86	-	-	-5.59	-8.58	-12.59	-	-
5		5.65	9.35	15.78	-	-	5.65	9.25	15.09	-	-
10		11.37	19.47	35.60	-	-	11.36	19.21	33.29	-	-
20		23.00	42.31	92.32	-	-	22.96	41.37	80.13	-	-
-20		-	-	-	-	-22.59	-	-	-	-	-48.69
-10		-	-	-	-132.95	-9.59	-	-	-	-72.54	-14.50
-5	dH^V	-	-	-	-79.54	-4.50	-	-	-	-34.14	-6.42
5		-	-	-	35.21	4.05	-	-	-	32.99	5.39
10		-	-	-	42.22	7.75	-	-	-	45.45	10.07
20		-	-	-	50.29	14.32	-	-	-	55.81	17.97
-20		-	-	-	-	-3.03	-	-	-	-	-8.53
-10		-	-	-	-47.88	-1.24	-	-	-	-28.68	-2.34
-5	dS^V	-	-	-	-30.58	-0.57	-	-	-	-14.31	-1.01
5		-	-	-	14.07	0.50	-	-	-	14.96	0.82
10		-	-	-	16.60	0.94	-	-	-	20.45	1.50
20		-	-	-	19.32	1.71	-	-	-	24.60	2.61
-20		-	-	-	-	-	-	-	-	-	-
-10		-34.00	-36.74	-42.23	-	-	-34.12	-36.85	-42.09	-	-
-5	dH^L	-13.90	-15.09	-17.62	-	-	-13.95	-15.13	-17.52	-	-
5		10.46	11.45	13.87	-	-	10.50	11.48	13.66	-	-
10		18.73	20.60	25.47	-	-	18.81	20.63	24.89	-	-
20		31.19	34.56	44.30	-	-	31.33	34.56	42.35	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-19.88	-16.37	-18.15	-	-	-19.86	-16.28	-17.86	-	-
-5	dS^L	-8.21	-6.92	-7.90	-	-	-8.20	-6.88	-7.74	-	-
5		6.63	5.52	6.68	-	-	6.29	5.47	6.44	-	-
10		11.37	10.15	12.66	-	-	11.35	10.03	12.06	-	-
20		19.21	17.68	23.19	-	-	19.17	17.39	21.38	-	-
-20		-	-	-	-	-4.05	-	-	-	-	-6.22
-10		-	-	-	-33.10	-1.95	-	-	-	-34.51	-2.82
-5	ϕ_i^V	-	-	-	-12.22	-0.96	-	-	-	-13.54	-1.37
5		-	-	-	2.78	0.93	-	-	-	6.85	1.31
10		-	-	-	4.94	1.85	-	-	-	10.74	2.57
20		-	-	-	8..65	3.62	-	-	-	16.60	4.97
-20		-	-	-	-	-	-	-	-	-	-
-10		-100.00	-82.85	-59.71	-	-	-100.00	-82.96	-60.01	-	-
-5	ϕ_i^L	-98.40	-50.63	-29.77	-	-	-98.41	-50.79	-30.05	-	-
5		2113.48	66.85	27.29	-	-	2127.30	67.43	27.92	-	-
10		25251.86	146.35	50.98	-	-	25571.26	148.14	52.63	-	-
20		967272.91	328.17	86.62	-	-	992067.11	334.91	91.75	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.39 TCC EOS; n-decane; % deviation of thermodynamic properties as parameter c varies.

%Dev	P(atm)	1					0.8P_c				
in c	T(K)	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-9.99E-03	-6.42E-03	-2.47E-03	-1.13E-03	-	-	-	-5.01	-0.51
-10		-	-5.00E-03	-3.21E-03	-1.24E-03	-5.60E-04	-	-	-	-2.31	-0.25
-5	Z^V	-	-2.50E-03	-1.61E-03	-6.20E-04	-2.77E-04	-	-	-	-1.11	-0.13
5		-	2.49E-03	1.60E-03	6.14E-04	2.83E-04	-	-	-	1.04	0.12
10		-	4.98E-03	3.20E-03	1.23E-03	5.72E-04	-	-	-	2.02	0.25
20		-	-9.95E-02	6.40E-03	2.47E-03	1.13E-03	-	-	-	3.83	0.49
-20		-0.796	-7.45	-10.28	-	-	-0.79	-7.02	-9.40	-81.50	-
-10		-0.399	-3.83	-5.38	-	-	-0.39	-3.58	-4.85	-73.86	-
-5	Z^L	-0.199	-1.94	-2.75	-	-	-0.20	-1.81	-2.46		-
5		0.2	2.00	2.89	-	-	0.20	1.84	2.54		-
10		0.4	4.06	5.95	-	-	0.39	3.73	5.17		-
20		0.802	8.38	12.60	-		0.79	7.61	10.69		-
-20		-	-1.16E-01	-1.00E-01	-7.64E-02	-6.28E-02	-	-	-	-6.55	-1.62
-10		-	-5.79E-02	-5.01E-02	-3.81E-02	-3.08E-02	-	-	-	-2.98	-0.80
-5	dH^V	-	-2.88E-02	-2.51E-02	-1.95E-02	-1.54E-02	-	-	-	-1.43	-0.40
5		-	2.88E-02	2.49E-02	1.86E-02	1.54E-02	-	-	-	1.33	0.39
10		-	5.76E-02	4.99E-02	3.83E-02	3.14E-02	-	-	-	2.58	0.78
20		-	1.15E-01	1.00E-01	7.63E-02	6.25E-02	-	-	-	4.85	1.55
-20		-	-1.31E-01	-1.12E-01	-8.19E-02	-6.46E-02	-	-	-	-2.30	-0.28
-10		-	-6.56E-02	-5.60E-02	-4.09E-02	-3.18E-02	-	-	-	-1.04	-0.14
-5	dS^V	-	-3.27E-02	-2.81E-02	-2.08E-02	-1.59E-02	-	-	-	-0.50	-0.07
5		-	3.26E-02	2.79E-02	2.01E-02	1.60E-02	-	-	-	0.46	0.07
10		-	6.53E-02	5.58E-02	4.10E-02	3.24E-02	-	-	-	0.89	0.13
20		-	1.31E-01	1.12E-01	8.18E-02	6.45E-02	-	-	-	1.68	0.26
-20		-13.62	-15.65	-17.03	-	-	-13.67	-15.53	-16.63	-277.61	-
-10		-6.15	-7.10	-7.77	-	-	-6.17	-7.03	-7.55	-190.14	-
-5	dH^L	-2.94	-3.40	-3.73	-	-	-2.95	-3.36	-3.62		-
5		2.70	3.14	3.47	-	-	2.71	3.10	3.35		-
10		5.19	6.05	6.72	-	-	5.21	5.98	6.46		-
20		9.67	11.33	12.69	-		9.70	11.16	12.10		-
-20		-11.32	-10.43	-11.26	-	-	-11.30	-10.15	-10.70	-105.37	-
-10		-5.12	-4.77	-5.19	-	-	-5.11	-4.63	-4.90	-73.49	-
-5	dS^L	-2.44	-2.29	-2.51	-	-	-2.44	-2.22	-2.36		-
5		2.25	2.14	2.36	-	-	2.25	2.06	2.20		-
10		4.33	4.14	4.59	-	-	4.33	3.98	4.26		-
20		8.08	7.80	8.76	-		8.06	7.48	8.04		-
-20		-	-4.48E-03	-2.97E-03	-1.20E-03	-5.65E-04	-	-	-	-0.77	-0.19
-10		-	-2.25E-03	-1.48E-03	-5.95E-04	-2.74E-04	-	-	-	-0.37	-0.10
-5	ϕ_i^V	-	-1.12E-03	-7.43E-04	-3.11E-04	-1.38E-04	-	-	-	-0.18	-0.05
5		-	1.11E-03	7.32E-04	2.87E-04	1.36E-04	-	-	-	0.18	0.05
10		-	2.24E-03	1.47E-03	6.05E-04	2.78E-04	-	-	-	0.35	0.09
20		-	4.47E-03	2.98E-03	1.20E-03	5.57E-04	-	-	-	0.69	0.19
-20		-99.70	-43.54	-33.62	-	-	-99.70	-43.94	-34.25	-1.94	-
-10		-92.75	-22.49	-16.58	-	-	-92.75	-22.77	-16.99	4.01	-
-5	ϕ_i^L	-71.41	-11.39	-8.21	-	-	-71.43	-11.55	-8.44		-
5		215.95	11.62	8.03	-	-	216.12	11.83	8.32		-
10		814.16	23.40	15.86	-	-	815.11	23.87	16.48		-
20		6034.64	47.27	30.82	-		6047.42	48.43	32.31		-
-20		-	-43.53	-33.62	-	-	-	-	-	-1.18	-
-10		-	-22.49	-16.58	-	-	-	-	-	4.39	-
-5	K_i	-	-11.39	-8.21	-	-	-	-	-		-
5		-	11.61	8.03	-		-	-	-		-
10		-	23.40	15.86	-	-	-	-	-		-
20		-	47.27	30.82	-	-	-	-	-		-

Table B.39 (continued).

%Dev	P(atm)	P_c					$1.2P_c$				
in c	T(K)	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-0.78			-54.34	-0.92	-0.78	-	-		-1.51
-10		-0.39			-44.47	-0.45	-0.39	-	-		-0.73
-5	Z^V	-0.20			-36.03	-0.22	-0.20	-	-		-0.36
5		0.20			41.56	0.22	0.20	-	-		0.35
10		0.39			52.43	0.43	0.39	-	-		0.70
20		0.79			66.06	0.85	0.78	-	-		1.36
-20			-6.91	-9.19	-	-		-6.81	-9.00	-29.39	-
-10			-3.52	-4.72	-	-		-3.46	-4.61	-17.37	-
-5	Z^L		-1.78	-2.40	-	-		-1.74	-2.33	-9.58	-
5			1.81	2.46	-	-		1.77	2.39	11.98	-
10			3.65	5.00	-	-		3.58	4.84	26.69	-
20			7.44	10.29	-	-		7.27	9.93	58.60	-
-20		-13.68		19.40	-81.36	-2.32	-13.69	-	-		-3.20
-10		-6.17		9.72	-54.00	-1.14	-6.18	-	-		-1.55
-5	dH^V	-2.95		4.87	-38.24	-0.56	-2.95	-	-		-0.77
5		2.71		-4.87	23.86	0.55	2.71	-	-		0.75
10		5.22		-9.76	28.68	1.10	5.22	-	-		1.47
20		9.71		-19.55	34.22	2.15	9.72	-	-		2.87
-20		-11.30			-43.40	0.43	-11.29	-	-		-0.72
-10		-5.11			-29.34	0.22	-5.10	-	-		-0.35
-5	dS^V	-2.44			-20.98	0.11	-2.44	-	-		-0.17
5		2.25			13.16	-0.11	2.25	-	-		0.17
10		4.32			15.76	-0.23	4.32	-	-		0.33
20		8.06			18.70	-0.46	8.06	-	-		0.64
-20			-15.51	-16.54	-	-		-15.48	-16.46	-34.03	-
-10			-7.02	-7.51	-	-		-7.01	-7.46	-16.64	-
-5	dH^L		-3.36	-3.59	-	-		-3.35	-3.57	-8.31	-
5			3.09	3.32	-	-		3.09	3.30	8.37	-
10			5.96	6.41	-	-		5.94	6.36	16.63	-
20			11.12	11.98	-	-		11.08	11.88	30.06	-
-20			-10.08	-10.57	-	-		-10.01	-10.45	-19.68	-
-10			-4.59	-4.84	-	-		-4.56	-4.77	-9.76	-
-5	dS^L		-2.20	-2.32	-	-		-2.18	-2.29	-4.91	-
5			2.04	2.16	-	-		2.02	2.13	5.01	-
10			3.94	4.19	-	-		3.91	4.12	9.99	-
20			7.40	7.89	-	-		7.33	7.75	18.13	-
-20		-99.70			-10.05	-0.32	-99.70	-	-		-0.49
-10		-92.76			-3.87	-0.16	-92.76	-	-		-0.24
-5	ϕ_i^V	-71.43			-1.62	-0.08	-71.44	-	-		-0.12
5		216.16			0.59	0.08	216.20	-	-		0.12
10		815.36			1.06	0.16	815.60	-	-		0.23
20		6050.78			1.87	0.31	6054.11	-	-		0.46
-20			-44.04	-34.41	-	-		-44.14	-34.56	-11.35	-
-10			-22.85	-17.09	-	-		-22.92	-17.19	-4.78	-
-5	ϕ_i^L		-11.60	-8.50	-	-		-11.64	-8.56	-2.19	-
5			11.88	8.38	-	-		11.93	8.45	1.82	-
10			23.99	16.63	-	-		24.11	16.78	3.30	-
20			48.73	32.66	-	-		49.01	33.00	5.48	-
-20		-			-	-	-	-	-	-	-
-10		-			-	-	-	-	-	-	-
-5	K_i	-			-	-	-	-	-	-	-
5		-			-	-	-	-	-	-	-
10		-			-	-	-	-	-	-	-
20		-			-	-	-	-	-	-	-

Table B.40 TCC EOS; methanol; % deviation of thermodynamic properties as parameter a(T) varies.

%Dev in a(T)	P(atm)	1					0.8P_c				
	T(K)	0.3T_b	T_b	0.8T_c	T_c	1.2T_c	0.3T_b	T_b	0.8T_c	T_c	1.2T_c
-20			0.41	0.23	0.12	0.06	-	-	-	23.91	5.30
-10			0.21	0.12	0.06	0.03	-	-	-	13.54	2.71
-5	Z^V		0.10	0.06	0.03	0.02	-	-	-	7.35	1.38
5			-0.10	-0.06	-0.03	-0.02	-	-	-	-9.56	-1.41
10			-0.21	-0.12	-0.05	-0.03	-	-	-	-28.29	-2.87
20			-0.41	-0.23	-0.12	-0.06	-	-	-	-83.89	-5.93
-20		0.89	9.45	27.07		-	0.87	8.63	20.27		-
-10		0.39	3.85	9.03		-	0.39	3.57	7.54		-
-5	Z^L	0.19	1.76	3.92		-	0.18	1.64	3.35		-
5		-0.17	-1.51	-3.12		-	-0.16	-1.42	-2.75	-75.36	-
10		-0.32	-2.81	-5.68		-	-0.31	-2.65	-5.05	-80.54	-
20		-0.58	-4.97	-9.63	-99.83	-	-0.57	-4.71	-8.70		-
-20			15.43	14.39	13.03	11.80	-	-	-	27.69	15.74
-10			7.73	7.20	6.52	5.90	-	-	-	16.17	8.11
-5	dH^V		3.87	3.61	3.26	2.95	-	-	-	8.96	4.12
5			-3.88	-3.61	-3.26	-2.95	-	-	-	-12.46	-4.26
10			-7.76	-7.22	-6.53	-5.90	-	-	-	-40.70	-8.68
20			-15.56	-14.46	-13.06	-11.81	-	-	-	-310.44	-18.05
-20			12.17	10.78	9.10	7.71	-	-	-	6.46	1.50
-10			6.10	5.40	4.55	3.86	-	-	-	3.88	0.78
-5	dS^V		3.06	2.70	2.28	1.93	-	-	-	2.19	0.40
5			-3.06	-2.70	-2.28	-1.93	-	-	-	-3.20	-0.42
10			-6.14	-5.42	-4.56	-3.86	-	-	-	-11.03	-0.85
20			-12.32	-10.85	-9.13	-7.72	-	-	-	-86.67	-1.80
-20		15.42	15.53	21.48		-	15.48	15.32	19.22		-
-10		7.70	7.54	9.51		-	7.73	7.47	8.91		-
-5	dH^L	3.85	3.72	4.57		-	3.86	3.70	4.34		-
5		-3.85	-3.65	-4.32		-	-3.86	-3.63	-4.15	-197.70	-
10		-7.69	-7.25	-8.46		-	-7.72	-7.21	-8.15	-252.16	-
20		-15.37	-14.31	-16.32	-35304.50	-	-15.43	-14.26	-15.84		-
-20		1.37	5.03	10.31		-	1.35	4.68	8.24		-
-10		0.63	2.21	4.01		-	0.63	2.08	3.45		-
-5	dS^L	0.31	1.04	1.83		-	0.30	0.99	1.60		-
5		-0.29	-0.94	-1.58		-	-0.28	-0.90	-1.42	-58.90	-
10		-0.56	-1.81	-2.98		-	-0.55	-1.72	-2.68	-73.38	-
20		-1.05	-3.32	-5.34	-75259.77	-	-1.04	-3.18	-4.86		-
-20			0.40	0.23	0.12	0.06	-	-	-	10.33	4.32
-10			0.20	0.12	0.06	0.03	-	-	-	5.28	2.16
-5	ϕ_i^V		0.10	0.06	0.03	0.02	-	-	-	2.68	1.08
5			-0.10	-0.06	-0.03	-0.02	-	-	-	-2.81	-1.08
10			-0.20	-0.12	-0.06	-0.03	-	-	-	-5.91	-2.17
20			-0.40	-0.23	-0.12	-0.06	-	-	-	-28.00	-4.36
-20		977116.43	294.01	130.25		-	979339.87	297.40	135.20		-
-10		9851.99	100.51	54.20		-	9860.98	101.22	55.37		-
-5	ϕ_i^L	899.01	41.91	24.57		-	899.48	42.14	24.98		-
5		-90.02	-29.80	-20.14		-	-90.02	-29.90	-20.35	-0.80	-
10		-99.01	-50.88	-36.50		-	-99.01	-51.01	-36.81	-9.96	-
20		-99.99	-76.16	-60.30	2853.33	-	-99.99	-76.27	-60.63		-
-20		292.45	292.45	129.72		-	-	-	-		-
-10		100.12	100.12	54.03		-	-	-	-		-
-5	K_i	41.77	41.77	24.50		-	-	-	-		-
5		-29.73	-29.73	-20.09		-	-	-	-	2.07	-
10		-50.78	-50.78	-36.43		-	-	-	-	-4.30	-
20		-76.07	-76.07	-60.21	2856.74	-	-	-	-		-

Table B.40 (continued).

%Dev in a(T)	P(atm) T(K)	Pc					1.2Pc				
		$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-	-	130.67	7.07	-	-	-	183.54	9.00
-10		-	-	-	97.89	3.65	-	-	-	115.61	4.68
-5	Z^V	-	-	-	73.91	1.86	-	-	-	47.57	2.39
5		-	-	-	-45.19	-1.93	-	-	-	-16.05	-2.51
10		-	-	-	-52.43	-3.94	-	-	-	-24.77	-5.16
20		-	-	-	-59.46	-8.25	-	-	-	-34.64	-10.96
-20		0.87	8.45	19.15	-	-91.55	0.86	8.27	18.17	-	-
-10		0.38	3.50	7.24	-	-	0.38	3.44	6.97	-	-
-5	Z^L	0.18	1.61	3.23	-	-	0.18	1.59	3.13	-	-
5		-0.16	-1.40	-2.67	-	-	-0.16	-1.38	-2.60	-	-
10		-0.31	-2.62	-4.92	-	-	-0.31	-2.58	-4.79	-	-
20		-0.57	-4.65	-8.49	-	-	-0.57	-4.59	-8.30	-	-
-20		-	-	-	54.93	16.88	-	-	-	58.86	18.03
-10		-	-	-	44.98	8.79	-	-	-	45.16	9.49
-5	dH^V	-	-	-	36.74	4.49	-	-	-	25.02	4.88
5		-	-	-	-52.99	-4.71	-	-	-	-14.23	-5.19
10		-	-	-	-70.51	-9.66	-	-	-	-24.81	-10.76
20		-	-	-	-95.40	-20.47	-	-	-	-41.43	-23.33
-20		-	-	-	23.69	1.96	-	-	-	29.64	2.47
-10		-	-	-	19.92	1.04	-	-	-	23.13	1.32
-5	dS^V	-	-	-	16.56	0.53	-	-	-	12.77	0.69
5		-	-	-	-23.55	-0.57	-	-	-	-6.68	-0.74
10		-	-	-	-30.34	-1.17	-	-	-	-11.25	-1.55
20		-	-	-	-38.85	-0.25	-	-	-	-17.68	-3.44
-20		15.50	15.27	18.84	-	-	15.51	15.23	18.50	-	-
-10		7.74	7.45	8.80	-	-	7.75	7.44	8.69	-	-
-5	dH^L	3.87	3.69	4.29	-	-	3.87	3.68	4.24	-	-
5		-3.87	-3.63	-4.11	-	-	-3.87	-3.62	-4.08	-	-
10		-7.73	-7.21	-8.09	-	-	-7.74	-7.20	-8.03	-	-
20		-15.45	-14.24	-15.73	-	-	-15.46	-14.23	-15.64	-	-
-20		1.35	4.60	7.88	-	-	1.34	4.53	7.57	-	-
-10		0.62	2.05	3.34	-	-	0.62	2.02	3.23	-	-
-5	dS^L	0.30	0.97	1.56	-	-	0.30	0.96	1.51	-	-
5		-0.28	-0.89	-1.38	-	-	-0.28	-0.88	-1.34	-	-
10		-0.55	-1.70	-2.61	-	-	-0.55	-1.68	-2.55	-	-
20		-1.04	-3.14	-4.75	-	-	-1.04	-3.11	-4.65	-	-
-20		-	-	-	15.45	5.51	-	-	-	24.70	6.74
-10		-	-	-	8.28	2.76	-	-	-	14.46	3.38
-5	ϕ_i^V	-	-	-	4.43	1.38	-	-	-	8.25	1.69
5		-	-	-	-8.34	-1.39	-	-	-	-9.15	-1.70
10		-	-	-	-17.26	-2.78	-	-	-	-18.29	-3.42
20		-	-	-	-34.14	-5.59	-	-	-	-35.20	-6.89
-20		979895.53	298.21	136.26	-	-	980450.79	299.01	137.27	-	-
-10		9863.50	101.39	55.63	-	-	9865.96	101.56	55.88	-	-
-5	ϕ_i^L	899.61	42.19	25.08	-	-	899.72	42.25	25.17	-	-
5		-90.02	-29.92	-20.40	-	-	-90.02	-29.94	-20.45	-	-
10		-99.01	-51.04	-36.89	-	-	-99.01	-51.07	-36.96	-	-
20		-99.99	-76.30	-60.71	-	-	-99.99	-76.32	-60.78	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	1488.00	-	-	-	-	-	-

Table B.41 TCC EOS; methanol; % deviation of thermodynamic properties as parameter b varies.

%Dev	P(atm)	1					0.8P_c				
in b	T(K)	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-2.71E-02	-2.11E-02	-1.63E-02	-1.33E-02	-	-	-	-89.02	-2.55
-10		-	-1.36E-02	-1.06E-02	-8.12E-03	-6.64E-03	-	-	-	-9.55	-1.25
-5	Z^V	-	-6.78E-03	-5.28E-03	-4.06E-03	-3.32E-03	-	-	-	-4.18	-0.62
5		-	6.78E-03	5.28E-03	4.06E-03	3.32E-03	-	-	-	3.51	0.60
10		-	1.36E-02	1.06E-02	8.12E-03	6.65E-03	-	-	-	6.57	1.19
20		-	2.71E-02	2.11E-02	1.62E-02	1.33E-02	-	-	-	11.80	2.34
-20		-20.89	-26.85	-32.24	-99.89		-20.88	-26.51	-31.20		
-10		-10.51	-14.08	-17.71		-	-10.50	-13.84	-16.87	-84.15	-
-5	Z^L	-5.27	-7.22	-9.34		-	-5.26	-7.07	-8.80	-78.50	-
5		5.30	7.62	10.58		-	5.29	7.41	9.65		-
10		10.63	15.69	22.83		-	10.61	15.17	20.29		-
20		21.38	33.39	55.92		-	21.30	31.86	45.34		-
-20		-	-0.55	-0.69	-0.94	-1.29	-	-	-	-433.25	-6.42
-10		-	-0.28	-0.34	-0.47	-0.65	-	-	-	-11.85	-3.11
-5	dH^V	-	-0.14	-0.17	-0.23	-0.32	-	-	-	-5.04	-1.53
5		-	0.14	0.17	0.24	0.32	-	-	-	4.08	1.49
10		-	0.28	0.35	0.47	0.65	-	-	-	7.53	2.94
20		-	0.56	0.69	0.94	1.29	-	-	-	13.21	5.74
-20		-	-1.18E-01	-9.10E-02	-7.01E-02	-5.31E-02	-	-	-	-122.25	-0.67
-10		-	-5.84E-02	-4.57E-02	-3.33E-02	-2.67E-02	-	-	-	-3.21	-0.32
-5	dS^V	-	-2.87E-02	-2.28E-02	-1.61E-02	-1.30E-02	-	-	-	-1.35	-0.16
5		-	3.04E-02	2.37E-02	1.80E-02	1.36E-02	-	-	-	1.07	0.15
10		-	5.95E-02	4.63E-02	3.44E-02	2.71E-02	-	-	-	1.96	0.30
20		-	1.19E-01	9.22E-02	6.91E-02	5.46E-02	-	-	-	3.39	0.58
-20		-34.43	-37.88	-42.78	-47837.71	-	-34.65	-37.98	-42.20		-
-10		-14.64	-16.19	-18.54		-	-14.74	-16.22	-18.18	-301.15	-
-5	dH^L	-6.81	-7.56	-8.73		-	-6.86	-7.56	-8.52	-224.19	-
5		5.99	6.68	7.89		-	6.03	6.68	7.60		-
10		11.29	12.65	15.15		-	11.38	12.62	14.46		-
20		20.28	22.89	28.69		-	20.44	22.78	26.46		-
-20		-24.43	-21.37	-23.69	-92438.46	-	-24.39	-21.06	-22.84		-
-10		-10.48	-9.36	-10.61		-	-10.46	-9.20	-10.11	-88.61	-
-5	dS^L	-4.90	-4.42	-5.07		-	-4.89	-4.33	-4.80	-67.32	-
5		4.34	4.00	4.73		-	4.33	3.90	4.39		-
10		8.21	7.65	9.24		-	8.19	7.44	8.45		-
20		14.84	14.13	18.13		-	14.80	13.65	15.83		-
-20		-	-2.51E-02	-2.02E-02	-1.59E-02	-1.31E-02	-	-	-	-32.14	-1.42
-10		-	-1.25E-02	-1.01E-02	-7.94E-03	-6.57E-03	-	-	-	-1.76	-0.71
-5	ϕ_i^V	-	-6.23E-03	-5.04E-03	-3.96E-03	-3.28E-03	-	-	-	-0.85	-0.35
5		-	6.33E-03	5.07E-03	3.98E-03	3.29E-03	-	-	-	0.81	0.35
10		-	1.26E-02	1.01E-02	7.95E-03	6.57E-03	-	-	-	1.59	0.70
20		-	2.52E-02	2.02E-02	1.59E-02	1.31E-02	-	-	-	3.07	1.39
-20		-100.00	-88.43	-72.54	2780.08	-	-100.00	-88.72	-73.32		-
-10		-99.86	-59.02	-40.60		-	-99.86	-59.52	-41.53	-6.99	-
-5	ϕ_i^L	-95.26	-33.62	-21.01		-	-95.33	-34.06	-21.66	1.99	-
5		134.73	42.03	21.66		-	1367.15	43.04	22.79		-
10		15244.78	92.21	43.21		-	15669.54	95.04	46.05		-
20		823583.54	214.09	83.21		-	870077.47	223.94	91.76		-
-20		-	-88.43	-72.53	2780.54	-	-	-	-		-
-10		-	-59.02	-40.59		-	-	-	-	-5.33	-
-5	K_i	-	-33.61	-21.01		-	-	-	-	2.87	-
5		-	42.02	21.65		-	-	-	-		-
10		-	92.19	43.20		-	-	-	-		-
20		-	214.01	83.17		-	-	-	-		-

Table B.41 (continued).

%Dev	P(atm)	Pc					1.2Pc				
in b	T(K)	0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20		-	-	-	-72.05	-4.06	-	-	-	-54.49	-6.17
-10		-	-	-	-60.50	-1.95	-	-	-	-36.78	-2.90
-5	Z^V	-	-	-	-50.10	-0.96	-	-	-	-22.72	-1.41
5		-	-	-	61.02	0.93	-	-	-	42.82	1.34
10		-	-	-	78.12	1.83	-	-	-	88.88	2.63
20		-	-	-	100.07	3.55	-	-	-	139.70	5.05
-20		-20.87	-26.43	-30.97	-	-	-20.87	-26.35	-30.74	-	
-10		-10.49	-13.78	-16.69	-	-	-10.49	-13.72	-16.51	-	-
-5	Z^L	-5.26	-7.04	-8.68	-	-	-5.26	-7.00	-8.57	-	-
5		5.29	7.36	9.46	-	-	5.29	7.31	9.28	-	-
10		10.61	15.05	19.80	-	-	10.60	14.93	19.36	-	-
20		21.32	31.53	43.68	-	-	21.31	31.21	42.24	-	-
-20		-	-	-	-152.54	-8.65	-	-	-	-82.00	-11.52
-10		-	-	-	-92.26	-4.11	-	-	-	-39.86	-5.33
-5	dH^V	-	-	-	-62.30	-2.01	-	-	-	-20.41	-2.58
5		-	-	-	31.61	1.93	-	-	-	22.75	2.42
10		-	-	-	37.87	3.78	-	-	-	37.89	4.71
20		-	-	-	45.01	7.27	-	-	-	49.75	8.93
-20		-	-	-	-64.62	-1.15	-	-	-	-39.00	-1.84
-10		-	-	-	-40.82	-0.54	-	-	-	-19.73	-0.84
-5	dS^V	-	-	-	-28.22	-0.26	-	-	-	-10.31	-0.40
5		-	-	-	14.51	0.25	-	-	-	11.88	0.37
10		-	-	-	17.23	0.48	-	-	-	19.82	0.72
20		-	-	-	20.23	0.92	-	-	-	25.84	1.35
-20		-34.70	-38.01	-42.09	-	-	-34.76	-38.04	-41.98	-	-
-10		-14.76	-16.23	-18.10	-	-	-14.79	-16.24	-18.04	-	-
-5	dH^L	-6.87	-7.57	-8.48	-	-	-6.88	-7.57	-8.44	-	-
5		6.04	6.68	7.55	-	-	6.05	6.68	7.50	-	-
10		11.40	12.62	14.34	-	-	11.42	12.62	14.23	-	-
20		20.48	22.77	26.12	-	-	20.52	22.75	25.83	-	-
-20		-24.38	-20.99	-22.64	-	-	-24.37	-20.92	-22.46	-	-
-10		-10.45	-9.16	-10.00	-	-	-10.45	-9.12	-9.90	-	-
-5	dS^L	-4.88	-4.31	-4.74	-	-	-4.88	-4.29	-4.69	-	-
5		4.32	3.88	4.32	-	-	4.32	3.86	4.26	-	-
10		8.18	7.39	8.30	-	-	8.18	7.35	8.16	-	-
20		14.79	13.55	15.44	-	-	14.70	13.45	15.10	-	-
-20		-	-	-	-38.39	-2.01	-	-	-	-39.82	-2.73
-10		-	-	-	-14.96	-1.00	-	-	-	-16.39	-1.34
-5	ϕ_i^V	-	-	-	-6.09	-0.50	-	-	-	-7.16	-0.07
5		-	-	-	1.86	0.49	-	-	-	4.89	0.07
10		-	-	-	3.34	0.98	-	-	-	8.02	1.30
20		-	-	-	5.91	1.94	-	-	-	12.48	2.57
-20		-100.00	-88.79	-73.51	-	-	-100.00	-88.86	-73.70	-	-
-10		-99.86	-59.70	-41.75	-	-	-99.86	-59.83	-41.97	-	-
-5	ϕ_i^L	-92.34	-34.18	-21.82	-	-	-95.36	-34.29	-21.98	-	-
5		1372.21	43.30	23.06	-	-	1377.31	43.55	23.32	-	-
10		15779.01	95.75	46.72	-	-	15889.40	96.45	47.38	-	-
20		882270.39	226.41	93.72	-	-	894642.21	228.87	95.63	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-		-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.42 TCC EOS; methanol; % deviation of thermodynamic properties as parameter c varies.

%Dev in c	P(atm) T(K)	1					$0.8P_c$				
		$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20	Z^V	-	-4.86E-04	-2.23E-04	-8.99E-05	-3.58E-05	-	-	-	-2.47	-0.25
-10		-	-2.43E-04	-1.14E-04	-4.79E-05	-1.79E-05	-	-	-	-1.19	-0.12
-5		-	-1.28E-04	-5.42E-05	-3.00E-05	-1.19E-05	-	-	-	-0.58	-0.06
5		-	1.15E-04	6.02E-05	1.80E-05	1.19E-05	-	-	-	0.56	0.06
10		-	2.37E-04	1.08E-04	4.19E-05	1.79E-05	-	-	-	1.11	0.12
20		-	4.80E-04	2.23E-04	8.99E-05	4.18E-05	-	-	-	2.15	0.24
-20	Z^L	-0.43	-3.09	-5.48	-	-	-0.42	-2.94	-4.93	-74.07	-
-10		-0.21	-1.56	-2.80	-	-	-0.21	-1.48	-2.51		-
-5		-0.11	-0.79	-1.42	-	-	-0.11	-0.74	-1.26		-
5		0.11	0.79	1.45	-	-	0.11	0.75	1.28		-
10		0.21	1.60	2.95	-	-	0.21	1.50	2.59		-
20		0.43	3.23	6.05	-	-	0.42	3.03	5.27		-
-20	dH^V	-	-1.68E-02	-1.24E-02	-1.04E-02	-9.39E-03	-	-	-	-3.18	-0.82
-10		-	-7.19E-03	-6.45E-03	-3.87E-03	-5.28E-03	-	-	-	-1.52	-0.41
-5		-	-2.91E-03	-1.97E-03	-2.21E-03	-1.56E-03	-	-	-	-0.75	-0.20
5		-	4.49E-03	4.25E-03	1.30E-03	2.54E-03	-	-	-	0.72	0.20
10		-	9.03E-03	7.83E-03	5.56E-03	5.34E-03	-	-	-	1.41	0.40
20		-	1.74E-02	1.41E-02	9.34E-03	1.01E-02	-	-	-	2.73	0.80
-20	dS^V	-	-1.92E-02	-1.41E-02	-1.11E-02	-9.25E-03	-	-	-	-0.88	-0.10
-10		-	-8.82E-03	-7.30E-03	-4.65E-03	-5.09E-03	-	-	-	-0.42	-0.05
-5		-	-4.07E-03	-2.71E-03	-2.74E-03	-1.81E-03	-	-	-	-0.21	-0.03
5		-	4.90E-03	4.44E-03	1.62E-03	2.61E-03	-	-	-	0.20	0.03
10		-	9.90E-03	1.82E-02	5.72E-03	5.15E-03	-	-	-	0.39	0.05
20		-	1.95E-02	1.53E-02	1.03E-02	1.01E-02	-	-	-	0.75	0.10
-20	dH^L	-5.81	-6.41	-7.34	-	-	-5.83	-6.39	-7.13	-187.98	-
-10		-2.79	-3.08	-3.54	-	-	-2.80	-3.07	-3.43		-
-5		-1.37	-1.51	-1.74	-	-	-1.37	-1.50	-1.68		-
5		1.32	1.46	1.68	-	-	1.32	1.45	1.63		-
10		2.58	2.86	3.32	-	-	2.59	2.85	3.20		-
20		4.99	5.53	6.44	-	-	5.00	5.50	6.19		-
-20	dS^L	-4.25	-3.86	-4.37	-	-	-4.24	-3.78	-4.14	-56.86	-
-10		-2.04	-1.86	-2.12	-	-	-2.04	-1.82	-2.00		-
-5		-1.00	-0.91	-1.04	-	-	-1.00	-0.89	-0.98		-
5		0.96	0.88	1.02	-	-	0.96	0.86	0.95		-
10		1.90	1.74	2.01	-	-	1.89	1.70	1.88		-
20		3.66	3.37	3.92	-	-	3.65	3.29	3.65		-
-20	ϕ_i^V	-	-2.28E-04	-9.21E-05	-4.27E-05	-2.39E-05	-	-	-	-0.40	-0.10
-10		-	-7.73E-05	-4.86E-05	-9.35E-06	-1.44E-05	-	-	-	-0.20	-0.05
-5		-	-1.41E-05	-4.78E-06	-4.17E-06	-1.64E-06	-	-	-	-0.10	-0.02
5		-	6.55E-05	4.00E-05	2.27E-06	5.59E-06	-	-	-	0.01	0.02
10		-	1.37E-04	7.50E-05	2.55E-05	1.46E-05	-	-	-	0.19	0.04
20		-	2.50E-04	1.21E-04	3.41E-05	2.46E-05	-	-	-	0.38	0.09
-20	ϕ_i^L	-92.44	-28.32	-16.98	-	-	-92.45	-28.53	-17.37	3.95	-
-10		-71.01	-14.71	-8.47	-	-	-71.03	-14.84	-8.69		-
-5		-45.55	-7.49	-4.23	-	-	-45.51	-7.56	-4.34		-
5		79.33	7.75	4.20	-	-	79.38	7.83	4.33		-
10		214.79	15.76	8.38	-	-	214.96	15.93	8.66		-
20		814.29	32.51	16.65	-	-	815.29	32.90	17.25		-
-20	K_i	-	-28.32	-16.98	-	-	-	-	-	4.36	-
-10		-	-14.71	-8.47	-	-	-	-	-		-
-5		-	-7.49	-4.23	-	-	-	-	-		-
5		-	7.75	4.20	-	-	-	-	-		-
10		-	15.76	8.38	-	-	-	-	-		-
20		-	32.51	16.65	-	-	-	-	-		-

Table B.42 (continued).

