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APPENDIX

This appendix is divided into 4 parts namely :

- A. Effect of Promoters on Activity and Selectivity of Butane Dehydrogenation Reaction
- B. The Role of Sn on the Butane Dehydrogenation Reaction
- C. The TEM results
- D. Repeated Reaction -Regeneration Cycles

A. Effect of Promoters on Activity and Selectivity of Butane Dehydrogenation Reaction

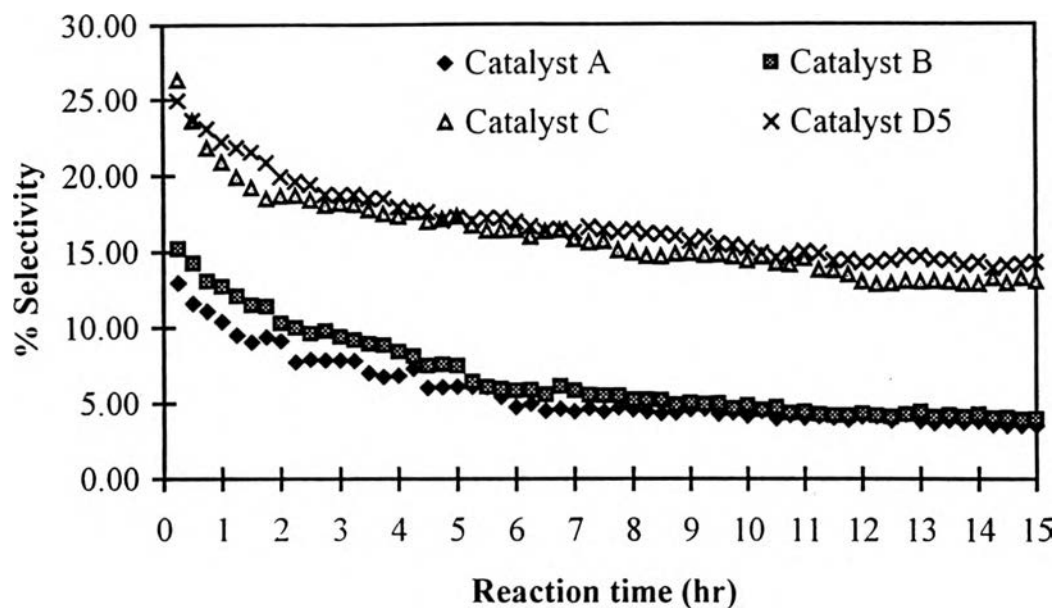


Figure A-1 The selectivity of butane dehydrogenation to trans-2-butene at 600°C on alumina-supported catalyst.

