NOMENCLATURE

A	=	area, m^2
C_i	=	concentration of species i, $molcm^{-3}$
d_b	=	diameter of bubbles, cm
D_i	=	diffusion coefficient of species i, cm^2s^{-1}
F	=	Faraday's constant, 96500C/eq
g	=	gravitational acceleration, ms^{-2}
H	=	height of the electrodes, m
L	=	length, m
n_i	=	electron transfer number of species i
$\dot{N}_{gen,i}$	=	rate of generation of species i, i, number/s
$N_{i,i}$	=	amount of species i leaving the control volume
$N_{i-1,i}$	=	amount of species i entering the control volume
P	=	pressure, Pa
Q	=	Coulomb, C
R	=	resistance, Ω
R'	=	ideal gas constant, $Jmol^{-1}\ K^{-1}$
t	=	time, s
T	=	temperature, K
$\dot{V}_{gen,i}$	=	rate of volume generation of species i, m^3s^{-1}
$V_{gen,i}$	=	volume generation of species i, m^3
V_{cv}	=	control volume, m^3
V_i	=	volume of species i, m^3
V_{unit}	=	volume of bubble 1unit, m^3
X	=	distance between electrodes, m
y	=	height of the control volume, m

NOMENCLATURE (Continue)

Z_i = charge valence of ions i

Greek letters

σ_0 = electrical conductivity, Ωcm^{-1}

σ_B = mixture conductivity, Ωcm^{-1}

β_0 = arithmetic mean value of the responses

β_i = corresponding of the factor effects

ε = fitting error

μ_L = viscosity of electrolyte, kg/m s

Greek letters

ϕ = current density, Acm^{-2}

$\Delta\rho$ = density (liquid and gas), kgm^{-3}

α_i = void fraction of species i

ϑ_i = terminal velocity species i, ms^{-1}

Subscripts

b = bubble

G = gas phase

L = liquid phase

+ = positive ions

- = negative ions