

بررسی تجربی تغییرات انباشت فاز پراکنده با ارتفاع در ستونهای استخراج مایع- مایع ضربه‌ای سینی دار

محمد مهدی منتظر رحمتی^{۱*}، سید جابر صفدری^۲ و حسین اخگری^۳

^۱استاد دانشکده مهندسی شیمی - پردیس دانشکده های دانشکده فنی - دانشگاه تهران
^۲سازمان انرژی اتمی ایران

(تاریخ دریافت ۸۲/۴/۱۷، تاریخ دریافت روایت اصلاح شده ۸۵/۵/۲، تاریخ تصویب ۸۵/۷/۸)

[]

[]

$$\varepsilon = V_d / (V_d + V_c)$$

()

V_c

V_d

ε

$$K_{Ea} = K_E [6\varepsilon/d_{32}]$$

()

$$K_{Ra} = K_R [6\varepsilon/d_{32}]$$

()

K_R K_E

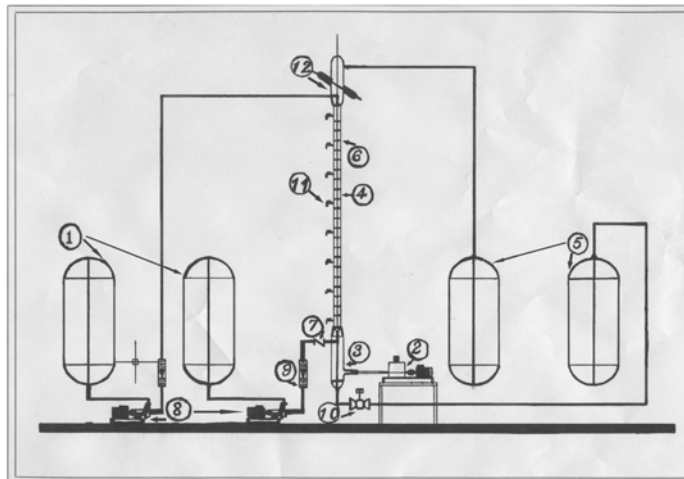
a

[]

°C		\bar{d}_{32} (m ² /m ³)	K_{Ra}	K_{Ea}	ε (m)
30	/				
15	/				
22	/				

Merck

(dyne/cm)	(cp)		
32	0.58	0.866	
29	0.63	0.950	
26	2.30	0.820	



()

() ()

/ / /

[]

/ (cm) / (s⁻¹) /

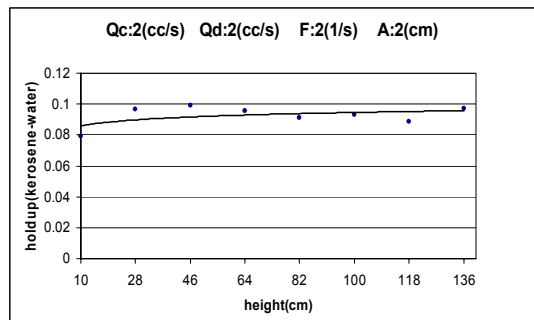
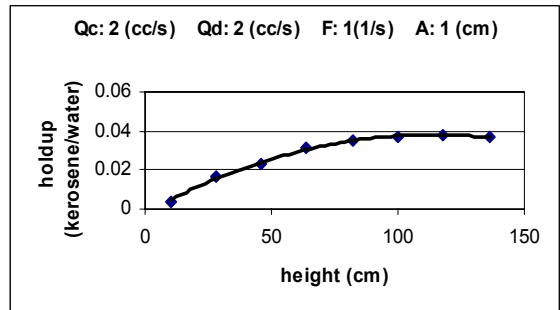
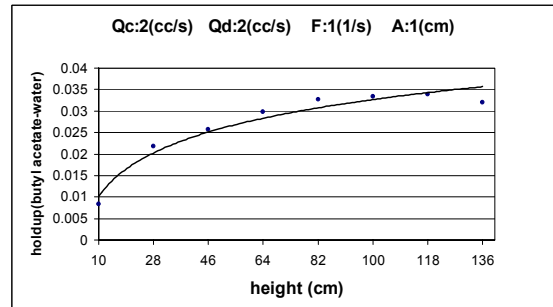
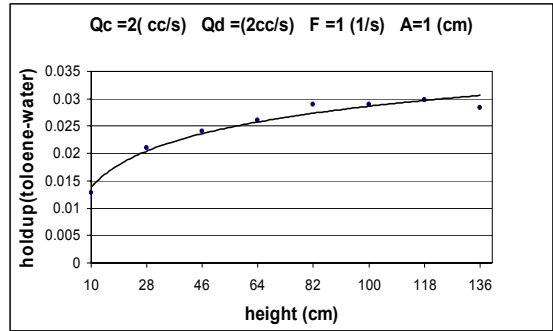
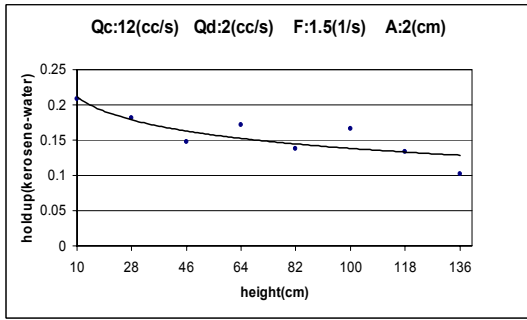
/ / (cc/s)