%Dev in c	P(atm) T(K)	Pc					1.2Pc				
		0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20		-			-46.21	-0.43	-	-	-	-17.92	-0.68
-10		-			-37.73	-0.21	-	-	-	-9.92	-0.34
-5	Z^V	-			-30.60	-0.11	-	-	-	-5.24	-0.17
5		-			32.87	0.10	-	-	-	5.91	0.16
10		-			41.75	0.21	-	-	-	12.57	0.33
20		-			52.96	0.41	-	-	-	28.28	0.65
-20		-0.42	-2.90	-4.82	-	-	-0.42	-2.86	-4.70	-	-
-10		-0.21	-1.46	-2.44	-	-	-0.21	-1.44	-2.38	-	-
-5	Z^L	-0.10	-0.73	-1.23	-	-	-0.10	-0.72	-1.20	-	
5		0.10	0.74	1.25	-	-	0.10	0.73	1.21		-
10		0.21	1.48	2.52	-	-	0.21	1.46	2.45		-
20		0.42	2.98	5.11		-	0.42	2.94	4.96		-
-20		-			-55.35	-1.14	-	-	-	-16.42	-1.53
-10		-			-39.60	-0.57	-	-	-	-8.25	-0.76
-5	dH^V	-			-29.30	-0.28	-	-	-	-4.15	-0.38
5		-			19.46	0.28	-	-	-	4.19	0.37
10		-			23.69	0.56	-	-	-	8.44	0.74
20		-			28.62	1.10	-	-	-	16.89	1.45
-20		-			-25.28	-0.17	-	-	-	-8.40	-0.27
-10		-			-18.26	-0.09	-	-	-	-4.25	-0.13
-5	dS^V	-			-13.58	-0.04	-	-	-	-2.14	-0.07
5		-			9.04	0.04	-	-	-	2.18	0.06
10		-			10.98	0.08	-	-	-	4.40	0.13
20		-			13.21	0.17	-	-	-	8.84	0.25
-20		-5.84	-6.38	-7.09	-	-	-5.84	-6.38	-7.05	-	-
-10		-2.80	-3.06	-3.41	-	-	-2.80	-3.06	-3.39	-	-
-5	dH^L	-1.37	-1.50	-1.67	-	-	-1.37	-1.50	-1.66	-	-
5		1.32	1.45	1.62	-	-	1.32	1.45	1.60		-
10		2.59	2.84	3.18	-	-	2.60	2.84	3.15		-
20		5.01	5.50	6.15		-	5.01	5.49	6.10		-
-20		-4.24	-3.76	-4.08	-	-	-4.24	-3.74	-4.04	-	-
-10		-2.04	-1.81	-1.97	-	-	-2.04	-1.80	-1.95	-	-
-5	dS^L	-1.00	-0.89	-0.97	-	-	-1.00	-0.89	-0.96	-	-
5		0.96	0.86	0.94	-	-	0.93	0.86	0.93		-
10		1.89	1.69	1.85	-	-	1.89	1.68	1.82		-
20		3.65	3.27	3.59		-	3.65	3.26	3.54		-
-20		-			-3.97	-0.16	-	-	-	-4.88	-0.23
-10		-			-1.67	-0.08	-	-	-	-2.25	-0.12
-5	ϕ_i^V	-			-0.74	-0.04	-	-	-	-1.08	-0.06
5		-			0.34	0.04	-	-	-	0.98	0.06
10		-			0.62	0.08	-	-	-	1.88	0.12
20		-			1.11	0.15	-	-	-	3.42	0.23
-20		-92.45	-28.58	-17.47	-	-	-92.45	-28.63	-17.56	-	-
-10		-71.03	-14.87	-8.74	-	-	-71.04	-14.89	-8.79	-	-
-5	ϕ_i^L	-45.52	-7.57	-4.37	-	-	-45.52	-7.59	-4.40	-	-
5		79.39	7.85	4.36	-	-	79.41	7.87	4.39	-1.85	-
10		215.00	15.97	8.72	-	-	215.05	16.01	8.78	-11.94	-
20		815.54	33.00	17.39		-	815.79	33.09	17.53	-31.34	-
-20		-		-89.22	-	-	-	-	-	-	-
-10		-		41.55	-	-	-	-	-	-	-
-5	K_i	-		19.64	-	-	-	-	-	-	-
5		-		-17.08	-	-	-	-	-	1.27	-
10		-		-31.68	-	-	-	-	-	-	-
20		-		-54.29	-	-	-	-	-	-	-

Table B.43 TCC EOS; ethanol; % deviation of thermodynamic properties as parameter a(T) varies.

%Dev	P(atm)	1					0.8P_c				
in a(T)	T(K)	0.3T_b	T_b	0.8T_c	T_c	1.2T_c	0.3T_b	T_b	0.8T_c	T_c	1.2T_c
-20		-	0.51	0.32	0.16	0.08	-	-	-	24.19	5.52
-10		-	0.26	0.16	0.08	0.04	-	-	-	13.72	2.83
-5	Z^V	-	0.13	0.08	0.04	0.02	-	-	-	7.46	1.44
5		-	-0.13	-0.08	-0.04	-0.02	-	-	-	-9.77	-1.48
10		-	-0.26	-0.16	-0.08	-0.04	-	-	-	-31.02	-3.00
20		-	-0.52	-0.32	-0.16	-0.08	-	-	-	-83.16	-6.22
-20		0.79	8.95	22.97			0.78	8.15	17.67		-
-10		0.35	3.60	7.77			0.34	3.34	6.57		-
-5	Z^L	0.16	1.64	3.38			0.16	1.53	2.92		-
5		-0.15	-1.40	-2.70			-0.15	-1.32	-2.40	-75.05	-
10		-0.28	-2.61	-4.91			-0.28	-2.46	-4.40	-79.94	-
20		-0.51	-4.58	-8.34	-99.77		-0.51	-4.34	-7.58		-
-20		-	14.92	14.16	13.24	12.63	-	-	-	28.07	16.71
-10		-	7.48	7.09	6.63	6.32	-	-	-	16.43	8.62
-5	dH^V	-	3.75	3.55	3.31	3.16	-	-	-	9.12	4.38
5		-	-3.75	-3.55	-3.31	-3.16	-	-	-	-12.79	-4.54
10		-	-7.52	-7.12	-6.63	-6.32	-	-	-	-45.71	-9.25
20		-	-15.08	-14.25	-13.28	-12.65	-	-	-	-312.62	-19.28
-20		-	11.52	10.50	9.25	8.36	-	-	-	6.92	1.64
-10		-	5.78	5.26	4.63	4.19	-	-	-	4.17	0.86
-5	dS^V	-	2.90	2.63	2.32	2.09	-	-	-	2.35	0.44
5		-	-2.91	-2.64	-2.32	-2.09	-	-	-	-3.47	-0.46
10		-	-5.83	-5.83	-4.64	-4.19	-	-	-	-13.21	-0.94
20		-	-11.71	-11.71	-9.29	-8.38	-	-	-	-92.09	-1.99
-20		18.21	15.29	20.77		-	18.31	15.03	18.81		-
-10		9.10	7.37	9.24		-	9.15	7.29	8.71		-
-5	dH^L	4.55	3.63	4.45		-	4.58	3.60	4.23		-
5		-4.55	-3.55	-4.20		-	-4.57	-3.53	-4.05	-200.48	-
10		-9.10	-7.03	-8.22		-	-9.15	-6.99	-7.95	-254.06	-
20		-18.19	-13.84	-15.85	-27076.90	-	-18.29	-13.78	-15.43		-
-20		2.01	5.47	10.32		-	1.99	5.08	8.44		-
-10		0.94	2.38	4.06		-	0.93	2.24	3.53		-
-5	dS^L	0.46	1.12	1.86		-	0.45	1.06	1.64		-
5		-0.43	-1.01	-1.60		-	-0.43	-0.96	-1.45	-63.06	-
10		-0.84	-1.93	-3.02		-	-0.83	-1.84	-2.74	-78.05	-
20		-1.59	-3.54	-5.41	-55597.93	-	-1.58	-3.38	-4.96		-
-20		-	0.49	0.31	0.16	0.08	-	-	-	10.52	4.49
-10		-	0.25	0.16	0.08	0.04	-	-	-	5.38	2.25
-5	ϕ_i^V	-	0.12	0.08	0.04	0.02	-	-	-	2.73	1.13
5		-	-0.12	-0.08	-0.04	-0.02	-	-	-	-2.87	-1.13
10		-	-0.25	-0.16	-0.08	-0.04	-	-	-	-6.05	-2.26
20		-	-0.49	-0.31	-0.16	-0.08	-	-	-	-28.70	-4.53
-20		595218.65	276.33	137.27		-	596524.70	279.58	141.94		-
-10		7667.20	96.05	56.51		-	7674.72	96.73	57.60		-
-5	ϕ_i^L	782.62	40.33	25.49		-	783.02	40.56	25.88		-
5		-88.70	-29.02	-20.73		-	-88.70	-29.12	-20.92	-1.02	-
10		-98.73	-49.79	-37.44		-	-98.73	-49.92	-37.72	-10.37	-
20		-99.98	-75.10	-61.46	2118.23	-	-99.98	-75.21	-61.75		-
-20		-	274.48	136.54		-	-	-	-		-
-10		-	95.57	56.26		-	-	-	-		-
-5	K_i	-	40.16	25.40		-	-	-	-		-
5		-	-28.93	-20.67		-	-	-	-	1.91	-
10		-	-49.67	-37.34		-	-	-	-	-4.60	-
20		-	-74.97	-61.34	2121.66	-	-	-	-		-

Table B.43 (continued).

%Dev in a(T)	P(atm) T(K)	Pc					1.2Pc				
		0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20		-	-	-	128.93	7.37	0.77	-	-	178.64	9.38
-10		-	-	-	96.46	3.81	0.34	-	-	113.13	4.89
-5	Z^V	-	-	-	72.73	1.94	0.16	-	-	47.64	2.50
5		-	-	-	-44.37	-2.02	-0.14	-	-	-15.59	-2.63
10		-	-	-	-51.36	-4.13	-0.27	-	-	-23.94	-5.41
20		-	-	-	-58.10	-8.67	-0.50	-	-	-33.31	-11.56
-20		0.77	7.97	16.76	-			7.80	15.94	-	-
-10		0.34	3.28	6.33	-	-		3.22	6.11	-	-
-5	Z^L	0.16	1.51	2.83	-	-		1.48	2.74	-	-
5		-0.15	-1.30	-2.33	-	-		-1.28	-2.27	-	-
10		-0.28	-2.42	-4.29	-	-		-2.39	-4.18	-	-
20		-0.50	-4.29	-7.40	-	-		-4.23	-7.24	-	-
-20		-	-	-	55.17	17.89	18.36	-	-	59.20	19.09
-10		-	-	-	45.16	9.33	9.18	-	-	45.64	10.07
-5	dH^V	-	-	-	36.87	4.77	4.59	-	-	25.83	5.18
5		-	-	-	-53.73	-5.01	-4.59	-	-	-14.53	-5.53
10		-	-	-	-71.45	-10.31	-9.17	-	-	-25.29	-11.48
20		-	-	-	-96.62	-21.91	-18.34	-	-	-42.14	-25.03
-20		-	-	-	24.73	2.14	1.98	-	-	30.82	2.68
-10		-	-	-	20.79	1.13	0.93	-	-	24.17	1.44
-5	dS^V	-	-	-	17.28	0.58	0.45	-	-	13.64	0.75
5		-	-	-	-24.83	-0.62	-0.42	-	-	-7.06	-0.81
10		-	-	-	-31.96	-1.29	-0.83	-	-	-11.86	-1.70
20		-	-	-	-40.90	-2.79	-1.57	-	-	-18.58	-3.79
-20		18.34	14.98	18.46	-	-		14.93	18.15	-	-
-10		9.17	7.27	8.61	-	-		7.25	8.51	-	-
-5	dH^L	4.58	3.59	4.19	-	-		3.58	4.15	-	-
5		-4.58	-3.52	-4.02	-	-		-3.52	-3.99	-	-
10		-9.16	-6.98	-7.90	-	-		-6.97	-7.84	-	-
20		-18.31	-13.77	-15.34	-	-		-13.75	-15.26	-	-
-20		1.98	4.99	8.09	-	-		4.91	7.79	-	-
-10		0.93	2.21	3.42	-	-		2.17	3.32	-	-
-5	dS^L	0.45	1.04	1.59	-	-		1.03	1.55	-	-
5		-0.43	-0.95	-1.41	-	-		-0.94	-1.38	-	-
10		-0.83	-1.81	-2.67	-	-		-1.79	-2.62	-	-
20		-1.57	-3.34	-4.86	-	-		-3.31	-4.76	-	-
-20		-	-	-	15.70	5.74	597182.52	-	-	25.01	7.02
-10		-	-	-	8.42	2.87	7678.49	-	-	14.63	3.52
-5	ϕ_i^V	-	-	-	4.50	1.44	783.23	-	-	8.36	1.77
5		-	-	-	-8.51	-1.45	-88.71	-	-	-9.32	-1.78
10		-	-	-	-17.60	-2.90	-98.73	-	-	-18.62	-3.56
20		-	-	-	-34.74	-5.83	-99.98	-	-	-35.78	-7.19
-20		596855.99	280.36	142.97	-	-		281.13	143.94	-	-
-10		7676.62	96.60	57.85	-	-		97.07	58.09	-	-
-5	ϕ_i^L	783.13	40.61	25.97	-	-		40.67	26.05	-	-
5		-88.71	-29.14	-20.97	-	-		-29.16	-21.01	-	-
10		-98.73	-49.95	-37.79	-	-		-49.98	-37.85	-	-
20		-99.98	-75.24	-61.82	-	-		-75.26	-61.89	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	1488.00	-	-	-	-	-	-

Table B.44 TCC EOS; ethanol; % deviation of thermodynamic properties as parameter b varies.

%Dev in b	P(atm) T(K)	1					0.8Pc				
		$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-4.05E-02	-3.26E-02	-2.47E-02	-2.01E-02	-	-	-	-89.29	-3.01
-10		-	-2.03E-03	-1.63E-02	-1.24E-02	-1.01E-02	-	-	-	-11.66	-1.46
-5	Z^V	-	-1.01E-02	-8.14E-03	-6.19E-03	-5.02E-03	-	-	-	-4.91	-0.72
5		-	1.01E-02	8.14E-03	6.17E-03	5.03E-03	-	-	-	4.00	0.70
10		-	2.03E-02	1.63E-02	1.24E-02	1.01E-02	-	-	-	7.44	1.39
20		-	4.05E-02	3.26E-02	2.47E-02	2.01E-02	-	-	-	13.22	2.72
-20		-21.08	-28.05	-33.12	-99.86	-	-21.06	-27.71	-32.21	-	-
-10		-10.61	-14.85	-18.32	-99.78	-	-10.60	-14.59	-17.55	-84.52	-
-5	Z^L	-5.32	-7.65	-9.71	-	-	-5.32	-7.49	-9.20	-79.35	-
5		5.36	8.17	11.14	-	-	5.35	7.92	10.19	-	-
10		10.76	16.95	24.25	-	-	10.74	16.31	21.58	-	-
20		21.67	36.70	61.68	-	-	21.62	34.69	48.98	-	-
-20		-	-0.65	-0.78	-1.09	-1.53	-	-	-	-490.94	-7.62
-10		-	-0.33	-0.39	-0.54	-0.77	-	-	-	-14.67	-3.67
-5	dH^V	-	-0.16	-0.20	-0.27	-0.38	-	-	-	-5.96	-1.81
5		-	0.16	0.20	0.27	0.39	-	-	-	4.65	1.75
10		-	0.33	0.39	0.55	0.77	-	-	-	8.51	3.44
20		-	0.65	0.78	1.09	1.54	-	-	-	14.74	6.69
-20		-	-1.69E-01	-1.38E-01	-1.03E-01	-8.38E-02	-	-	-	-144.13	-0.82
-10		-	-8.53E-02	-6.84E-02	-5.10E-02	-4.07E-02	-	-	-	-4.23	-0.39
-5	dS^V	-	-4.21E-02	-3.43E-02	-2.60E-02	-1.85E-02	-	-	-	-1.69	-0.19
5		-	4.21E-02	3.44E-02	2.69E-02	2.28E-02	-	-	-	1.29	0.18
10		-	8.44E-02	6.91E-02	5.27E-02	4.17E-02	-	-	-	2.33	0.36
20		-	1.69E-01	1.38E-01	1.05E-01	8.39E-02	-	-	-	3.98	0.69
-20		-44.20	-49.21	-54.45	-40499.62	-	-44.55	-49.32	-53.92	-	-
-10		-17.81	-19.97	-22.39	-27055.72	-	-17.96	-19.99	-22.04	-325.13	-
-5	dH^L	-8.13	-9.15	-10.35	-	-	-8.21	-9.15	-10.14	-241.28	-
5		6.95	7.88	9.11	-	-	7.01	7.86	8.81	-	-
10		12.96	14.77	17.34	-	-	13.09	14.71	16.59	-	-
20		22.87	26.33	32.54	-	-	23.10	26.12	29.88	-	-
-20		-21.98	-29.49	-31.65	-73112.83	-	-21.93	-29.10	-30.70	-	-
-10		-9.09	-12.28	-13.47	-56927.11	-	-9.06	-12.08	-12.93	-100.40	-
-5	dS^L	-4.20	-5.71	-6.33	-	-	-4.19	-5.59	-6.03	-76.27	-
5		3.67	5.02	5.76	-	-	3.65	4.90	5.38	-	-
10		6.91	9.52	11.15	-	-	6.87	9.25	10.25	-	-
20		12.41	17.35	21.74	-	-	12.34	16.71	18.91	-	-
-20		-	-3.69E-02	-3.07E-02	-2.40E-02	-1.98E-02	-	-	-	-42.71	-1.65
-10		-	-1.85E-02	-1.53E-02	-1.20E-02	-9.89E-03	-	-	-	-2.06	-0.82
-5	ϕ_i^V	-	-9.20E-03	-7.67E-03	-6.00E-03	-4.94E-03	-	-	-	-0.99	-0.41
5		-	9.21E-03	7.68E-03	6.02E-03	4.96E-03	-	-	-	0.93	0.41
10		-	1.84E-02	1.54E-02	1.20E-02	9.90E-03	-	-	-	1.82	0.81
20		-	3.69E-02	3.07E-02	2.40E-02	1.98E-02	-	-	-	3.51	1.61
-20		-100.00	-93.04	-82.06	1754.90	-	-100.00	-93.24	-82.62	-	-
-10		-99.95	-64.60	-47.90	2697.28	-	-99.95	-65.12	-48.80	-10.73	-
-5	ϕ_i^L	-96.80	-37.29	-25.10	-	-	-96.85	-37.76	-25.78	0.70	-
5		1774.87	47.14	26.13	-	-	1803.19	48.34	27.41	-	-
10		23384.97	103.30	52.10	-	-	24102.56	106.74	55.51	-	-
20		1479321.31	236.81	99.27	-	-	1571754.37	249.14	110.09	-	-
-20		-	-93.04	-82.06	1755.35	-	-	-	-	-	-
-10		-	-64.59	-47.90	2697.62	-	-	-	-	-8.85	-
-5	K_i	-	-37.28	-25.09	-	-	-	-	-	1.70	-
5		-	47.13	26.12	-	-	-	-	-	-	-
10		-	103.26	52.07	-	-	-	-	-	-	-
20		-	236.69	99.21	-	-	-	-	-	-	-

Table B.44 (continued).

%Dev	P(atm)			P_c					$1.2P_c$		
in b	T(K)	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-	-	-73.00	-4.85	-21.05	-	-	-56.56	-7.45
-10		-	-	-	-61.57	-2.31	-10.59	-	-	-38.96	-3.45
-5	Z^V	-	-	-	-51.17	-1.13	-5.31	-	-	-24.55	-1.67
5		-	-	-	62.73	1.09	5.35	-	-	49.62	1.58
10		-	-	-	80.42	2.13	10.73	-	-	95.99	3.07
20		-	-	-	103.12	4.12	21.60	-	-	145.15	5.86
-20		-21.06	-27.63	-32.00	-	-		-27.55	-31.80	-	
-10		-10.60	-14.52	-17.38	-	-		-14.46	-17.22	-	-
-5	Z^L	-5.32	-7.45	-9.09	-	-		-7.41	-8.98	-	-
5		5.35	7.86	10.00	-	-		7.81	9.82	-	-
10		10.73	16.17	21.06	-	-		16.03	20.59	-	-
20		21.61	34.25	47.07	-	-		33.83	45.43	-	-
-20		-	-	-	-179.92	-10.37	-44.74	-	-	-101.33	-14.02
-10		-	-	-	-103.12	-4.88	-18.04	-	-	-47.15	-6.37
-5	dH^V	-	-	-	-68.17	-2.38	-8.24	-	-	-23.92	-3.06
5		-	-	-	32.78	2.26	7.05	-	-	26.16	2.84
10		-	-	-	39.22	4.41	13.15	-	-	40.75	5.49
20		-	-	-	46.54	8.45	23.23	-	-	51.92	10.35
-20		-	-	-	-78.13	-1.42	-21.90	-	-	-49.24	-2.30
-10		-	-	-	-47.20	-0.66	-9.05	-	-	-24.02	-1.03
-5	dS^V	-	-	-	-32.02	-0.32	-4.18	-	-	-12.46	-0.49
5		-	-	-	15.62	0.30	3.64	-	-	14.15	0.45
10		-	-	-	18.52	0.58	6.86	-	-	22.03	0.86
20		-	-	-	21.69	1.09	12.31	-	-	27.83	1.60
-20		-44.64	-49.36	-53.81	-	-		-49.39	-53.71	-	-
-10		-18.00	-19.99	-21.97	-	-		-20.00	-21.90	-	-
-5	dH^L	-8.23	-9.16	-10.10	-	-		-9.16	-10.06	-	-
5		7.03	7.86	8.75	-	-		7.86	8.70	-	-
10		13.12	14.71	16.45	-	-		14.70	16.33	-	-
20		23.17	26.08	29.49	-	-		26.05	29.16	-	-
-20		-21.91	-29.01	-30.49	-	-		-28.92	-30.28	-	-
-10		-9.06	-12.03	-12.81	-	-		-11.98	-12.69	-	-
-5	dS^L	-4.18	-5.57	-5.97	-	-		-5.54	-5.91	-	-
5		3.65	4.87	5.30	-	-		4.84	5.23	-	-
10		6.87	9.19	10.08	-	-		9.13	9.94	-	-
20		12.32	16.57	18.44	-	-		16.44	18.04	-	-
-20		-	-	-	-48.03	-2.35	-100.00	-	-	-49.30	-3.20
-10		-	-	-	-18.45	-1.16	-99.95	-	-	-19.92	-1.57
-5	ϕ_i^V	-	-	-	-7.38	-0.58	-96.88	-	-	-8.53	-0.78
5		-	-	-	2.10	0.57	1817.80	-	-	5.45	0.76
10		-	-	-	3.76	1.13	24476.69	-	-	8.78	1.51
20		-	-	-	6.64	2.25	1621053.68	-	-	13.61	2.98
-20		-100.00	-93.28	-82.76	-	-	-	-93.33	-82.89	-	-
-10		-99.95	-65.25	-49.02	-	-	-100.00	-65.38	-49.24	-	-
-5	ϕ_i^L	-96.86	-37.88	-25.95	-	-	-98.41	-38.00	-26.11	-	-
5		1810.49	48.64	27.76	-	-	2127.30	48.94	28.07	-	-
10		24288.94	107.60	56.33	-	-	25571.26	108.46	57.13	-	-
20		1596214.11	252.24	112.59	-	-	992067.11	255.32	115.01	-	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K_i	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.45 TCC EOS; ethanol; % deviation of thermodynamic properties as parameter c varies.

%Dev in c	P(atm) T(K)	1					0.8P_c				
		$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20		-	-1.26E-03	-6.59E-04	-2.58E-04	-1.14E-04	-	-	-	-4.45	-0.43
-10		-	-6.28E-04	-3.26E-04	-1.32E-04	-5.98E-05	-	-	-	-2.07	-0.21
-5	Z^V	-	-3.11E-04	-1.68E-04	-6.60E-05	-2.99E-05	-	-	-	-1.00	-0.11
5		-	3.13E-04	1.63E-04	6.00E-05	2.99E-05	-	-	-	0.94	0.10
10		-	6.28E-04	3.32E-04	1.26E-04	5.38E-05	-	-	-	1.84	0.21
20		-	1.26E-03	6.59E-04	2.52E-04	1.14E-04	-	-	-	3.50	0.41
-20		-0.74	-5.36	-8.73	-		-0.73	-5.11	-8.01	-80.76	
-10		-0.37	-2.73	-4.53	-		-0.37	-2.59	-4.11		
-5	Z^L	-0.19	-1.38	-2.31	-		-0.18	-1.30	-2.08		
5		0.19	1.41	2.40	-		0.18	1.32	2.14		
10		0.37	2.84	4.91	-		0.37	2.66	4.33		
20		0.75	5.79	10.28			0.73	5.40	8.90		
-20		-	-3.57E-02	-2.86E-02	-2.18E-02	-1.69E-02	-	-	-	-5.78	-1.41
-10		-	-1.74E-02	-1.34E-02	-1.09E-02	-8.36E-03	-	-	-	-2.66	-0.70
-5	dH^V	-	-8.56E-03	-7.46E-03	-4.81E-03	-4.30E-03	-	-	-	-1.28	-0.35
5		-	8.25E-03	8.38E-03	7.09E-03	6.87E-03	-	-	-	1.20	0.34
10		-	1.70E-02	1.42E-02	1.25E-02	1.03E-02	-	-	-	2.33	0.65
20		-	3.53E-02	2.92E-02	2.52E-02	2.09E-02	-	-	-	4.42	1.35
-20		-	-3.97E-02	-3.15E-02	-2.34E-02	-1.77E-02	-	-	-	-1.69	-0.19
-10		-	-1.95E-02	-1.51E-02	-1.18E-02	-8.89E-03	-	-	-	-0.78	-0.09
-5	dS^V	-	-9.65E-03	-8.18E-03	-5.40E-03	-4.54E-03	-	-	-	-0.37	-0.05
5		-	9.52E-03	8.74E-03	6.97E-03	6.53E-03	-	-	-	0.35	0.05
10		-	1.93E-02	1.60E-02	1.29E-02	1.02E-02	-	-	-	0.68	0.09
20		-	3.94E-02	3.20E-02	2.37E-02	2.08E-02	-	-	-	1.27	0.18
-20		-11.66	-13.00	-14.51	-	-	-11.72	-12.96	-14.20	-266.01	
-10		-5.34	-5.97	-6.71	-	-	-5.37	-5.95	-6.54		
-5	dH^L	-2.57	-2.87	-3.24	-	-	-2.58	-2.86	-3.15		
5		2.39	2.68	3.03	-	-	2.40	2.66	2.94		
10		4.61	5.18	5.89	-	-	4.64	5.15	5.70		
20		8.65	9.74	11.16		-	8.70	9.68	10.74		
-20		-6.34	-8.32	-9.08	-	-	-6.31	-8.17	-8.68	-83.86	
-10		-2.92	-3.85	-4.23	-	-	-2.91	-3.77	-4.02		
-5	dS^L	-1.41	-1.86	-2.05	-	-	-1.40	-1.82	-1.94		
5		1.31	1.74	1.94	-	-	1.31	1.70	1.83		
10		2.54	3.37	3.78	-	-	2.53	3.29	3.55		
20		4.78	6.38	7.22	-	-	4.76	6.21	6.73		
-20		-	-6.28E-04	-3.06E-04	-1.16E-04	-4.68E-05	-	-	-	-0.69	-0.17
-10		-	-2.95E-04	-1.34E-04	-5.66E-05	-2.16E-05	-	-	-	-0.34	-0.08
-5	ϕ_i^V	-	-1.45E-04	-8.17E-05	-2.12E-05	-1.15E-05	-	-	-	-0.17	-0.04
5		-	1.30E-04	1.05E-04	4.84E-05	2.58E-05	-	-	-	0.16	0.04
10		-	2.83E-04	1.58E-04	7.67E-05	3.51E-05	-	-	-	0.32	0.08
20		-	6.11E-04	3.21E-04	1.25E-04	6.51E-05	-	-	-	0.63	0.16
-20		-99.25	-46.85	-31.69	-	-	-99.25	-47.13	-32.24	-0.40	
-10		-89.37	-24.98	-15.79	-	-	-89.38	-25.18	-16.15		
-5	ϕ_i^L	-65.93	-12.85	-7.87	-	-	-65.95	-12.97	-8.06		
5		171.76	13.53	7.78	-	-	171.90	13.69	8.02		
10		590.14	27.69	15.46	-	-	590.85	28.04	15.98		
20		3640.81	57.68	30.42		-	3648.58	58.57	31.64		
-20		-	-46.85	-31.69	-	-	-	-	-	0.29	
-10		-	-24.98	-15.79	-	-	-	-	-		
-5	K_i	-	-12.85	-7.87	-	-	-	-	-		
5		-	13.53	7.78	-	-	-	-	-		
10		-	27.69	15.46	-	-	-	-	-		
20		-	57.68	30.42	-	-	-	-	-		

Table B.45 (continued).

%Dev in c	P(atm) T(K)	P_c					$1.2P_c$				
		$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$	$0.3T_b$	T_b	$0.8T_c$	T_c	$1.2T_c$
-20					-53.45	-0.75	-0.73	-	-	-27.26	-1.21
-10					-43.91	-0.37	-0.36	-	-	-15.92	-0.59
-5	Z^V				-35.79	-0.18	-0.18	-	-	-8.71	-0.29
5					38.59	0.18	0.18	-	-	10.66	0.29
10					49.01	0.36	0.36	-	-	23.58	0.57
20					62.10	0.71	0.73	-	-	52.87	1.11
-20		-0.73	-5.05	-7.85		-		-4.99	-7.69		-
-10		-0.37	-2.56	-4.01		-		-2.52	-3.93		-
-5	Z^L	-0.18	-1.29	-2.03		-		-1.27	-1.98		-
5		0.18	1.30	2.08		-		1.28	2.03		-
10		0.37	2.62	4.21		-		2.58	4.09		-
20		0.73	5.31	8.62		-		5.22	8.36		-
-20					-77.91	-1.99	-11.76	-	-	-30.28	-2.70
-10					-52.80	-0.98	-5.39	-	-	-14.93	-1.32
-5	dH^V				-37.93	-0.49	-2.59	-	-	-7.47	-0.65
5					22.62	0.48	2.41	-	-	7.54	0.64
10					27.38	0.95	4.65	-	-	15.04	1.26
20					32.87	1.87	8.73	-	-	27.97	2.46
-20					-36.57	-0.31	-6.30	-	-	-15.89	-0.49
-10					-25.16	-0.15	-2.90	-	-	-7.93	-0.24
-5	dS^V				-18.21	-0.08	-1.40	-	-	-3.99	-0.12
5					10.91	0.07	1.30	-	-	4.07	0.11
10					13.16	0.15	2.52	-	-	8.14	0.23
20					15.72	0.29	4.75	-	-	15.22	0.44
-20		-11.74	-12.95	-14.13	-	-		-12.95	-14.07	-	-
-10		-5.38	-5.95	-6.50	-	-		-5.94	-6.47	-	-
-5	dH^L	-2.59	-2.86	-3.13	-	-		-2.86	-3.11	-	-
5		2.40	2.66	2.92	-	-		2.66	2.90		-
10		4.64	5.15	5.66	-	-		5.14	5.62		-
20		8.71	9.67	10.65		-		9.65	10.58		-
-20		-6.31	-8.13	-8.59	-	-		-8.10	-8.51		-
-10		-2.90	-3.75	-3.98	-	-		-3.73	-3.94		-
-5	dS^L	-1.40	-1.81	-1.92	-	-		-1.80	-1.90		-
5		1.30	1.69	1.80	-	-		1.68	1.78		-
10		2.53	3.27	3.50	-	-		3.25	3.45		-
20		4.75	6.17	6.63		-		6.14	6.53		-
-20					-8.55	-0.27	-99.25	-	-	-9.78	-0.41
-10					-3.36	-0.13	-89.33	-	-	-4.21	-0.20
-5	ϕ_i^V				-1.42	-0.07	-65.96	-	-	-1.95	-0.10
5					0.54	0.07	171.95	-	-	1.65	0.10
10					0.97	0.13	591.22	-	-	3.03	0.20
20					1.72	0.26	3652.49	-	-	5.12	0.39
-20		-99.25	-47.20	-32.37	-	-		-47.27	-32.50		-
-10		-89.39	-25.23	-16.23	-	-		-25.28	-16.31		-
-5	ϕ_i^L	-65.95	-13.00	-8.11	-	-		-13.03	-8.16		-
5		171.94	13.73	8.08	-	-		13.76	8.13		-
10		591.04	28.13	16.10	-	-		28.21	16.22		-
20		3650.53	58.79	31.92	1484.00	-		59.00	32.20		-
-20		-			-	-	-	-	-		-
-10		-			-	-	-	-	-		-
-5	K_i	-			-	-	-	-	-		-
5		-				-	-	-	-		-
10		-			-	-	-	-	-		-
20		-			1488.00	-	-	-	-		-

Table B.46 TCC EOS: methane, n-nonane, n-decane, methanol, and ethanol; % deviation of vapor pressure as parameter a(T), b, and c varie.

% dev. of	substance	methane					n-nonane				
	T	$0.1T_c$	$0.3T_c$	$0.5T_c$	$0.6T_c$	$0.8T_c$	$0.1T_c$	$0.3T_c$	$0.5T_c$	$0.6T_c$	$0.8T_c$
a(T)	-20	2.62E+07	2.45E+03	4.14E+02	2.64E+02	1.57E+02	1.38E+10	1.38E+04	8.31E+02	4.04E+02	1.67E+02
	-10	5.14E+04	4.09E+02	1.28E+02	9.09E+01	5.91E+01	1.18E+06	1.09E+03	2.07E+02	1.25E+02	6.30E+01
	-5	2.17E+03	1.26E+02	5.11E+01	3.82E+01	2.60E+01	1.08E+04	2.45E+02	7.56E+01	5.03E+01	2.76E+01
	5	-9.56E+01	-5.59E+01	-3.40E+01	-2.77E+01	-2.05E+01	-9.91E+01	-7.11E+01	-4.32E+01	-3.36E+01	-2.16E+01
	10	-9.98E+01	-8.06E+01	-5.65E+01	-4.78E+01	-3.67E+01	-1.00E+02	-9.17E+01	-6.79E+01	-5.61E+01	-3.85E+01
	20	-1.00E+02	-9.63E+01	-8.13E+01	-7.30E+01	-5.98E+01	-1.00E+02	-9.93E+01	-8.98E+01	-8.09E+01	-6.22E+01
b	-20	-	-	-	-	-	-1.00E+02	-1.00E+02	-9.94E+01	-9.72E+01	-8.48E+01
	-10	-1.00E+02	-9.93E+01	-9.00E+01	-8.16E+01	-6.40E+01	-1.00E+02	-9.90E+01	-8.60E+01	-7.46E+01	-5.13E+01
	-5	-1.00E+02	-8.67E+01	-6.04E+01	-4.94E+01	-3.40E+01	-1.00E+02	-8.72E+01	-5.86E+01	-4.58E+01	-2.74E+01
	5	4.85E+04	3.45E+02	9.72E+01	6.49E+01	3.64E+01	8.74E+04	4.60E+02	1.08E+02	6.59E+01	3.06E+01
	10	6.35E+06	1.33E+03	2.33E+02	1.43E+02	7.42E+01	2.87E+07	2.32E+03	2.86E+02	1.54E+02	6.37E+01
	20	9.20E+09	7.80E+03	6.16E+02	3.29E+02	-	3.50E+11	2.57E+04	9.31E+02	3.98E+02	1.35E+02
c	-20	-1.00E+02	-1.00E+02	-9.74E+01	-9.28E+01	-7.71E+01	-1.00E+02	-9.65E+01	-7.58E+01	-6.20E+01	-3.83E+01
	-10	-1.00E+02	-9.16E+01	-6.69E+01	-5.48E+01	-3.64E+01	-9.97E+01	-7.78E+01	-4.69E+01	-3.50E+01	-1.94E+01
	-5	-9.89E+01	-6.56E+01	-3.77E+01	-2.89E+01	-1.78E+01	-9.42E+01	-5.11E+01	-2.59E+01	-1.85E+01	-9.7572
	5	3.52E+03	1.34E+02	4.56E+01	3.11E+01	1.70E+01	1.24E+03	9.23E+01	3.15E+01	2.05E+01	9.8333
	10	7.05E+04	3.72E+02	9.83E+01	6.39E+01	3.34E+01	1.45E+04	2.51E+02	6.89E+01	4.30E+01	1.97E+01
	20	7.85E+06	1.33E+03	2.22E+02	1.33E+02	6.44E+01	1.03E+06	9.21E+02	1.64E+02	9.36E+01	3.96E+01

Table B.46 (continued).