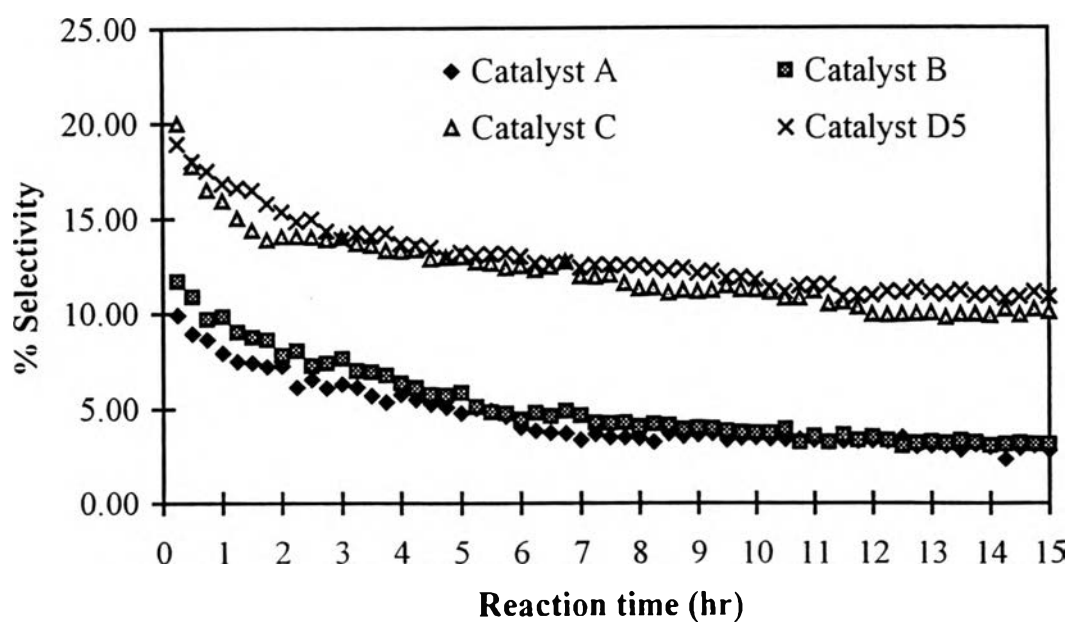


Figure A-2 The selectivity of butane dehydrogenation to cis-2-butene at 600°C on alumina-supported catalyst.

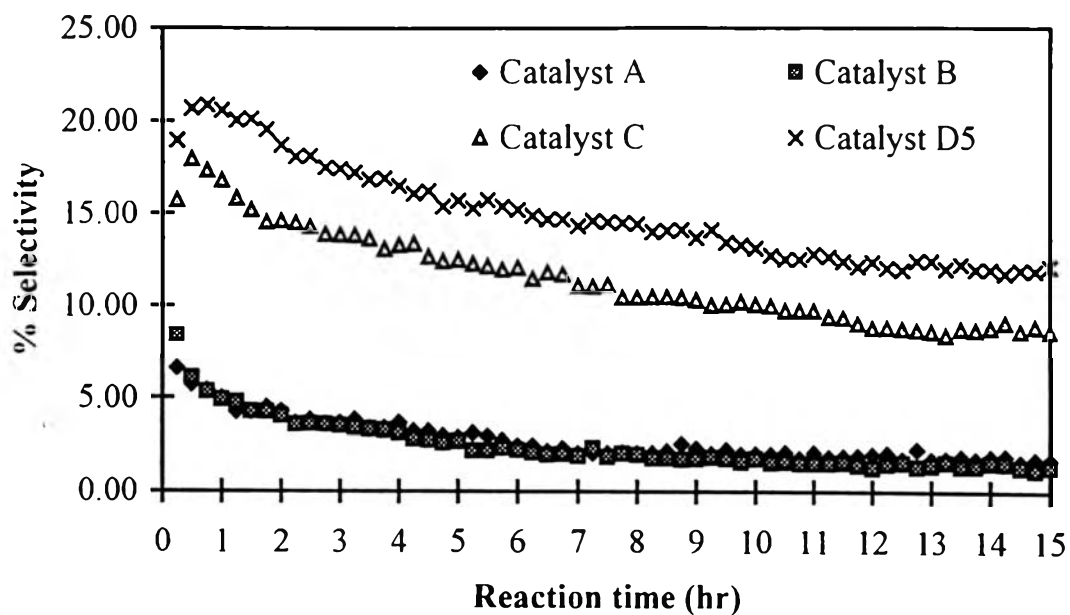


Figure A-3 The selectivity of butane dehydrogenation to 1,3-butadiene at 600°C on alumina-supported catalyst.

B. The Role of Sn on the Butane Dehydrogenation Reaction

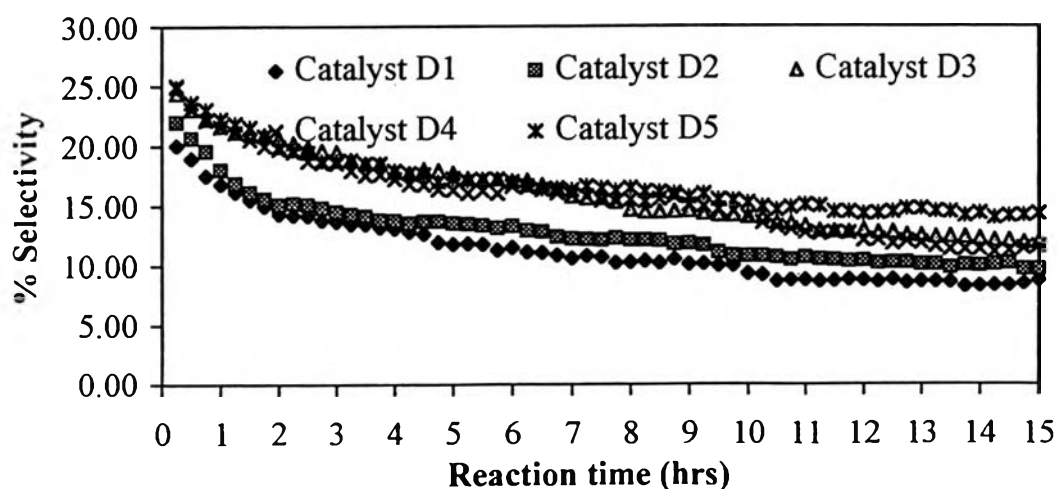


Figure B-1 The selectivity of butane dehydrogenation to trans-2-butene at 600°C on alumina-supported catalyst at various Sn/Pt ratios.