/ (cc/s)

() (cc/s)

() []

-



()

() ()

:

:

/

/

:

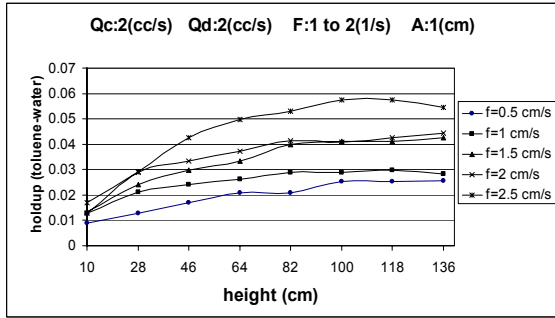
/

:

/

:

/

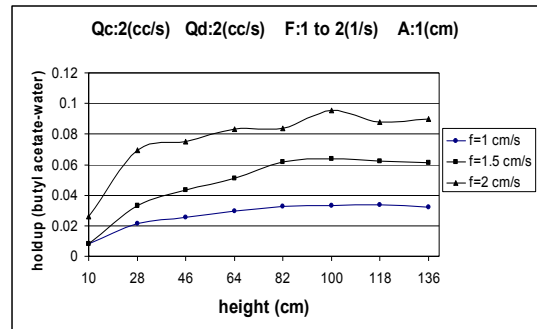


(s⁻¹) /

(s⁻¹)

() ()

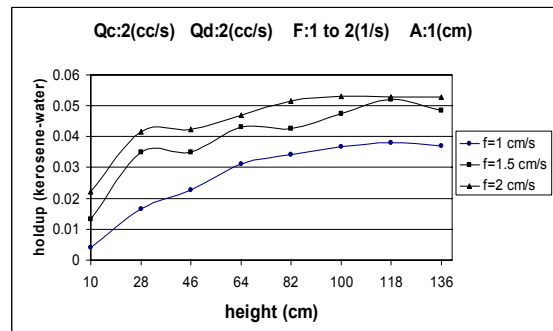
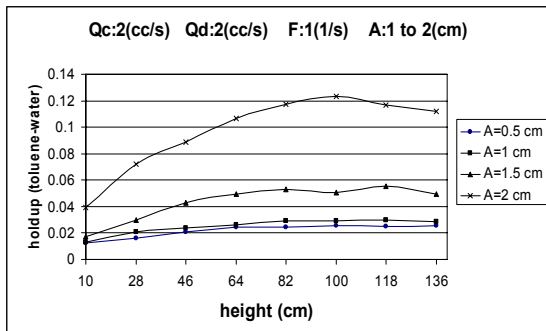
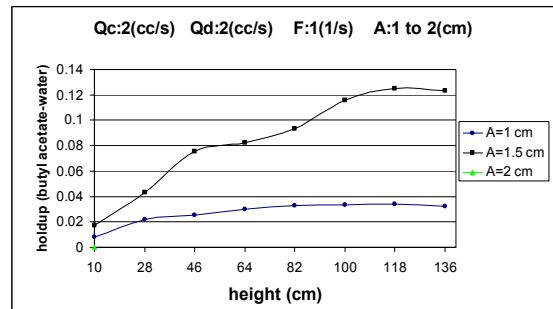
() ()