% dev. of	substance	n-decane					methanol				
	T	0.1T$_c$	0.3T$_c$	0.5T$_c$	0.6T$_c$	0.8T$_c$	0.1T$_c$	0.3T$_c$	0.5T$_c$	0.6T$_c$	0.8T$_c$
a(T)	-20	1.31E+14	2.21E+04	9.06E+02	4.24E+02	1.70E+02	6.33E+11	1.71E+04	9.27E+02	4.41E+02	1.71E+02
	-10	1.15E+08	1.40E+03	2.19E+02	1.30E+02	6.38E+01	8.01E+06	1.22E+03	2.23E+02	1.34E+02	6.43E+01
	-5	1.07E+05	2.88E+02	7.90E+01	5.18E+01	2.79E+01	2.82E+04	2.64E+02	8.00E+01	5.31E+01	2.82E+01
	5	-9.99E+01	-7.43E+01	-4.43E+01	-3.43E+01	-2.18E+01	-9.96E+01	-7.26E+01	-4.46E+01	-3.48E+01	-2.20E+01
	10	-1.00E+02	-9.34E+01	-6.91E+01	-5.69E+01	-3.88E+01	-1.00E+02	-9.25E+01	-6.94E+01	-5.76E+01	-3.91E+01
	20	-1.00E+02	-9.96E+01	-9.05E+01	-8.16E+01	-6.26E+01	-1.00E+02	-9.94E+01	-9.07E+01	-8.22E+01	-6.30E+01
b	-20	-1.00E+02	-1.00E+02	9.94E+01	-9.72E+01	-8.43E+01	-1.00E+02	-1.00E+02	-9.77E+01	-9.30E+01	-7.50E+01
	-10	-1.00E+02	-9.92E+01	-8.64E+01	-7.47E+01	-5.10E+01	-1.00E+02	-9.73E+01	-7.94E+01	-6.69E+01	-4.38E+01
	-5	-1.00E+02	-8.90E+01	-5.93E+01	-4.61E+01	-2.74E+01	-9.99E+01	-8.14E+01	-5.18E+01	-4.00E+01	-2.33E+01
	5	2.10E+06	5.42E+02	1.11E+02	6.69E+01	3.06E+01	7.73E+04	3.35E+02	8.84E+01	5.54E+01	2.58E+01
	10	1.08E+10	3.05E+03	2.99E+02	1.57E+02	3.68E+01	2.79E+07	1.49E+03	2.28E+02	1.28E+02	5.39E+01
	20	1.22E+16	4.12E+04	9.97E+02	4.12E+02	1.36E+02	5.88E+11	1.40E+04	7.23E+02	3.31E+02	1.15E+02
c	-20	-1.00E+02	-9.69E+01	-7.48E+01	-6.07E+01	-3.70E+01	-9.98E+01	-7.58E+01	-4.54E+01	-3.42E+01	-1.90E+01
	-10	-1.00E+02	-7.90E+01	-4.62E+01	-3.43E+01	-1.88E+01	-9.55E+01	-4.93E+01	-2.52E+01	-1.81E+01	-9.5876
	-5	-9.82E+01	-5.25E+01	-2.56E+01	-1.81E+01	-9.4382	-7.80E+01	-2.83E+01	-1.32E+01	-9.3376	-4.8182
	5	3.92E+03	9.81E+01	3.11E+01	2.01E+01	9.529	3.30E+02	3.78E+01	1.46E+01	9.8735	4.8638
	10	1.22E+05	2.72E+02	6.83E+01	4.21E+01	-1.91E+01	1.65E+03	8.75E+01	3.07E+01	2.03E+01	9.7703
	20	5.54E+07	1.05E+03	1.63E+02	9.19E+01	3.85E+01	2.51E+04	2.36E+02	6.75E+01	4.27E+01	1.97E+01

Table B.46 (continued).

% dev. of	substance	ethanol				
	T	$0.1T_c$	$0.3T_c$	$0.5T_c$	$0.6T_c$	$0.8T_c$
a(T)	-20	5.59E+09	2.30E+04	1.11E+03	4.94E+02	1.78E+02
	-10	7.53E+05	1.43E+03	2.51E+02	1.45E+02	6.65E+01
	-5	8.59E+03	2.92E+02	8.76E+01	5.68E+01	2.90E+01
	5	-9.89E+01	-7.46E+01	-4.68E+01	-3.64E+01	-2.25E+01
	10	-1.00E+02	-9.35E+01	-7.13E+01	-5.96E+01	-3.99E+01
	20	-1.00E+02	-9.96E+01	-9.21E+01	-8.39E+01	-6.39E+01
b	-20	-1.00E+02	-1.00E+02	-9.94E+01	-9.73E+01	-8.37E+01
	-10	-1.00E+02	-9.91E+01	-8.73E+01	-7.59E+01	-5.09E+01
	-5	-9.99E+01	-8.81E+01	-6.07E+01	-4.74E+01	-2.75E+01
	5	4.43E+04	5.09E+02	1.20E+02	7.15E+01	3.10E+01
	10	8.62E+06	2.78E+03	3.30E+02	1.71E+02	6.50E+01
	20	4.95E+10	3.65E+04	1.17E+03	4.67E+02	1.40E+02
c	-20	-1.00E+02	-9.51E+01	-7.27E+01	-5.87E+01	-3.44E+01
	-10	-9.91E+01	-7.48E+01	-4.48E+01	-3.32E+01	-1.76E+01
	-5	-8.94E+01	-4.84E+01	-2.48E+01	-1.76E+01	-8.8473
	5	7.06E+02	8.47E+01	3.02E+01	1.96E+01	8.9722
	10	5.55E+03	2.27E+02	6.64E+01	4.12E+01	1.81E+01
	20	1.93E+05	8.23E+02	1.59E+02	9.07E+01	3.65E+01

Table B.47 TCC EOS: methane, n-nonane, n-decane, methanol, and ethanol; vapor and liquid compressibility factor, vapor and liquid fugacity coefficient, and vapor pressure.

substance	T	Z^V	Z^L	ϕ_i^V	ϕ_i^L	P^{sat}(bar)
methane	$0.1T_c$	1	0	1	1	1.03E-24
	$0.3T_c$	0.9998774	0.00000059	0.9998774	0.9998774	8.18E-02
	$0.5T_c$	0.99031745	0.00094573	0.99040167	0.99040168	2.06E-01
	$0.6T_c$	0.96033144	0.00506805	0.96168595	0.96168649	1.2626
	$0.8T_c$	0.79615536	0.04094736	0.82788436	0.82788439	1.16E+01
n-nonane	$0.1T_c$	1	0	1	1	1.60E-38
	$0.3T_c$	0.99999999	0.00004265	0.99924792	0.99924824	1.12E-08
	$0.5T_c$	0.99924739	0.00072997	0.99924792	0.99924792	5.89E-03
	$0.6T_c$	0.99092677	0.00072997	0.99100121	0.99100121	1.15E-01
	$0.8T_c$	0.87074221	0.01956684	0.88424623	0.88424623	0.11485
n-decane	$0.1T_c$	1	0	1	1.00000007	2.82E-58
	$0.3T_c$	1	0	1		1.11E-09
	$0.5T_c$	0.99945636	0.00002935	0.99945664	0.99945676	3.79E-03
	$0.6T_c$	0.99228761	0.00059699	0.99234156	0.99234156	8.78E-02
	$0.8T_c$	0.87733182	0.01809928	0.88955046	0.88955046	2.9531
methanol	$0.1T_c$	1	0	1	1.00000001	3.03E-46
	$0.3T_c$	1	0	1		1.32E-08
	$0.5T_c$	0.99952931	0.00002181	0.99952952	0.99952952	1.23E-02
	$0.6T_c$	0.99356394	0.00042589	0.99360161	0.99360162	0.27211
	$0.8T_c$	0.88840933	0.01448381	0.89860543	0.89860543	10.034
ethanol	$0.1T_c$	1	0	1	1	3.57E-36
	$0.3T_c$	1	0	1	1	2.58E-09
	$0.5T_c$	0.99975269	0.00001196	0.99975274	0.99975294	4.63E-03
	$0.6T_c$	0.99541674	0.00031836	0.99543596	0.99543596	0.14097
	$0.8T_c$	0.89556528	0.01435409	0.90453697	0.90453697	7.0653

Table B.48 SBC EOS; methane; % deviation of thermodynamic properties as parameter a(T) varies.

%Dev	P(atm)	1					0.8Pc				
in a(T)	T(K)	0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20			0.77	0.39	0.24	0.16	3.16			22.90	8.41
-10			0.39	0.19	0.12	0.08	1.41			12.92	4.38
-5	ZV		0.19	0.10	0.06	0.04	0.67			7.00	2.24
5			-0.19	-0.10	-0.06	-0.04	-0.61			-8.98	-2.36
10			-0.39	-0.20	-0.12	-0.08	-1.17			-24.88	-4.85
20			-0.78	-0.39	-0.24	-0.16	-2.15			-83.46	-10.37
-20		3.20	15.11	27582.37				13.60	49.97		
-10		1.43	6.02	19.99				5.58	13.43		
-5	ZL	0.68	2.75	7.40				2.57	5.66		
5		-0.62	-2.35	-5.23				-2.22	-4.39	-77.60	
10		-1.18	-4.38	-9.23				-4.16	-7.92	-80.74	
20		-2.17	-7.75	-15.12	-99.68			-7.41	-13.35		
-20			22.75	22.73	22.74		22.88			36.01	29.47
-10			11.42	11.39	11.38		11.43			20.68	15.43
-5	dHV		5.72	5.70	5.70		5.71			11.32	7.91
5			-5.75	-5.71	-5.70		-5.69			-15.10	-8.38
10			-11.51	-11.43	-11.41		-11.34			-44.10	-17.30
20			-23.12	-22.91	-22.85		-22.54			-405.14	-37.27
-20			0.34	0.17	0.10		10.28			13.03	5.72
-10			0.17	0.09	0.05		4.56			7.76	3.05
-5	dSV		0.09	0.04	0.03		2.13			4.34	1.58
5			-0.09	-0.04	-0.03		-1.81			-6.16	-1.70
10			-0.17	-0.09	-0.05		-3.28			-19.23	-3.56
20			-0.35	-0.17	-0.10		-5.17			-185.17	-7.88
-20		22.70	27.66	99.54				27.44	39.17		
-10		11.34	13.83	19.91				13.79	17.18		
-5	dHL	5.66	6.93	9.21				6.92	8.39		
5		-5.64	-6.97	-8.65				-6.98	-8.17	-261.62	
10		-11.25	-14.00	-17.02				-14.02	-16.23	-319.48	
20		-22.36	-28.24	-33.41	-24646.46			-28.31	-32.22		
-20		10.45	16.04	-140.15				15.06	25.48		
-10		4.63	7.62	13.08				7.25	9.81		
-5	dSL	2.16	3.74	5.65				3.58	4.60		
5		-1.84	-3.64	-4.85				-3.50	-4.20	-132.87	
10		-3.34	-7.20	-9.23				-6.94	-8.12	-156.07	
20		-5.28	-14.15	-17.15	344.30			-13.70	-15.39		
-20			0.73	0.38	0.24		212078.53			11.54	6.54
-10			0.37	0.19	0.12		4797.48			5.89	3.28
-5	ϕ_i^V		0.18	0.10	0.06		610.10			2.99	1.64
5			-0.18	-0.10	-0.06		-86.30			-3.12	-1.65
10			-0.37	-0.19	-0.12		-98.17			-6.53	-3.32
20			-0.73	-0.38	-0.24		-99.97			-36.00	-6.70
-20		209732.74	321.69	-89.60				329.99	116.20		
-10		4773.29	111.01	48.91				112.68	51.93		
-5	ϕ_i^L	608.42	46.15	23.06				46.68	24.05		
5		-86.27	-32.34	-19.79				-32.55	-20.26	-1.80	
10		-98.17	-54.69	-36.35				-54.96	-37.03	-13.74	
20		-99.97	-80.26	-61.03	1461.85			-80.46	-61.71		
-20			318.62	-89.64							
-10			110.24	48.63							
-5	K1		45.88	22.94							
5			-32.22	-19.71						1.36	
10			-54.53	-36.23						-7.72	
20			-80.11	-60.88	1465.54						

Table B.48 (continued).

%Dev	P(atm)	Pc					1.2Pc				
in a(T)	T(K)	0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20		3.15	-	-	60.57	11.70	3.13	-	-	-	15.69
-10		1.41	-	-	40.05	6.19	1.40	-	-	-	8.45
-5	ZV	0.67	-	-	25.69	3.20	0.67	-	-	-	4.41
5		-0.61	-	-	-63.16	-3.45	-0.61	-	-	-	-4.92
10		-1.16	-	-	-67.22	-7.22	-1.16	-	-	-	-10.56
20		-2.14	-	-	-71.46	-16.24	-2.14	-	-	-	-26.69
-20		-	13.28	40.80	219.69	-	-	12.97	35.56	199.55	-
-10		-	5.48	12.54	178.83	-	-	5.38	11.79	139.57	-
-5	ZL	-	2.53	5.36	150.23	-	-	2.49	5.11	74.42	-
5		-	-2.19	-4.22	-26.66	-	-	-2.16	-4.07	-15.00	-
10		-	-4.11	-7.66	-34.75	-	-	-4.06	-7.42	-22.95	-
20		-	-7.33	-12.99	-43.17	-	-	-7.25	-12.65	-32.15	-
-20		22.93	-	-	49.17	31.35	22.97	-	-	-	33.42
-10		11.45	-	-	34.08	16.73	11.47	-	-	-	18.23
-5	dHV	5.72	-	-	22.76	8.68	5.73	-	-	-	9.60
5		-5.70	-	-	-128.91	-9.47	-5.71	-	-	-	-10.93
10		-11.36	-	-	-159.36	-19.95	-11.39	-	-	-	-23.81
20		-22.58	-	-	-209.53	-45.77	-22.63	-	-	-	-63.41
-20		10.24	-	-	24.16	6.82	10.20	-	-	-	8.15
-10		4.54	-	-	17.54	3.72	4.52	-	-	-	4.57
-5	dSV	2.12	-	-	12.11	1.95	2.11	-	-	-	2.45
5		-1.80	-	-	-33.65	-2.19	-1.79	-	-	-	-2.89
10		-3.26	-	-	-87.25	-4.70	-3.25	-	-	-	-6.45
20		-5.14	-	-	-106.74	-11.25	-5.11	-	-	-	-18.44
-20		-	27.41	36.56	70.90	-	-	27.38	35.01	68.07	-
-10		-	13.78	16.82	62.25	-	-	13.78	16.52	55.48	-
-5	dHL	-	6.92	8.26	55.78	-	-	6.92	8.14	38.15	-
5		-	-6.98	-8.09	-31.06	-	-	-6.98	-8.01	-17.59	-
10		-	-14.03	-16.09	-48.50	-	-	-14.04	-15.96	-31.58	-
20		-	-28.33	-32.00	-77.22	-	-	-28.36	-31.80	-55.96	-
-20		-	14.84	22.55	47.71	-	-	14.64	20.72	45.26	-
-10		-	7.17	9.34	43.15	-	-	7.09	8.94	37.91	-
-5	dSL	-	3.54	4.41	39.41	-	-	3.50	4.26	26.29	-
5		-	-3.47	-4.07	-19.73	-	-	-3.44	-3.96	-10.38	-
10		-	-6.88	-7.90	-29.10	-	-	-6.82	-7.69	-17.76	-
20		-	-13.59	-15.03	-42.54	-	-	-13.49	-14.70	-29.15	-
-20		212694.90	-	-	16.65	8.47	213307.40	-	-	-	10.55
-10		4803.92	-	-	8.79	4.26	4810.39	-	-	-	5.32
-5	ϕ_i^V	610.53	-	-	4.61	2.14	611.00	-	-	-	2.68
5		-86.31	-	-	-10.63	-2.16	-86.32	-	-	-	-2.72
10		-98.17	-	-	-21.84	-4.35	-98.18	-	-	-	-5.51
20		-99.97	-	-	-42.26	-8.86	-99.97	-	-	-	-11.46
-20		-	332.01	119.27	16.38	-	-	333.99	121.88	27.52	-
-10		-	113.09	52.55	8.57	-	-	113.49	53.13	16.42	-
-5	ϕ_i^L	-	46.81	24.26	4.37	-	-	46.94	24.46	9.93	-
5		-	-32.60	-20.37	-10.83	-	-	-32.65	-20.47	-11.54	-
10		-	-55.02	-37.18	-22.02	-	-	-55.09	-37.33	-22.91	-
20		-	-80.51	-61.87	-42.39	-	-	-80.56	-62.02	-43.26	-
-20		-	-	-	-0.23	-	-	-	-	-	-
-10		-	-	-	-0.23	-	-	-	-	-	-
-5	K1	-	-	-	-0.23	-	-	-	-	-	-
5		-	-	-	-0.23	-	-	-	-	-	-
10		-	-	-	-0.23	-	-	-	-	-	-
20		-	-	-	-0.23	-	-	-	-	-	-

Table B.49 SBC EOS; methane; % deviation of thermodynamic properties as parameter b(T) varies.

%Dev in a(T)	P(atm) T(K)	Pc					1.2Pc				
		0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20		-	-0.17	-0.11	-0.09	-0.07	-20.75	-	-	-14.90	-4.42
-10		-	-0.08	-0.06	-0.04	-0.04	-10.43	-	-	-6.47	-2.17
-5	ZV	-	-0.04	-0.03	-0.02	-0.02	-5.23	-	-	-3.07	-1.08
5		-	0.04	0.03	0.02	0.02	5.25	-	-	2.84	1.06
10		-	0.08	0.06	0.04	0.04	10.53	-	-	6.50	2.10
20		-	0.17	0.11	0.09	0.07	21.16	-	-	10.38	4.15
-20		-20.77	-23.68	-28.50	-99.71	-	-	-23.41	-27.11	-85.43	-
-10		-10.43	-12.16	-15.40	-	-	-	-11.99	-14.36	-80.84	-
-5	ZL	-5.23	-6.17	-8.06	-	-	-	-6.07	-7.41	-75.64	-
5		5.26	6.36	9.03	-	-	-	6.23	7.96	-	-
10		10.54	12.93	19.47	-	-	-	12.63	16.57	-	-
20		21.19	26.78	50.17	-	-	-	25.99	36.39	-	-
-20		-	-2.51	-3.35	-4.20	-5.34	-10.64	-	-	-19.62	-9.44
-10		-	-1.26	-1.68	-2.10	-2.67	-5.18	-	-	-8.11	-4.61
-5	dHV	-	-0.63	-0.84	-1.05	-1.34	-2.55	-	-	-3.79	-2.28
5		-	0.63	0.84	1.05	1.34	2.47	-	-	3.40	2.23
10		-	1.25	1.68	2.10	2.67	4.87	-	-	6.51	4.42
20		-	2.51	3.35	4.20	5.34	9.44	-	-	12.05	8.68
-20		-	-3.61E-03	-1.06E-03	-4.01E-04	-1.07E-04	5.69	-	-	-7.68	-1.23
-10		-	-1.81E-03	-5.30E-04	-2.06E-04	-5.86E-05	2.03	-	-	-3.01	-0.59
-5	dSV	-	-9.00E-04	-2.55E-04	-1.08E-04	-2.93E-05	0.85	-	-	-1.38	-0.29
5		-	9.00E-04	2.75E-04	9.79E-05	3.91E-05	-0.57	-	-	1.19	0.27
10		-	1.79E-03	5.40E-04	1.96E-04	7.81E-05	-0.91	-	-	2.24	0.54
20		-	3.58E-03	1.08E-03	3.91E-04	1.37E-04	-1.04	-	-	4.02	1.03
-20		-10.40	-17.67	-23.29	-22204.29	-	-	-17.85	-22.37	-363.10	-
-10		-5.06	-8.33	-11.29	-	-	-	-8.41	-10.70	-286.25	-
-5	dHL	-2.49	-4.05	-5.59	-	-	-	-4.09	-5.24	-226.31	-
5		2.41	3.85	5.56	-	-	-	3.88	5.07	-	-
10		4.75	7.52	11.21	-	-	-	7.57	10.01	-	-
20		9.21	14.40	24.28	-	-	-	14.44	19.62	-	-
-20		5.58	-9.28	-13.99	334.28	-	-	-8.80	-12.25	-176.84	-
-10		1.97	-4.55	-7.14	-	-	-	-4.29	-6.11	-145.58	-
-5	dSL	0.81	-2.25	-3.63	-	-	-	-2.12	-3.06	-117.85	-
5		-0.54	2.22	3.81	-	-	-	2.08	3.09	-	-
10		-0.84	4.42	7.93	-	-	-	4.12	6.21	-	-
20		-0.90	8.77	18.54	-	-	-	8.09	12.70	-	-
-20		-	-0.16	-0.11	-0.09	-0.07	-99.13	-	-	-4.64	-2.99
-10		-	-0.08	-0.06	-0.04	-0.04	-89.18	-	-	-2.29	-1.50
-5	ϕ_i^V	-	-0.04	-0.03	-0.02	-0.02	-65.99	-	-	-1.14	-0.75
5		-	0.04	0.03	0.02	0.02	176.65	-	-	1.12	0.75
10		-	0.08	0.06	0.04	0.04	624.00	-	-	2.24	1.50
20		-	0.16	0.11	0.09	0.07	4172.79	-	-	4.45	3.00
-20		-99.06	-62.70	-41.75	1964.88	-	-	-63.87	-43.73	-16.38	-
-10		-88.78	-36.43	-21.45	-	-	-	-37.47	-22.89	-1.58	-
-5	ϕ_i^L	-65.36	-19.55	-10.79	-	-	-	-20.22	-11.64	4.45	-
5		171.61	22.28	10.73	-	-	-	23.34	11.90	-	-
10		597.73	47.32	21.19	-	-	-	49.91	23.91	-	-
20		3866.39	105.46	40.29	-	-	-	112.97	47.73	-	-
-20		-	-62.64	-41.68	1966.67	-	-	-	-	-12.30	-
-10		-	-36.38	-21.41	-	-	-	-	-	0.73	-
-5	K1	-	-19.52	-10.76	-	-	-	-	-	5.65	-
5		-	22.24	10.70	-	-	-	-	-	-	-
10		-	47.21	21.12	-	-	-	-	-	-	-
20		-	105.13	40.14	-	-	-	-	-	-	-

Table B.49 (continued).

%Dev in a(T)	P(atm) T(K)	Pc					1.2Pc				
		0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20		-20.75	-	-	-74.95	-6.67	-20.74	-	-	-	-10.00
-10		-10.42	-	-	-67.88	-3.23	-10.42	-	-	-	-4.73
-5	ZV	-5.22	-	-	-62.40	-1.59	-5.22	-	-	-	-2.31
5		5.25	-	-	13.58	1.55	5.25	-	-	-	2.22
10		10.52	-	-	22.30	3.07	10.52	-	-	-	4.35
20		21.15	-	-	32.25	6.00	21.14	-	-	-	8.41
-20		-	-23.35	-26.83	-50.13	-	-	-23.29	-26.56	-40.65	-
-10		-	-11.95	-14.15	-36.06	-	-	-11.91	-13.96	-25.18	-
-5	ZL	-	-6.05	-7.29	-25.14	-	-	-6.02	-7.17	-14.62	-
5		-	6.20	7.77	126.12	-	-	6.17	7.60	24.85	-
10		-	12.56	16.10	143.48	-	-	12.50	15.70	71.85	-
20		-	25.81	34.88	169.26	-	-	25.64	33.64	130.00	-
-20		-10.70	-	-	-184.45	-11.67	-10.76	-	-	-	-15.10
-10		-5.21	-	-	-141.15	-5.59	-5.24	-	-	-	-6.98
-5	dHV	-2.56	-	-	-115.97	-2.74	-2.58	-	-	-	-3.38
5		2.49	-	-	11.24	2.64	2.50	-	-	-	3.18
10		4.90	-	-	17.58	5.20	4.93	-	-	-	6.20
20		9.49	-	-	26.07	10.08	9.55	-	-	-	11.81
-20		5.72	-	-	-100.99	-2.04	5.75	-	-	-	-3.41
-10		2.04	-	-	-80.94	-0.95	2.06	-	-	-	-1.51
-5	dSV	0.85	-	-	-68.10	-0.46	0.86	-	-	-	-0.72
5		-0.58	-	-	6.12	0.43	-0.59	-	-	-	0.65
10		-0.92	-	-	9.35	0.83	-0.94	-	-	-	1.25
20		-1.07	-	-	13.35	1.57	-1.11	-	-	-	2.31
-20		-	-17.90	-22.21	-62.86	-	-	-17.95	-22.07	-43.61	-
-10		-	-8.43	-10.59	-38.07	-	-	-8.45	-10.51	-23.07	-
-5	dHL	-	-4.10	-5.19	-23.65	-	-	-4.11	-5.14	-12.18	-
5		-	3.89	5.00	49.18	-	-	3.90	4.93	15.51	-
10		-	7.58	9.83	52.81	-	-	7.60	9.69	34.77	-
20		-	14.46	19.13	57.67	-	-	14.49	18.74	49.86	-
-20		-	-8.68	-11.89	-38.57	-	-	-8.57	-11.55	-25.71	-
-10		-	-4.23	-5.91	-24.75	-	-	-4.17	-5.72	-14.31	-
-5	dSL	-	-2.09	-2.95	-15.90	-	-	-2.06	-2.85	-7.76	-
5		-	2.04	2.95	35.28	-	-	2.01	2.84	10.50	-
10		-	4.04	5.92	37.50	-	-	3.97	5.67	24.06	-
20		-	7.94	11.96	40.26	-	-	7.79	11.34	34.22	-
-20		-99.15	-	-	-24.80	-3.94	-99.16	-	-	-	-5.03
-10		-89.28	-	-	-10.86	-1.97	-89.39	-	-	-	-2.50
-5	ϕ_i^V	-66.15	-	-	-4.80	-0.98	-66.31	-	-	-	-1.25
5		177.98	-	-	1.84	0.98	179.30	-	-	-	1.25
10		630.95	-	-	3.56	1.97	637.99	-	-	-	2.49
20		4255.32	-	-	6.84	3.94	4339.63	-	-	-	4.98
-20		-	-64.17	-44.20	-24.97	-	-	-64.46	-44.66	-26.34	-
-10		-	-37.73	-23.23	-11.06	-	-	-37.99	-23.57	-12.13	-
-5	ϕ_i^L	-	-20.39	-11.84	-5.01	-	-	-20.55	-12.04	-5.73	-
5		-	23.60	12.17	1.61	-	-	23.87	12.44	4.83	-
10		-	50.57	24.55	3.33	-	-	51.22	25.17	8.48	-
20		-	114.90	49.39	6.60	-	-	116.83	50.99	13.84	-
-20		-	-	-	-0.23	-	-	-	-	-	-
-10		-	-	-	-0.23	-	-	-	-	-	-
-5	K1	-	-	-	-0.23	-	-	-	-	-	-
5		-	-	-	-0.23	-	-	-	-	-	-
10		-	-	-	-0.23	-	-	-	-	-	-
20		-	-	-	-0.23	-	-	-	-	-	-

Table B.50 SBC EOS; methane; % deviation of thermodynamic properties as parameter c(T) varies.

%Dev	P(atm)	1					0.8Pc				
in a(T)	T(K)	0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20			1.16E-03	5.26E-04	3.06E-04	2.04E-04	0.62			2.09	0.50
-10			5.77E-04	2.60E-04	1.50E-04	1.02E-04	0.31			1.07	0.25
-5	ZV		2.88E-04	1.33E-04	7.21E-05	4.79E-05	0.15			0.54	0.12
5			-2.88E-04	-1.33E-04	-7.81E-05	-5.39E-05	-0.15			-0.56	-0.13
10			-5.77E-04	-2.66E-04	-1.62E-04	-1.02E-04	-0.29			-1.13	-0.25
20			-1.17E-03	-5.32E-04	-3.12E-04	-2.04E-04	-0.58			-2.34	-0.51
-20		0.63	4.13	10.89	-99.67			3.89	8.60		
-10		0.31	1.98	4.95				1.87	4.04		
-5	ZL	0.15	0.97	2.37				0.92	1.96		
5		-0.15	-0.93	-2.19				-0.89	-1.85		
10		-0.30	-1.83	-4.21				-1.74	-3.59		
20		-0.58	-3.52	-7.83				-3.36	-6.78	-79.06	
-20			6.45E-03	-1.32E-02	-3.19E-02	-5.41E-02	3.19			2.97	1.35
-10			3.18E-03	-6.66E-03	-1.61E-02	-2.70E-02	1.59			1.53	0.68
-5	dHV		1.59E-03	-3.24E-03	-8.18E-03	-1.37E-02	0.80			0.78	0.34
5			-1.58E-03	3.25E-03	7.91E-03	1.33E-02	-0.80			-0.80	-0.34
10			-3.18E-03	6.65E-03	1.55E-02	2.70E-02	-1.59			-1.63	-0.69
20			-6.54E-03	1.30E-02	3.16E-02	5.41E-02	-3.17			-3.38	-1.39
-20			-4.95E-05	-3.04E-04	-3.62E-04	-3.52E-04	1.78			1.31	0.33
-10			-2.97E-05	-1.57E-04	-1.76E-04	-1.76E-04	0.86			0.68	0.17
-5	dSV		-9.89E-06	-6.87E-05	-9.79E-05	-7.81E-05	0.42			0.34	0.08
5			9.89E-06	8.85E-05	8.81E-05	9.77E-05	-0.40			-0.36	-0.08
10			3.96E-05	1.57E-04	1.76E-04	1.76E-04	-0.79			-0.73	-0.17
20			5.93E-05	3.14E-04	3.52E-04	3.61E-04	-1.50			-1.51	-0.34
-20		3.17	7.12	10.34	-22084.51			7.13	9.46		
-10		1.58	3.62	5.18				3.62	4.80		
-5	dHL	0.79	1.82	2.59				1.82	2.42		
5		-0.79	-1.85	-2.61				-1.85	-2.45		
10		-1.58	-3.72	-5.24				-3.73	-4.94		
20		-3.15	-7.56	-10.56				-7.57	-10.03	-276.54	
-20		1.81	5.51	7.97	335.06			5.32	6.74		
-10		0.87	2.78	3.93				2.69	3.38		
-5	dSL	0.43	1.40	1.95				1.35	1.70		
5		-0.41	-1.41	-1.94				-1.37	-1.70		
10		-0.80	-2.83	-3.86				-2.75	-3.41		
20		-1.53	-5.72	-7.68				-5.55	-6.86	-142.77	
-20			5.49E-04	2.62E-04	1.55E-04	9.65E-05	180.18			0.42	0.18
-10			2.78E-04	1.34E-04	8.03E-05	4.82E-05	67.90			0.21	0.09
-5	ϕ_i^V		1.39E-04	6.39E-05	4.31E-05	2.71E-05	29.67			0.11	0.04
5			-1.38E-04	-6.38E-05	-3.72E-05	-2.12E-05	-23.01			-0.11	-0.04
10			-2.77E-04	-1.28E-04	-6.84E-05	-4.83E-05	-40.81			-0.21	-0.09
20			-5.43E-04	-2.56E-04	-1.49E-04	-9.66E-05	-65.18			-0.43	-0.18
-20		179.58	31.71	15.05	2055.13			32.43	16.43		
-10		67.73	15.13	7.65				15.43	8.25		
-5	ϕ_i^L	29.61	7.38	3.85				7.52	4.13		
5		-22.96	-7.02	-3.88				-7.14	-4.12		
10		-40.75	-13.69	-7.77				-13.90	-8.22		
20		-65.10	-25.98	-15.54				-26.32	-16.31	2.85	
-20			31.71	15.05	2055.14						
-10			15.13	7.65							
-5	K1		7.38	3.85							
5			-7.02	-3.88							
10			-13.69	-7.77							
20			-25.98	-15.54						3.29	

Table B.50 (continued).

%Dev	P(atm)			Pc					1.2Pc		
in a(T)	T(K)	0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20		0.62			14.25	0.94	0.62				1.64
-10		0.31			8.65	0.47	0.30				0.83
-5	ZV	0.15			4.97	0.24	0.15				0.42
5		-0.15			-10.23	-0.24	-0.15				-0.43
10		-0.29			-60.69	-0.48	-0.29				-0.87
20		-0.58			-65.19	-0.97	-0.58				-1.77
-20			3.84	8.21	127.46			3.78	7.87	46.83	
-10			1.85	3.88	116.31			1.82	3.73	17.73	
-5	ZL		0.91	1.88	108.98			0.90	1.82	7.73	
5			-0.88	-1.78	-14.57			-0.86	-1.72	-6.18	
10			-1.72	-3.47	-21.73			-1.70	-3.36	-11.26	
20			-3.32	-6.58	-30.69			-3.28	-6.39	-19.20	
-20		3.20			12.50	2.04	3.21				2.97
-10		1.60			7.80	1.03	1.60				1.51
-5	dHV	0.80			4.57	0.52	0.80				0.76
5		-0.80			-10.28	-0.53	-0.80				-0.78
10		-1.59			-112.71	-1.06	-1.60				-1.58
20		-3.18			-136.86	-2.14	-3.19				-3.23
-20		1.77			7.16	0.56	1.76				0.90
-10		0.85			4.50	0.28	0.85				0.46
-5	dSV	0.42			2.65	0.14	0.42				0.23
5		-0.40			-6.08	-0.14	-0.40				-0.24
10		-0.78			-66.90	-0.29	-0.78				-0.49
20		-1.49			-80.01	-0.59	-1.48				-1.00
-20			7.13	9.32	49.90			7.14	9.21	27.17	
-10			3.62	4.74	47.21			3.62	4.69	12.74	
-5	dHL		1.83	2.39	45.36			1.83	2.36	6.10	
5			-1.85	-2.43	-13.25			-1.85	-2.40	-5.69	
10			-3.73	-4.89	-21.79			-3.74	-4.85	-11.09	
20			-7.58	-9.94	-35.62			-7.58	-9.86	-21.33	
-20			5.27	6.52	35.99			5.23	6.34	19.17	
-10			2.67	3.28	34.16			2.64	3.20	8.86	
-5	dSL		1.34	1.65	32.88			1.33	1.61	4.20	
5			-1.35	-1.66	-9.28			-1.34	-1.62	-3.86	
10			-2.72	-3.33	-15.07			-2.40	-3.25	-7.45	
20			-5.51	-6.70	-24.11			-5.47	-6.55	-14.10	
-20		180.35			1.06	0.30	180.52				0.48
-10		67.96			0.56	0.15	68.01				0.24
-5	ϕ_i^V	29.70			0.29	0.08	29.71				0.12
5		-23.20			-0.33	-0.08	-23.03				-0.12
10		-40.82			-2.73	-0.15	-40.84				-0.24
20		-65.19			-6.60	-0.31	-65.21				-0.49
-20			32.61	16.74	0.84			32.78	17.03	4.81	
-10			15.51	8.38	0.34			15.58	8.51	2.81	
-5	ϕ_i^L		7.56	4.19	0.07			7.59	4.25	1.50	
5			-7.17	-4.17	-1.33			-7.20	-4.23	-1.69	
10			-13.95	-8.32	-2.95			-14.00	-8.42	-3.54	
20			-26.41	-16.48	-6.81			-26.49	-16.65	-7.71	
-20					-0.23						
-10					-0.23						
-5	K1				-0.23						
5					-1.00						
10					-0.23						
20					-0.23						

Table B.51 SBC EOS; methane; % deviation of thermodynamic properties as parameter e(T) varies.