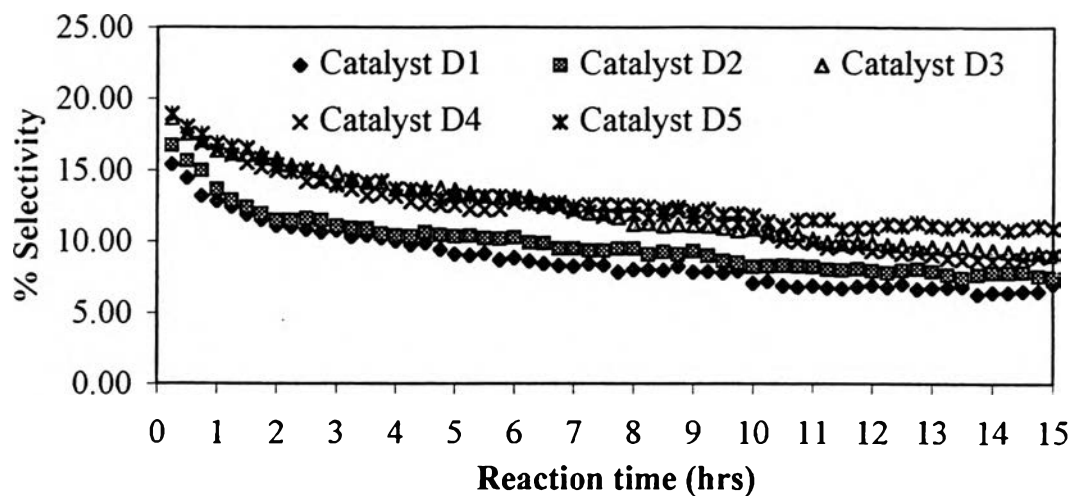


Figure B-2 The selectivity of butane dehydrogenation to cis-2-butene at 600°C on alumina-supported catalyst at various Sn/Pt ratios.

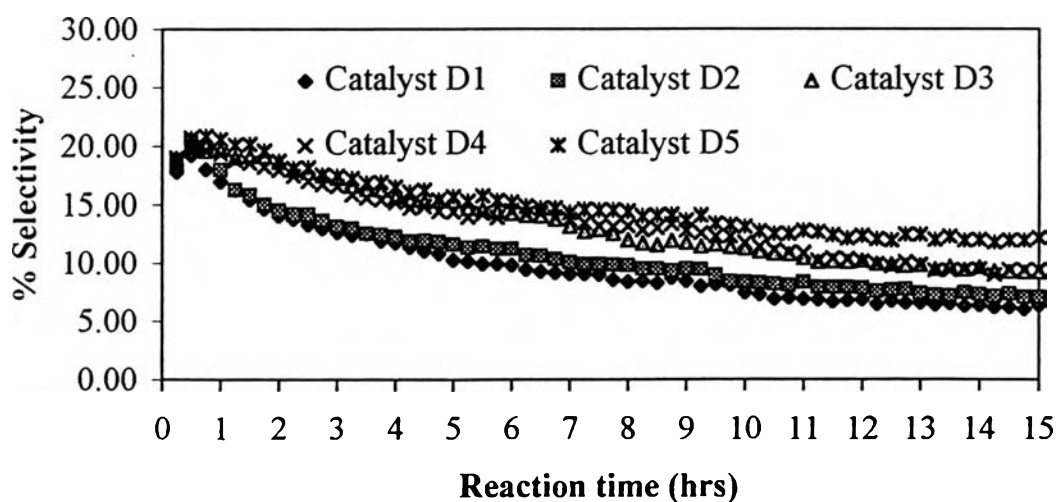


Figure B-3 The selectivity of butane dehydrogenation to 1,3-butadiene at 600°C on alumina-supported catalyst at various Sn/Pt ratios.