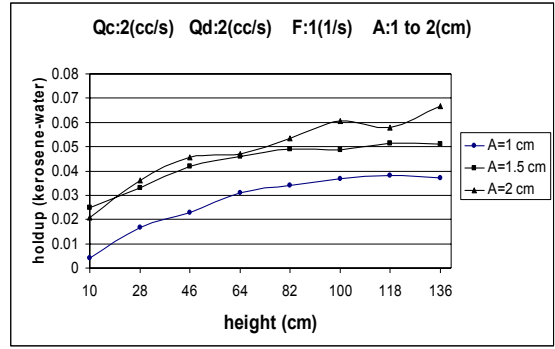
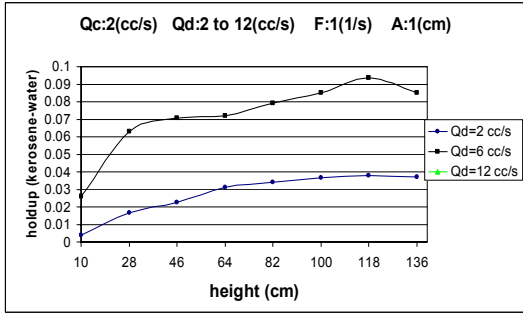


(cm) (s⁻¹)

(cm) (s⁻¹)

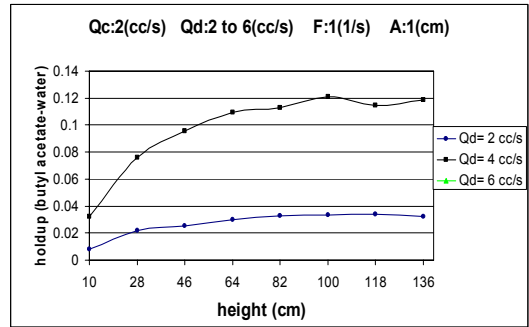
(cm/s)





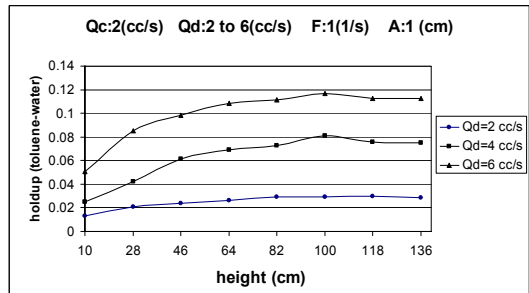
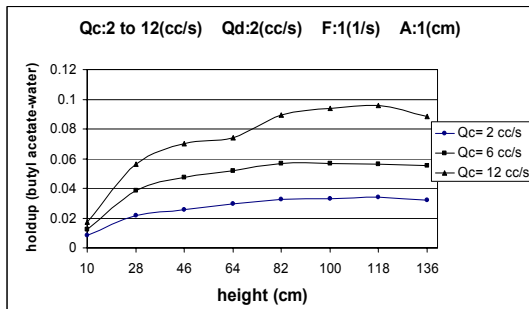
/ :

() ()



() ()

/ :



/ :

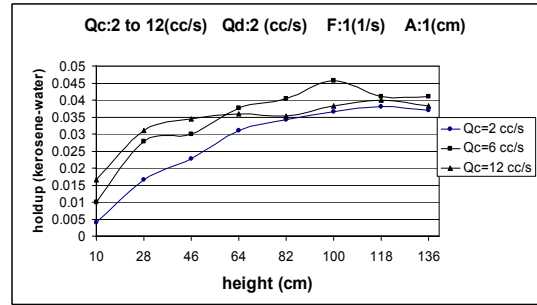
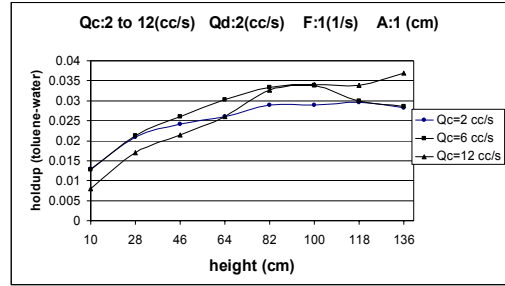
/ :