%Dev in a(T)	T(K)	1					0.8Pc				
P(atm)		0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20			-5.40E-03	-1.96E-03	-9.55E-04	-5.21E-04	-2.16			-7.54	-1.29
-10			-2.70E-03	-9.79E-04	-4.74E-04	-2.69E-04	-1.09			-3.31	-0.63
-5	ZV		-1.35E-03	-4.89E-04	-2.40E-04	-1.26E-04	-0.55	-		-1.57	-0.31
5			1.34E-03	4.89E-04	2.40E-04	1.32E-04	0.55			1.43	0.30
10			2.68E-03	9.79E-04	4.74E-04	2.63E-04	1.10			2.75	0.60
20			5.37E-03	1.96E-03	9.49E-04	5.27E-04	2.22			5.13	1.17
-20		-2.18	-8.14	-15.34				-7.80	-13.64	-83.09	
-10		-1.10	-4.24	-8.53				-4.04	-7.38	-79.41	
-5	ZL	-0.55	-2.17	-4.54				-2.06	-3.85	-73.93	
5		0.56	2.27	5.25				2.14	4.22		
10		1.12	4.65	11.50				4.35	8.87		
20		2.25	9.78	29.95				9.06	19.81		
-20			-7.68E-02	-1.60E-02	2.54E-02	6.61E-02	-13.88			-11.35	-3.69
-10			-4.02E-02	-1.09E-02	8.91E-03	2.72E-02	-6.61			-4.91	-1.80
-5	dHV		-2.05E-02	-6.07E-03	3.44E-03	1.31E-02	-3.23			-2.32	-0.89
5			2.10E-02	7.23E-03	-1.88E-03	-1.06E-02	3.07			2.10	0.87
10			4.28E-02	1.55E-02	-2.67E-03	-1.94E-02	5.99			4.01	1.72
20			8.80E-02	3.49E-02	-3.16E-04	-3.22E-02	11.40			7.43	3.36
-20			-1.11E-03	-1.87E-04	4.31E-04	4.98E-04	0.82			-5.15	-0.92
-10			-6.03E-04	-4.91E-05	1.86E-04	2.25E-04	-0.43			-2.20	-0.45
-5	dSV		-3.17E-04	-1.96E-05	7.83E-05	1.07E-04	-0.37			-1.03	-0.22
5			3.26E-04	9.82E-06	-6.85E-05	-7.81E-05	0.61			0.93	0.21
10			6.92E-04	1.96E-05	-1.27E-04	-1.66E-04	1.41			1.77	0.42
20			1.43E-03	1.08E-04	-2.15E-04	-2.93E-04	3.38			3.25	0.83
-20		-13.78	-20.33	-25.04				-20.36	-23.97	-363.29	
-10		-6.56	-9.34	-11.78				-9.34	-11.14	-282.71	
-5	dHL	-3.20	-4.49	-5.75				-4.48	-5.39	-215.90	
5		3.05	4.17	5.55				4.16	5.08		
10		5.94	8.06	11.00				8.03	9.89		
20		11.32	15.11	22.45				15.02	18.88		
-20		0.71	-13.07	-16.51				-12.63	-14.84	-179.81	
-10		-0.49	-6.12	-8.06				-5.89	-7.10	-145.18	
-5	dSL	-0.40	-2.97	-4.01				-2.85	-3.49	-113.19	
5		0.64	2.82	4.02				2.69	3.38		
10		1.47	5.50	8.15				5.24	6.69		
20		3.50	10.52	17.52				9.98	13.14		
-20			-2.53E-03	-9.53E-04	-4.71E-05	-2.73E-04	-99.57			-1.31	-0.46
-10			-1.26E-03	-4.79E-04	-2.38E-05	-1.28E-04	-91.80			-0.62	-0.23
-5	ϕ_i^V		-6.32E-04	-2.39E-04	-1.15E-04	-7.27E-05	-69.92			-0.31	-0.11
5			6.43E-04	2.39E-04	1.16E-04	6.66E-05	204.54			0.29	0.11
10			1.28E-03	4.78E-04	2.38E-04	1.33E-04	757.42			0.58	0.22
20			2.54E-03	9.48E-04	4.75E-04	2.66E-04	5434.51			1.12	0.43
-20		-99.57	-62.09	-39.23				-62.50	-40.31	-11.36	
-10		-91.77	-35.41	-19.55				-35.77	-20.34	1.30	
-5	ϕ_i^L	-69.86	-18.78	-9.68				-19.02	-10.15	5.87	
5		203.98	20.85	9.34				21.22	9.98		
10		754.12	43.66	18.21				44.54	19.69		
20		5391.47	94.44	33.92				96.95	37.95		
-20			-62.09	-39.23						-10.18	
-10			-35.41	-19.55						1.93	
-5	K1		-18.78	-9.68						6.19	
5			20.85	9.34							
10			43.65	18.21							
20			94.44	33.92							

Table B.51 (continued).

%Dev in a(T)	P(atm) T(K)	Pc					1.2Pc				
		0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20		-2.15			-70.91	-2.48	-2.15				-4.53
-10		-1.08			-65.55	-1.19	-1.08				-2.11
-5	ZV	-0.54			-61.00	-0.58	-0.54				-1.02
5		0.55			10.29	0.56	0.55				0.96
10		1.10			16.62	1.10	1.10				1.87
20		2.21			25.40	2.11	2.21				3.55
-20			-7.72	-13.29	-42.09			-7.64	-12.96	-31.06	
-10			-3.99	-7.15	-31.41			-3.95	-6.94	-19.80	
-5	ZL		-2.03	-3.71	-22.36			-2.01	-3.59	-11.64	
5			2.10	4.03	119.58			2.07	3.87	19.35	
10			4.29	8.43	132.17			4.22	8.05	54.40	
20			8.89	18.53	149.66			8.74	17.47	104.83	
-20		-13.91			-184.68	-5.64	-13.94				-8.57
-10		-6.63			-139.59	-2.70	-6.64				-3.96
-5	dHV	-3.23			-114.49	-1.32	-3.24				-1.91
5		3.07			9.27	1.27	3.08				1.80
10		6.00			14.55	2.49	6.01				3.49
20		11.42			21.46	4.81	11.44				6.60
-20		0.85			-103.33	-1.56	0.87				-2.66
-10		-0.42			-81.10	-0.74	-0.40				-1.22
-5	dSV	-0.37			-67.69	-0.36	-0.36				-0.59
5		0.61			5.32	0.35	0.60				0.55
10		1.39			8.27	0.68	1.38				1.06
20		3.35			12.04	1.31	3.32				1.99
-20			-20.37	-23.77	-63.00			-20.38	-23.59	-43.77	
-10			-9.34	-11.02	-37.18			-9.34	-10.92	-22.44	
-5	dHL		-4.49	-5.32	-22.76			-4.49	-5.27	-11.63	
5			4.16	5.00	48.05			4.16	4.93	13.80	
10			8.03	9.72	51.07			8.02	9.57	30.30	
20			15.01	18.45	55.03			15.00	18.09	45.93	
-20			-12.52	-14.50	-40.19			-12.42	-14.18	-27.27	
-10			-5.84	-6.92	-24.86			-5.79	-6.74	-14.57	
-5	dSL		-2.83	-3.39	-15.62			-2.80	-3.30	-7.71	
5			2.67	3.27	34.72			2.64	3.17	9.56	
10			5.19	6.44	36.76			5.13	6.22	21.35	
20			9.85	12.54	39.36			9.73	12.03	32.42	
-20		-99.57			-19.98	-0.78	-99.57				-1.25
-10		-91.81			-8.05	-0.38	-91.82				-0.60
-5	ϕ_i^V	-69.94			-3.34	-0.19	-69.95				-0.30
5		204.72			0.74	0.19	204.87				0.29
10		758.27			1.39	0.37	759.18				0.57
20		5445.66			2.52	0.72	5457.11				1.11
-20			-62.60	-40.56	-20.16			-62.70	-40.80	-21.33	
-10			-35.86	-20.52	-8.25			-35.95	-20.69	-9.17	
-5	ϕ_i^L		-19.07	-10.25	-3.56			-19.13	-10.35	-4.17	
5			21.31	10.12	0.51			21.39	10.26	3.26	
10			44.75	20.02	1.16			44.97	20.33	5.51	
20			97.57	38.78	2.29			98.17	39.56	8.19	
-20					-0.23						
-10					-0.23						
-5	K1				-0.23						
5					-0.23						
10					-0.23						
20					-0.23						

Table B.52 SBC EOS; n-nonane; % deviation of thermodynamic properties as parameter a(T) varies.

%Dev in a(T)	P(atm)	1					0.8Pc				
T(K)		0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20			1.32	0.95	0.51	0.31				29.79	7.98
-10			0.66	0.47	0.25	0.16				17.38	4.15
-5	ZV		0.33	0.24	0.13	0.08				9.69	2.12
5			-0.34	-0.24	-0.13	-0.08				-15.28	-2.22
10			-0.67	-0.48	-0.26	-0.16				-80.25	-4.56
20			-1.36	-0.96	-0.51	-0.31				-83.06	-9.67
-20		3.78	23.15	63.44			3.75	20.17	33.95		
-10		1.66	8.65	14.11			1.65	7.90	11.63		
-5	ZL	0.78	3.87	5.91			0.78	3.58	5.08		
5		-0.70	-3.21	-4.57			-0.70	-3.02	-4.09	-77.38	
10		-1.33	-5.93	-8.24	-99.20		-1.32	-5.61	-7.47		
20		-2.42	-10.32	-13.87	-99.41		-2.41	-9.83	-12.79		
-20			18.56	18.16	18.19	18.81				34.91	24.23
-10			9.34	9.13	9.12	9.42				21.01	12.67
-5	dHV		4.69	4.57	4.56	4.71				11.97	6.49
5			-4.72	-4.60	-4.58	-4.72				-20.71	-6.85
10			-9.48	-9.22	-9.16	-9.45				-272.34	-14.12
20			-19.10	-18.53	-18.38	-18.93				-338.97	-30.28
-20			0.61	0.43	0.23	0.14				22.76	9.02
-10			0.31	0.22	0.11	0.07				14.20	4.79
-5	dSV		0.16	0.11	0.06	0.03				8.28	2.48
5			-0.16	-0.11	-0.06	-0.03				-15.49	-2.66
10			-0.32	-0.22	-0.12	-0.07				-219.89	-5.55
20			-0.64	-0.45	-0.23	-0.14				-258.60	-12.18
-20		25.06	26.33	38.19			25.17	25.43	29.96		
-10		12.60	12.75	15.04			12.65	12.49	14.02		
-5	dHL	6.31	6.32	7.27			6.34	6.21	6.88		
5		-6.33	-6.26	-6.98			-6.35	-6.18	-6.73	-229.29	
10		-12.66	-12.48	-13.79	-8648.80		-12.72	-12.35	-13.35		
20		-25.32	-24.91	-27.13	-11267.49		-25.44	-24.71	-26.44		
-20		16.15	18.49	32.24			16.03	16.87	21.75		
-10		7.63	8.35	10.86			7.57	7.82	9.37		
-5	dSL	3.70	4.03	5.03			3.67	3.80	4.45		
5		-3.45	-3.80	-4.52			-3.42	-3.62	-4.12	-191.17	
10		-6.63	-7.43	-8.70	311.80		-6.58	-7.10	-7.98		
20		-12.13	-14.31	-16.32	363.36		-12.04	-13.74	-15.16		
-20			1.21	0.89	0.50	0.31				12.68	6.27
-10			0.61	0.45	0.25	0.15				6.52	3.14
-5	ϕ_i^V		0.30	0.22	0.12	0.08				3.33	1.57
5			-0.30	-0.22	-0.12	-0.08				-3.59	-1.58
10			-0.61	-0.45	-0.25	-0.15				-18.33	-3.17
20			-1.21	-0.89	-0.50	-0.31				-40.05	-6.40
-20		1.85E+06	261.87	146.92			1.87E+06	270.17	158.39		
-10		14761.47	96.25	63.45			14821.91	97.96	65.67		
-5	ϕ_i^L	1144.94	41.05	28.80			1147.27	41.60	29.54		
5		-92.28	-29.97	-23.33			-92.29	-30.20	-23.68	-6.44	
10		-99.43	-51.52	-41.87	853.46		-99.43	-51.81	-42.35		
20		-100.00	-77.46	-67.54	615.33		-100.00	-77.70	-67.99		
-20			257.53	144.73							
-10			95.07	62.73							
-5	K1		40.62	28.51							
5			-29.76	-23.16						-2.95	
10			-51.22	-41.61	855.82						
20			-77.18	-67.25	618.90						

Table B.52 (continued).

%Dev in a(T)	P(atm) T(K)	Pc					1.2Pc				
		0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20		-	-	-	-	10.98	-	-	-	-	14.46
-10		-	-	-	-	5.78	-	-	-	-	7.73
-5	ZV	-	-	-	-	2.98	-	-	-	-	4.01
5		-	-	-	-	-3.18	-	-	-	-	-4.40
10		-	-	-	-	-6.62	-	-	-	-	-9.33
20		-	-	-	-	-14.60	-	-	-	-	-21.98
-20		3.74	19.55	31.41	262.49	-	3.73	18.97	29.37	203.85	
-10		1.64	7.73	11.15	204.92	-	1.64	7.57	10.72	123.99	
-5	ZL	0.77	3.51	4.91	158.11	-	0.77	3.44	4.75	36.01	
5		-0.69	-2.97	-3.98	-18.30	-	-0.69	-2.93	-3.89	-13.55	
10		-1.32	-5.53	-7.30	-26.94	-	-1.32	-5.45	-7.14	-21.54	
20		-2.41	-9.71	-12.54	-36.57	-	-2.40	-9.60	-12.31	-31.18	
-20		-	-	-	-	26.01	-	-	-	-	27.89
-10		-	-	-	-	13.83	-	-	-	-	15.13
-5	dHV	-	-	-	-	7.16	-	-	-	-	7.93
5		-	-	-	-	-7.76	-	-	-	-	-8.90
10		-	-	-	-	-16.28	-	-	-	-	-19.14
20		-	-	-	-	-36.69	-	-	-	-	-47.21
-20		-	-	-	-	9.70	-	-	-	-	10.83
-10		-	-	-	-	5.27	-	-	-	-	6.02
-5	dSV	-	-	-	-	2.76	-	-	-	-	3.20
5		-	-	-	-	-3.06	-	-	-	-	-3.70
10		-	-	-	-	-6.52	-	-	-	-	-8.11
20		-	-	-	-	-15.20	-	-	-	-	-21.06
-20		25.20	25.25	29.17	70.11	-	25.23	25.08	28.53	64.52	-
-10		12.67	12.43	13.83	61.50	-	12.68	12.38	13.66	49.39	-
-5	dHL	6.35	6.19	6.81	53.48	-	6.35	6.17	6.74	22.38	-
5		-6.36	-6.17	-6.67	-18.72	-	-6.37	-6.15	-6.62	-14.27	-
10		-12.73	-12.32	-13.26	-32.21	-	-12.75	-12.30	-13.17	-26.06	-
20		-25.47	-24.67	-26.29	-54.69	-	-25.50	-24.62	-26.15	-46.62	-
-20		15.99	16.52	20.65	60.39	-	15.96	16.19	19.74	53.45	-
-10		7.56	7.70	9.08	54.13	-	7.54	7.58	8.81	41.65	-
-5	dSL	3.66	3.74	4.33	47.72	-	3.66	3.69	4.22	18.33	-
5		-3.41	-3.58	-4.03	-14.55	-	-3.41	-3.54	-3.94	-10.43	-
10		-6.56	-7.02	-7.82	-23.91	-	-6.55	-6.95	-7.67	-18.30	-
20		-12.02	-13.61	-14.89	-37.73	-	-12.00	-13.48	-14.65	-30.61	-
-20		-	-	-	-	8.09	-	-	-	-	10.02
-10		-	-	-	-	4.06	-	-	-	-	5.05
-5	ϕ_i^V	-	-	-	-	2.04	-	-	-	-	2.53
5		-	-	-	-	-2.06	-	-	-	-	-2.57
10		-	-	-	-	-4.13	-	-	-	-	-5.19
20		-	-	-	-	-8.39	-	-	-	-	-10.66
-20		1869757.95	272.21	160.72	21.63	-	18743807.09	274.19	162.90	32.73	-
-10		14837.05	98.39	66.19	12.66	-	14853.04	98.81	66.68	19.84	-
-5	ϕ_i^L	1145.89	41.74	29.72	7.74	-	1148.59	41.88	29.89	11.43	-
5		-92.30	-30.26	-23.76	-11.59	-	-92.30	-30.32	-23.84	-12.10	-
10		-99.43	-51.88	-42.46	-23.12	-	-99.43	-51.96	-42.58	-23.81	-
20		-100.00	-77.76	-68.10	-43.79	-	-100.00	-77.82	-68.21	-44.49	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K1	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.53 SBC EOS; n-nonane; % deviation of thermodynamic properties as parameter b(T) varies.

%Dev in a(T)	P(atm) T(K)	1					0.8Pc				
		0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20		-	-0.25	-0.21	-0.16	-0.13	-	-	-	-84.46	-3.84
-10		-	-0.13	-0.11	-0.08	-0.06	-	-	-	-8.81	-1.89
-5	ZV	-	-0.06	-0.05	-0.03	-0.03	-	-	-	-4.03	-0.94
5		-	0.07	0.05	0.04	0.03	-	-	-	3.56	0.93
10		-	0.13	0.11	0.08	0.06	-	-	-	6.79	1.84
20		-	0.25	0.21	0.16	0.13	-	-	-	12.56	3.64
-20		-20.61	-24.06	-26.15	-99.44	-	-20.60	-23.72	-25.36	-	-
-10		-10.35	-12.40	-13.74	-	-	-10.34	-12.17	-13.20	-79.87	-
-5	ZL	-5.18	-6.30	-7.06	-	-	-5.18	-6.17	-6.74	-75.96	-
5		5.20	6.52	7.51	-	-	5.20	6.35	7.06	-	-
10		10.43	13.27	15.57	-	-	10.42	12.89	14.46	-	-
20		20.94	27.61	33.86	-	-	20.92	26.59	30.51	-	-
-20		-	-1.87	-2.13	-2.90	-3.89	-	-	-	-302.84	-7.40
-10		-	-0.94	-1.06	-1.45	-1.95	-	-	-	-9.68	-3.62
-5	dHV	-	-0.47	-0.53	-0.72	-0.97	-	-	-	-4.29	-1.79
5		-	0.47	0.53	0.72	0.97	-	-	-	3.63	1.76
10		-	0.94	1.06	1.45	1.95	-	-	-	6.80	3.49
20		-	1.81	2.13	2.90	3.89	-	-	-	12.21	6.85
-20		-	-1.33E-02	-8.04E-03	-3.04E-03	-1.31E-03	-	-	-	-246.26	-2.01
-10		-	-6.61E-03	-4.01E-03	-1.50E-03	-6.49E-04	-	-	-	-6.91	-0.97
-5	dSV	-	-3.30E-03	-2.01E-03	-7.52E-04	-3.24E-04	-	-	-	-3.01	-0.47
5		-	3.28E-03	2.00E-03	7.62E-04	3.24E-04	-	-	-	2.46	0.46
10		-	6.55E-03	3.99E-03	1.52E-03	6.59E-04	-	-	-	4.54	0.90
20		-	-1.31E-02	7.94E-03	3.02E-03	1.31E-03	-	-	-	7.96	1.73
-20		-10.41	-16.83	-19.19	-10071.36	-	-10.54	-16.75	-18.72	-	-
-10		-4.98	-7.97	-9.17	-	-	-5.05	-7.92	-8.89	-	-
-5	dHL	-2.44	-3.88	-4.50	-	-	-2.47	-3.86	-4.34	-243.14	-
5		2.34	3.71	4.35	-	-	2.37	3.67	4.16	-205.46	-
10		4.58	7.26	8.58	-	-	4.65	7.17	8.16	-	-
20		8.81	13.94	16.85	-	-	8.94	13.72	15.75	-	-
-20		-0.41	-12.41	-14.63	348.27	-	0.48	-11.87	-13.54	-	-
-10		-0.20	-6.00	-7.17	-	-	-0.11	-5.71	-6.57	-203.88	-
-5	dSL	-0.15	-2.95	-3.56	-	-	-0.13	-2.80	-3.24	-175.06	-
5		0.26	2.88	3.53	-	-	0.24	2.71	3.17	-	-
10		0.63	5.68	7.07	-	-	0.59	5.34	6.28	-	-
20		1.58	11.14	14.27	-	-	1.50	10.39	12.35	-	-
-20		-	-0.23	-0.20	-0.15	-0.13	-	-	-	-17.74	-2.63
-10		-	-0.11	-0.10	-0.08	-0.06	-	-	-	-2.24	-1.32
-5	ϕ_i^V	-	-0.06	-0.05	-0.04	-0.03	-	-	-	-1.10	-0.66
5		-	0.06	0.05	0.04	0.03	-	-	-	1.08	0.66
10		-	0.11	0.10	0.08	0.06	-	-	-	2.15	1.32
20		-	0.23	0.20	0.15	0.13	-	-	-	4.26	2.65
-20		-99.32	-53.76	-43.40	887.81	-	-99.35	-54.91	-44.92	-	-
-10		-90.41	-29.88	-22.82	-	-	-90.65	-30.78	-23.90	-4.94	-
-5	ϕ_i^L	-67.96	-15.68	-11.63	-	-	-68.37	-16.23	-12.27	0.49	-
5		193.31	17.10	11.97	-	-	197.09	17.90	12.83	-	-
10		712.76	35.56	24.15	-	-	733.94	37.44	26.12	-	-
20		5261.42	76.14	48.60	-	-	5545.59	81.23	53.70	-	-
-20		-	-53.66	-43.29	889.34	-	-	-	-	-	-
-10		-	-29.79	-22.74	-	-	-	-	-	-2.76	-
-5	K1	-	-15.63	-11.59	-	-	-	-	-	1.61	-
5		-	17.04	11.91	-	-	-	-	-	-	-
10		-	35.41	24.03	-	-	-	-	-	-	-
20		-	75.73	48.30	-	-	-	-	-	-	-

Table B.53 (continued).

%Dev	P(atm)	Pc					1.2Pc				
in a(T)	T(K)	0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20		-	-	-		-5.68	-	-	-	-	-8.21
-10		-	-	-		-2.77	-	-	-	-	-3.94
-5	ZV	-	-	-		-1.37	-	-	-	-	-1.94
5		-	-	-		1.34	-	-	-	-	1.87
10		-	-	-		2.66	-	-	-	-	3.69
20		-	-	-		5.21	-	-	-	-	7.18
-20		-20.60	-23.64	-25.18	-42.14	-	-20.60	-23.56	-25.01	-37.55	-
-10		-10.34	-12.12	-13.08	-26.75	-	-10.34	-12.07	-12.96	-22.17	-
-5	ZL	-5.18	-6.14	-6.67	-15.97	-	-5.18	-6.11	-6.60	-12.32	-
5		5.20	6.31	6.96	62.46	-	5.20	6.27	6.87	16.47	-
10		10.42	12.80	14.24	138.84	-	10.42	12.71	14.03	40.27	-
20		20.92	26.35	29.88	182.49	-	20.91	26.14	29.32	102.95	-
-20		-	-	-	-	-9.14	-	-	-	-	-11.57
-10		-	-	-	-	-4.41	-	-	-	-	-5.45
-5	dHV	-	-	-	-	-2.17	-	-	-	-	-2.65
5		-	-	-	-	2.10	-	-	-	-	2.52
10		-	-	-	-	4.14	-	-	-	-	4.94
20		-	-	-	-	8.05	-	-	-	-	9.47
-20		-	-	-	-	-2.87	-	-	-	-	-4.21
-10		-	-	-	-	-1.35	-	-	-	-	-1.92
-5	dSV	-	-	-	-	-0.66	-	-	-	-	-0.92
5		-	-	-	-	0.62	-	-	-	-	0.86
10		-	-	-	-	1.22	-	-	-	-	1.66
20		-	-	-	-	2.32	-	-	-	-	3.11
-20		-10.58	-16.74	-18.62	-42.47	-	-10.62	-16.73	-18.53	-35.45	-
-10		-5.06	-7.91	-8.84	-23.07	-	-5.08	-7.90	-8.79	-18.12	-
-5	dHL	-2.48	-3.85	-4.31	-12.52	-	-2.49	-3.84	-4.29	-9.28	-
5		2.38	3.66	4.12	29.77	-	2.39	3.66	4.09	10.12	-
10		4.67	7.15	8.08	48.67	-	4.68	7.14	8.01	21.53	-
20		8.98	13.68	15.55	55.97	-	9.01	13.64	15.38	41.35	-
-20		0.50	-11.74	-13.29	-33.41	-	0.52	-11.61	-13.06	-26.84	-
-10		-0.10	-5.64	-6.43	-18.85	-	-0.09	-5.57	-6.31	-14.17	-
-5	dSL	-0.12	-2.77	-3.17	-10.44	-	-0.12	-2.73	-3.10	-7.38	-
5		0.24	2.67	3.09	26.64	-	0.23	2.64	3.02	8.33	-
10		0.58	5.26	6.11	43.66	-	0.57	5.19	5.96	18.01	-
20		1.48	10.22	11.97	49.69	-	1.46	10.06	11.63	35.07	-
-20		-	-	-	-	-3.45	-	-	-	-	-4.37
-10		-	-	-	-	-1.73	-	-	-	-	-2.18
-5	ϕ_i^V	-	-	-	-	-0.86	-	-	-	-	-1.09
5		-	-	-	-	0.86	-	-	-	-	1.09
10		-	-	-	-	1.73	-	-	-	-	2.18
20		-	-	-	-	3.46	-	-	-	-	4.35
-20		-99.36	-55.20	-45.30	-23.04	-	-99.37	-55.50	-45.67	-24.17	-
-10		-90.72	-31.01	-24.18	-10.49	-	-90.78	-31.24	-24.45	-11.29	-
-5	ϕ_i^L	-68.47	-16.37	-12.44	-4.91	-	-68.58	-16.51	-12.60	-5.40	-
5		198.08	18.11	13.05	3.88	-	199.11	18.31	13.26	4.83	-
10		739.60	37.93	26.62	5.92	-	745.32	38.42	27.11	8.98	-
20		5622.51	82.56	54.98	9.39	-	5700.86	83.89	56.24	15.33	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K1	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.54 SBC EOS; n-nonane; % deviation of thermodynamic properties as parameter c(T) varies.

%Dev in a(T)	P(atm) T(K)	Pc					1.2Pc				
		0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20			1.94E-03	1.51E-03	9.82E-04	6.92E-04				2.44	0.41
-10			9.65E-04	7.59E-04	4.97E-04	3.43E-04				1.26	0.21
-5	ZV		4.83E-04	3.70E-04	2.49E-04	1.74E-04				0.64	0.10
5			-4.89E-04	-3.83E-04	-2.43E-04	-1.74E-04				-0.66	-0.11
10			-9.59E-04	-7.59E-04	-4.79E-04	-3.43E-04				-1.35	-0.21
20			-1.92E-03	-1.52E-03	-9.76E-04	-6.92E-04				-2.81	-0.42
-20		0.08	3.30	5.50			0.08	3.10	4.87		
-10		0.04	1.61	2.64			0.04	1.51	2.36		
-5	ZL	0.02	0.79	1.30			0.02	0.75	1.16		
5		-0.02	-0.77	-1.25			-0.02	-0.73	-1.13		
10		-0.04	-1.53	-2.45			-0.04	-1.44	-2.22	-73.89	
20		-0.08	-2.98	-4.73			-0.08	-2.82	-4.30	-77.46	
-20			1.02E-02	7.06E-03	-2.62E-03	-1.78E-02				2.80	1.00
-10			5.09E-03	3.56E-03	-1.19E-03	-9.01E-03				1.45	0.50
-5	dHV		2.54E-03	1.69E-03	-6.07E-04	-4.42E-03				0.74	0.25
5			-2.57E-03	-1.80E-03	7.04E-04	4.41E-03				-0.77	-0.25
10			-5.02E-03	-3.55E-03	1.52E-03	9.01E-03				-1.58	-0.51
20			-1.01E-02	-7.10E-03	2.72E-03	1.78E-02				-3.31	-1.02
-20			2.33E-04	1.00E-05	-2.67E-04	-4.03E-04				2.16	0.46
-10			1.11E-04	1.00E-05	-1.19E-04	-1.97E-04				1.12	0.22
-5	dSV		5.06E-05	0.00E+00	-5.94E-05	-8.85E-05				0.57	0.12
5			-7.09E-05	0.00E+00	7.92E-05	1.08E-04				-0.60	-0.12
10			-1.22E-04	0.00E+00	1.48E-04	2.16E-04				-1.23	-0.24
20			-2.43E-04	0.00E+00	2.77E-04	4.13E-04				-2.59	-0.47
-20		0.40	4.08	5.39			0.41	4.02	5.15		
-10		0.20	2.05	2.71			0.20	2.03	2.60		
-5	dHL	0.10	1.03	1.36			0.10	1.02	1.31		
5		-0.10	-1.04	-1.37			-0.10	-1.03	-1.32		
10		-0.20	-2.09	-2.75			-0.20	-2.06	-2.65	-191.52	
20		-0.40	-4.20	-5.54			-0.41	-4.16	-5.34	-225.65	
-20		0.36	3.50	4.73			0.36	3.35	4.31		
-10		0.18	1.76	2.36			0.18	1.68	2.16		
-5	dSL	0.09	0.88	1.18			0.09	0.84	1.08		
5		-0.09	-0.88	-1.18			-0.09	-0.85	-1.09		
10		-0.18	-1.77	-2.36			-0.18	-1.70	-2.18	-164.51	
20		-0.36	-3.55	-4.73			-0.36	-3.41	-4.38	-191.97	
-20			8.75E-04	7.09E-04	4.68E-04	3.42E-04				0.38	0.15
-10			4.41E-04	3.51E-04	2.28E-04	1.74E-04				0.19	0.07
-5	ϕ_i^V		2.20E-04	1.85E-04	1.14E-04	8.39E-05				0.10	0.04
5			-2.14E-04	-1.73E-04	-1.20E-04	-8.41E-05				-0.10	-0.04
10			-4.45E-04	-3.52E-04	-2.46E-04	-1.74E-04				-0.19	-0.07
20			-8.86E-04	-7.03E-04	-4.74E-04	-3.42E-04				-0.39	-0.15
-20		15.70	15.54	12.18			15.71	15.93	12.80		
-10		7.57	7.62	6.08			7.57	7.80	6.36		
-5	ϕ_i^L	3.72	3.77	3.03			3.72	3.86	3.17		
5		-3.57	-3.70	-3.02			-3.59	-3.77	-3.14		
10		-7.04	-7.31	-6.02			-7.05	-7.46	-6.25	2.78	
20		-13.59	-14.30	-11.95			-13.62	-14.56	-12.37	0.04	
-20			15.54	12.18							
-10			7.62	6.08							
-5	K1		3.77	3.03							
5			-3.69	-3.02							
10			-7.31	-6.02						2.98	
20			-14.30	-11.95						0.44	

Table B.54 (continued).

%Dev	P(atm)	Pc					1.2Pc				
in a(T)	T(K)	0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20		-	-	-	-	0.77	-	-	-	-	1.31
-10		-	-	-	-	0.39	-	-	-	-	0.66
-5	ZV	-	-	-	-	0.19	-	-	-	-	0.33
5		-	-	-	-	-0.20	-	-	-	-	-0.34
10		-	-	-	-	-0.39	-	-	-	-	-0.64
20		-	-	-	-	-0.79	-	-	-	-	-1.39
-20		0.08	3.05	4.74	94.30	-	0.08	3.01	4.62	22.83	-
-10		0.04	1.49	2.30	20.55	-	0.04	1.47	2.24	10.11	-
-5	ZL	0.02	0.74	1.13	8.23	-	0.02	0.73	1.11	4.77	-
5		-0.02	-0.72	-1.10	-6.24	-	-0.02	-0.71	-1.07	-4.26	-
10		-0.04	-1.42	-2.17	-11.29	-	-0.04	-1.41	-2.12	-8.09	-
20		-0.08	-2.79	-4.20	-19.14	-	-0.08	-2.75	-4.11	-14.67	-
-20		-	-	-	-	1.50	-	-	-	-	2.18
-10		-	-	-	-	0.76	-	-	-	-	1.11
-5	dHV	-	-	-	-	0.38	-	-	-	-	0.56
5		-	-	-	-	-0.39	-	-	-	-	-0.57
10		-	-	-	-	-0.77	-	-	-	-	-1.14
20		-	-	-	-	-1.56	-	-	-	-	-2.33
-20		-	-	-	-	0.70	-	-	-	-	1.04
-10		-	-	-	-	0.35	-	-	-	-	0.53
-5	dSV	-	-	-	-	0.18	-	-	-	-	0.27
5		-	-	-	-	-0.18	-	-	-	-	-0.27
10		-	-	-	-	-0.36	-	-	-	-	-0.55
20		-	-	-	-	-0.73	-	-	-	-	-1.12
-20		0.41	4.01	5.10	39.45	-	0.41	4.00	5.06	14.82	-
-10		0.20	2.02	2.58	12.97	-	0.20	2.02	2.56	7.30	-
-5	dHL	0.10	1.01	1.29	5.74	-	0.10	1.01	1.28	3.61	-
5		-0.10	-1.02	-1.31	-5.02	-	-0.10	-1.02	-1.30	-3.55	-
10		-0.20	-2.06	-2.63	-9.62	-	-0.20	-2.05	-2.61	-7.04	-
20		-0.41	-4.15	-5.30	-18.02	-	-0.41	-4.14	-5.27	-13.88	-
-20		0.36	3.31	4.22	35.74	-	0.36	3.28	4.14	12.70	-
-10		0.18	1.66	2.12	11.54	-	0.18	1.65	2.08	6.20	-
-5	dSL	0.09	0.83	1.06	5.07	-	0.09	0.83	1.04	3.06	-
5		-0.09	-0.84	-1.07	-4.37	-	-0.09	-0.83	-1.05	-2.98	-
10		-0.18	-1.68	-2.14	-8.31	-	-0.18	-1.66	-2.10	-5.87	-
20		-0.35	-3.38	-4.30	-15.39	-	-0.35	-3.34	-4.23	-11.46	-
-20		-	-	-	-	0.53	-	-	-	-	0.39
-10		-	-	-	-	0.13	-	-	-	-	0.20
-5	ϕ_i^V	-	-	-	-	0.06	-	-	-	-	0.10
5		-	-	-	-	-0.06	-	-	-	-	-0.10
10		-	-	-	-	-0.13	-	-	-	-	-0.20
20		-	-	-	-	-0.26	-	-	-	-	-0.40
-20		15.72	16.03	12.95	3.10	-	15.73	16.13	13.09	4.60	-
-10		7.59	7.84	6.43	1.97	-	7.58	7.89	6.49	2.49	-
-5	ϕ_i^L	3.73	3.88	3.20	1.06	-	3.72	3.90	3.23	1.29	-
5		-3.59	-3.79	-3.17	-1.20	-	-3.59	-3.81	-3.20	-1.39	-
10		-7.05	-7.49	-6.31	-2.52	-	-7.05	-7.53	-6.36	-2.86	-
20		-13.63	-14.63	-12.47	-5.49	-	-13.63	-14.69	-12.57	-6.08	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K1	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.55 SBC EOS; n-nonane; % deviation of thermodynamic properties as parameter e varies.