C. The TEM results

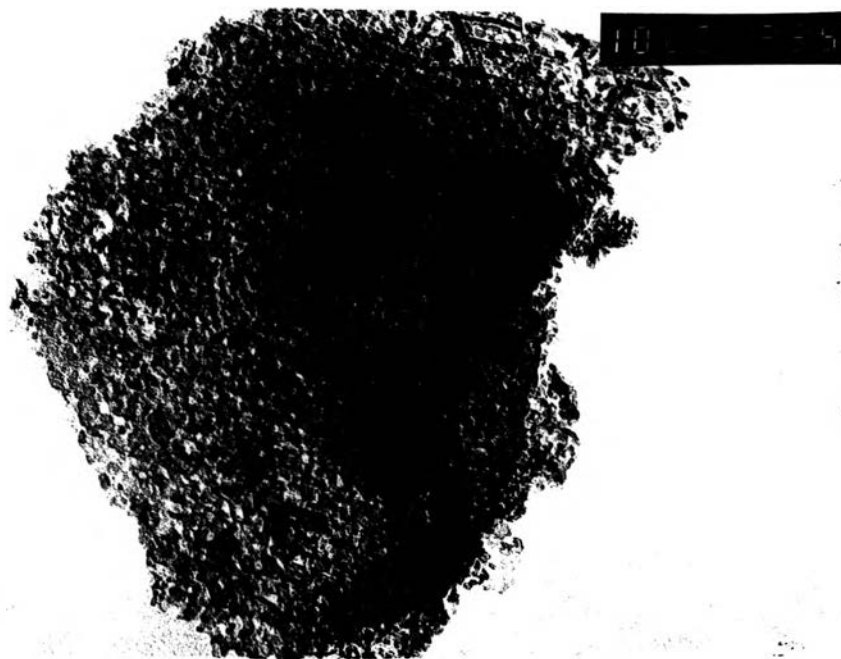


Figure C-1 The TEM image of catalyst A (150,000x magnification).



Figure C-2 The TEM image of catalyst B (109,500x magnification).

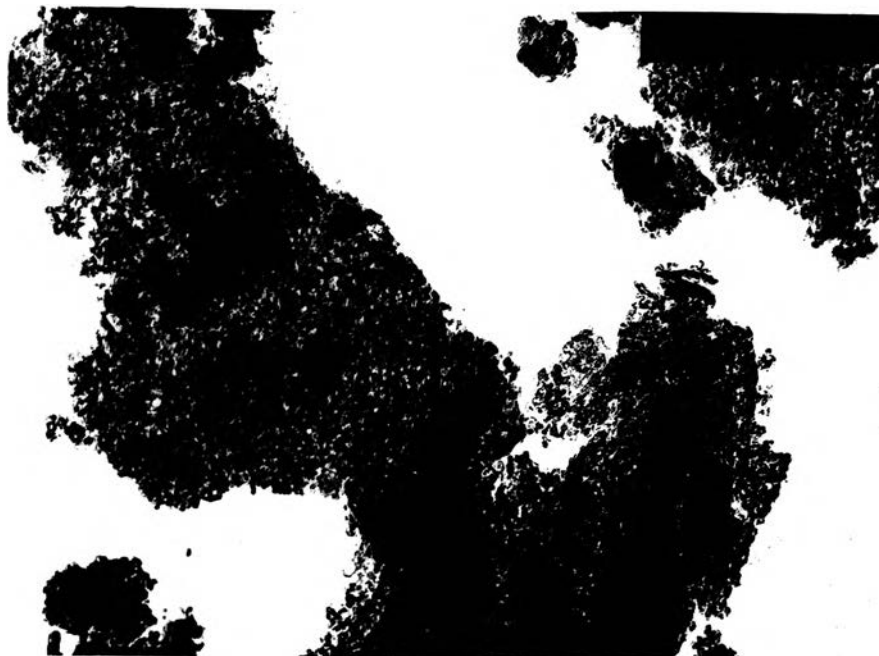


Figure C-3 The TEM image of catalyst C (109,500x magnification).