B A

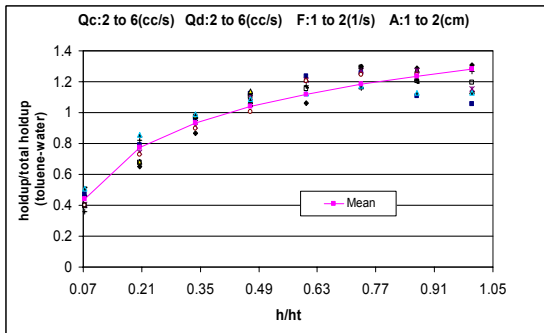
()

B A :

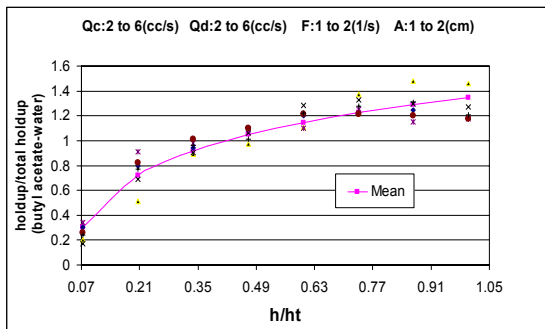
B	A	
/	/	/
/	/	/
/	/	/
/	/	



[]



h/h_t ϵ/ϵ_m :



h/h_t ϵ/ϵ_m :

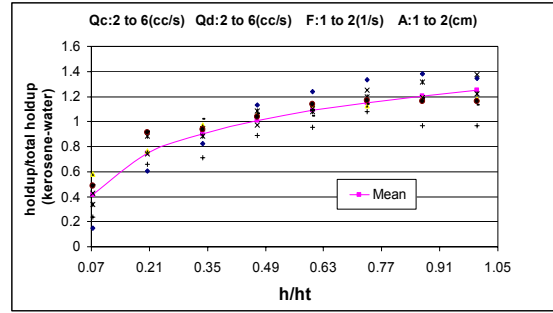
$$\epsilon/\epsilon_m = A \ln(h/h_t) + B \quad ()$$

h/h_t ϵ/ϵ_m

()

()

(cc) : V_d
(cc) : V_c
: ε
: ε_m
(cm) : d_{32}
(cc/s) : Q_d
(cc/s) : Q_c
(cm) : h
(cm) : h_t
: A
: B



h/h_t :
: $\varepsilon/\varepsilon_m$:
(m/s) : K_E
(m/s) : K_R

- 1 - Van Dijack, W. J. D. (1935). *U.S. Patent No. 1011186*.
- 2 - Gottliebsten, K., Grinbum, D., Chen, G. and Stevens, W. (2000). "The use of pulsed perforated plate extraction column for recovery of sulfuric acid from copper tank house electrolyte bleeds." *Hydrometallurgy*, Vol. 58, PP.203-213.
- 3 - Beger, R. (1988). *Ulmann's Encyclopedia of Industrial Chemistry*, Vol. B3, Liquid-Liquid Extraction, PP. 6.14-6.31.
- 4 - Pietzsch, W. and Eckhart, B. (1987). "A new model for the prediction of liquid pulsed sieve tray extractors." *Chem. Eng. Tech.*, Vol. 10, PP.73-86.
- 5 - Misek, T. (1978). "Recommended systems for liquid extraction studies." *European Federation of Chemical Engineering, I. Chem. E.*, London.
- 6 - Chouai, M., Cabassud, M. V., Le Lan, C., Gourdon, C. and Casamatta, G. (2000). "Use of neural networks for liquid-liquid extraction column modeling: an experimental study." *Chem. Eng. & Proc.*, Vol. 39, PP.171-180.
- 7 - Toutain, J., Le Lan, J. M., Goudron, C. and Joulia, X. (1998). "Simulation of coupled effects in a liquid-liquid extraction column." *Comp. Eng.*, Vol. 22, Supplement S379-S386.

- 1 - Pulsed Plate Column
- 2 - Hold up
- 3 - Extract
- 4 -Raffinate
- 5 - Shut down
- 6 - Flooding