%Dev in a(T)	P(atm) T(K)	1					0.8Pc				
		0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20			-1.75E-02	-1.10E-02	-4.62E-03	-2.33E-03	-19.08			-6.21	-1.35
-10			-8.75E-03	-5.49E-03	-2.31E-03	-1.17E-03	-6.21			-2.80	-0.66
-5	ZV		-4.37E-03	-2.74E-03	-1.16E-03	-5.89E-04	-2.80			2.40	-0.32
5			4.37E-03	2.73E-03	1.16E-03	5.89E-04	2.40			4.51	0.31
10			8.74E-03	5.46E-03	2.32E-03	1.17E-03	4.51			8.12	0.62
20			1.74E-02	1.09E-02	4.61E-03	2.33E-03	8.12				1.21
-20		-2.23	-10.39	-13.96	-99.39		-2.28	-9.92	-12.92	-82.79	
-10		-1.12	-5.46	-7.55			-1.12	-5.17	-6.88	-79.16	
-5	ZL	-0.56	-2.80	-3.94			-0.56	-2.64	-3.55	-75.73	
5		0.57	2.96	4.34			0.56	2.76	3.81		
10		1.14	6.10	9.15			1.13	5.66	7.90		
20		2.29	12.99	20.73			2.27	11.87	17.08		
-20			-1.80E-01	-1.50E-01	-8.58E-02	-3.85E-02				-25.48	-3.72
-10			-9.22E-02	-7.43E-02	-4.56E-02	-2.32E-02				-7.80	-1.81
-5	dHV		-4.64E-02	-3.75E-02	-2.34E-02	-1.26E-02				-3.46	-0.89
5			4.69E-02	3.82E-02	2.46E-02	1.40E-02				2.91	0.87
10			9.44E-02	7.69E-02	4.99E-02	2.92E-02				5.43	1.72
20			1.90E-01	1.60E-01	1.03E-01	6.25E-02				9.66	3.36
-20			-7.76E-03	-4.33E-03	-1.11E-03	-4.92E-05				-20.56	-1.79
-10			-3.97E-03	-2.26E-03	-6.14E-04	-7.87E-05				-6.13	-0.87
-5	dSV		-2.01E-03	-1.14E-03	-3.17E-04	-4.92E-05				-2.70	-0.43
5			2.04E-03	1.17E-03	3.66E-04	2.85E-05				2.25	0.42
10			4.09E-03	2.37E-03	7.32E-04	1.77E-04				4.17	0.82
20			8.29E-03	4.84E-03	1.53E-03	4.13E-04				7.37	1.60
-20		-16.05	-21.14	-23.28	-10547.60		-16.12	-20.97	-22.68	-317.22	
-10		-7.49	-9.72	-10.81			-7.52	-9.62	-10.47	-249.61	
-5	dHL	-3.62	-4.68	-5.23			-3.63	-4.62	-5.05	-209.13	
5		3.39	4.35	4.94			3.41	4.29	4.72		
10		6.57	8.42	9.63			6.60	8.29	9.14		
20		12.38	15.83	18.49			12.43	15.53	17.27		
-20		-6.78	-16.83	-18.67	-359.77		-6.71	-16.28	-17.55	-258.76	
-10		-3.63	-7.87	-8.87			-3.59	-7.58	-8.26	-209.92	
-5	dSL	-1.84	-3.82	-4.34			-1.83	-3.67	-4.02	-178.52	
5		1.88	3.61	4.19			1.86	3.45	3.82		
10		3.76	7.04	8.27			3.72	6.71	7.48		
20		7.47	13.44	16.26			7.39	12.73	14.37		
-20			-7.97E-03	-5.13E-03	-2.25E-03	-1.16E-03				-1.90	-0.49
-10			-3.98E-03	-2.56E-03	-1.12E-03	-5.71E-04				-0.86	-0.24
-5	ϕ_i^V		-1.99E-03	-1.28E-03	-5.58E-04	-2.82E-04				-0.42	-0.12
5			1.98E-03	1.28E-03	5.51E-04	2.81E-04				0.39	0.12
10			3.96E-03	2.57E-03	1.11E-03	5.68E-04				0.76	0.23
20			7.92E-03	5.13E-03	2.24E-03	1.15E-03				1.46	0.46
-20		-99.88	-57.83	-46.39	883.79		-99.88	-58.28	-47.15	-17.36	
-10		-95.44	-32.03	-24.03			-95.45	-32.40	-24.61	-4.06	
-5	ϕ_i^L	-77.26	-16.73	-12.14			-77.29	-16.97	-12.48	1.09	
5		293.19	18.01	12.21			293.73	18.36	12.69		
10		1298.99	37.11	24.33			1302.96	37.96	25.45		
20		13565.18	77.87	47.72			13642.84	80.21	50.66		
-20			-57.83	-46.39	883.81					-15.76	
-10			-32.02	-24.03						-3.23	
-5	K1		-16.73	-12.14						1.51	
5			18.00	12.21							
10			37.11	24.33							
20			77.86	47.71							

Table B.55 (continued).

%Dev	P(atm)	Pc					1.2Pc				
in a(T)	T(K)	0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20		-	-	-	-	-2.52	-	-	-	-	-4.43
-10		-	-	-	-	-1.20	-	-	-	-	-2.06
-5	ZV	-	-	-	-	-0.59	-	-	-	-	-1.00
5		-	-	-	-	0.57	-	-	-	-	0.94
10		-	-	-	-	1.11	-	-	-	-	1.83
20		-	-	-	-	2.14	-	-	-	-	3.48
-20		-2.22	-9.81	-12.68	-35.73	-	-2.21	-9.69	-12.46	-30.43	-
-10		-1.11	-5.10	-6.73	-23.78	-	-1.11	-5.04	-6.58	-18.74	-
-5	ZL	-0.56	-2.61	-3.47	-14.63	-	-0.56	-2.57	-3.39	-10.66	-
5		0.56	2.72	3.70	65.35	-	0.56	2.67	3.59	15.00	-
10		1.13	5.56	7.64	130.68	-	1.12	5.46	7.41	37.20	-
20		2.26	11.61	16.39	166.85	-	2.26	11.37	15.78	90.93	-
-20		-	-	-	-	-5.57	-	-	-	-	-8.22
-10		-	-	-	-	-2.66	-	-	-	-	-3.81
-5	dHV	-	-	-	-	-1.30	-	-	-	-	-1.84
5		-	-	-	-	1.25	-	-	-	-	1.73
10		-	-	-	-	2.45	-	-	-	-	3.36
20		-	-	-	-	4.73	-	-	-	-	6.36
-20		-	-	-	-	-2.66	-	-	-	-	-4.04
-10		-	-	-	-	-1.26	-	-	-	-	-1.86
-5	dSV	-	-	-	-	-0.62	-	-	-	-	-0.89
5		-	-	-	-	0.59	-	-	-	-	0.84
10		-	-	-	-	1.16	-	-	-	-	1.62
20		-	-	-	-	2.22	-	-	-	-	3.05
-20		-16.14	-20.93	-22.55	-47.35	-	-16.16	-20.90	-22.43	-39.92	-
-10		-7.53	-9.60	-10.40	-25.12	-	-7.54	-9.58	-10.33	-19.92	-
-5	dHL	-3.64	-4.61	-5.01	-13.49	-	-3.64	-4.60	-4.97	-10.09	-
5		3.41	4.28	4.67	31.46	-	3.41	4.27	4.63	10.75	-
10		6.61	8.26	9.05	47.92	-	6.62	8.23	8.96	22.39	-
20		12.44	15.46	17.04	54.77	-	12.46	15.40	16.84	40.75	-
-20		-6.69	-16.15	-17.29	-38.07	-	-6.67	-16.02	-17.05	-31.15	-
-10		-3.58	-7.51	-8.12	-20.97	-	-3.57	-7.45	-7.99	-16.07	-
-5	dSL	-1.82	-3.63	-3.95	-11.48	-	-1.82	-3.60	-3.88	-8.27	-
5		1.85	3.41	3.75	28.39	-	1.85	3.38	3.67	9.09	-
10		3.71	6.63	7.32	43.34	-	3.70	6.56	7.16	19.19	-
20		7.37	12.57	14.00	49.32	-	7.35	12.42	13.67	35.33	-
-20		-	-	-	-	-0.82	-	-	-	-	-1.29
-10		-	-	-	-	-0.40	-	-	-	-	-0.62
-5	ϕ_i^V	-	-	-	-	-0.20	-	-	-	-	-0.31
5		-	-	-	-	0.19	-	-	-	-	0.30
10		-	-	-	-	0.39	-	-	-	-	0.59
20		-	-	-	-	0.76	-	-	-	-	1.14
-20		-99.88	-58.39	-47.33	-22.49	-	-99.88	-58.50	-47.51	-23.43	-
-10		-95.46	-32.50	-24.75	-9.56	-	-95.46	-32.60	-24.88	-10.26	-
-5	ϕ_i^L	-77.30	-17.03	-12.57	-4.30	-	-77.31	-17.09	-12.65	-4.74	-
5		293.87	18.45	12.81	2.99	-	294.04	18.54	12.92	3.91	-
10		1303.89	38.18	25.71	4.13	-	1304.92	38.39	25.97	6.95	-
20		13661.99	80.79	51.36	5.77	-	13683.14	81.37	52.03	10.93	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K1	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.56 SBC EOS; n-decane; % deviation of thermodynamic properties as parameter a(T) varies.

%Dev in a(T)	P(atm) / T(K)	1					0.8Pc				
		0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20	ZV		1.43	1.06	0.56	0.34				31.51	8.01
-10			0.72	0.53	0.28	0.17				18.52	4.16
-5			0.36	0.27	0.14	0.09				10.39	2.13
5			-0.36	-0.27	-0.14	-0.09				-17.74	-2.23
10			-0.73	-0.54	-0.28	-0.17				-79.95	-4.57
20			-1.48	-1.09	-0.57	-0.34				-82.84	-9.70
-20	ZL	3.82	24.41	55.33			3.78	21.11	33.35		
-10		1.67	9.04	13.92			1.66	8.23	11.56		
-5		0.79	4.03	5.86			0.78	3.72	5.06		
5		-0.71	-3.33	-4.55			-0.70	-3.13	-4.09	-77.02	
10		-1.34	-6.15	-8.23	-99.13		-1.33	-5.81	-7.48		
20		-2.44	-10.68	-13.87	-99.36		-2.43	-10.16	-12.81		
-20	dHV		18.23	17.84	1.78	18.31				35.15	23.72
-10			9.18	8.97	8.92	9.17				21.36	12.40
-5			4.61	4.50	4.46	4.59				12.28	6.36
5			-4.65	-4.52	-4.48	-4.60				-23.42	-6.71
10			-9.33	-9.07	-8.97	-9.20				-260.04	-13.83
20			-18.81	-18.25	-17.99	-18.44				-323.34	-28.65
-20	dSV		0.67	0.49	0.25	0.15				24.60	9.72
-10			0.34	0.25	0.13	0.08				15.50	5.17
-5			0.17	0.12	0.06	0.04				9.12	2.67
5			-0.17	-0.13	-0.06	-0.04				-18.94	-2.87
10			-0.35	-0.25	-0.13	-0.08				-222.76	-5.98
20			-0.71	-0.51	-0.26	-0.15				-261.88	-13.12
-20	dHL	25.00	26.18	35.44			25.10	25.18	29.16		
-10		12.57	12.61	14.64			12.62	12.33	13.68		
-5		6.30	6.24	7.08			6.33	6.12	6.71		
5		-6.32	-6.16	-6.80			-6.34	-6.08	-6.56	-219.09	
10		-12.65	-12.28	-13.44	-7743.53		-12.70	-12.14	-13.02		
20		-25.31	-24.47	-26.43	-10086.04		-25.42	-24.24	-25.76		
-20	dSL	16.38	18.74	29.61			16.26	16.99	21.36		
-10		7.77	8.40	10.65			7.72	7.84	9.24		
-5		3.78	4.04	4.94			3.75	3.80	4.39		
5		-3.54	-3.80	-4.45			-3.52	-3.61	-4.06	-193.72	
10		-6.84	-7.41	-8.56	310.82		-6.80	-7.07	-7.87		
20		-12.65	-14.22	-16.07	363.26		-12.57	-13.64	-14.94		
-20	ϕ_i^V		1.31	1.00	0.55	0.33				12.95	6.28
-10			0.65	0.50	0.27	0.17				6.67	3.15
-5			0.33	0.25	0.14	0.08				3.41	1.58
5			-0.33	-0.25	-0.14	-0.08				-3.72	-1.59
10			-0.65	-0.50	-0.27	-0.17				-18.72	-3.18
20			-1.31	-1.00	-0.55	-0.33				-40.22	-6.41
-20	ϕ_i^L	2.17E+06	250.17	150.37			2.19E+06	258.34	161.22		
-10		16015.43	93.00	64.31			16078.38	94.70	66.47		
-5		1196.54	39.87	29.11			1198.96	40.42	29.84		
5		-92.59	-9.37	-23.50			-92.60	-29.60	-23.84	-6.94	
10		-99.47	-50.66	-42.12	767.79		-99.47	-50.96	-42.58		
20		-100.00	-76.64	-67.80	552.30		-100.00	-76.89	-68.24		
-20	K1		245.65	140.80							
-10			91.75	63.50							
-5			39.41	28.79							
5			-29.14	-23.31						-3.34	
10			-50.34	-41.83	770.16						
20			-76.33	-67.48	555.88						

Table B.56 (continued).

%Dev in a(T)	P(atm) T(K)	Pc 0.3Tb	Tb	0.8Tc	Tc	1.2Tc	1.2Pc 0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20		-	-	-	-	11.01	-	-	-	-	14.48
-10		-	-	-	-	5.80	-	-	-	-	7.73
-5	ZV	-	-	-	-	2.98	-	-	-	-	4.02
5		-	-	-	-	-3.19	-	-	-	-	-4.40
10		-	-	-	-	-6.63	-	-	-	-	-9.31
20		-	-	-	-	-14.61	-	-	-	-	-21.86
-20		3.77	20.41	30.98	261.59	-	3.76	19.78	29.04	201.78	-
-10		1.66	8.04	11.10	201.75	-	1.65	7.86	10.68	118.95	-
-5	ZL	0.78	3.64	4.89	151.49	-	0.78	3.57	4.74	34.01	-
5		-0.70	-3.08	-3.98	-18.11	-	-0.70	-3.03	-3.89	-13.50	-
10		-1.33	-5.72	-7.31	-26.81	-	-1.33	-5.64	-7.15	-21.54	-
20		-2.43	-10.03	-12.57	-36.54	-	-2.42	-9.91	-12.33	-31.26	-
-20		-	-	-	-	25.48	-	-	-	-	27.34
-10		-	-	-	-	13.55	-	-	-	-	14.82
-5	dHV	-	-	-	-	7.02	-	-	-	-	7.77
5		-	-	-	-	-7.61	-	-	-	-	-8.71
10		-	-	-	-	-15.95	-	-	-	-	-18.72
20		-	-	-	-	-35.92	-	-	-	-	-46.02
-20		-	-	-	-	10.26	-	-	-	-	11.31
-10		-	-	-	-	5.57	-	-	-	-	6.28
-5	dSV	-	-	-	-	1.91	-	-	-	-	3.34
5		-	-	-	-	-3.24	-	-	-	-	-3.86
10		-	-	-	-	-6.89	-	-	-	-	-8.45
20		-	-	-	-	-16.04	-	-	-	-	-21.82
-20		25.13	24.97	28.43	69.41	-	25.16	24.79	27.82	63.62	-
-10		12.64	12.26	13.49	60.52	-	12.65	12.20	13.33	47.81	-
-5	dHL	6.33	6.10	6.64	51.85	-	6.34	6.07	6.57	21.17	-
5		-6.35	-6.06	-6.51	-18.11	-	-6.36	-6.04	-6.46	-13.90	-
10		-12.71	-12.10	-12.92	-31.28	-	-12.73	-12.07	-12.84	-25.42	-
20		-25.44	-24.19	-25.62	-53.19	-	-25.47	-24.14	-25.48	-45.48	-
-20		16.23	16.61	20.32	661.12	-	16.20	16.26	19.45	53.82	-
-10		7.71	7.70	8.95	54.45	-	7.69	7.58	8.70	41.12	-
-5	dSL	3.74	3.74	4.28	47.27	-	3.74	3.69	4.17	17.64	-
5		-3.51	-2.56	-3.97	-14.39	-	-3.51	-3.52	-3.89	-10.38	-
10		-6.79	-6.98	-7.72	-23.75	-	-6.77	-6.90	-7.57	-18.25	-
20		-12.55	-13.50	-14.68	-37.55	-	-12.52	-13.36	-14.44	-30.54	-
-20		-	-	-	-	8.10	-	-	-	-	10.03
-10		-	-	-	-	4.07	-	-	-	-	5.05
-5	ϕ_i^V	-	-	-	-	2.04	-	-	-	-	2.54
5		-	-	-	-	-2.06	-	-	-	-	-2.57
10		-	-	-	-	-4.14	-	-	-	-	-5.19
20		-	-	-	-	-8.40	-	-	-	-	-10.66
-20		2195419.43	260.40	163.50	22.41	-	2200695.77	262.36	165.63	33.39	-
-10		16094.59	95.14	66.98	13.21	-	16111.98	95.56	67.47	20.16	-
-5	ϕ_i^L	1199.51	40.56	30.01	8.13	-	1200.21	40.70	30.18	11.48	-
5		-92.60	-29.66	-23.92	-11.57	-	-92.61	-29.72	-24.00	-12.07	-
10		-99.47	-51.04	-42.70	-23.05	-	-99.47	-51.12	-42.81	-23.73	-
20		-100.00	-76.95	-68.35	-43.64	-	-100.00	-77.02	-68.46	-44.34	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K1	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.57 SBC EOS; n-decane; % deviation of thermodynamic properties as parameter b(T) varies.

%Dev in a(T)	P(atm) / T(K)	1					0.8Pc				
		0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20			-2.70E-01	-2.30E-01	-1.70E-01	-1.40E-01	-	-	-	-84.09	-3.75
-10			-1.30E-01	-1.10E-01	-8.48E-02	-6.77E-02	-	-	-	-9.44	-1.85
-5	ZV		-6.66E-02	-5.73E-02	-4.24E-02	-3.38E-02	-	-	-	-4.27	-0.92
5			6.66E-02	5.72E-02	4.24E-02	3.38E-02	-	-	-	3.73	0.91
10			1.30E-01	1.10E-01	8.47E-02	6.77E-02	-	-	-	7.09	1.80
20			2.70E-01	2.30E-01	1.70E-01	1.40E-01	-	-	-	13.06	3.56
-20		-20.58	-24.05	-25.87	-99.38	-	-20.57	-23.69	-25.12	-	-
-10		-10.33	-12.39	-13.56	-	-	-10.32	-12.16	-13.04	-79.41	-
-5	ZL	-5.17	-6.30	-6.96	-	-	-5.17	-6.16	-6.65	-75.45	-
5		5.19	6.51	7.37	-	-	5.19	6.34	6.94	-	-
10		10.40	13.26	15.23	-	-	10.40	12.86	14.21	-	-
20		20.88	27.58	32.87	-	-	20.87	26.52	29.86	-	-
-20			-1.80E+00	-2.01E+00	-2.74E+00	-3.70E+00	-	-	-	-287.04	-7.08
-10			-9.00E-01	-1.00E+00	-1.37E+00	-1.85E+00	-	-	-	-10.15	-3.47
-5	dHV		-4.50E-01	-5.00E-01	-6.90E-01	-9.20E-01	-	-	-	-4.44	-1.72
5			4.50E-01	5.00E-01	6.90E-01	9.20E-01	-	-	-	3.69	1.69
10			9.00E-01	1.00E+00	1.37E+00	1.85E+00	-	-	-	6.89	3.34
20			1.79E+00	2.01E+00	2.74E+00	3.69E+00	-	-	-	12.30	6.57
-20			-1.56E-02	-1.01E-02	-3.76E-03	-1.63E-03	-	-	-	-248.18	-2.18
-10			-7.78E-03	-5.01E-03	-1.87E-03	-8.17E-04	-	-	-	-7.84	-1.03
-5	dSV		-3.89E-03	-2.51E-03	-9.32E-04	-4.13E-04	-	-	-	-3.36	-0.51
5			3.88E-03	2.49E-03	9.22E-04	3.94E-04	-	-	-	2.71	0.49
10			7.73E-03	4.97E-03	1.85E-03	1.85E-03	-	-	-	4.99	0.96
20			1.54E-02	9.91E-03	3.70E-03	1.59E-03	-	-	-	8.69	1.85
-20		-10.13	-16.41	-18.44	-8941.98	-	-10.26	-16.31	-17.99	-	-
-10		-4.84	-7.77	-8.81	-	-	-4.91	-7.71	-8.55	-230.81	-
-5	dHL	-2.37	-3.79	-4.32	-	-	-2.40	-3.76	-4.18	-195.43	-
5		2.27	3.62	4.17	-	-	2.30	3.58	4.00	-	-
10		4.46	7.09	8.23	-	-	4.52	7.00	7.84	-	-
20		8.57	13.64	16.11	-	-	8.69	13.40	15.12	-	-
-20		-0.18	-12.42	-14.37	346.08	-	-0.12	-11.87	-13.33	-	-
-10		-0.39	-6.00	-7.03	-	-	-0.35	-5.71	-6.46	-205.47	-
-5	dSL	-0.25	-2.95	-3.49	-	-	-0.24	-2.80	-3.18	-176.62	-
5		0.35	2.87	3.45	-	-	0.33	2.71	3.11	-	-
10		0.78	5.68	6.88	-	-	0.75	5.34	6.15	-	-
20		1.84	11.13	13.82	-	-	1.77	10.38	12.07	-	-
-20			-2.40E-01	-2.10E-01	-1.60E-01	-1.30E-01	-	-	-	-17.28	-2.57
-10			-1.20E-01	-1.10E-01	-8.18E-02	-6.62E-02	-	-	-	-2.22	-1.29
-5	ϕ_i^V		-6.00E-02	-5.31E-02	-4.09E-02	-3.32E-02	-	-	-	-1.10	-0.64
5			6.00E-02	5.31E-02	4.09E-02	3.32E-02	-	-	-	1.07	0.64
10			1.20E-01	1.10E-01	8.19E-02	6.65E-02	-	-	-	2.13	1.29
20			2.40E-01	2.10E-01	1.60E-01	1.30E-01	-	-	-	4.21	2.58
-20		-99.25	-51.65	-42.55	807.25	-	-99.29	-52.82	-44.03	-	-
-10		-90.00	-28.45	-22.34	-	-	-90.24	-29.34	-23.40	-5.08	-
-5	ϕ_i^L	-67.32	-14.87	-11.39	-	-	-67.72	-15.40	-12.01	0.09	-
5		188.20	16.09	11.72	-	-	191.73	-16.85	12.55	-	-
10		686.15	33.33	23.67	-	-	705.69	35.11	25.56	-	-
20		4951.32	70.87	47.76	-	-	5205.96	75.64	52.59	-	-
-20			-51.54	-42.42	808.74	-	-	-	-	-	-
-10			-28.36	-29.26	-	-	-	-	-	-2.92	-
-5	K1		-14.81	-11.34	-	-	-	-	-	1.20	-
5			16.02	11.67	-	-	-	-	-	-	-
10			33.17	23.54	-	-	-	-	-	-	-
20			70.46	47.44	-	-	-	-	-	-	-

Table B.57 (continued).

%Dev in a(T)	P(atm) T(K)	Pc					1.2Pc				
		0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20		-	-	-	-	-5.53	-	-	-	-	-7.97
-10		-	-	-	-	-2.70	-	-	-	-	-3.83
-5	ZV	-	-	-	-	-1.34	-	-	-	-	-1.88
5		-	-	-	-	1.31	-	-	-	-	1.83
10		-	-	-	-	2.59	-	-	-	-	3.60
20		-	-	-	-	5.10	-	-	-	-	7.01
-20		-20.57	-23.60	-24.94	-41.57	-	-20.56	-23.52	-24.78	-37.08	-
-10		-10.32	-12.10	-12.93	-26.16	-	-10.32	-12.05	-12.82	-21.74	-
-5	ZL	-5.17	-6.13	-6.59	-15.46	-	-5.17	-6.10	-6.52	-12.01	-
5		5.19	6.29	6.85	36.53	-	5.19	6.26	6.77	15.67	-
10		10.39	12.77	14.00	127.98	-	10.39	12.68	13.80	37.37	-
20		20.86	26.28	29.28	176.10	-	20.86	26.05	28.76	95.66	-
-20		-	-	-	-	-8.74	-	-	-	-	-11.04
-10		-	-	-	-	-4.22	-	-	-	-	-5.21
-5	dHV	-	-	-	-	-2.08	-	-	-	-	-2.54
5		-	-	-	-	2.01	-	-	-	-	2.42
10		-	-	-	-	3.97	-	-	-	-	4.74
20		-	-	-	-	7.73	-	-	-	-	9.10
-20		-	-	-	-	-2.98	-	-	-	-	-4.28
-10		-	-	-	-	-1.41	-	-	-	-	-1.97
-5	dSV	-	-	-	-	-0.69	-	-	-	-	-0.95
5		-	-	-	-	0.65	-	-	-	-	0.88
10		-	-	-	-	1.27	-	-	-	-	1.70
20		-	-	-	-	2.43	-	-	-	-	3.20
-20		-10.29	-16.29	-17.90	-40.61	-	-10.33	-16.27	-17.81	-33.99	-
-10		-4.92	-7.70	-8.49	-21.94	-	-4.94	-7.69	-8.45	-17.31	-
-5	dHL	-2.41	-3.75	-4.15	-11.82	-	-2.42	-3.74	-4.12	-8.84	-
5		2.31	3.57	3.97	19.65	-	2.32	3.56	3.93	9.51	-
10		4.53	6.98	7.77	46.06	-	4.55	6.96	7.70	19.98	-
20		8.72	13.35	14.94	54.47	-	8.75	13.31	14.79	39.04	-
-20		-0.10	-11.73	-13.10	-32.83	-	-0.09	-11.60	-12.87	-26.43	-
-10		-0.34	-5.63	-6.33	-18.37	-	-0.34	-5.56	-6.21	-13.87	-
-5	dSL	-0.23	-2.76	-3.12	-10.09	-	-0.23	-2.73	-3.05	-7.19	-
5		0.33	2.67	3.03	17.73	-	0.32	2.63	2.96	7.98	-
10		0.74	5.25	5.99	42.21	-	0.73	5.18	5.84	17.03	-
20		1.75	10.20	11.71	49.44	-	1.73	10.03	11.39	33.76	-
-20		-	-	-	-	-3.37	-	-	-	-	-4.26
-10		-	-	-	-	-1.68	-	-	-	-	-2.12
-5	ϕ_i^V	-	-	-	-	0.84	-	-	-	-	-1.06
5		-	-	-	-	0.84	-	-	-	-	1.06
10		-	-	-	-	1.69	-	-	-	-	2.12
20		-	-	-	-	3.37	-	-	-	-	4.24
-20		-99.30	-53.12	-44.41	-222.15	-	-99.31	-53.42	-44.78	-23.27	-
-10		-90.31	-29.58	-23.67	-10.10	-	-90.37	-29.80	-23.93	-10.88	-
-5	ϕ_i^L	67.82	-15.55	-12.17	-4.74	-	-67.93	-15.69	-12.32	-5.22	-
5		192.67	17.06	12.76	3.86	-	193.65	17.25	12.97	4.69	-
10		710.95	35.59	26.04	6.12	-	716.22	36.06	26.51	8.78	-
20		5275.22	76.93	53.81	9.62	-	5346.33	78.18	55.02	15.19	-
-20		-	-	-	-	-	-	-	-	-	-
-10		-	-	-	-	-	-	-	-	-	-
-5	K1	-	-	-	-	-	-	-	-	-	-
5		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-

Table B.58 SBC EOS; n-decane; % deviation of thermodynamic properties as parameter c(T) varies.

%Dev	P(atm)	1					0.8Pc				
in a(T)	T(K)	0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20		-	2.24E-03	1.80E-03	1.18E-03	8.37E-04	-	-	-	2.69	0.43
-10		-	1.12E-03	8.99E-04	5.89E-04	4.21E-04	-	-	-	1.39	0.21
-5	ZV	-	5.60E-04	4.47E-04	2.98E-04	2.11E-04	-	-	-	0.71	0.11
5		-	-5.60E-04	-4.53E-04	-2.92E-04	-2.11E-04	-	-	-	-0.74	-0.11
10		-	-1.11E-03	-9.12E-04	-5.89E-04	-4.21E-04	-	-	-	-1.51	-0.22
20		-	-2.23E-03	-1.81E-03	-1.17E-03	-8.37E-04	-	-	-	-3.16	-0.43
-20		5.82E-02	3.42	5.40	-	-	5.79E-02	3.20	4.81	-	-
-10		2.91E-02	1.67	2.60	-	-	2.89E-02	1.56	2.33	-	-
-5	ZL	1.45E-02	0.82	1.28	-	-	1.44E-02	0.77	1.15	-	-
5		-1.45E-02	-0.80	-1.23	-	-	-1.44E-02	-0.76	-1.11	-	-
10		-2.90E-02	-1.58	-2.42	-	-	-2.88E-02	-1.49	-2.19	-73.57	-
20		-5.78E-02	-3.08	-4.67	-	-	-5.75E-02	-2.92	-4.25	-77.15	-
-20		-	1.18E-02	9.37E-03	9.33E-04	-1.30E-02	-	-	-	2.98	1.00
-10		-	5.89E-03	4.66E-03	4.62E-04	-6.44E-03	-	-	-	1.55	0.50
-5	dHV	-	2.94E-03	2.30E-03	2.86E-04	-3.21E-03	-	-	-	0.79	0.25
5		-	-2.96E-03	-2.35E-03	-1.75E-04	3.21E-03	-	-	-	-0.83	-0.25
10		-	-5.82E-03	-4.77E-03	-4.52E-04	6.44E-03	-	-	-	-1.70	-0.51
20		-	-1.17E-02	-9.43E-03	-8.31E-04	1.30E-02	-	-	-	-3.60	-1.02
-20		-	3.66E-04	1.21E-04	-2.38E-04	-4.04E-04	-	-	-	2.46	0.51
-10		-	1.83E-04	6.04E-05	-1.19E-04	-2.07E-04	-	-	-	1.29	0.26
-5	dSV	-	9.16E-05	3.02E-05	-5.95E-05	-1.08E-04	-	-	-	0.66	0.13
5		-	-9.16E-05	-3.02E-05	4.96E-05	8.86E-05	-	-	-	-0.69	-0.13
10		-	-1.73E-04	-6.04E-05	9.92E-05	1.87E-04	-	-	-	-1.42	-0.26
20		-	-3.56E-04	-1.11E-04	2.18E-04	3.84E-04	-	-	-	-3.01	-0.53
-20		0.30	4.01	5.19	-	-	0.30	3.94	4.96	-	-
-10		0.15	2.02	2.61	-	-	0.15	1.99	2.50	-	-
-5	dHL	0.07	1.01	1.31	-	-	0.08	1.00	1.26	-	-
5		-0.07	-1.02	-1.32	-	-	-0.08	-1.01	-1.27	-	-
10		-0.15	-2.05	-2.65	-	-	-0.15	-2.02	-2.55	-183.88	-
20		-0.30	-4.13	-5.33	-	-	-0.30	-4.08	-5.14	-216.01	-
-20		0.28	3.49	4.60	-	-	0.27	3.33	4.21	-	-
-10		0.14	1.75	2.30	-	-	0.14	1.67	2.11	-	-
-5	dSL	0.07	0.88	1.15	-	-	0.07	0.84	1.06	-	-
5		-0.07	-0.88	-1.15	-	-	-0.07	-0.84	-1.06	-	-
10		-0.14	-1.76	-2.30	-	-	-0.14	-1.69	-2.13	-167.41	-
20		-0.27	-3.53	-4.61	-	-	-0.27	-3.39	-4.27	-194.85	-
-20		-	9.95E-04	8.41E-04	5.64E-04	4.16E-04	-	-	-	0.39	0.15
-10		-	4.98E-04	4.23E-04	2.82E-04	2.05E-04	-	-	-	0.20	0.08
-5	ϕ_i^V	-	2.49E-04	2.15E-04	1.38E-04	1.02E-04	-	-	-	0.10	0.04
5		-	-2.48E-04	-2.09E-04	-1.44E-04	-1.02E-04	-	-	-	-0.10	-0.04
10		-	-5.08E-04	-4.12E-04	-2.82E-04	-2.05E-04	-	-	-	-0.20	-0.08
20		-	-1.01E-03	-8.36E-04	-5.70E-04	-4.16E-04	-	-	-	-0.41	-0.15
-20		11.54	14.87	12.08	-	-	11.55	15.23	12.66	-	-
-10		5.61	7.31	6.02	-	-	5.62	7.48	6.29	-	-
-5	ϕ_i^L	2.77	3.62	3.00	-	-	2.78	3.70	3.13	-	-
5		-2.69	-3.55	-2.99	-	-	-2.70	-3.63	-3.11	-	-
10		-5.31	-7.03	-5.96	-	-	-5.32	-7.18	-6.18	2.21	-
20		-10.36	-13.78	-11.83	-	-	-10.37	-14.04	-12.23	-0.52	-
-20		-	14.87	12.08	-	-	-	-	-	-	-
-10		-	7.30	6.02	-	-	-	-	-	-	-
-5	K1	-	3.62	3.00	-	-	-	-	-	-	-
5		-	-3.55	-2.99	-	-	-	-	-	-	-
10		-	-7.03	-5.96	-	-	-	-	-	2.42	-
20		-	-13.78	-11.83	-	-	-	-	-	-0.11	-

Table B.58 (continued)

%Dev in a(T)	P(atm) T(K)	Pc					1.2Pc				
		0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20	ZV					0.79					1.34
-10						0.40					0.68
-5						0.20					0.34
5						-0.20					-0.35
10						-0.40					-0.70
20						-0.82					-1.42
-20	ZL	0.06	3.15	4.68	76.12		0.06	3.10	4.56	22.43	
-10		0.03	1.54	2.27	19.03		0.03	1.52	2.22	10.02	
-5		0.01	0.76	1.12	7.90		0.01	0.75	1.09	4.74	
5		-0.01	-0.74	-1.09	-6.14		0.01	-0.73	-1.06	-4.26	
10		-0.03	-1.47	-2.14	-11.17		-0.03	-1.45	-2.10	-8.10	
20		-0.06	-2.88	-4.16	-19.07		-0.06	-2.84	-4.08	-14.73	
-20	dHV					1.51					2.19
-10						0.76					1.11
-5						0.38					0.56
5						-0.39					-0.57
10						-0.78					-1.15
20						-1.57					-2.34
-20	dSV					0.76					1.11
-10						0.38					0.57
-5						0.19					0.29
5						-0.19					-0.29
10						-0.39					-0.59
20						-0.79					-1.20
-20	dHL	0.30	3.93	4.91	34.16		0.30	3.92	4.87	14.37	
-10		0.15	1.98	2.48	11.98		0.15	1.98	2.46	7.11	
-5		0.08	1.00	1.25	5.44		0.08	0.99	1.24	3.53	
5		-0.08	-1.00	-1.26	-4.85		-0.08	-1.00	-1.25	-3.48	
10		-0.15	-2.02	-2.53	-9.32		-0.15	-2.01	-2.51	-6.90	
20		-0.30	-4.06	-5.10	-17.56		-0.30	-4.05	-5.06	-13.63	
-20	dSL	0.27	3.29	4.13	31.57		0.27	3.25	4.05	12.57	
-10		0.14	1.65	2.07	10.88		0.14	1.64	2.04	6.17	
-5		-0.07	0.83	1.04	4.91		0.07	0.82	1.02	3.05	
5		-0.07	-0.83	-1.04	-4.31		-0.07	-0.82	-1.03	-2.98	
10		-0.14	-1.67	-2.09	-8.24		-0.14	-1.65	-2.06	-5.89	
20		-0.27	-3.35	-4.20	-15.34		-0.27	-3.32	-4.13	-11.51	
-20	ϕ_i^V					0.26					0.40
-10						0.13					0.20
-5						0.06					0.10
5						-0.07					-0.10
10						-0.13					-0.21
20						-0.26					-0.41
-20	ϕ_i^L	11.54	15.36	12.81	3.28		11.56	15.45	12.95	4.62	
-10		5.61	7.53	6.36	2.00		5.62	7.57	6.42	2.50	
-5		2.77	3.73	3.16	1.07		2.77	3.75	3.20	1.29	
5		-2.70	-3.65	-3.13	-1.20		-2.70	-3.67	-3.16	-1.39	
10		-5.33	-7.22	-2.52	-2.52		-5.33	-7.25	-6.29	-2.86	
20		-10.38	-14.11	-5.49	-5.49		-10.38	-14.18	-12.43	-6.07	
-20	K1										
-10											
-5											
5											
10											
20											

Table B.59 SBC EOS; n-decane; % deviation of thermodynamic properties as parameter e varies.