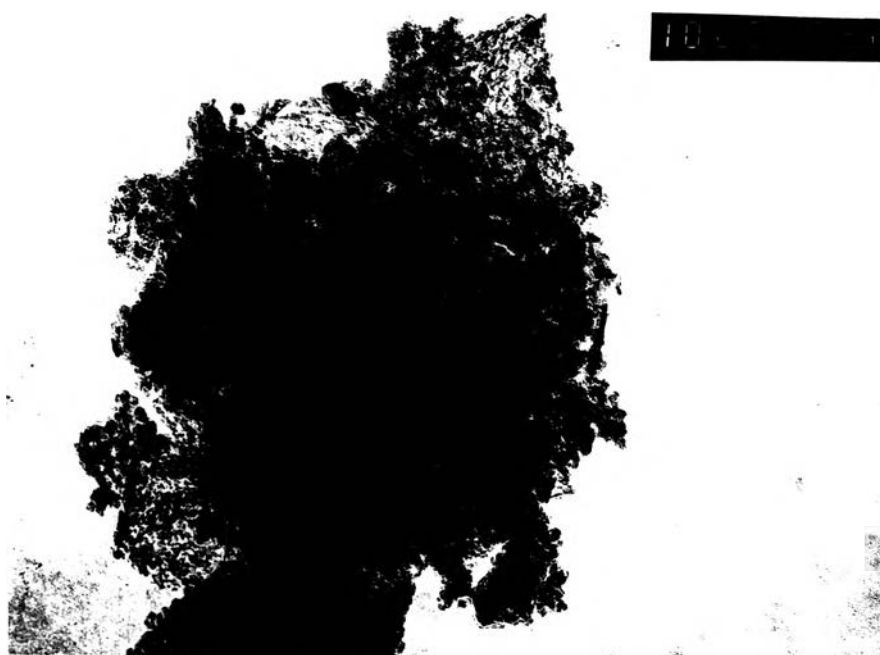


Figure C-4 The TEM image of catalyst D1 (150,000x magnification).

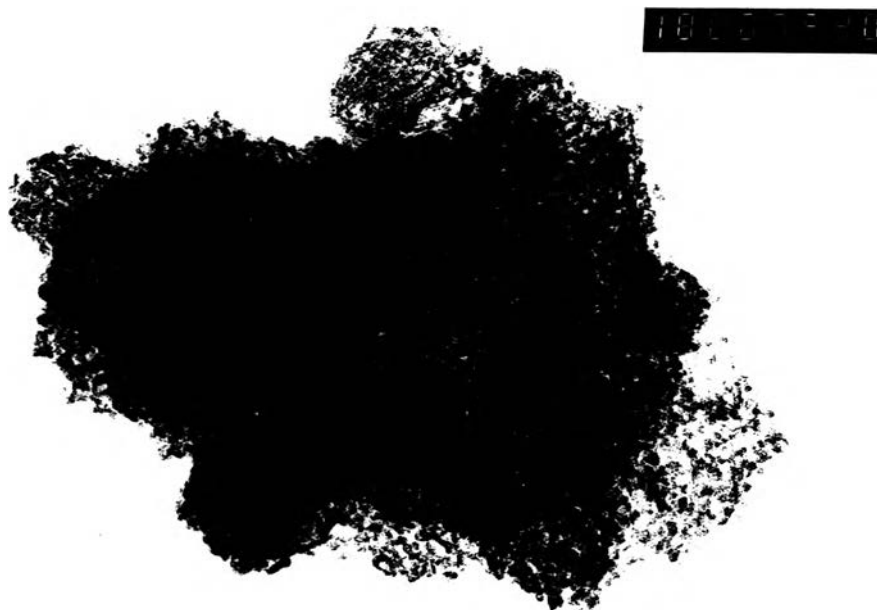


Figure C-5 The TEM image of catalyst D2 (150,000x magnification).



Figure C-6 The TEM image of catalyst D3 (150,000x magnification).



Figure C-7 The TEM image of catalyst D4 (150,000x magnification).

