Author(s) Jin-Goo Park, Sang-Ho Lee, Ju-Suk Ryu, Yi-Koan Hong, Tae-Gon Kim, and Ahmed A. Busnaina



Interfacial and Electrokinetic Characterization of IPA Solutions Related to Semiconductor Wafer Drying and Cleaning

Jin-Goo Park,^{a,*,z} Sang-Ho Lee,^a Ju-Suk Ryu,^a Yi-Koan Hong,^{a,**} Tae-Gon Kim,^{a,**} and Ahmed A. Busnaina^{b,*}

^aDivision of Materials and Chemical Engineering, Hanyang University, Ansan 426-791, Korea ^bNational Science Foundation Center for Microcontamination Control, Northeastern University, Boston, Massachusetts 02115, USA



25, 2005; ••••• 7 An 26, 2006. A 7,7 J 🔒 28, 2006. M <u>к</u> л 1 2 **. b** 1-A.



Experimental



 $\begin{array}{c} E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{\bullet} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ E_{\bullet, t-1, \bullet} & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ & \langle a_{1}^{2} - a_{0} \rangle & A_{t-1} \\ & \langle$ М

 $(n_2 + H_2)_2 = 4:1$ = 1:1:5 ... $M (H_2)$ %<u>,</u> 120 C) **7** b ΑΜ 2:H2 Η₁Η₂ C) 10 3 D 5500. KI

Results and Discussion

(η), ∠_{ky}• • (E) ⁷/₁ • E

$$\zeta = \frac{\eta \upsilon}{\varepsilon_0 \varepsilon_r E}$$
[1]

20. . 1 . 1000 .. 1800 7 AFM

2000

1800

1600

1400

1200

1000

800

Figure 4. $t \cdot \sqrt{7} \cdot \sqrt{7}$

0

Particle Size (nm)

Silica Particle

(Initial Size : 50 nm)

20

•1⁷ 11⁷ 4• 4•1⁷ 1⁷

10

30

Concentration of IPA (vol%)

40

. - -

50

IA . . .



Figure 1. $D_{4,6,4}$ $A_{4,5}$ $A_{7,4}$ $A_$









_ I A (_ %)	I A (M)		$d\gamma/dC_{\rm I~A}$
0	0	72	, 81.06409
5	0.65427	47.83	11.24487
10	1.30854	40.79	8.65373
20	2.61707	32.26	, 4.95647
30	3.92561	27.84	2.37872
50	6.54269	24.25	, 0.92431
100	13.08537	21.15	0.4746









Figure 10. Ł ngana na pabab k • . • . I A .



Acknowledgments



Hanyang University assisted in meeting the publication costs of this article.

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