%Dev	P(atm)	1					0.8Pc				
in a(T)	T(K)	0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20			-2.16E-02	-1.42E-02	-5.87E-03	-2.93E-03				-82.71	-1.43
-10			-1.08E-02	-7.10E-03	-2.93E-03	-1.46E-03				-7.47	-0.69
-5	ZV		-5.37E-03	-3.55E-03	1.46E-03	-7.29E-04		-		-3.93	-0.34
5			5.38E-03	3.53E-03	1.46E-03	7.35E-04				2.74	0.33
10			1.01E-02	7.08E-03	2.93E-03	1.46E-03				5.12	0.66
20			2.14E-02	1.41E-02	5.84E-03	2.92E-03				9.14	1.28
-20		-2.28	-10.94	-14.21	-99.35		-2.27	-10.44	-13.18		
-10		-1.15	-5.77	-7.69			-1.14	-5.46	-7.02	-78.98	
-5	ZL	-0.58	-2.97	-4.01			-0.57	-2.79	-3.63	-75.51	
5		0.58	3.15	4.42			0.57	2.93	3.89		
10		1.16	6.49	9.32			1.15	6.00	8.07		
20		2.34	13.88	21.09			2.32	12.62	17.46		
-20			-0.21	-0.18	-0.11	-0.06				-306.75	3.88
-10			0.11	-0.09	-0.06	-0.04				-9.12	-1.89
-5	dHV		-0.05	-0.05	-0.03	-0.02				-3.93	-0.93
5			0.05	0.05	0.03	0.02				3.21	0.91
10			0.11	0.09	0.06	0.04				5.94	1.79
20			0.22	0.19	0.13	0.08				10.46	3.49
-20			-1.02E-02	-6.25E-03	-1.80E-03	-3.45E-04				-265.03	-2.06
-10			-5.21E-03	-3.21E-03	-9.72E-04	-2.36E-04				-7.68	-1.00
-5	dSV		-2.63E-03	-1.62E-03	-5.16E-04	-1.28E-04				-3.28	-0.49
5			2.67E-03	1.65E-03	5.26E-04	1.48E-04				2.65	0.48
10			5.36E-03	3.33E-03	1.07E-03	3.15E-04				4.88	0.94
20			1.08E-02	6.78E-03	2.23E-03	7.09E-04				8.52	1.84
-20		-16.57	-21.60	-23.54	-9568.87		-16.63	-21.40	-22.95		
-10		-7.70	-9.92	-10.92			-7.73	-9.81	-10.58	-240.63	
-5	dHL	-3.72	-4.77	-5.28			-3.73	-4.71	-5.10	-201.48	
5		3.48	4.44	4.97			3.49	4.37	4.76		
10		6.73	8.59	9.70			6.76	8.44	9.22		
20		12.65	16.17	18.59			12.70	15.82	17.40		
-20		-7.87	-17.44	-19.15	362.50		-7.80	-16.86	-18.03		
-10		-4.09	-8.15	-9.08			-4.06	-7.85	-8.48	-214.42	
-5	dSL	-2.06	-3.95	-4.44			-2.04	-3.80	-4.12	-182.25	
5		2.06	3.74	4.28			2.05	3.57	3.92		
10		4.11	7.29	8.44			4.07	6.94	7.66		
20		8.09	13.94	16.57			8.02	13.18	14.70		
-20			-9.73E-03	-6.61E-03	-2.85E-03	-1.44E-03				-18.61	-0.51
-10			-4.86E-03	-3.30E-03	-1.42E-03	-7.21E-04				-0.95	-0.25
-5	ϕ_i^V		-2.43E-03	-1.65E-03	-7.11E-04	-3.63E-04				-0.46	-0.13
5			2.41E-03	1.65E-03	7.09E-04	3.56E-04				0.43	0.12
10			4.84E-03	3.29E-03	1.42E-03	7.24E-04				0.83	0.25
20			9.68E-03	6.58E-03	2.84E-03	1.44E-03				1.59	0.48
-20		-99.91	-57.84	-47.71	786.96		-99.91	-58.30	-48.44		
-10		-95.93	-31.96	-24.83			-95.94	-32.35	-25.39	-4.93	
-5	ϕ_i^L	-78.44	-16.67	-12.56			-78.47	-16.92	-12.91	0.38	
5		312.27	17.89	12.69			312.82	18.25	13.17		
10		1430.45	36.80	25.32			1434.55	37.67	26.44		
20		15968.92	76.91	49.80			16057.74	79.30	52.78		
-20			-57.84	-47.71	786.98						
-10			-31.96	-24.83						-4.02	
-5	K1		-16.67	-12.56						0.84	
5			17.88	12.68							
10			36.79	25.32							
20			79.89	49.79							

Table B.59 (continued).

%Dev	P(atm)	Pc					1.2Pc				
in a(T)	T(K)	0.3Tb	Tb	0.8Tc	Tc	1.2Tc	0.3Tb	Tb	0.8Tc	Tc	1.2Tc
-20						-2.67					4.68
-10						-1.27					-2.17
-5	ZV					-0.62					-1.05
5						0.60					0.99
10						1.17					1.92
20						2.25					3.64
-20		-2.26	-10.31	-12.94	-36.20		-2.26	-10.19	-12.72	-31.02	
-10		-1.14	-5.38	-6.87	-24.05		-1.14	-5.31	-6.73	-19.12	
-5	ZL	-0.57	-2.75	-3.54	-14.75		-0.57	-2.71	-3.46	-10.88	
5		0.57	2.87	3.78	45.10		0.57	2.83	3.67	15.24	
10		1.15	5.88	7.82	124.66		1.15	5.77	7.58	37.42	
20		2.31	12.33	16.77	164.71		2.31	12.06	16.15	90.43	
-20						-5.82					-8.58
-10						-2.77					-3.96
-5	dHV					-1.36					-1.91
5						1.30					1.79
10						2.55					3.47
20						4.90					6.56
-20						-3.00					-4.49
-10						-1.42					-2.06
-5	dSV					-0.69					-0.99
5						0.66					0.92
10						1.29					1.78
20						2.48					3.35
-20		-16.65	-21.35	-22.82	-47.45		-16.67	-21.31	-22.70	-40.25	
-10		-7.74	-9.78	-10.51	-25.08		-7.75	-9.76	-10.44	-20.06	
-5	dHL	-3.74	-4.70	-5.06	-13.42		-3.74	-4.69	-5.02	-10.15	
5		3.49	4.35	4.71	24.11		3.50	4.34	4.67	10.75	
10		6.76	8.41	9.13	46.30		6.77	8.38	9.04	22.22	
20		12.72	15.74	17.17	53.99		12.73	15.67	16.98	40.25	
-20		-7.78	-16.71	-17.78	-38.98		-7.76	-16.57	-17.53	-32.07	
-10		-4.05	-7.77	-8.34	-21.39		-4.04	-7.70	-8.21	-16.52	
-5	dSL	-2.04	-3.76	-4.05	-11.67		-2.03	-3.72	-3.98	-8.49	
5		2.04	3.53	3.84	22.09		2.04	3.49	3.77	9.28	
10		4.06	6.86	7.50	42.77		4.05	6.78	7.35	19.45	
20		8.00	13.00	14.33	49.67		7.98	12.83	14.00	35.61	
-20						-0.87					-1.36
-10						-0.42					-0.66
-5	ϕ_i^V					-0.21					0.32
5						0.21					0.31
10						0.41					0.62
20						0.79					1.20
-20		-99.91	-58.42	-48.62	-23.24		-99.91	-58.53	-48.80	-24.19	
-10		-95.94	-32.45	-25.53	-9.89		-95.95	-32.55	-25.67	-10.60	
-5	ϕ_i^L	-78.84	-16.98	-12.99	-4.45		-78.48	-17.04	-13.07	-4.89	
5		312.95	18.35	13.28	3.17		313.12	18.44	13.40	4.04	
10		1435.58	37.90	26.71	4.51		1436.73	38.11	26.98	7.19	
20		16080.46	79.92	53.49	6.30		16104.38	80.52	54.17	11.36	
-20											
-10											
-5	K1										
5											
10											
20											

Table B.60 SBC EOS; methane, n-nonane, and n-decane; % deviation of vapor pressure as parameters a(T), b(T), c(T), and e varie.

% dev. of	substance		methane					n-nonane				
	T		$0.1T_c$	$0.3T_c$	$0.5T_c$	$0.6T_c$	$0.8T_c$	$0.1T_c$	$0.3T_c$	$0.5T_c$	$0.6T_c$	$0.8T_c$
a(T)	-20		4.58E+03	5.70E+02	3.40E+02	-	4.67E+08	-	5.24E+04	1.48E+03	6.09E+02	2.17E+02
	-10		6.11E+02	1.64E+02	1.12E+02	6.81E+01	2.40E+05	-	2.43E+03	3.11E+02	1.73E+02	7.91E+01
	-5		1.69E+02	6.34E+01	4.63E+01	2.97E+01	4.92E+03	-	4.02E+02	1.05E+02	6.62E+01	3.40E+01
	5		-6.35E+01	-3.94E+01	-3.21E+01	-2.31E+01	-9.81E+01	-	-8.06E+01	-5.19E+01	-4.05E+01	-2.57E+01
	10		-8.69E+01	-6.37E+01	-5.42E+01	-4.10E+01	-1.00E+02	-	-9.63E+01	-7.72E+01	-6.51E+01	-4.50E+01
	20		-9.84E+01	-8.73E+01	-7.97E+01	-6.56E+01	-1.00E+02	-	-9.99E+01	-9.51E+01	-8.83E+01	-7.03E+01
b(T)	-20		-1.00E+02	-9.82E+01	-9.30E+01	-7.28E+01	-	-	-1.00E+02	-9.84E+01	-9.34E+01	-7.08E+01
	-10		-9.99E+01	-8.88E+01	-7.52E+01	-4.81E+01	-	-	-9.91E+01	-8.61E+01	-7.26E+01	-4.42E+01
	-5		-9.76E+01	-6.80E+01	-5.13E+01	-2.80E+01	-	-	-8.92E+01	-6.15E+01	-4.66E+01	-2.46E+01
	5		8.02E+03	2.39E+02	1.12E+02	4.02E+01	-	-	6.49E+02	1.42E+02	7.92E+01	3.03E+01
	10		1.54E+06	1.19E+03	3.79E-02	-	-	-	4.48E+03	4.45E+02	2.06E+02	6.69E+01
	20		-	5.96E+03	-	-	-	-	9.74E+04	2.10E+03	6.81E+02	1.66E+02
c(T)	-20		8.55E+01	4.19E+01	3.21E+01	2.11E+01	4.49E+02	-	2.11E+01	2.17E+01	1.94E+01	1.47E+01
	-10		3.66E+01	1.95E+01	1.52E+01	1.04E+01	1.35E+02	-	1.01E+01	1.04E+01	9.3604	7.2371
	-5		1.70E+01	9.3824	7.4291	5.1177	5.34E+01	-	4.9122	5.0727	4.5983	3.5883
	5		-1.46E+01	-8.7143	-7.0487	-4.9932	-3.49E+01	-	-4.6926	-4.8574	-4.4381	-3.5258
	10		-2.73E+01	-1.68E+01	-1.37E+01	-9.8554	-5.77E+01	-	-9.1722	-9.5074	-8.7192	-6.9871
	20		-4.74E+01	-3.12E+01	-2.60E+01	-1.92E+01	-	-	-1.75E+01	-1.82E+01	-1.68E+01	-1.37E+01
e	-20		-9.32E+01	-7.21E+01	-6.15E+01	-4.49E+01	-1.00E+02	-	-9.86E+01	-8.43E+01	-7.25E+01	-5.01E+01
	-10		-7.08E+01	-4.40E+01	-3.51E+01	-2.37E+01	-9.94E+01	-	-8.57E+01	-5.69E+01	-4.43E+01	-2.69E+01
	-5		-4.45E+01	-2.42E+01	-1.86E+01	-1.22E+01	-9.14E+01	-	-6.07E+01	-3.31E+01	-2.43E+01	-1.39E+01
	5		7.24E+01	2.89E+01	2.08E+01	1.27E+01	8.72E+02	-	1.37E+02	4.46E+01	2.91E+01	1.47E+01
	10		1.85E+02	6.29E+01	4.38E+01	2.58E+01	7.97E+03	-	4.26E+02	1.03E+02	6.32E+01	3.01E+01
	20		6.04E+02	1.47E+02	9.60E+01	5.31E+01	3.69E+05	-	2.10E+03	2.72E+02	1.47E+02	6.28E+01

Table B.60 (continued).

% dev. of	substance T	0.1T$_c$	0.3T$_c$	n-decane 0.5T$_c$	0.6T$_c$	0.8T$_c$
a(T)	-20	-	6.57E+04	1.60E+03	6.37E+02	2.19E+02
	-10	-	2.64E+03	3.27E+02	1.78E+02	7.96E+01
	-5	-	4.31E+02	1.08E+01	6.78E+01	3.42E+01
	5	-	-8.17E+01	-5.28E+01	-4.11E+01	-2.58E+01
	10	-	-9.67E+01	-7.81E+01	-6.58E+01	-4.52E+01
	20	-	-9.99E+01	-9.55E+01	-8.88E+01	-7.05E+01
b(T)	-20	-	-1.00E+02	-9.82E+01	-9.29E+01	-6.96E+01
	-10	-	-8.50E+01	-8.50E+01	-7.14E+01	-4.31E+01
	-5	-	-6.00E+01	-6.00E+01	-4.55E+01	-2.39E+01
	5	-	1.33E+01	1.33E+02	7.55E+01	2.92E+01
	10	-	4.04E+02	4.04E+02	1.94E+02	6.41E+01
	20	-	1.81E+03	1.81E+03	6.25E+02	1.56E+02
c(T)	-20	-	1.76E+01	1.87E+01	1.87E+01	1.45E+01
	-10	-	8.4663	9.0145	9.0145	7.1206
	-5	-	4.1507	4.4308	4.4308	3.5311
	5	-	-3.9902	-4.2812	-4.2812	-3.4709
	10	-	-7.8273	-8.4158	-8.4158	-6.8795
	20	-	-1.51E+01	-1.63E+01	-1.63E+01	-1.35E+01
e	-20	-	-9.89E+01	-7.41E+01	-7.41E+01	-5.13E+01
	-10	-	-8.72E+01	-4.57E+01	-4.57E+01	-2.77E+01
	-5	-	-6.27E+01	-2.52E+01	-2.52E+01	-1.43E+01
	5	-	1.48E+02	3.05E+01	3.05E+01	1.52E+01
	10	-	4.75E+02	6.65E+01	6.65E+01	3.11E+01
	20	-	2.49E+03	1.56E+02	1.56E+02	6.51E+01

Table **B.61** SBC EOS; methane, n-nonane, and n-decane; vapor and liquid compressibility factor,

vapor and liquid fugacity coefficient, and vapor pressure.

substance	T	Z^V	Z^L	ϕ_i^V	ϕ_i^L	P^{sat}(bar)
methane	$0.1T_c$	1	0	1	1.00000011	5.67E-26
	$0.3T_c$	0.999991013	4.6857E-07	0.999991013	0.999991054	7.60E-05
	$0.5T_c$	0.991720895	0.000873415	0.991784599	0.991784292	2.08E-01
	$0.6T_c$	0.965386489	0.004847626	0.96646728	0.966467276	1.2861
	$0.8T_c$	0.820123168	0.041372862	0.846798167	0.846798285	11.841
n-nonane	$0.1T_c$	-	-	-	-	-
	$0.3T_c$	0.99999996	0	0.99999996	1.00000067	9.48E-09
	$0.5T_c$	0.999336259	4.0054E-05	0.999336673	0.999336672	5.64E-03
	$0.6T_c$	0.991438731	0.000738682	0.991505729	0.991505699	1.15E-02
	$0.8T_c$	0.876185076	0.020687559	0.88888631	0.888886354	3.3979
n-decane	$0.1T_c$	-	-	-	-	-
	$0.3T_c$	0.99999998	0	0.99999998	0.99999999	3.56E-09
	$0.5T_c$	0.999486072	2.88151E-05	0.99948632	0.999486324	3.83E-03
	$0.6T_c$	0.992501703	0.000604815	0.992552978	0.992552903	8.88E-02
	$0.8T_c$	0.879218623	0.019189787	0.891244872	0.891245031	2.9536

Table B.62 SRK EOS; 0.5Methane[1]/0.5n-heptane[2]; % deviation of parameters a(T), and b as fundamental properties varie.

%Dev. in	T	%Dev. of a(T) -20	-10	-5	5	10	20
Tc[1]	0.3Tb	-7.11	-3.60	-1.81	1.83	3.69	7.47
	Tb	-7.88	-4.01	-2.02	2.06	4.14	8.42
	0.8Tc	-8.10	-4.13	-2.08	2.12	4.28	8.70
	Tc	-8.43	-4.30	-2.17	2.21	4.47	9.10
	1.2Tc	-8.77	-4.48	-2.27	2.31	4.67	9.52
Tc[2]	0.3Tb	-33.66	-17.74	-9.10	9.56	19.58	41.01
	Tb	-37.40	-19.90	-10.26	10.87	22.35	47.18
	0.8Tc	-38.45	-20.52	-10.59	11.24	23.15	48.98
	Tc	-40.00	-21.43	-11.07	11.80	24.32	51.66
	1.2Tc	-41.59	-22.37	-11.58	12.39	25.59	54.48
Pc[1]	0.3Tb	3.85	1.76	0.84	-0.78	-1.50	-2.79
	Tb	3.74	1.71	0.82	-0.76	-1.46	-2.72
	0.8Tc	3.71	1.69	0.81	-0.75	-1.44	-2.69
	Tc	3.67	1.67	0.80	-0.74	-1.43	-2.66
	1.2Tc	3.62	1.65	0.79	-0.73	-1.41	-2.63
Pc[2]	0.3Tb	20.78	9.28	4.40	-4.00	-7.52	-14.08
	Tb	20.89	9.33	4.43	-4.02	-7.69	-14.15
	0.8Tc	20.92	9.34	4.43	-4.03	-7.70	-14.17
	Tc	20.97	9.36	4.44	-4.04	-7.72	-14.20
	1.2Tc	21.03	9.39	4.46	-4.05	-7.74	-14.23
w[1]	0.3Tb	-0.04	0.01	-0.01	0.01	0.02	0.04
	Tb	0.01	0.01	0.00	0.00	-0.01	-0.01
	0.8Tc	0.03	0.01	0.01	-0.01	-0.01	-0.03
	Tc	0.05	0.02	0.01	-0.01	-0.02	-0.05
	1.2Tc	0.07	0.04	0.02	-0.02	-0.04	-0.07
w[2]	0.3Tb	-6.52	-3.27	-1.64	1.65	3.30	6.62
	Tb	-4.23	-2.12	-1.06	1.06	2.12	4.25
	0.8Tc	-3.57	-1.79	-0.89	0.89	1.79	3.57
	Tc	-2.59	-1.29	-0.65	0.65	1.29	2.58
	1.2Tc	-1.56	-0.78	-0.39	0.39	0.77	1.54
k12,k21	0.3Tb	0.10	0.05	0.03	-0.03	-0.05	-0.10
	Tb	0.10	0.05	0.02	-0.02	-0.05	-0.10
	0.8Tc	0.10	0.05	0.02	-0.02	-0.05	-0.10
	Tc	0.10	0.05	0.02	-0.02	-0.05	-0.10
	1.2Tc	0.10	0.05	0.02	-0.02	-0.05	-0.10

%dev in	%Dev. of b -20.00	-10.00	-5.00	5.00	10.00	20.00
Tc[1]	-3.47	-1.73	-0.87	0.87	1.73	3.47
Tc[2]	-16.53	-8.27	-4.13	4.13	8.27	16.53
Pc[1]	4.33	1.93	0.91	-0.83	-1.58	-2.89
Pc[2]	20.67	9.19	4.35	-3.94	-7.52	-13.78

Table B.63 SRK EOS; 0.5Methane[1]/0.5n-decane[2]; % deviation of parameter a(T), and b as fundamental properties varie.

%Dev. in	T	%Dev. of a(T) -20	-10	-5	5	10	20
Tc[1]	0.3Tb	-5.16	-2.61	-1.31	1.33	2.67	5.39
	Tb	-5.82	-2.95	-1.49	1.51	3.04	6.17
	0.8Tc	-5.96	-3.03	-1.53	1.55	3.13	6.35
	Tc	-6.24	-3.18	-1.6	1.63	3.29	6.68
	1.2Tc	-6.53	-3.33	-1.68	1.71	3.46	7.04
Tc[2]	0.3Tb	-35.65	-18.86	-9.69	10.22	20.96	44.04
	Tb	-40.1	-21.46	-11.09	11.81	24.35	51.62
	0.8Tc	-41.07	-22.04	-11.4	12.17	25.11	53.34
	Tc	-42.89	-23.12	-11.99	12.85	26.56	56.63
	1.2Tc	-44.79	-24.26	-12.61	13.57	28.11	60.16
Pc[1]	0.3Tb	2.78	1.27	0.61	-0.56	-1.08	-2.02
	Tb	2.67	1.22	0.58	-0.54	-1.04	-1.95
	0.8Tc	2.65	1.21	0.58	-0.54	-1.03	-1.93
	Tc	2.62	1.19	0.57	-0.53	-1.02	-1.91
	1.2Tc	2.58	1.18	0.56	-0.52	-1.01	-1.88
Pc[2]	0.3Tb	21.94	9.78	4.64	-4.21	-8.05	-14.8
	Tb	22.06	9.84	4.67	-4.23	-8.09	-14.87
	0.8Tc	22.08	9.84	4.67	-4.24	-8.1	-14.88
	Tc	22.11	9.86	4.68	-4.24	-8.11	-14.91
	1.2Tc	22.15	9.88	4.69	-4.25	-8.12	-14.93
w[1]	0.3Tb	-0.04	-0.02	-0.01	0.01	0.02	0.04
	Tb	0.02	0.01	0	0	-0.01	-0.02
	0.8Tc	0.03	0.01	0.01	-0.01	-0.01	-0.03
	Tc	0.04	0.02	0.01	-0.01	-0.02	-0.04
	1.2Tc	0.06	0.03	0.02	-0.02	-0.03	-0.06
w[2]	0.3Tb	-9.59	-4.83	-2.42	2.44	4.89	9.83
	Tb	-5.66	-2.83	-1.42	1.42	2.84	5.69
	0.8Tc	-5.01	-2.51	-1.25	1.25	2.51	5.02
	Tc	-3.77	-1.88	-0.94	0.94	1.88	3.75
	1.2Tc	-2.45	-1.22	-0.61	0.61	1.21	2.42
k12,k21	0.3Tb	0.17	0.08	0.04	-0.04	-0.08	-0.17
	Tb	0.16	0.08	0.04	-0.04	-0.08	-0.16
	0.8Tc	0.16	0.08	0.04	-0.04	-0.08	-0.16
	Tc	0.16	0.08	0.04	-0.04	-0.08	-0.16
	1.2Tc	0.16	0.08	0.04	-0.04	-0.08	-0.16

%Dev. in	%Dev. of b -20	-10	-5	5	10	20
Tc[1]	-0.49	-1.24	-0.62	0.62	1.24	2.49
Tc[2]	-17.51	-8.75	-4.38	4.38	8.76	17.51
Pc[1]	3.11	1.38	0.65	-0.59	-1.13	-2.07
Pc[2]	21.89	9.73	4.61	-4.17	-7.96	-14.59

Table B.64 SRK EOS; 0.5CO2[1]/0.5n-heptane[2]; % deviation of parameter a(T), an b as fundamental properties varie.

%Dev. in	T	%Dev. of a(T) -20	-10	-5	5	10	20
Tc[1]	0.3Tb	-9.65	-4.92	-2.48	2.52	5.1	10.37
	Tb	-10.78	-5.53	-2.8	2.86	5.8	11.86
	0.8Tc	-11.09	-5.7	-2.88	2.96	5.99	12.27
	Tc	-11.59	-5.97	-3.03	3.11	6.3	13.64
	1.2Tc	-12.13	-6.26	-3.18	3.27	6.63	13.64
Tc[2]	0.3Tb	-31.92	-16.79	-8.6	9.02	18.46	68.6
	Tb	-36.3	-19.3	-9.94	10.53	21.65	45.67
	0.8Tc	-37.48	-19.99	-10.31	10.95	22.54	47.66
	Tc	-39.37	-21.09	-10.9	11.63	23.98	50.9
	1.2Tc	-41.37	-22.28	-11.54	12.36	25.54	54.42
Pc[1]	0.3Tb	5.18	2.36	1.13	-1.04	-2	-3.73
	Tb	4.88	2.22	1.06	-0.98	-1.89	-3.52
	0.8Tc	4.8	2.18	1.04	-0.96	-1.86	-3.46
	Tc	4.66	2.12	1.02	-0.94	-1.8	-3.36
	1.2Tc	4.52	2.06	0.99	-0.91	-1.75	-3.26
Pc[2]	0.3Tb	19.37	8.66	4.11	-3.74	-7.16	-13.18
	Tb	19.69	8.8	4.18	-3.8	-7.27	-13.39
	0.8Tc	19.77	8.84	4.2	-3.82	-7.3	-13.44
	Tc	19.92	8.9	4.23	-3.84	-7.35	-13.53
	1.2Tc	20.07	8.97	4.26	-3.87	-7.4	-13.63
w[1]	0.3Tb	-1	-0.5	-0.25	0.25	0.5	0.99
	Tb	-0.1	-0.05	-0.02	0.02	0.05	0.09
	0.8Tc	0.15	0.08	0.04	-0.04	-0.08	-0.15
	Tc	0.56	0.28	0.14	-0.14	-0.28	-0.55
	1.2Tc	0.99	0.49	0.25	-0.25	-0.49	-0.98
w[2]	0.3Tb	-5.92	-2.97	-1.49	1.49	2.99	6
	Tb	-3.49	-1.74	-0.87	0.87	1.74	3.49
	0.8Tc	-2.81	-1.4	-0.7	0.7	1.4	2.8
	Tc	-1.7	-0.85	-0.42	0.42	0.85	1.69
	1.2Tc	-0.51	-0.25	-0.13	0.13	0.25	0.5
k12,k21	0.3Tb	0.45	0.23	0.11	-0.11	-0.23	-0.45
	Tb	0.44	0.22	0.11	-0.11	-0.22	-0.44
	0.8Tc	0.43	0.22	0.11	-0.11	-0.22	-0.43
	Tc	0.42	0.21	0.11	-0.1	-0.21	-0.42
	1.2Tc	0.41	0.21	0.1	-0.1	-0.21	-0.41

%Dev. in	%Dev. of b -20	-10	-5	5	10	20
Tc[1]	-3.45	-1.73	-0.86	0.86	1.73	3.45
Tc[2]	-16.55	-8.27	-4.14	4.14	8.27	16.55
Pc[1]	4.32	1.92	0.91	-0.82	-1.57	-2.88
Pc[2]	20.68	9.19	4.35	-3.94	-7.52	-13.79

Table B.65 SRK EOS: 0.5ethanol[1]/0.5benzene[2]; % deviation of parameter a(T), and b as fundamental properties varie.

T	%Dev. in	%Dev. of a(T)					
		-20	-10	-5	5	10	20
0.3Tb	Tc[1]	-21.82	-11.29	-5.74	5.94	12.07	24.91
Tb		-24.85	-12.99	-6.64	6.92	14.13	29.4
0.8Tc		-25.86	-13.56	-6.94	7.26	14.83	30.95
Tc		-27.35	-14.4	-7.38	7.75	15.87	33.24
1.2Tc		-28.53	-14.99	-7.67	8.04	16.44	34.36
0.3Tb	Tc[2]	-21.22	-10.96	-5.57	5.74	11.66	24.03
Tb		-25.24	-13.16	-6.71	6.99	14.25	29.59
0.8Tc		-26.57	-13.9	-7.1	7.41	15.13	31.5
Tc		-28.53	-14.99	-7.67	8.04	16.44	34.36
1.2Tc		-30.7	-16.2	-8.31	8.75	17.93	37.61
0.3Tb	Pc[1]	12.03	5.43	2.59	-2.37	-4.55	-8.44
Tb		11.2	5.06	2.41	-2.21	-4.25	-7.88
0.8Tc		10.92	4.93	2.35	-2.16	-4.15	-7.69
Tc		10.5	4.75	2.27	-2.08	-4	-7.42
1.2Tc		10.04	4.54	2.17	-1.99	-3.83	-7.1
0.3Tb	Pc[2]	12.28	5.54	2.64	-2.42	-4.65	-8.61
Tb		13.11	5.91	2.82	-2.58	-4.95	-9.16
0.8Tc		13.4	6.03	2.88	-2.63	-5.05	-9.35
Tc		13.81	6.22	2.96	-2.71	-5.2	-9.62
1.2Tc		14.29	6.43	3.06	-2.8	-5.37	-9.93
0.3Tb	w[1]	-5.27	-2.63	-1.32	1.31	2.62	5.24
Tb		-2.24	-1.12	-0.56	0.55	1.1	2.19
0.8Tc		-1.2	-0.6	-0.3	0.3	0.59	1.17
Tc		0.34	0.17	0.08	-0.08	-0.17	-0.33
1.2Tc		2.1	1.04	0.52	-0.51	-1.02	-2.01
0.3Tb	w[2]	-2.48	-1.24	-0.62	0.62	1.24	2.49
Tb		-1.22	-0.61	-0.3	0.3	0.61	1.21
0.8Tc		-0.79	-0.39	-0.2	0.2	0.39	0.78
Tc		-0.15	-0.07	-0.04	0.04	0.07	0.14
1.2Tc		0.58	0.29	0.14	-0.14	-0.29	-0.57
0.3Tb	k12,k21	0.04	0.02	0.01	-0.01	-0.02	-0.04
Tb		0.03	0.02	0.01	-0.01	-0.02	-0.03
0.8Tc		0.03	0.02	0.01	-0.01	-0.02	-0.03
Tc		0.03	0.02	0.01	-0.01	-0.02	-0.03
1.2Tc		0.03	0.02	0.01	-0.01	-0.02	-0.03

%Dev. in	%Dev. of b					
	-20	-10	-5	5	10	20
Tc[1]	-8.27	-4.13	-2.07	2.07	4.13	8.27
Tc[2]	-11.73	-5.87	-2.93	2.93	5.87	11.73
Pc[1]	10.33	4.59	2.18	-1.97	-3.76	-6.89
Pc[2]	14.67	6.52	3.09	-2.79	-5.33	-9.78

Table B.66 SRK EOS: 0.5Methanol[1]/0.5H2O[2]; % deviation of parameter a(T), and b as fundamental properties varie.

T	%Dev. in	%Dev. of a(T)					
		-20	-10	-5	5	10	20
0.3Tb	Tc[1]	-26.24	-13.69	-6.99	7.25	14.85	30.86
Tb		-32.24	-17.1	-8.8	9.3	19.12	40.29
0.8Tc		-31.15	-16.48	-8.47	8.93	18.32	38.52
Tc		-33.3	-17.71	-9.13	9.67	19.9	42.04
1.2Tc		-35.75	-19.13	-9.89	10.54	21.74	46.16
0.3Tb	Tc[2]	-18.44	-9.5	-4.82	4.96	10.05	20.65
Tb		-23.89	-12.46	-6.36	6.62	13.5	28.04
0.8Tc		-22.89	-11.91	-6.07	6.31	12.85	26.65
Tc		-24.85	-12.99	-6.64	6.92	14.13	29.4
1.2Tc		-27.1	-14.23	-7.29	7.63	15.61	32.63
0.3Tb	Pc[1]	14.17	6.37	3.04	-2.78	-5.33	-9.85
Tb		13.15	5.92	2.82	-2.58	-4.96	-9.18
0.8Tc		13.34	6.01	2.86	-2.62	-5.03	-9.31
Tc		12.97	5.84	2.79	-2.55	-4.89	-9.06
1.2Tc		12.54	5.64	2.69	-2.47	-4.72	-8.72
0.3Tb	Pc[2]	10.16	4.6	2.19	-2.01	-3.87	-7.18
Tb		10.98	4.96	2.41	-2.21	-4.24	-7.86
0.8Tc		11.35	5.04	2.37	-2.17	-4.17	-7.73
Tc		11.77	5.12	2.44	-2.24	-4.3	-7.98
1.2Tc			5.31	2.53	-2.32	-4.46	-8.27
0.3Tb	w[1]	-5.1	-2.55	-1.27	1.27	2.54	5.08
Tb		0.02	0.1	0.05	-0.05	-0.1	-0.19
0.8Tc		-0.79	-0.39	-0.2	0.19	0.39	0.77
Tc		1.18	0.58	0.29	-0.29	-0.57	-1.14
1.2Tc		3.48	1.72	0.86	-0.85	-1.68	-3.32
0.3Tb	w[2]	-2.83	-1.41	-0.71	0.71	1.41	2.82
Tb		-0.84	-0.42	-0.21	0.21	0.42	0.83
0.8Tc		-1.21	-0.6	-0.3	0.3	0.6	1.2
Tc		-0.48	-0.24	-0.12	0.12	0.24	0.47
1.2Tc		0.37	0.19	0.09	-0.09	-0.18	-0.37
0.3Tb	k12,k21	0.08	0.04	0.02	-0.02	-0.04	-0.08
Tb		0.08	0.04	0.02	-0.02	-0.04	-0.08
0.8Tc		0.08	0.04	0.02	-0.02	-0.04	-0.08
Tc		0.08	0.04	0.02	-0.02	-0.04	-0.08
1.2Tc		0.08	0.04	0.02	-0.02	-0.04	-0.08

%Dev. in	%Dev. of b					
	-20	-10	-5	5	10	20
Tc[1]	-13.67	-6.84	-3.42	3.42	6.84	13.67
Tc[2]	-6.33	-3.16	-1.58	1.58	3.16	6.33
Pc[1]	17.09	7.6	3.6	-3.26	-6.21	-11.39
Pc[2]	7.91	3.52	1.67	-1.51	-2.88	-5.27

Table B.67 SRK EOS; 0.5Methanol[1]/0.5ethanol[2]; % deviation of parameter a(T), a b as fundamental properties varie.

T	%Dev. in	%Dev. of a(T)					
		-20	-10	-5	5	10	20
0.3Tb	Tc[1]	-20.26	-10.46	-5.31	5.48	11.13	22.92
Tb		-24.5	-12.79	-6.53	6.81	13.89	28.89
0.8Tc		-25.81	-13.52	-6.91	7.23	14.77	30.79
Tc		-28.05	-14.77	-7.57	7.95	16.29	34.13
1.2Tc		-30.67	-16.25	-8.36	8.82	18.12	38.16
0.3Tb	Tc[2]	-23.59	-12.25	-6.24	6.46	13.15	27.21
Tb		-28.34	-14.89	-7.63	8	16.36	34.22
0.8Tc		-29.8	-15.72	-8.07	8.48	17.38	36.46
Tc		-32.3	-17.14	-8.82	9.33	19.17	40.4
1.2Tc		-35.21	-18.81	-9.71	10.34	21.3	45.16
0.3Tb	Pc[1]	11.77	5.05	2.41	-2.21	-4.24	-7.87
Tb		11.26	5.09	2.43	-2.22	-4.27	-7.92
0.8Tc		11.29	5.1	2.43	-2.23	-4.28	-7.94
Tc		11.33	5.12	2.44	-2.24	-4.3	-7.94
1.2Tc		11.39	5.14	2.45	-2.25	-4.32	-8.01
0.3Tb	Pc[2]	13.14	5.92	2.82	-2.58	-4.96	-9.17
Tb		13.05	5.88	2.8	-2.57	-4.92	-9.12
0.8Tc		13.02	5.87	2.8	-2.56	-4.91	-9.1
Tc		12.98	5.85	2.79	-2.55	-4.9	-9.07
1.2Tc		12.92	5.82	2.78	-2.54	-4.88	-9.03
0.3Tb	w[1]	-4.61	-2.3	-1.15	1.15	2.29	4.58
Tb		-2.13	-1.06	-0.53	0.53	1.05	2.09
0.8Tc		-1.34	-0.67	-0.33	0.33	0.66	1.31
Tc		0.03	0.01	0.01	-0.01	-0.01	-0.03
1.2Tc		1.67	0.83	0.41	-0.41	-0.81	-1.61
0.3Tb	w[2]	-5.77	-2.88	-1.44	1.44	2.88	5.74
Tb		-2.71	-1.35	-0.67	0.67	1.33	2.65
0.8Tc		-1.73	-0.86	-0.43	0.43	0.85	1.69
Tc		-0.03	-0.02	-0.01	0.01	0.02	0.03
1.2Tc		2.01	0.99	0.49	-0.49	-0.97	-1.92
0.3Tb	k12,k21	0.04	0.02	0.01	-0.01	-0.02	-0.04
Tb		0.04	0.02	0.01	-0.01	-0.02	-0.04
0.8Tc		0.04	0.02	0.01	-0.01	-0.02	-0.04
Tc		0.04	0.02	0.01	-0.01	-0.02	-0.04
1.2Tc		0.04	0.02	0.01	-0.01	-0.02	-0.04

%Dev. in	%Dev. of b					
	-20	-10	-5	5	10	20
Tc[1]	-8.78	-4.39	-2.2	2.2	4.39	8.78
Tc[2]	-11.22	-5.61	-2.8	2.8	5.61	11.22
Pc[1]	10.98	4.88	2.31	-2.09	-3.99	-7.32
Pc[2]	14.02	6.23	2.95	-2.67	-5.1	-9.35

Table B.68 PR EOS; 0.5Methane[1]/0.5n-heptane[2]; % deviation of parameter a(T), and b as fundamental properties varie.