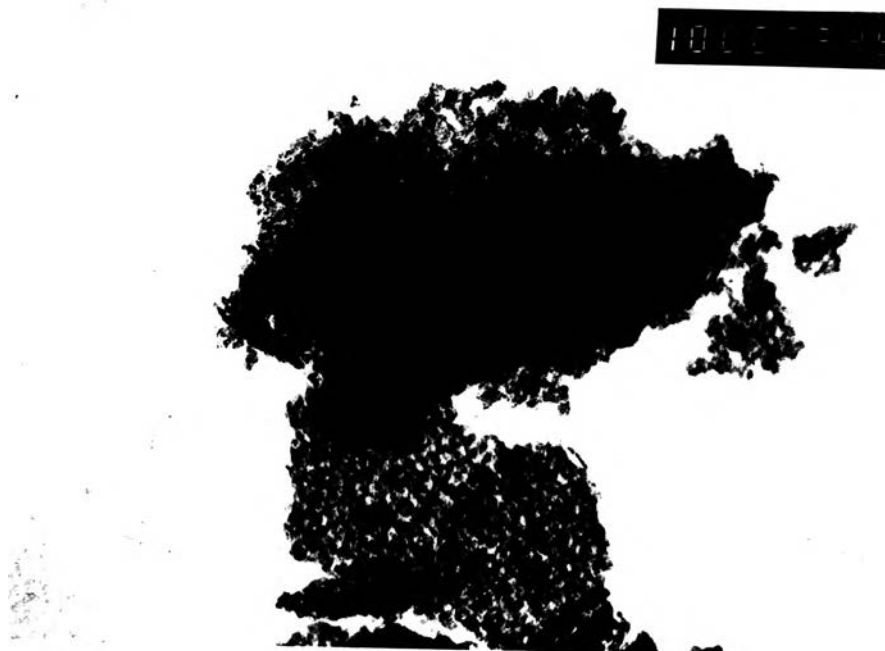


Figure C-8 The TEM image of catalyst D5 (150,000x magnification).

D. Repeated Reaction -Regeneration Cycles

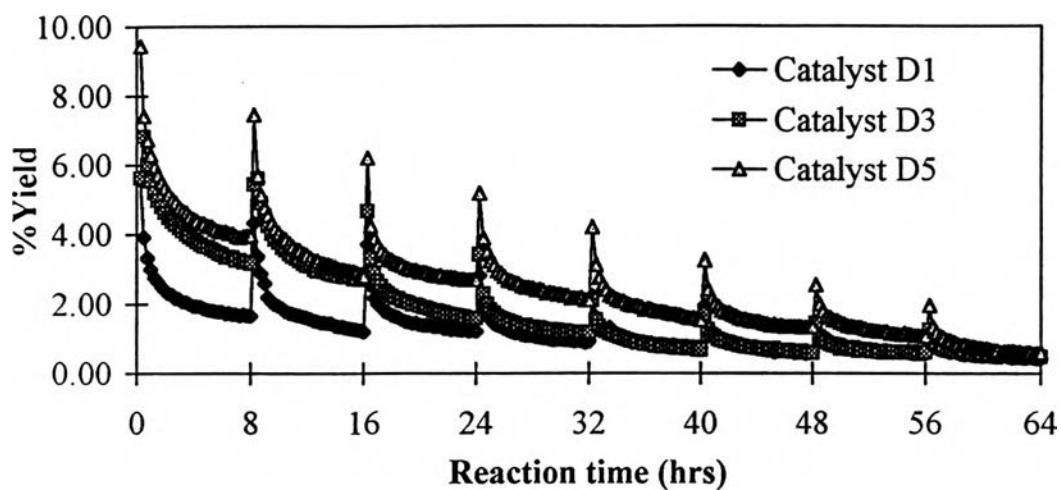


Figure D-1 The yield of butane dehydrogenation to trans-2-butene in 8 cycles at 600°C over the 0.40%Pt-0.40%Li-x%Sn/Al₂O₃ catalyst.

