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NOMENCLATURE

Notation

A : cross-section area of column, cm^2.

a, b : constant (equation 14)

B : correction factor for drop volume defined by equation (7 b)

c, d : constant (equation 12)

C_D : Drag coefficient, $\frac{4}{3}\frac{g\Delta\rho d_F}{\rho_c V_t^2}$

d_1 : major diameter of spheroidal droplet, cm.

d_2 : minor diameter of spheroidal droplet, cm.

d_{32} : volume-surface, or Sauter mean drop diameter

$d_{32} = \Sigma_i n_i d_i^3 / \Sigma_i n_i d_i^2$, cm.

d_{43} : Misek mean drop diameter

$d_{43} = \Sigma_i n_i d_i^4 / \Sigma_i n_i d_i^3$, cm.

d_{vs} : volume-surface, or Sauter mean drop diameter

$d_{vs} = \Sigma_i n_i d_{e_i}^3 / \Sigma_i n_i d_{e_i}^2$, cm.

d_e : equivalent diameter of sphere, having the same volume of spheroid with major and minor diameter d_1 and d_2

$d_e = \sqrt[3]{d_1^2 d_2^2}$. cm.

d_{op} : drop size at maximum size frequency cm.

d_F : diameter of detached drop, cm.

d_n : nozzle diameter, cm.

d_{jc} : critical diameter of jet at breakup for maximum area flow condition, cm.

Notation

F : Harkin's Brown correlation factor define in equation (7 a)

g : accelaration of gravity, 980 cm./s.^{2}

K : constant given by $d_n / \left(\frac{\gamma}{\Delta\rho g}\right)^{\frac{1}{2}}$

n : number of drops in each size fraction

P : Physical property group, $\frac{\rho_c^2 \gamma^3}{g \Delta\rho \mu^4}$

Q_d : dispersed phase flow rate, cm.^{3}/s.

R_e : Reynolds number, $d_F V_t \rho_c / \mu$

v_n : velocity of dispersed phase through the nozzle or nozzle velocity, cm./s.

v_j : jetting velocity, cm./s.

v_{nc} : critical velocity of dispersed phase in the nozzle giving maximum area of flow., cm./s.

v_s : superficial velocity, cm./s.

v_m : maximum velocity of drop, cm./s.

V_F : drop volume after break off from the nozzle, cc.

X : x-coordinate

Y : y-coordinate

Greek Symbols

ρ : density, gm./cc.

$\Delta\rho$: difference in density between dispersed and continuous phase, gm./cc.

ϕ : fraction dispersed phase hold-up

γ : interfacial tension, dyne/cm.

μ : continuous phase viscosity, gm./cm.-s.

Subscripts

c : continuous phase

d : dispersed phase

AUTOBIOGRAPHY

Mr. Suwat Saelao was born on November 3, 1956 at Songkla, Thailand. He recived a Bachelor Degree of Engineering in Chemical Engineering from Prince of Songkla University, Songkla, Thailand, in March, 1978.