T	%Dev. in	-20	-10	-5	5	10	20
0.3Tb	Tc[1]	-7.06	-3.58	-1.80	1.82	3.66	7.41
Tb		-7.80	-3.96	-2.00	2.03	4.09	8.29
0.8Tc		-8.00	-4.07	-2.05	2.09	4.21	8.54
Tc		-8.30	-4.23	-2.13	2.17	4.38	8.90
1.2Tc		-8.60	-4.39	-2.22	2.26	4.55	9.27
0.3Tb	Tc[2]	-33.33	-17.56	-9.01	9.45	19.36	40.52
Tb		-36.54	-19.41	-9.99	10.57	21.72	45.77
0.8Tc		-37.42	-19.92	-10.26	10.88	22.38	47.25
Tc		-38.68	-20.66	-10.66	11.33	23.34	49.42
1.2Tc		-39.97	-21.41	-11.07	11.80	24.34	51.66
0.3Tb	Pc[1]	3.90	1.78	0.85	-0.79	-1.52	-2.83
Tb		3.89	1.77	0.85	-0.79	-1.51	-2.82
0.8Tc		3.89	1.77	0.85	-0.78	-1.51	-2.82
Tc		3.89	1.77	0.85	-0.78	-1.51	-2.82
1.2Tc		3.88	1.77	0.85	-0.78	-1.51	-2.81
0.3Tb	Pc[2]	20.72	9.25	4.39	-3.99	-7.63	-14.04
Tb		20.73	9.26	4.39	-3.99	-7.64	-14.05
0.8Tc		20.73	9.26	4.40	-3.99	-7.64	-14.05
Tc		20.74	9.26	4.40	-3.99	-7.64	-14.05
1.2Tc		20.74	9.26	4.40	-3.99	-7.64	-14.06
0.3Tb	w[1]	-0.04	-0.02	-0.01	0.01	0.02	0.04
Tb		0.01	0.01	0.00	0.00	-0.01	-0.01
0.8Tc		0.03	0.01	0.01	-0.01	-0.01	-0.03
Tc		0.05	0.02	0.01	-0.01	-0.02	-0.05
1.2Tc		0.07	0.04	0.02	-0.02	-0.04	-0.07
0.3Tb	w[2]	-6.41	-3.21	-1.61	1.61	3.22	6.44
Tb		0.10	0.05	0.03	-0.03	-0.05	-0.10
0.8Tc		-3.41	-1.70	-0.85	0.85	1.69	3.38
Tc		-2.45	-1.22	-0.61	0.61	1.21	2.41
1.2Tc		-1.46	-0.73	-0.36	0.36	0.72	1.43
0.3Tb	k12,k21	0.10	0.05	0.03	-0.03	-0.05	-0.10
Tb		0.10	0.05	0.03	-0.03	-0.05	-0.10
0.8Tc		0.10	0.05	0.03	-0.03	-0.05	-0.10
Tc		0.10	0.05	0.03	-0.03	-0.05	-0.10
1.2Tc		0.10	0.05	0.03	-0.03	-0.05	-0.10

%Dev. of b

%Dev. in	-20	-10	-5	5	10	20
Tc[1]	-3.47	-1.73	-0.87	0.87	1.73	3.47
Tc[2]	-16.53	-8.27	-4.13	4.13	8.27	16.53
Pc[1]	4.33	1.93	0.91	-0.83	-1.58	-2.89
Pc[2]	20.67	9.19	4.35	-3.94	-7.52	-13.78

Table B.69 PR EOS; 0.5Methane[1]/0.5n-decane[2]; % deviation of parameter a(T), and b as fundamental properties varie.

T	%Dev. in	-20	-10	-5	5	10	20
0.3Tb	Tc[1]	-5.15	-2.6	-1.31	1.32	2.66	5.36
Tb		-5.79	-2.94	-1.48	1.5	3.02	6.12
0.8Tc		-5.93	-3.01	-1.52	1.54	3.1	6.28
Tc		-6.19	-3.15	-1.59	1.61	3.25	6.59
1.2Tc		-6.46	-3.29	-1.66	1.69	3.4	6.91
0.3Tb	Tc[2]	-35.33	-18.68	-9.6	10.11	20.73	43.52
Tb		-39.21	-20.94	-10.81	11.49	23.67	50.1
0.8Tc		-40.03	-21.43	-11.07	11.79	24.31	51.54
Tc		-41.56	-22.33	-11.56	12.36	25.51	54.27
1.2Tc		-43.13	-23.27	-12.07	12.94	26.78	57.13
0.3Tb	Pc[1]	2.8	1.28	0.61	-0.57	-1.09	-2.04
Tb		2.81	1.28	0.62	-0.57	-1.1	-2.05
0.8Tc		2.82	1.28	0.62	-0.57	-1.1	-2.05
Tc		2.82	1.29	0.62	-0.57	-1.1	-2.05
1.2Tc		2.82	1.29	0.62	-0.57	-1.1	-2.06
0.3Tb	Pc[2]	21.91	9.77	4.64	-4.21	-8.04	-14.78
Tb		21.9	9.77	4.63	-4.2	-8.04	-14.77
0.8Tc		21.9	9.77	4.63	-4.2	-8.04	-14.77
Tc		21.89	9.76	4.63	-4.2	-8.04	-14.77
1.2Tc		21.89	9.76	4.63	-4.2	-8.04	-14.77
0.3Tb	w[1]	-0.02	-0.01	-0.01	0.01	0.01	-0.02
Tb		0.02	0.01	0.00	0.00	-0.01	-0.03
0.8Tc		0.03	0.01	0.01	-0.01	-0.01	-0.04
Tc		0.04	0.02	0.01	-0.01	-0.02	-0.04
1.2Tc		0.06	0.03	0.02	-0.02	-0.03	-0.06
0.3Tb	w[2]	-8.27	-4.14	-2.07	2.07	4.14	8.28
Tb		-5.36	-2.67	-1.33	1.33	2.65	5.28
0.8Tc		-4.72	-2.35	-1.17	1.17	2.33	4.64
Tc		-3.52	-1.75	-0.87	0.87	1.73	3.44
1.2Tc		-2.26	-1.12	-0.56	0.55	1.1	2.19
0.3Tb	k12,k21	0.17	0.09	0.04	-0.04	-0.09	-0.17
Tb		0.17	0.09	0.04	-0.04	-0.09	-0.17
0.8Tc		0.17	0.09	0.04	-0.04	-0.09	-0.17
Tc		0.17	0.09	0.04	-0.04	-0.09	-0.17
1.2Tc		0.17	0.09	0.04	-0.04	-0.09	-0.17

%Dev. of b

%Dev. in	-20	-10	-5	5	10	20
Tc[1]	-2.49	-1.24	-0.62	0.62	1.24	2.49
Tc[2]	-17.51	-8.76	-4.38	4.38	8.76	17.51
Pc[1]	3.11	1.38	0.65	-0.59	-1.13	-2.07
Pc[2]	21.89	9.73	4.61	-4.17	-7.96	-14.59

Table B.70 PR EOS; 0.5CO2[1]/0.5n-heptane[2]; % deviation of parameter a(T), and b as fundamental properties varie.

T	%Dev. in	-20	-10	-5	5	10	20
0.3Tb	Tc[1]	-9.59	-4.88	-2.46	2.51	5.06	10.29
Tb		-10.6	-5.43	-2.75	2.81	5.68	11.61
0.8Tc		-10.87	-5.57	-2.82	2.89	5.85	11.96
Tc		-11.3	-5.81	-2.94	3.02	6.11	12.52
1.2Tc		-11.75	-6.05	-3.07	3.15	6.39	13.12
0.3Tb	Tc[2]	-31.62	-16.62	-8.51	8.92	18.23	38.13
Tb		-35.45	-18.81	-9.68	10.23	21.02	44.27
0.8Tc		-36.45	-19.39	-9.99	10.58	21.77	45.95
Tc		-38.04	-20.32	-10.49	11.15	22.96	48.62
1.2Tc		-39.69	-21.28	-11	11.74	24.23	51.47
0.3Tb	Pc[1]	5.22	2.37	1.14	-1.05	-2.02	-3.75
Tb		4.98	2.26	1.08	-1	-1.92	-3.58
0.8Tc		4.92	2.24	1.07	-0.99	-1.9	-3.54
Tc		4.81	2.19	1.05	-0.97	-1.86	-3.47
1.2Tc		4.71	2.14	1.03	-0.95	-1.82	-3.39
0.3Tb	Pc[2]	19.33	8.64	4.11	-3.73	-7.15	-13.16
Tb		19.58	8.75	4.16	-3.78	-7.23	-13.32
0.8Tc		19.65	8.78	4.17	-3.79	-7.26	-13.36
Tc		19.76	8.83	4.19	-3.81	-7.3	-13.43
1.2Tc		19.87	8.88	4.22	-3.83	-7.34	-13.5
0.3Tb	w[1]	-1	-0.5	-0.23	0.25	0.5	0.99
Tb		-0.09	-0.05	-0.02	0.02	0.05	0.09
0.8Tc		0.15	0.07	0.04	-0.04	-0.07	-0.15
Tc		0.54	0.27	0.13	-0.13	-0.26	-0.53
1.2Tc		0.94	0.47	0.23	-0.23	-0.46	-0.92
0.3Tb	w[2]	-5.82	-2.91	-1.46	1.46	2.91	5.83
Tb		-3.34	-1.67	-0.83	0.83	1.66	3.31
0.8Tc		-2.67	-1.33	-0.67	0.66	1.32	2.64
Tc		-1.61	-0.8	-0.4	0.4	0.79	1.57
1.2Tc		-0.47	-0.24	-0.12	0.12	0.23	0.46
0.3Tb	k12,k21	0.46	0.23	0.11	-0.11	-0.23	-0.46
Tb		0.44	0.22	0.11	-0.11	-0.22	-0.44
0.8Tc		0.44	0.22	0.11	-0.11	-0.22	-0.44
Tc		0.43	0.22	0.11	-0.11	-0.22	-0.43
1.2Tc		0.43	0.21	0.11	-0.11	-0.21	-0.43

%Dev. of b

%Dev. in	-20	-10	-5	5	10	20
Tc[1]	-3.45	-1.73	-0.86	0.86	1.73	3.45
Tc[2]	-16.55	-8.27	-4.14	4.14	8.27	16.55
Pc[1]	4.32	1.92	0.91	-0.82	-1.57	-2.88
Pc[2]	20.68	9.19	4.35	-3.94	-7.52	-13.79

Table B.71 PR EOS; 0.5ethanol[1]/0.5benzene[2]; % deviation of parameter a(T), and b as fundamental properties varie.

T	%Dev. in	%Dev. of a(T) -20	-10	-5	5	10	20
0.3Tb	Tc[1]	-21.55	-11.15	-5.67	5.86	11.9	24.55
Tb		-24.16	-12.6	-6.43	6.7	13.67	28.4
0.8Tc		-25	-13.08	-6.68	6.98	14.25	29.67
Tc		-26.21	-13.76	-7.04	7.38	15.09	31.53
1.2Tc		-27.52	-14.5	-7.44	7.82	16.01	33.57
0.3Tb	Tc[2]	-21.07	-10.88	-5.52	5.7	11.56	23.81
Tb		-24.66	-12.84	-6.55	6.8	13.86	28.75
0.8Tc		-25.82	-13.48	-6.88	7.17	14.62	30.39
Tc		-27.48	-14.4	-7.36	7.69	15.72	32.78
1.2Tc		-29.28	-15.4	-7.89	8.27	16.93	35.42
0.3Tb	Pc[1]	11.99	5.41	2.58	-2.36	-4.54	-8.41
Tb		11.18	5.05	2.41	-2.21	-4.25	-7.87
0.8Tc		10.92	4.93	2.35	-2.16	-4.15	-7.7
Tc		10.54	4.76	2.27	-2.09	-4.01	-7.44
1.2Tc		10.12	4.58	2.19	-2.01	-3.86	-7.16
0.3Tb	Pc[2]	12.32	5.56	2.65	-2.43	-4.66	-8.63
Tb		13.13	5.91	2.82	-2.58	-4.95	-9.17
0.8Tc		13.39	6.03	2.88	-2.63	-5.05	-9.34
Tc		13.78	6.2	2.96	-2.7	-5.19	-9.6
1.2Tc		14.2	6.39	3.04	-2.78	-5.34	-9.88
0.3Tb	w[1]	-4.98	-2.47	-1.23	1.22	2.43	4.82
Tb		-2.06	-1.02	-0.51	0.5	0.99	1.96
0.8Tc		-1.1	-0.54	-0.27	0.27	0.53	1.04
Tc		0.31	0.15	0.08	-0.07	-0.15	-0.29
1.2Tc		1.86	0.91	0.45	-0.45	-0.88	-1.74
0.3Tb	w[2]	-2.49	-1.24	-0.62	0.62	1.24	2.48
Tb		-1.19	-0.59	-0.3	0.3	0.59	1.18
0.8Tc		-0.76	-0.38	-0.19	0.19	0.38	0.75
Tc		-0.14	-0.07	-0.03	0.03	0.07	0.14
1.2Tc		0.54	0.27	0.13	-0.13	-0.27	-0.53
0.3Tb	k12,k21	0.04	0.02	0.01	-0.01	-0.02	-0.04
Tb		0.03	0.02	0.01	-0.01	-0.02	-0.03
0.8Tc		0.03	0.02	0.01	-0.01	-0.02	-0.03
Tc		0.03	0.02	0.01	-0.01	-0.02	-0.03
1.2Tc		0.03	0.02	0.01	-0.01	-0.02	-0.03

%Dev. in	%Dev. of b -20	-10	-5	5	10	20
Tc[1]	-8.27	-4.13	-2.07	2.07	4.13	8.27
Tc[2]	-11.73	-5.87	-2.93	2.93	5.87	11.73
Pc[1]	10.33	4.59	2.18	-1.97	-3.76	-6.89
Pc[2]	14.67	6.52	3.09	-2.79	-5.33	-9.78

Table B.72 PR EOS; 0.5Methanol[1]/0.5H2O[2]; % deviation of parameter a(T), and b as fundamental properties varie.

T	%Dev. in	%Dev. of a(T) -20	-10	-5	5	10	20
0.3Tb	Tc[1]	-25.9	-13.51	-6.89	7.17	14.62	30.37
Tb		-31.08	-16.44	-8.45	8.91	18.28	38.44
0.8Tc		-30.17	-15.92	-8.17	8.6	17.62	36.97
Tc		-31.96	-16.94	-8.72	9.21	18.92	39.86
1.2Tc		-33.94	-18.09	-9.33	9.9	20.39	43.13
0.3Tb	Tc[2]	-18.24	-9.39	-4.76	4.89	9.92	20.38
Tb		-23.01	-11.98	-6.11	6.34	12.93	26.8
0.8Tc		-22.17	-11.52	-5.87	6.08	12.38	25.64
Tc		-23.83	-12.42	-6.34	6.6	13.45	27.94
1.2Tc		-25.67	-13.44	-6.87	7.17	14.65	30.54
0.3Tb	Pc[1]	14.16	6.37	3.04	-2.78	-5.32	-9.85
Tb		13.23	5.96	2.84	-2.6	-4.99	-9.24
0.8Tc		13.4	6.04	2.88	-2.63	-5.05	-9.35
Tc		13.07	5.89	2.81	-2.57	-4.93	-9.13
1.2Tc		12.71	5.73	2.73	-2.5	-4.8	-8.89
0.3Tb	Pc[2]	10.16	4.6	2.19	-2.01	-3.87	-7.18
Tb		*11.08	5.01	2.39	-2.19	-4.21	-7.8
0.8Tc		10.92	4.93	2.35	-2.16	-4.15	-7.69
Tc		13.07	5.89	2.81	-2.57	-4.93	-9.13
1.2Tc		11.61	5.24	2.5	-2.29	-4.4	-8.15
0.3Tb	w[1]	-4.84	-2.41	-1.2	1.19	2.38	4.72
Tb		0.18	0.09	0.04	-0.04	-0.09	-0.17
0.8Tc		-0.73	-0.36	-0.18	0.18	0.35	0.69
Tc		1.07	0.53	0.26	-0.26	-0.51	-1.01
1.2Tc		3.1	1.53	0.76	-0.74	-1.48	-2.91
0.3Tb	w[2]	-2.77	-1.38	-0.69	0.69	1.37	2.74
Tb		-0.79	-0.39	-0.2	0.2	0.39	0.77
0.8Tc		-1.15	-0.57	-0.29	0.28	0.57	1.12
Tc		-0.45	-0.22	-0.11	0.11	0.22	0.44
1.2Tc		0.35	0.17	0.09	-0.08	-0.17	-0.34
0.3Tb	k12,k21	0.08	0.04	0.02	-0.02	-0.04	-0.08
Tb		0.08	0.04	0.02	-0.02	-0.04	-0.08
0.8Tc		0.08	0.04	0.02	-0.02	-0.04	-0.08
Tc		0.08	0.04	0.02	-0.02	-0.04	-0.08
1.2Tc		0.08	0.04	0.02	-0.02	-0.04	-0.08

%Dev. in	%Dev. of b -20	-10	-5	5	10	20
Tc[1]	-13.67	-6.84	-3.42	3.42	6.84	13.67
Tc[2]	-6.33	-3.16	-1.58	1.58	3.16	6.33
Pc[1]	17.09	7.6	3.6	-3.26	-6.21	-11.39
Pc[2]	7.91	3.52	1.67	-1.51	-2.88	-5.27

Table B.73 PR EOS; 0.5Methanol[1]/0.5ethanol[2]; % deviation of parameter a(T), an b as fundamental properties varie.

T	%Dev. in	%Dev. of a(T) -20	-10	-5	5	10	20
0.3Tb	Tc[1]	-20.1	-10.37	-5.27	5.43	11.02	22.69
Tb		-23.88	-12.45	-6.35	6.61	13.48	27.99
0.8Tc		-25.01	-13.08	-6.68	6.97	14.23	29.63
Tc		-26.91	-14.13	-7.24	7.58	15.51	32.42
1.2Tc		-29.07	-15.34	-7.88	8.29	16.99	35.67
0.3Tb	Tc[2]	-23.36	-12.12	-6.17	6.39	13	26.88
Tb		-27.59	-14.47	-7.41	7.75	15.85	33.09
0.8Tc		-28.85	-15.18	-7.78	8.17	16.72	35
Tc		-30.96	-16.37	-8.41	8.87	18.2	38.27
1.2Tc		-33.35	-17.74	-9.14	9.69	19.93	42.1
0.3Tb	Pc[1]	11.19	5.05	2.41	-2.21	-4.25	-7.88
Tb		11.27	5.09	2.43	-2.23	-4.28	-7.93
0.8Tc		11.29	5.1	2.43	-2.23	-4.29	-7.95
Tc		11.34	5.12	2.44	-2.24	-4.3	-7.98
1.2Tc		11.39	5.14	2.45	-2.25	-4.32	-8.01
0.3Tb	Pc[2]	13.12	5.91	2.82	-2.58	-4.95	-9.17
Tb		13.04	5.88	2.8	-2.56	-4.92	-9.11
0.8Tc		13.02	5.87	2.8	-2.56	-4.91	-9.09
Tc		12.97	5.85	2.79	-2.55	-4.9	-9.07
1.2Tc		12.92	5.82	2.78	-2.54	-4.88	-9.03
0.3Tb	w[1]	-4.41	-2.19	-1.09	1.08	2.16	4.28
Tb		-1.98	-0.98	-0.49	0.48	0.96	1.9
0.8Tc		-1.24	-0.61	-0.3	0.3	0.6	1.19
Tc		0.02	0.01	0.01	-0.01	-0.01	-0.02
1.2Tc		1.42	0.74	0.36	-0.36	-0.71	-1.41
0.3Tb	w[2]	-5.46	-2.71	-1.35	1.34	2.67	5.29
Tb		-2.49	-1.23	-0.61	0.61	1.2	2.38
0.8Tc		-1.58	-0.78	-0.39	0.38	0.76	1.5
Tc		-0.03	-0.01	-0.01	0.01	0.01	0.03
1.2Tc		1.77	0.87	0.43	-0.43	-0.84	-1.66
0.3Tb	k12,k21	0.04	0.02	0.01	-0.01	-0.02	-0.04
Tb		0.04	0.02	0.01	-0.01	-0.02	-0.04
0.8Tc		0.04	0.02	0.01	-0.01	-0.02	-0.04
Tc		0.04	0.02	0.01	-0.01	-0.02	-0.04
1.2Tc		0.04	0.02	0.01	-0.01	-0.02	-0.04

%Dev. in	%Dev. of b -20	-10	-5	5	10	20
Tc[1]	-8.78	-4.39	-2.2	2.2	4.39	8.78
Tc[2]	-11.22	-5.61	-2.8	2.8	5.61	11.22
Pc[1]	10.98	4.88	2.31	-2.09	-3.99	-7.32
Pc[2]	14.02	6.23	2.95	-2.67	-5.1	-9.35

Table B.74 ALS EOS; 0.5Methane[1]/0.5n-heptane[2]; % deviation of parameter a(T), b1,b2, and b3 as fundamental properties varie.

T	%Dev. in	%Dev. of a(T)					
		-20	-10	-5	5	10	20
0.3Tb	Tc[1]	-7.14	-3.61	-1.82	1.84	3.7	7.49
Tb		-7.82	-3.98	-2	2.04	4.1	8.33
0.8Tc		-8.02	-4.08	-2.06	2.09	4.22	8.57
Tc		-8.29	-4.23	-2.13	2.17	4.38	8.91
1.2Tc		-8.58	-4.38	-2.21	2.25	4.55	9.26
0.3Tb	Tc[2]	-33.26	-17.52	-8.98	9.43	19.3	40.39
Tb		-36.46	-19.36	-9.96	10.54	21.65	45.62
0.8Tc		-37.33	-19.87	-10.24	10.85	22.31	47.09
Tc		-38.39	-20.6	-10.63	11.3	23.27	49.25
1.2Tc		-39.87	-21.36	-11.04	11.76	24.26	51.47
0.3Tb	Pc[1]	3.92	1.79	0.86	-0.79	-1.52	-2.84
Tb		3.85	1.76	0.84	-0.78	-1.5	-2.79
0.8Tc		3.83	1.75	0.837	-0.773	-1.49	-2.78
Tc		3.8	1.73	0.831	-0.767	-1.48	-2.76
1.2Tc		3.77	1.72	0.824	-0.762	-1.47	-2.74
0.3Tb	Pc[2]	20.7	9.24	4.39	-3.99	-7.63	-14.03
Tb		20.77	9.28	4.4	-4	-7.65	-14.08
0.8Tc		20.8	9.29	4.41	-4	-7.66	-14.09
Tc		20.83	9.3	4.41	-4.01	-7.67	-14.11
1.2Tc		20.86	9.31	4.42	-4.02	-7.68	-14.13
0.3Tb	w[1]	-0.0355	-0.0177	-0.00886	0.00886	0.0177	0.0355
Tb		0.00963	0.00482	0.0024	-0.0024	-0.00481	-0.00961
0.8Tc		0.0222	0.0111	0.00556	-0.00555	-0.0111	-0.0222
Tc		0.0405	0.0202	0.0101	-0.0101	-0.0202	-0.0404
1.2Tc		0.0592	0.0292	0.0148	-0.0148	-0.0296	-0.0591
0.3Tb	w[2]	-6.19	-3.1	-1.55	1.56	3.11	6.23
Tb		-4.13	-2.07	-1.03	1.03	2.06	4.13
0.8Tc		-3.56	-1.78	-0.89	0.89	1.77	3.54
Tc		-2.71	-1.36	-0.68	0.68	1.35	2.7
1.2Tc		-1.85	-0.923	-0.461	0.46	0.92	1.84
0.3Tb	k12,k21	0.104	0.0518	0.0259	-0.0259	-0.0518	-0.104
Tb		0.102	0.0511	0.0255	-0.0255	-0.0511	-0.102
0.8Tc		0.102	0.0509	0.0254	-0.0254	-0.0509	-0.102
Tc		0.101	0.0506	0.0253	-0.0253	-0.0506	-0.101
1.2Tc		0.101	0.0503	0.0251	-0.0251	-0.0503	-0.101

%Dev. in		-20	-10	-5	5	10	20
		%Dev. of b1					
Tc[1]		-3.87	-1.94	-0.97	0.97	1.94	3.87
Tc[2]		-16.13	-8.06	-4.03	4.03	8.06	16.13
Pc[1]		4.84	2.15	1.02	-0.92	-1.76	-3.23
Pc[2]		20.16	8.96	4.24	-3.84	-7.33	-13.44
w[1]		0.0162	0.00808	0.00404	-0.00404	-0.00808	-0.0162
w[2]		2.34	1.17	0.58	-0.58	-1.16	-2.31
		%Dev. of b2					
Tc[1]		-3.45	-1.73	-0.86	0.86	1.73	3.43
Tc[2]		-16.55	-8.27	-4.14	4.14	8.27	16.55
Pc[1]		4.32	1.92	0.91	-0.82	-1.57	-2.88
Pc[2]		20.68	9.19	4.35	-3.94	-7.52	-13.78
w[1]		-0.00406	-0.00203	-0.00101	0.00101	0.00201	0.00404
w[2]		0.35	0.2	0.106	-0.119	-0.23	-0.55
		%Dev. of b3					
Tc[1]		-2.77	-1.38	-0.69	0.69	1.38	2.77
Tc[2]		-17.23	-8.62	-4.31	4.31	8.62	17.23
Pc[1]		3.46	1.54	0.73	-0.66	-1.26	-2.31
Pc[2]		21.54	9.57	4.54	-4.1	-7.83	-14.36
w[1]		-0.0273	-0.0137	-0.00683	0.00683	0.0137	0.0273
w[2]		-4.11	-2.05	-1.02	1.02	2.04	4.07

Table B.75 ALS EOS; 0.5Methane[1]/0.5n-decane[2]; % deviation of parameter a(T), b1, b2, and b3 as fundamental properties varie.

T	%Dev. in	%Dev. of a(T)					
		-20	-10	-5	5	10	20
0.3Tb	Tc[1]	-5.21	-2.63	-1.32	1.34	2.69	5.43
Tb		-5.8	-2.94	-1.48	1.5	3.03	6.13
0.8Tc		-5.92	-3.01	-1.52	1.54	3.1	6.28
Tc		-6.16	-3.13	-1.58	1.6	3.23	6.57
1.2Tc		-6.4	-3.26	-1.65	1.67	3.38	6.86
0.3Tb	Tc[2]	-33.21	-18.61	-9.56	10.07	20.64	43.33
Tb		-39.01	-20.83	-10.75	11.42	23.51	49.75
0.8Tc		-39.81	-21.3	-11	11.71	24.13	51.15
Tc		-41.3	-22.18	-11.48	12.26	25.3	53.78
1.2Tc		-42.83	-23.09	-11.97	12.83	26.52	56.54
0.3Tb	Pc[1]	2.82	1.29	0.62	-0.57	-1.1	-2.02
Tb		2.77	1.27	0.61	-0.56	-1.08	-2.01
0.8Tc		2.76	1.26	0.6	-0.559	-1.08	-2.01
Tc		2.74	1.25	0.6	-0.555	-1.07	-2
1.2Tc		2.72	1.24	0.596	-0.551	-1.06	-1.98
0.3Tb	Pc[2]	21.89	9.76	4.63	-4.2	-8.04	-14.77
Tb		21.95	9.79	4.64	-4.21	-8.05	-14.8
0.8Tc		21.96	9.79	4.65	-4.21	-8.06	-14.81
Tc		21.98	9.8	4.65	-4.22	-8.06	-14.82
1.2Tc		22	9.81	4.65	-4.22	-8.07	-14.83
0.3Tb	w[1]	-0.0231	-0.0116	-0.00578	0.00578	0.0116	0.0231
Tb		0.0138	0.00689	0.00345	-0.00345	-0.00688	-0.0138
0.8Tc		0.0217	0.0109	0.00543	-0.00543	-0.0109	-0.0217
Tc		0.0366	0.0183	0.00914	-0.00914	-0.0183	-0.0365
1.2Tc		0.052	0.026	0.013	-0.013	-0.026	-0.0519
0.3Tb	w[2]	-8.05	-4.03	-2.02	2.02	4.04	8.08
Tb		0.0138	0.00689	0.00345	-0.00345	-0.00688	-0.0138
0.8Tc		-4.93	-2.46	-1.23	1.23	2.45	4.88
Tc		-3.88	-1.94	-0.967	0.965	1.93	3.84
1.2Tc		-2.79	-1.39	-0.695	0.693	1.38	2.76
0.3Tb	k12,k21	0.171	0.0855	0.0428	-0.0428	-0.0855	-0.171
Tb		0.169	0.0843	0.0422	-0.0421	-0.0843	-0.169
0.8Tc		0.168	0.084	0.042	-0.042	-0.084	-0.168
Tc		0.167	0.0835	0.0418	-0.0418	-0.0835	-0.167
1.2Tc		0.166	0.083	0.0415	-0.0415	-0.083	-0.166

%Dev. in		-20	-10	-5	5	10	20
		%Dev. of b1					
Tc[1]		-2.94	-1.47	-0.73	0.73	1.47	2.94
Tc[2]		-17.06	-8.53	-4.27	4.27	8.53	17.06
Pc[1]		3.67	1.63	0.77	-0.7	-1.33	-2.45
Pc[2]		21.33	9.48	4.49	-4.06	-7.76	-14.22
w[1]		0.0123	0.00613	0.00306	-0.00306	-0.00613	-0.0123
w[2]		3.54	1.76	0.88	-0.87	-1.74	-3.47
		%Dev. of b2					
Tc[1]		-2.51	-1.26	-0.63	0.63	1.26	2.51
Tc[2]		-17.06	-8.74	-4.37	4.37	8.74	17.49
Pc[1]		3.14	1.4	0.66	-0.6	-1.14	-2.09
Pc[2]		21.86	9.72	4.6	-4.16	-7.95	-14.57
w[1]		2.95E-03	-1.47E-03	-7.35E-04	7.33E-04	1.46E-03	2.92E-03
w[2]		1.05	0.56	0.29	-0.32	-0.65	-1.39
		%Dev. of b3					
Tc[1]		-1.81	-0.91	-0.45	0.45	0.91	1.81
Tc[2]		-18.19	-9.09	-4.55	4.55	9.09	18.19
Pc[1]		2.27	1.01	0.48	-0.43	-0.82	-1.51
Pc[2]		22.73	10.1	4.79	-4.33	-8.27	-15.15
w[1]		-0.0179	-0.00896	-0.00448	0.00448	0.00896	0.0179
w[2]		-5.41	-2.69	-1.34	1.34	2.67	5.31

Table B.76 ALS EOS; 0.5CO2[1]/0.5n-heptane[2]; % deviation of parameter a(T), b1, b2, and b3 as fundamental properties varie.

T	%Dev. in	%Dev. of a(T)					
		-20	-10	-5	5	10	20
0.3Tb	Tc[1]	-9.6	-4.89	-2.47	2.51	5.06	10.3
Tb		-10.58	-5.42	-2.74	2.8	5.67	11.58
0.8Tc		-10.84	-5.56	-2.81	2.88	5.83	11.92
Tc		-11.24	-5.78	-2.93	3	6.08	12.46
1.2Tc		-11.67	-6.01	-3.05	3.13	6.34	13.02
0.3Tb	Tc[2]	-31.54	-16.57	-8.49	8.89	18.19	38
Tb		-35.28	-18.71	-9.63	10.17	20.89	43.99
0.8Tc		-36.26	-19.28	-9.93	10.52	21.62	45.61
Tc		-37.79	-20.17	-10.41	11.06	22.77	48.2
1.2Tc		-39.38	-21.1	-10.91	11.63	23.99	50.93
0.3Tb	Pc[1]	5.23	2.38	1.14	-1.05	-2.02	-3.76
Tb		4.98	2.26	1.08	-1	-1.92	-3.59
0.8Tc		4.91	2.23	1.07	-0.986	-1.9	-3.54
Tc		4.81	2.19	1.05	-0.966	-1.86	-3.46
1.2Tc		4.7	2.14	1.02	-0.944	-1.82	-3.39
0.3Tb	Pc[2]	19.32	8.64	4.1	-3.73	-7.14	-13.15
Tb		19.58	8.75	4.16	-3.78	-7.23	-13.32
0.8Tc		19.65	8.79	4.17	-3.79	-7.26	-13.36
Tc		19.76	8.83	4.2	-3.81	-7.3	-13.43
1.2Tc		19.88	8.89	4.22	-3.84	-7.34	-13.51
0.3Tb	w[1]	-0.976	-0.487	-0.243	0.243	0.485	0.968
Tb		0.0413	0.0202	0.01	-0.00978	-0.0194	-0.0379
0.8Tc		0.38	0.189	0.0942	-0.0936	-0.187	-0.371
Tc		0.736	0.366	0.182	-0.181	-0.361	-0.718
1.2Tc		-5.63	-2.82	-1.41	1.41	2.83	5.66
0.3Tb	w[2]	-3.46	-1.73	-0.863	0.862	1.72	3.44
Tb		-2.87	-1.43	-0.717	0.716	1.43	2.86
0.8Tc		-1.94	-0.97	-0.484	0.484	0.966	1.93
Tc		-0.961	-0.481	-0.24	0.24	0.481	0.961
1.2Tc		0.458	0.229	0.114	-0.114	-0.229	-0.458
0.3Tb	k12,k21	0.442	0.221	0.111	-0.111	-0.221	-0.442
0.8Tc		0.438	0.219	0.11	-0.11	-0.219	-0.438
Tc		0.432	0.216	0.108	-0.108	-0.216	-0.432
1.2Tc		0.425	0.212	0.106	-0.106	-0.212	-0.425

%Dev. in		-20	-10	-5	5	10	20
		%Dev. of b1					
Tc[1]		-3.6	-1.8	-0.899	0.899	1.8	3.6
Tc[2]		-16.4	-8.2	-4.1	4.1	8.2	16.4
Pc[1]		4.5	2	0.947	-0.856	-1.64	-3
Pc[2]		20.5	9.11	4.32	-3.91	-7.46	-13.67
w[1]		0.331	0.165	0.0825	-0.0823	-0.164	-0.328
w[2]		2.38	1.19	0.59	-0.59	-1.18	-2.35
		%Dev. of b2					
Tc[1]		-3.47	-1.73	-0.867	0.867	1.73	3.47
Tc[2]		-16.53	-8.27	-4.13	4.13	8.27	16.53
Pc[1]		4.34	1.93	0.913	-0.826	-1.58	-2.89
Pc[2]		20.66	9.18	4.35	-3.94	-7.51	-13.78
w[1]		0.00212	0.00349	0.00235	-0.00355	-0.00829	-0.0213
w[2]		0.349	0.2	0.106	-0.119	-0.25	-0.548
		%Dev. of b3					
Tc[1]		-3.21	-1.61	-0.803	0.803	1.61	3.21
Tc[2]		-16.79	-8.39	-4.2	4.2	8.39	16.79
Pc[1]		4.01	1.78	0.845	-0.765	-1.46	-2.68
Pc[2]		20.99	9.33	4.42	-4	-7.63	-13.99
w[1]		-0.551	-0.275	-0.138	0.137	0.275	0.549
w[2]		-4.01	-2	-0.998	0.995	1.99	3.97

Table B.77 ALS EOS; 0.5ethanol[1]/0.5benzene[2]; % deviation of parameter a(T), b1, b2, and b3 as fundamental properties varie.

T	%Dev in	%Dev of a(T)					
		-20	-10	-5	5	10	20
0.3Tb	Tc[1]	-21.4	-11.07	-5.62	5.81	11.8	24.34
Tb		-23.92	-12.47	-6.36	6.62	13.5	28.05
0.8Tc		-24.73	-12.92	-6.6	6.89	14.06	29.26
Tc		-25.88	-13.57	-6.95	7.27	14.86	31.02
1.2Tc		-27.12	-14.28	-7.32	7.68	15.73	32.94
0.3Tb	Tc[2]	-21.1	-10.89	-5.53	5.7	11.58	23.85
Tb		-24.53	-12.77	-6.51	6.76	13.78	28.57
0.8Tc		-25.62	-13.37	-6.82	7.11	14.49	30.12
Tc		-27.18	-14.23	-7.28	7.6	15.53	32.36
1.2Tc		-28.86	-15.16	-7.77	8.14	16.65	34.82
0.3Tb	Pc[1]	11.96	5.4	2.57	-2.36	-4.53	-8.4
Tb		11.25	5.08	2.42	-2.22	-4.27	-7.92
0.8Tc		11.01	4.98	2.37	-2.18	-4.18	-7.76
Tc		10.68	4.83	2.3	-2.11	-4.06	-7.54
1.2Tc		10.32	4.67	2.23	-2.04	-3.93	-7.29
0.3Tb	Pc[2]	12.34	5.57	2.65	-2.43	-4.67	-8.65
Tb		13.06	5.89	2.81	-2.57	-4.93	-9.13
0.8Tc		13.3	5.99	2.86	-2.61	-5.01	-9.28
Tc		13.63	6.14	2.93	-2.68	-5.14	-9.5
1.2Tc		14	6.3	3	-2.75	-5.27	-9.74
0.3Tb	w[1]	-4.9	-2.44	-1.21	1.2	2.4	4.76
Tb		-2.34	-1.16	-0.578	0.573	1.14	2.26
0.8Tc		-1.51	-0.747	-0.372	0.369	0.735	1.46
Tc		-0.295	-0.15	-0.0753	0.0761	0.153	0.308
1.2Tc		1.03	0.501	0.247	-0.241	-0.477	-0.931
0.3Tb	w[2]	-2.4	-1.2	-0.6	0.6	1.2	2.4
Tb		-1.26	-0.627	-0.313	0.313	0.626	1.25
0.8Tc		-0.884	-0.441	-0.221	0.22	0.441	0.88
Tc		-0.347	-0.174	-0.0869	0.087	0.174	0.348
1.2Tc		0.237	0.117	0.0583	-0.0577	-0.115	-0.227
0.3Tb	k12,k21	0.0351	0.0176	0.00878	-0.00778	-0.0176	-0.0351
0.8Tc		0.0349	0.0175	0.00874	-0.00874	-0.0175	-0.0349
Tc		0.0348	0.0173	0.00866	-0.00866	-0.0173	-0.0346
1.2Tc		0.0344	0.0172	0.00859	-0.00859	-0.0172	-0.0344

%Dev. in	%Dev of b1					
	-20	-10	-5	5	10	20
Tc[1]	-7.42	-3.71	-1.85	1.85	3.71	7.42
Tc[2]	-12.58	-6.29	-3.15	3.15	6.29	12.58
Pc[1]	9.27	4.12	1.95	-1.77	-3.37	-6.18
Pc[2]	15.73	6.99	3.31	-3	-5.72	-10.49
w[1]	2.1	1.04	0.52	-0.517	-1.03	-2.04
w[2]	1.07	0.533	0.266	-0.266	-0.531	-1.06

%Dev. in	%Dev of b2					
	-20	-10	-5	5	10	20
Tc[1]	-8.04	-4.02	-2.01	2.01	4.02	8.04
Tc[2]	-11.96	-5.98	-2.99	2.99	5.98	11.96
Pc[1]	10.04	4.46	2.11	-1.91	-3.65	-6.7
Pc[2]	14.96	6.65	3.15	-2.85	-5.44	-9.97
w[1]	0.957	0.514	0.265	-0.282	-0.58	-1.22
w[2]	-0.0139	0.000282	0.00194	-0.00353	-0.0146	-0.0434

%Dev. in	%Dev of b3					
	-20	-10	-5	5	10	20
Tc[1]	-9.62	-4.81	-2.41	2.41	4.81	9.62
Tc[2]	-10.38	-5.19	-2.59	2.59	5.19	10.38
Pc[1]	12.03	5.35	2.53	-2.29	-4.37	-8.02
Pc[2]	12.97	5.77	2.73	-2.47	-4.72	-8.65
w[1]	-3.36	-1.67	-0.83	0.824	1.64	3.25
w[2]	-1.67	-0.836	-0.418	0.417	0.834	1.67

Table B.78 ALS EOS; 0.5Methanol[1]/0.5H2O[2]; % deviation of parameter a(T), b1, b2, and b3 as fundamental properties varie.