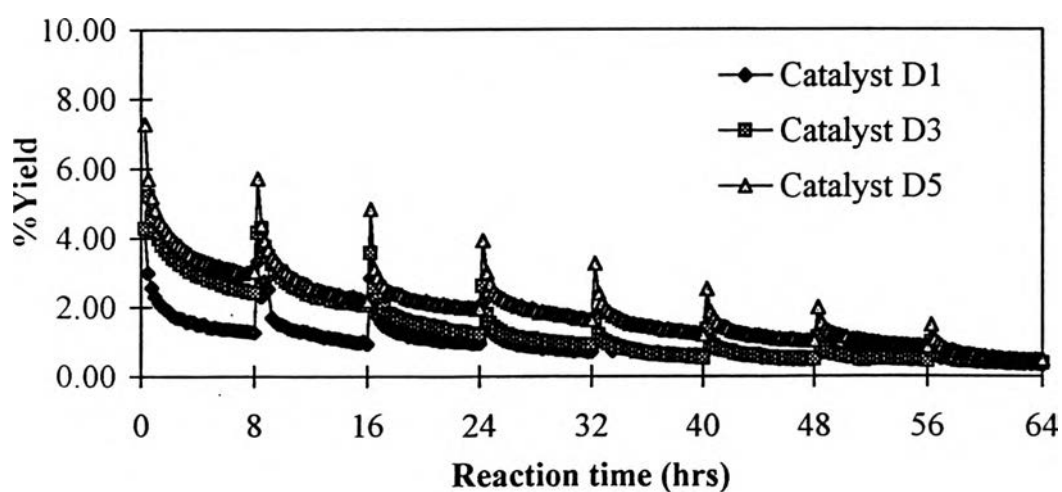


Figure D-2 The yield of butane dehydrogenation to cis-2-butene in 8 cycles at 600°C over the 0.40%Pt-0.40%Li-x%Sn/Al₂O₃ catalyst.

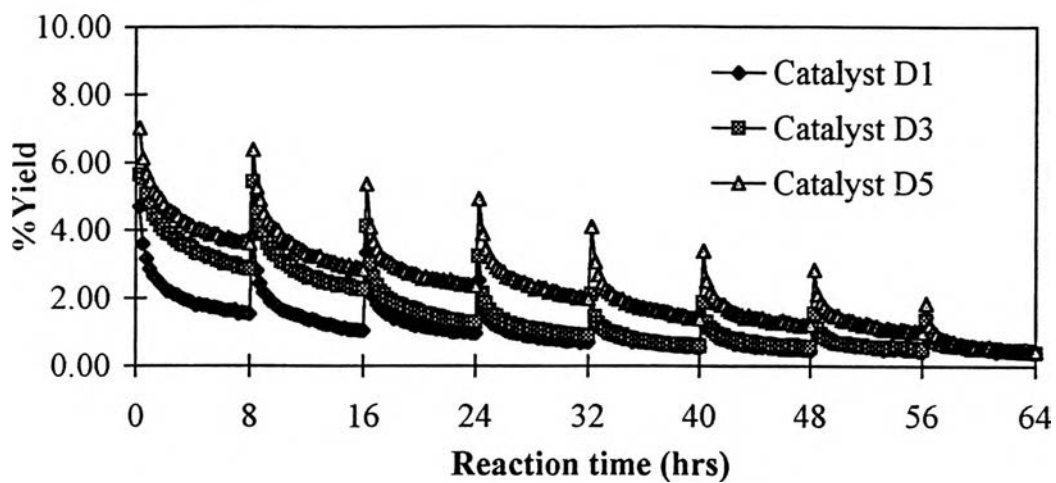


Figure D-3 The yield of butane dehydrogenation to 1,3 butadiene in 8 cycles at 600°C over the 0.40%Pt-0.40%Li-x%Sn/Al₂O₃ catalyst.

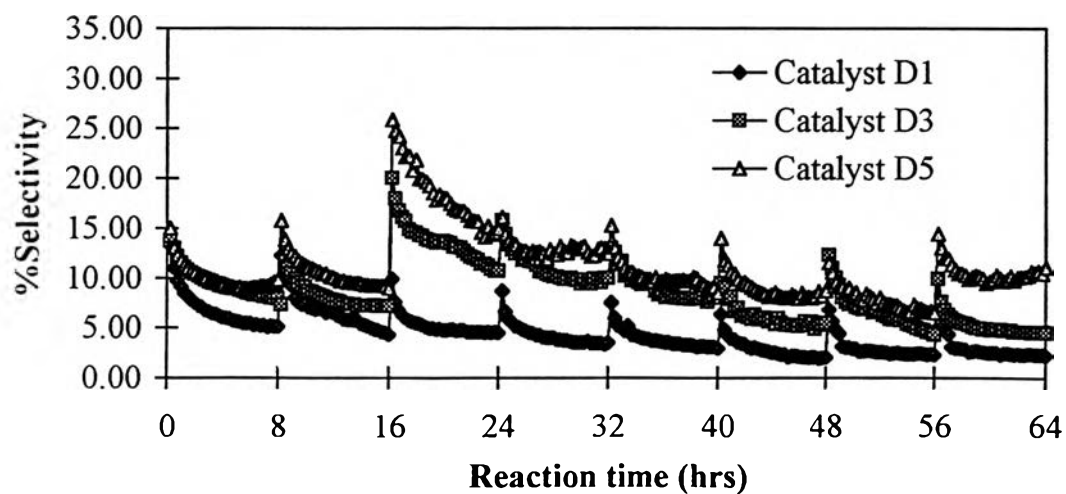


Figure D-4 The selectivity of butane dehydrogenation to trans-2-butene in 8 cycles at 600°C over the 0.40%Pt-0.40%Li-x%Sn/Al₂O₃ catalyst.

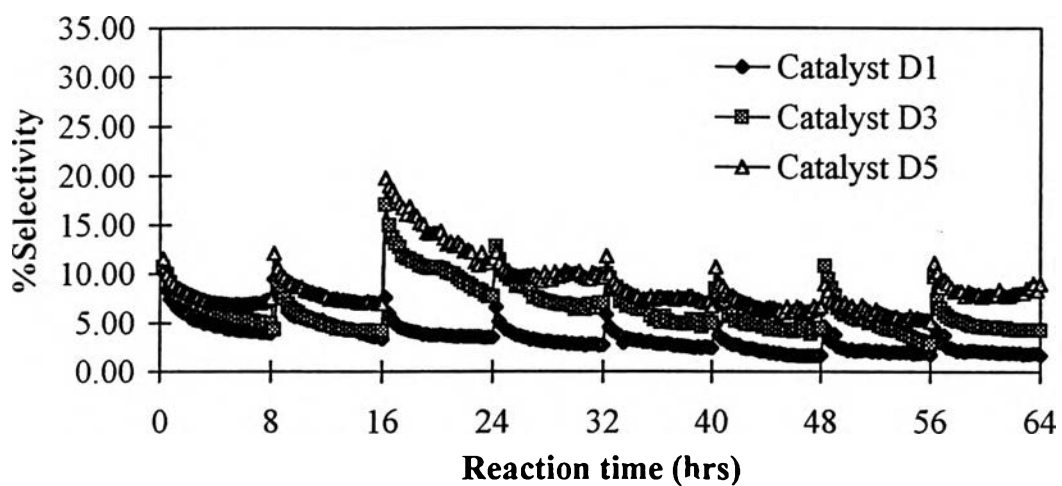


Figure D-5 The selectivity of butane dehydrogenation to cis-2-butene in 8 cycles at 600°C over the 0.40%Pt-0.40%Li-x%Sn/Al₂O₃ catalyst.

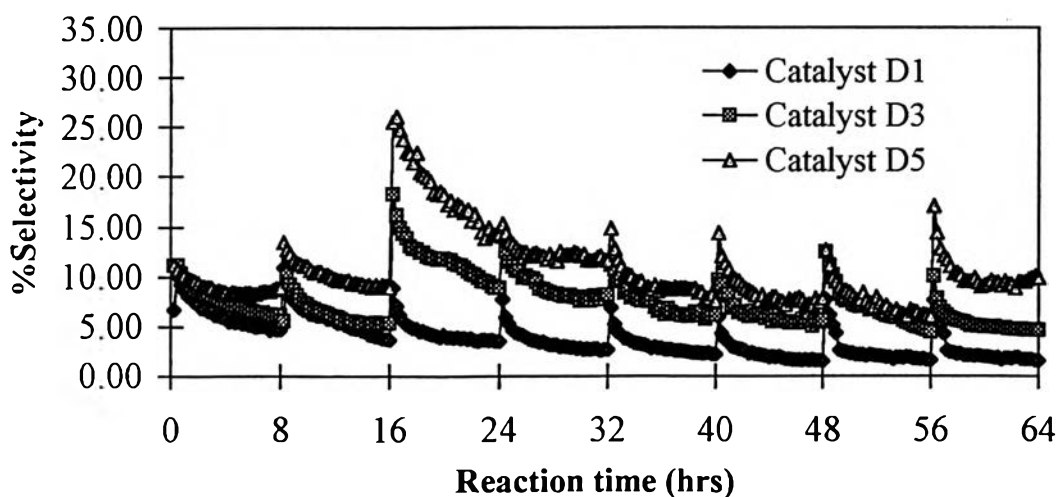


Figure D-6 The selectivity of butane dehydrogenation to 1,3 butadiene in 8 cycles at 600°C over the 0.40%Pt-0.40%Li-x%Sn/Al₂O₃ catalyst.

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