T	%Dev in	%Dev of a(T)					
		-20	-10	-5	5	10	20
0.3Tb	Tc[1]	-25.75	-13.42	-6.85	7.12	14.52	30.14
Tb		-30.65	-16.19	-8.32	8.76	17.97	37.74
0.8Tc		-29.79	-15.71	-8.06	8.47	17.35	36.38
Tc		-31.46	-16.66	-8.56	9.04	18.56	39.05
1.2Tc		-33.3	-17.71	-9.13	9.68	19.91	42.05
0.3Tb	Tc[2]	-18.19	-9.36	-4.75	4.88	9.89	20.31
Tb		-22.68	-11.79	-6.01	6.24	12.71	26.35
0.8Tc		-21.89	-11.37	-5.79	6	12.21	25.27
Tc		-23.43	-12.21	-6.23	6.47	13.2	27.39
1.2Tc		-25.12	-13.14	-6.71	7	14.3	29.77
0.3Tb	Pc[1]	14.17	6.37	3.04	-2.78	-5.33	-9.85
Tb		13.32	6	2.86	-2.62	-5.02	-9.3
0.8Tc		13.47	6.07	2.89	-2.65	-5.08	-9.4
Tc		13.18	5.94	2.83	-2.59	-4.97	-9.2
1.2Tc		12.86	5.8	2.76	-2.53	-4.85	-8.99
0.3Tb	Pc[2]	10.16	4.6	2.19	-2.01	-3.87	-7.18
Tb		10.99	4.96	2.37	-2.17	-4.17	-7.74
0.8Tc		10.84	4.9	2.34	-2.14	-4.12	-7.64
Tc		11.13	5.03	2.4	-2.2	-4.23	-7.84
1.2Tc		11.45	5.17	2.47	-2.26	-4.34	-8.05
0.3Tb	w[1]	-4.84	-2.41	-1.2	1.19	2.38	4.73
Tb		-0.463	-0.233	-0.117	0.117	0.235	0.472
0.8Tc		-1.24	-0.62	-0.309	0.308	0.614	1.22
Tc		0.291	0.139	0.0681	-0.0652	-0.128	-0.244
1.2Tc		2.01	0.986	0.488	-0.479	-0.948	-1.86
0.3Tb	w[2]	-2.71	-1.35	-0.676	0.674	1.35	2.69
Tb		-0.99	-0.494	-0.246	0.246	0.491	0.98
0.8Tc		-1.3	-0.646	-0.323	0.322	0.642	1.28
Tc		-0.695	-0.347	-0.173	0.173	0.346	0.69
1.2Tc		-0.0239	-0.0135	-0.00713	0.00788	0.0165	0.0358
0.3Tb	k12,k21	0.0761	0.0381	0.019	-0.0192	-0.0381	-0.0761
Tb		0.0774	0.0387	0.0194	-0.0194	-0.0387	-0.0774
0.8Tc		0.0773	0.0386	0.0193	-0.0193	-0.0386	-0.0772
Tc		0.0776	0.0388	0.0194	-0.0194	-0.0388	-0.0776
1.2Tc		0.0779	0.0389	0.0195	-0.0195	-0.0389	-0.0779

%Dev. in	%Dev of b1					
	-20	-10	-5	5	10	20
Tc[1]	-13.26	-6.63	-3.31	3.31	6.63	13.26
Tc[2]	-6.74	-3.37	-1.69	1.69	3.37	6.74
Pc[1]	16.57	7.36	3.49	-3.16	-6.03	-11.05
Pc[2]	8.43	3.75	1.77	-1.61	-3.07	-5.62
w[1]	3.3	1.64	0.817	-0.812	-1.62	-3.22
w[2]	0.963	0.48	0.24	-0.239	-0.477	-0.95

%Dev. in	%Dev of b2					
	-20	-10	-5	5	10	20
Tc[1]	-13.55	-6.77	-3.39	3.39	6.77	13.55
Tc[2]	-6.45	-3.23	-1.61	1.61	3.23	6.45
Pc[1]	16.93	7.53	3.56	-3.23	-6.16	-11.29
Pc[2]	8.07	3.59	1.7	-1.54	-2.93	-5.38
w[1]	1.33	0.657	0.34	-0.364	-0.75	-1.59
w[2]	0.129	0.0741	0.0395	-0.0442	-0.0931	-0.205

%Dev. in	%Dev of b3					
	-20	-10	-5	5	10	20
Tc[1]	-14.26	-7.13	-3.57	3.57	7.13	14.26
Tc[2]	-5.74	-2.87	-1.43	1.43	2.87	5.74
Pc[1]	17.83	7.92	3.75	-3.4	-6.48	-11.89
Pc[2]	7.17	3.19	1.51	-1.37	-2.61	-4.78
w[1]	-4.68	-2.32	-1.16	1.15	2.3	4.56
w[2]	-1.35	-0.676	-0.337	0.337	0.672	1.34

Table B.79 ALS EOS; 0.5Methanol[1]/0.5ethanol[2]; % deviation of parameter a(T), b1, b2, and b3 as fundamental properties varie.

T	%Dev in	%Dev of a(T)					
		-20	-10	-5	5	10	20
0.3Tb	Tc[1]	-20.01	-10.32	-5.24	5.4	10.96	22.57
Tb		-23.56	-12.27	-6.26	6.51	13.27	27.54
0.8Tc		-24.6	-12.85	-6.56	6.84	13.96	29.04
Tc		-26.34	-13.81	-7.07	7.4	15.12	31.57
1.2Tc		-28.28	-14.9	-7.64	8.03	16.45	34.47
0.3Tb	Tc[2]	-23.24	-12.05	-6.13	6.35	12.92	26.71
Tb		-27.21	-14.26	-7.3	7.63	15.59	32.52
0.8Tc		-28.38	-14.91	-7.64	8.01	16.39	34.28
Tc		-30.3	-16	-8.22	8.65	17.74	37.25
1.2Tc		-32.46	-17.23	-8.87	9.38	19.28	40.66
0.3Tb	Pc[1]	11.19	5.05	2.41	-2.21	-4.25	-7.88
Tb		11.26	5.09	2.43	-2.22	-4.27	-7.93
0.8Tc		11.28	5.1	2.43	-2.23	-4.28	-7.94
Tc		11.32	5.11	2.44	-2.23	-4.29	-7.96
1.2Tc		11.36	5.13	2.45	-2.24	-4.31	-7.99
0.3Tb	Pc[2]	13.12	5.91	2.82	-2.58	-4.95	-9.17
Tb		13.05	5.88	2.8	-2.57	-4.92	-9.12
0.8Tc		13.03	5.87	2.8	-2.56	-4.92	-9.1
Tc		12.99	5.85	2.79	-2.55	-4.9	-9.08
1.2Tc		12.95	5.84	2.78	-2.55	-4.89	-9.05
0.3Tb	w[1]	-4.34	-2.16	-1.08	1.07	2.13	4.23
Tb		-2.22	-1.1	-0.549	0.545	1.09	2.15
0.8Tc		-1.58	-0.785	-0.391	0.389	0.774	1.54
Tc		-0.507	-0.254	-0.127	0.127	0.255	0.51
1.2Tc		0.717	0.35	0.173	-0.169	-0.333	-0.65
0.3Tb	w[2]	-5.38	-2.68	-1.33	1.32	2.64	5.24
Tb		-2.79	-1.38	-0.69	0.684	1.36	2.7
0.8Tc		-2.01	-1	-0.497	0.493	0.982	1.95
Tc		-0.699	-0.35	-0.175	0.175	0.349	0.696
1.2Tc		0.801	0.389	0.192	-0.186	-0.367	-0.714
0.3Tb	k12,k21	0.0419	0.021	0.0105	-0.0105	-0.021	-0.0419
0.8Tc		0.042	0.021	0.0105	-0.0105	-0.021	-0.042
Tc		0.042	0.021	0.0105	-0.0105	-0.021	-0.042
1.2Tc		0.042	0.021	0.0105	-0.0105	-0.021	-0.042

%Dev. in	%Dev of b1					
	-20	-10	-5	5	10	20
Tc[1]	-8.93	-4.46	-2.23	2.23	4.46	8.93
Tc[2]	-11.07	-5.54	-2.77	2.77	5.54	11.07
Pc[1]	11.16	4.96	2.35	-2.13	-4.06	-7.44
Pc[2]	13.84	6.15	2.91	-2.64	-5.03	-9.23
w[1]	2.22	1.1	0.55	-0.547	-1.09	-2.17
w[2]	3.14	1.56	0.776	-0.771	-1.54	-3.05

%Dev. in	%Dev of b2					
	-20	-10	-5	5	10	20
Tc[1]	-8.85	-4.42	-2.21	2.21	4.42	8.85
Tc[2]	-11.15	-5.58	-2.79	2.79	5.58	11.15
Pc[1]	11.06	4.92	2.32	-2.11	-4.02	-7.37
Pc[2]	13.94	6.2	2.93	-2.66	-5.07	-9.29
w[1]	0.794	0.429	0.222	-0.238	-0.49	-1.04
w[2]	1.33	0.713	0.368	-0.391	-0.804	-1.69

%Dev. in	%Dev of b3					
	-20	-10	-5	5	10	20
Tc[1]	-8.6	-4.3	-2.15	2.15	4.3	8.6
Tc[2]	-11.4	-5.7	-2.85	2.85	5.7	11.4
Pc[1]	10.74	4.78	2.26	-2.05	-3.91	-7.16
Pc[2]	14.26	6.34	3	-2.72	-5.18	-9.5
w[1]	-2.82	-1.4	-0.698	0.694	1.38	2.75
w[2]	-3.98	-1.98	-0.984	0.976	1.94	3.86

Table B.80 TCC EOS; 0.5benzene[1]/0.5cyclohexane[2]; % deviation of parameter a(T), b and c as fundamental properties varie.

T	%Dev. in	%Dev. of a(T) -20	-10	-5	5	10	20
0.3Tb	Tc[1]	-21.76	-11.36	-5.8	6.04	12.33	25.67
Tb		-21.91	-11.4	-5.82	6.05	12.33	25.63
0.8Tc		-22.31	-11.6	-5.91	6.14	12.52	26
Tc		-23.01	-11.94	-6.08	6.31	12.86	26.68
1.2Tc		-23.97	-12.41	-6.32	6.55	13.33	27.63
0.3Tb	Tc[2]	-22.08	-11.48	-5.85	6.08	12.38	25.68
Tb		-23.49	-12.25	-6.25	6.51	13.29	27.62
0.8Tc		-23.84	-12.45	-6.36	6.63	13.52	28.14
Tc		-24.25	-12.68	-6.48	6.76	13.8	28.75
1.2Tc		-24.67	-12.91	-6.6	6.9	14.09	29.33
0.3Tb	Pc[1]	11.87	5.36	2.55	-2.34	-4.49	-8.32
Tb		11.69	5.27	2.52	-2.31	-4.43	-8.21
0.8Tc		11.68	5.27	2.52	-2.31	-4.43	-8.21
Tc		11.68	5.27	2.51	-2.3	-4.43	-8.2
1.2Tc		11.65	5.26	2.51	-2.3	-4.41	-8.18
0.3Tb	Pc[2]	12.46	5.61	2.68	-2.45	-4.7	-8.71
Tb		12.63	5.69	2.71	-2.48	-4.77	-8.83
0.8Tc		12.63	5.69	2.71	-2.48	-4.77	-8.83
Tc		12.63	5.7	2.72	-2.49	-4.77	-8.84
1.2Tc		12.66	5.71	2.72	-2.49	-4.78	-8.86
0.3Tb	Zc[1]	-0.62	-3.04	-2.97	894.21	976.34	1135.74
Tb		-0.62	-3	-2.92	863.23	941.98	1094.72
0.8Tc		-0.62	-3	-2.92	862.16	940.79	1093.27
Tc		-0.61	-2.99	-2.92	860.57	939.02	1091.15
1.2Tc		-0.61	-2.99	-2.91	856.81	934.87	1086.23
0.3Tb	Zc[2]	-1.07	-3.55	-3.4	956.91	1045.16	1216.61
Tb		-1.09	-3.6	-3.45	965.21	1054.09	1226.72
0.8Tc		-1.09	-3.6	-3.45	964.25	1053.01	1225.54
Tc		-1.09	-3.6	-3.45	964.34	1053.09	1225.48
1.2Tc		-1.09	-3.61	-3.46	967.25	1056.28	1229.22
0.3Tb	k12	0.34	0.17	0.08	-0.08	-0.17	-0.34
Tb		0.1	0.05	0.02	-0.02	-0.05	-0.1
0.8Tc		0.08	0.04	0.02	-0.02	-0.04	-0.08
Tc		0.06	0.03	0.01	-0.01	-0.03	-0.06
1.2Tc		0.05	0.03	0.01	-0.01	-0.03	-0.05
0.3Tb	k21	0.36	0.18	0.09	-0.09	-0.18	-0.36
Tb		0.11	0.05	0.03	-0.03	-0.05	-0.11
0.8Tc		0.08	0.04	0.02	-0.02	-0.04	-0.08
Tc		0.07	0.03	0.02	-0.02	-0.03	-0.07
1.2Tc		0.06	0.03	0.01	-0.01	-0.03	-0.06

%Dev. in	%Dev. of b -20	-10	-5	5	10	20
Tc[1]	-9.01	-4.5	-2.25	2.25	4.5	9.01
Tc[2]	-10.99	-5.5	-2.75	2.75	5.5	10.99
Pc[1]	11.26	5	2.37	-2.14	-4.09	-7.51
Pc[2]	13.74	6.11	2.89	-2.62	-5	-9.16
Zc[1]	-34.42	-25.28	-16.9	888.03	937.7	1028.64
Zc[2]	-42.24	-31.24	-21.07	1052.9	1111.65	1219.3

%Dev. in	%Dev. of c -20	-10	-5	5	10	20
Tc[1]	8.84	4.42	2.21	-2.21	-4.42	-8.84
Tc[2]	11.16	5.58	2.79	-2.79	-5.58	-11.16
Pc[1]	-11.05	-4.91	-2.33	2.1	4.02	7.37
Pc[2]	-13.95	-6.2	-2.94	2.66	5.07	9.3
Zc[1]	-112.23	69.63	41.96	-1500.83	-1597.65	-1777.25
Zc[2]	-135.53	84.71	51.49	-1779.48	-1894.07	-2106.74

Table B.81 TCC EOS; 0.5ethanol[1]/0.5benzene[2]; % deviation of parameter a(T), b and c as fundamental properties varies.

T	%Dev. in	%Dev. of a(T) -20	-10	-5	5	10	20
0.3Tb	Tc[1]	-18.71	-9.54	-4.81	4.9	9.89	20.11
Tb		-24.1	-12.58	-6.42	6.68	13.62	28.23
0.8Tc		-24.79	-13.01	-6.66	6.96	14.22	29.63
Tc		-25.4	-13.42	-6.89	7.24	14.84	31.11
1.2Tc		-25.76	-13.69	-7.04	7.45	15.3	32.24
0.3Tb	Tc[2]	-23.89	-12.5	-6.39	6.68	13.64	28.46
Tb		-24.27	-12.69	-6.48	6.77	13.83	28.85
0.8Tc		-25.1	-13.12	-6.71	7	14.31	29.85
Tc		-26.57	-13.88	-7.09	7.41	15.14	31.58
1.2Tc		-28.39	-14.83	-7.58	7.91	16.17	33.74
0.3Tb	Pc[1]	11.19	5.05	2.41	-2.21	-4.24	-7.87
Tb		11.22	5.07	2.42	-2.22	-4.26	-7.89
0.8Tc		10.94	4.94	2.36	-2.16	-4.15	-7.7
Tc		10.52	4.75	2.27	-2.08	-4	-7.42
1.2Tc		10.09	4.56	2.18	-2	-3.84	-7.13
0.3Tb	Pc[2]	13.13	5.92	2.82	-2.58	-4.95	-9.17
Tb		13.1	5.9	2.81	-2.57	-4.94	-9.14
0.8Tc		13.39	6.03	2.87	-2.63	-5.04	-9.33
Tc		13.82	6.22	2.96	-2.71	-5.2	-9.61
1.2Tc		14.24	6.41	3.05	-2.79	-5.35	-9.9
0.3Tb	Zc[1]	1.1	-1.44	-1.67	815.11	890.61	1036.59
Tb		1.11	-1.44	-1.67	823.6	900.08	1048
0.8Tc		1.08	-1.4	-1.63	793.22	866.57	1008.33
Tc		1.04	-1.35	-1.57	748.07	816.76	949.45
1.2Tc		1	-1.3	-1.51	703.92	768.09	891.93
0.3Tb	Zc[2]	-0.69	-3.36	-3.27	1029.59	1125.43	1311.66
Tb		-0.69	-3.35	-3.26	1031.91	1126.99	1313.69
0.8Tc		-0.7	-3.42	-3.33	1063.3	1162.69	1355.91
Tc		-0.72	-3.52	-3.43	1112.51	1216.97	1420.1
1.2Tc		-0.75	-3.63	-3.54	1163	1272.66	1486
0.3Tb	k12	-3.02	-1.42	-0.69	0.66	1.3	2.52
Tb		-0.42	-0.29	-0.16	0.19	0.4	0.88
0.8Tc		-0.1	-0.11	-0.07	0.09	0.21	0.51
Tc		0.11	0.02	0	0.02	0.05	0.18
1.2Tc		0.19	0.07	0.03	-0.02	-0.02	0
0.3Tb	k21	2.69	1.35	0.68	-0.68	-1.37	-2.76
Tb		0.81	0.4	0.2	-0.19	-0.38	-0.73
0.8Tc		0.57	0.28	0.14	-0.13	-0.26	-0.51
Tc		0.36	0.18	0.09	-0.08	-0.17	-0.32
1.2Tc		0.25	0.12	0.06	-0.06	-0.11	-0.22

%Dev. in	%Dev. of b -20	-10	-5	5	10	20
Tc[1]	-7.71	-3.85	-1.93	1.93	3.85	7.71
Tc[2]	-12.29	-6.15	-3.07	3.07	6.15	12.29
Pc[1]	9.63	4.28	2.03	-1.84	-3.5	-6.42
Pc[2]	15.37	6.83	3.23	-2.93	-5.59	-10.24
Zc[1]	-28.63	-20.37	-13.09	874.43	924.12	1014.78
Zc[2]	-46.97	-34.5	-23.07	1211.77	1279.55	1403.64

%Dev. in	%Dev. of c -20	-10	-5	5	10	20
Tc[1]	6.63	3.32	1.66	-1.66	-3.32	-6.63
Tc[2]	13.37	6.68	3.34	-3.34	-6.68	-13.37
Pc[1]	-8.29	-3.68	-1.74	1.58	3.01	5.53
Pc[2]	-16.71	-7.43	-3.52	3.18	6.08	11.14
Zc[1]	-112.46	67.47	39.13	-1637.72	-1744.77	-1942.7
Zc[2]	-169.72	-105.3	63.45	-2269.61	-2416.03	-2687.62

Table B.82 TCC EOS; 0.5acetone[1]/0.5H2O[2]; % deviation of parameter a(T), b and c as fundamental properties varies.

T	%Dev. in	%Dev. of a(T) -20	-10	-5	5	10	20
0.3Tb	Tc[1]	-25.34	-13.14	-6.69	6.92	14.07	29.09
Tb		-28.6	-14.96	-7.65	7.98	16.29	33.91
0.8Tc		-29.96	-15.74	-8.06	8.44	17.27	36.08
Tc		-31.35	-16.55	-8.49	8.94	18.31	38.41
1.2Tc		-32.74	-17.37	-8.94	9.44	19.4	40.85
0.3Tb	Tc[2]	-17.32	-8.88	-4.49	4.6	9.31	19.06
Tb		-18.69	-9.59	-4.86	4.99	10.1	20.72
0.8Tc		-19.74	-10.15	-5.15	5.29	10.72	22.01
Tc		-21.02	-10.84	-5.5	5.66	11.49	23.63
1.2Tc		-22.43	-11.6	-5.9	6.09	12.36	25.48
0.3Tb	Pc[1]	14.67	6.61	3.15	-2.88	-5.53	-10.24
Tb		14.74	6.64	3.16	-2.89	-5.55	-10.26
0.8Tc		14.71	6.62	3.15	-2.88	-5.53	-10.24
Tc		14.68	6.61	3.15	-2.88	-5.52	-10.21
1.2Tc		14.66	6.6	3.14	-2.87	-5.51	-10.19
0.3Tb	Pc[2]	9.57	4.34	2.08	-1.91	-3.68	-6.84
Tb		9.54	4.32	2.07	-1.9	-3.66	-6.8
0.8Tc		9.58	4.34	2.07	-1.91	-3.67	-6.82
Tc		9.62	4.36	2.08	-1.91	-3.68	-6.84
1.2Tc		9.65	4.37	2.09	-1.92	-3.69	-6.85
0.3Tb	Zc[1]	2.53	-0.97	-1.5	1142.06	1252.12	1465.03
Tb		2.54	-0.98	-1.51	1175.67	1289.84	1510.88
0.8Tc		2.53	-0.97	-1.5	1178.59	1293.21	1515.15
Tc		2.53	-0.97	-1.5	1178.94	1293.69	1515.89
1.2Tc		2.52	-0.97	-1.5	1179.54	1294.42	1516.89
0.3Tb	Zc[2]	2.29	-0.14	-0.62	6.15	627.28	725.18
Tb		2.28	-0.14	-0.62	6.12	651.22	734.73
0.8Tc		2.29	-0.14	-0.62	6.14	663.09	769.13
Tc		2.3	-0.14	-0.62	6.17	672.68	780.7
1.2Tc		2.3	-0.14	-0.63	6.19	679.12	788.48
0.3Tb	k12	-6.04	-2.97	-1.45	1.35	2.56	4.31
Tb		-0.92	-0.43	-0.21	0.18	0.35	0.59
0.8Tc		0.68	0.36	0.19	-0.19	-0.39	-0.81
Tc		0.63	0.33	0.16	-0.17	-0.34	-0.69
1.2Tc		0.56	0.29	0.14	-0.15	-0.29	-0.59
0.3Tb	k21	5.29	2.7	1.36	-1.38	-2.77	-5.58
Tb		-0.68	-0.33	-0.16	0.16	0.32	0.62
0.8Tc		0.43	0.22	0.11	-0.11	-0.22	-0.46
Tc		0.33	0.17	0.08	-0.08	-0.17	-0.34
1.2Tc		0.27	0.14	0.07	-0.07	-0.14	-0.28

%Dev. in	%Dev. of b -20	-10	-5	5	10	20
Tc[1]	-16	-8	-4	4	8	16
Tc[2]	-4	-2	-1	2	4	8
Pc[1]	20.01	8.89	4.21	-3.81	-7.27	-13.34
Pc[2]	4.99	2.22	1.05	-0.95	-1.82	-3.33
Zc[1]	-58.53	-40.96	-25.83	1963.43	2076.41	2282.03
Zc[2]	-14.4	-9.93	-6.16	17.68	559.05	615.02

%Dev. in	%Dev. of c -20	-10	-5	5	10	20
Tc[1]	16.91	8.46	4.23	-4.23	-8.46	-16.91
Tc[2]	3.09	1.54	0.77	-0.77	-1.54	-3.09
Pc[1]	-21.14	-9.4	-4.45	4.03	7.69	14.1
Pc[2]	-3.86	-1.71	-0.81	0.73	1.4	2.57
Zc[1]	-366.78	-216.33	-123.24	-5581.3	-5950.02	-6630.18
Zc[2]	94.84	55.1	30.91	-63.37	-1601.94	-1786.75

Table B.83 SBC EOS; Methane; % deviation of parameter a(T), b(T), c(T), and e as fundamental properties varie.

%Dev. in	T	%Dev. of a(T)					
		-20	-10	-5	5	10	20
Tc	0.3Tb	-19.42	-9.69	-4.84	4.83	9.65	19.27
	Tb	-20.81	-10.33	-5.15	5.12	10.22	20.34
	0.8Tc	-22.15	-10.97	-5.46	5.42	10.81	21.48
	Tc	-22.75	-11.5	-5.78	5.78	11.51	22.84
	1.2Tc	-22.61	-11.43	-5.74	5.8	11.65	23.5
Vc	0.3Tb	-20	-10	-5	5	10	20
	Tb	-20	-10	-5	5	10	20
	0.8Tc	-20	-10	-5	5	10	20
	Tc	-20	-10	-5	5	10	20
	1.2Tc	-20	-10	-5	5	10	20
w	0.3Tb	-0.21	-0.11	-0.0531	0.0532	0.11	0.21
	Tb	-0.11	-0.0573	-0.0287	0.0288	0.0576	0.12
	0.8Tc	-0.0444	-0.0223	-0.0112	0.0113	0.0226	0.0454
	Tc	0.00681	0.00329	0.00161	-0.00155	-0.00303	-0.00581
	1.2Tc	0.0455	0.0226	0.0113	-0.0112	-0.0224	-0.0445

%Dev. in	T	%Dev. of b(T)					
		-20	-10	-5	5	10	20
Tc	0.3Tb	-0.91	-0.41	-0.2	0.18	0.34	0.63
	Tb	-1.77	-0.82	-0.4	0.37	0.72	1.35
	0.8Tc	-1.99	-0.93	-0.45	0.42	0.81	1.54
	Tc	-2.15	-1	-0.48	0.45	0.88	1.67
	1.2Tc	-2.28	-1.06	-0.51	0.48	0.94	1.78
Vc	0.3Tb	-20	-10	-5	5	10	20
	Tb	-20	-10	-5	5	10	20
	0.8Tc	-20	-10	-5	5	10	20
	Tc	-20	-10	-5	5	10	20
	1.2Tc	-20	-10	-5	5	10	20

%Dev. in	T	%Dev. of c(T)					
		-20	-10	-5	5	10	20
Tc	0.3Tb	-8.04	-3.95	-1.96	1.93	3.83	7.56
	Tb	-5.38	-2.64	-1.3	1.28	2.54	5
	0.8Tc	-4.79	-2.35	-1.16	1.14	2.26	4.44
	Tc	-4.4	-2.15	-1.06	1.04	2.07	4.06
	1.2Tc	-4.09	-2	-0.99	0.97	1.92	3.78
Vc	0.3Tb	-20	-10	-5	5	10	20
	Tb	-20	-10	-5	5	10	20
	0.8Tc	-20	-10	-5	5	10	20
	Tc	-20	-10	-5	5	10	20
	1.2Tc	-20	-10	-5	5	10	20
w	0.3Tb	0.95	0.47	0.24	-0.24	-0.47	-0.94
	Tb	0.45	0.23	0.11	-0.11	-0.23	-0.45
	0.8Tc	0.35	0.17	0.0861	-0.0859	-0.17	-0.34
	Tc	0.27	0.14	0.068	-0.0678	-0.14	-0.27
	1.2Tc	0.22	0.11	0.054	-0.0538	-0.11	-0.21

%Dev. in	%Dev. of e					
	-20	-10	-5	5	10	20
Tc	-20	-10	-5	5	10	20
Vc	-20	-10	-5	5	10	20
w	0.16	0.0819	0.0408	-0.0407	-0.0811	-0.16

Table B.84 SBC EOS; n-nonane; % deviation of parameter a(T), b(T), c(T), and e as fundamental properties varie.

%Dev. in	T	%Dev. of a(T)					
		-20	-10	-5	5	10	20
Tc	0.3Tb	-28.89	-14.67	-7.38	4.79	9.52	30
	Tb	-29.43	-15.06	-7.6	7.71	15.51	31.31
	0.8Tc	-29.78	-15.35	-7.78	8	16.19	33.07
	Tc	-29.77	-15.4	-7.82	8.05	16.32	33.47
Vc	0.3Tb	-20	-10	-5	5	10	20
	Tb	-20	-10	-5	5	10	20
	0.8Tc	-20	-10	-5	5	10	20
	Tc	-20	-10	-5	5	10	20
	1.2Tc	-20	-10	-5	5	10	20
w	0.3Tb	-12.61	-6.61	-3.38	3.54	7.26	15.21
	Tb	-8.56	-4.5	-2.3	2.42	4.95	10.36
	0.8Tc	-7.65	-4.03	-2.06	2.17	4.44	9.3
	Tc	-5.81	-3.08	-1.58	1.67	3.42	7.18
	1.2Tc	-4.27	-2.29	-1.18	1.25	2.58	5.45

%Dev. in	T	%Dev. of b(T)					
		-20	-10	-5	5	10	20
Tc	0.3Tb	-1.05	-0.48	-0.23	0.21	0.4	1.47
	Tb	-1.91	-0.89	-0.43	0.4	0.78	1.54
	0.8Tc	-1.99	-0.93	-0.45	0.42	0.81	1.67
	Tc	-2.15	-1	-0.48	0.45	0.88	1.78
	1.2Tc	-2.28	-1.06	-0.51	0.48	0.94	1.78
Vc	0.3Tb	-20	-10	-5	5	10	20
	Tb	-20	-10	-5	5	10	20
	0.8Tc	-20	-10	-5	5	10	20
	Tc	-20	-10	-5	5	10	20
	1.2Tc	-20	-10	-5	5	10	20

%Dev. in	T	%Dev. of c(T)					
		-20	-10	-5	5	10	20
Tc	0.3Tb	38.73	18.04	8.71	-8.15	-15.77	-9.73
	Tb	11.36	5.45	2.67	-2.57	-5.05	-8.95
	0.8Tc	10.39	4.98	2.44	-2.36	-4.63	-7.64
	Tc	8.81	4.24	2.08	-2.01	-3.95	-6.73
	1.2Tc	7.75	3.73	1.83	-1.77	-3.48	-6.73
Vc	0.3Tb	-20	-10	-5	5	10	20
	Tb	-20	-10	-5	5	10	20
	0.8Tc	-20	-10	-5	5	10	20
	Tc	-20	-10	-5	5	10	20
	1.2Tc	-20	-10	-5	5	10	20
w	0.3Tb	-3.37	-2.16	-1.2	1.41	3.04	6.86
	Tb	-5.19	-3.1	-1.67	1.91	4.05	9
	0.8Tc	-8.11	-4.6	-2.44	2.72	5.71	12.52
	Tc	-10.06	-5.62	-2.96	3.27	6.84	14.93

%Dev. in	%Dev. of e					
	-20	-10	-5	5	10	20
Tc	-20	-10	-5	5	10	20
Vc	-20	-10	-5	5	10	20
w	-12.03	-6.51	-3.38	3.62	7.49	15.96

Table B.85 SBC EOS; n-decane; % deviation of parameter a(T), b(T), c(T), and e as fundamental properties varie.

%Dev. in	T	%Dev. of a(T)					
		-20	-10	-5	5	10	20
Tc	0.3Tb	-20.15	-9.89	-4.9	4.82	9.55	18.8
	Tb	-29.72	-15.14	-7.62	7.71	15.48	31.14
	0.8Tc	-30.18	-15.49	-7.82	7.96	16.02	32.36
	Tc	-30.54	-15.77	-8.06	8.26	16.72	34.24
	1.2Tc	-30.58	-15.85	-8.06	8.31	16.87	34.65
Vc	0.3Tb	-20	-10	-5	5	10	20
	Tb	-20	-10	-5	5	10	20
	0.8Tc	-20	-10	-5	5	10	20
	Tc	-20	-10	-5	5	10	20
	1.2Tc	-20	-10	-5	5	10	20
w	0.3Tb	-14.22	-7.48	-3.83	4.03	8.27	17.41
	Tb	-9.79	-5.15	-2.64	2.78	5.69	11.94
	0.8Tc	-8.93	-4.71	-2.42	2.54	5.21	10.92
	Tc	-6.93	-3.67	-1.88	1.99	4.07	8.56
	1.2Tc	-5.24	-2.79	-1.44	1.53	3.14	6.6

%Dev. in	T	%Dev. of b(T)					
		-20	-10	-5	5	10	20
Tc	0.3Tb	-1.06	-0.48	-0.23	0.21	0.41	0.76
	Tb	-1.92	-0.89	-0.43	0.4	0.78	1.47
	0.8Tc	-1.99	-0.93	-0.45	0.42	0.81	1.54
	Tc	-2.15	-1	-0.48	0.45	0.88	1.67
	1.2Tc	-2.28	-1.06	-0.51	0.48	0.94	1.78
Vc	0.3Tb	-20	-10	-5	5	10	20
	Tb	-20	-10	-5	5	10	20
	0.8Tc	-20	-10	-5	5	10	20
	Tc	-20	-10	-5	5	10	20
	1.2Tc	-20	-10	-5	5	10	20

%Dev. in	T	%Dev. of c(T)					
		-20	-10	-5	5	10	20
Tc	0.3Tb	53.52	24.59	11.8	-10.87	-20.88	-38.55
	Tb	13.36	6.39	3.13	-3	-5.89	-11.35
	0.8Tc	12.3	5.89	2.88	-2.77	-5.44	-10.5
	Tc	10.33	4.96	2.43	-2.34	-4.61	-8.9
	1.2Tc	9.03	4.34	2.13	-2.06	-4.04	-7.83
Vc	0.3Tb	-20	-10	-5	5	10	20
	Tb	-20	-10	-5	5	10	20
	0.8Tc	-20	-10	-5	5	10	20
	Tc	-20	-10	-5	5	10	20
	1.2Tc	-20	-10	-5	5	10	20
w	0.3Tb	64.35	30.53	14.89	-14.16	-27.58	-52.07
	Tb	-5.81	-3.43	-1.84	2.08	4.39	9.63
	0.8Tc	-7.53	-4.33	-2.3	2.56	5.38	11.76
	Tc	-10.71	-5.99	-3.15	3.47	7.27	15.8
	1.2Tc	-12.8	-7.09	-3.72	4.08	8.53	18.35

%Dev. in	%Dev. of e					
	-20	-10	-5	5	10	20
Tc	-20	-10	-5	5	10	20
Vc	-20	-10	-5	5	10	20
w	-14.3	-7.71	-3.99	4.27	8.82	18.76

APPENDIX C

LISTS OF FUNDAMENTAL PROPERTIES

List of Fundamental Properties.

substance	$T_c(K)$	$P_c(bar)$	ω	$T_b(K)$	$V_c(mol/dm^3)$
methane	190.6	46.04	0.01083	111.7	0.0992
n-nonane	595.6	23.06	0.4368	424	0.5477
n-decane	618.5	21.23	0.4842	447.3	0.6031

List of parameters in TCC EOS.

substance	$T_c(K)$	$P_c(bar)$	Z_c	L	M	N
methane	190.58	46.04	0.301850	0.604807	0.811687	0.368065
n-nonane	595.65	23.06	0.296443	2.52354	3.32499	0.150312
n-decane	618.45	21.23	0.296051	0.339556	0.814930	2.87631
methanol	512.64	80.97	0.291032	0.517447	0.873144	2.12553
ethanol	513.92	61.48	0.295155	2.68442	5.17367	0.123993

VITA

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