

LSNReviews

From: Lietai Yang
Sent: Monday, November 29, 2004 1:47 PM
To: Xihua He
Subject: Calculation for the CaCl₂ and KCl system
Attachments: System_CaCl₂KCl.xls

Xihua

The results are as follows (also the enclosed file):

Dissoved CaCl₂ (molal) 5.006268207
Dissoved KCl (molal) 3.556503998
Boiling T at 1 atm (oC) 119.484

At 1 atm and 5 molal CaCl₂, the maximum amount of KCl that can be dissolved is 3.56 molal.

-Lietai

Properties Page

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Date: Mon, 29 Nov 2004 12:46:56 -0600
From: Lietai Yang <ltyang@cnwra.swri.edu>
Subject: Calculation for the CaCl₂ and KCl system
In-reply-to: <00c101c4d171\$065267f0\$b7c8a281@SMURF>
To: xhe@cnwra.swri.edu
Message-id: <014d01c4d643\$cd694e40\$3bc8a281@TOTO>
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X-MIMEOLE: Produced By Microsoft MimeOLE V6.00.2800.1441
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Content-type: multipart/mixed;
boundary="-----_NextPart_000_014E_01C4D611.82CEDE40"
Importance: Normal
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Calculation for 145 was with ESP 7.0.20

Calculation Using ESP 7.0.14

None of the above are QA documented

Inputs:

H2O 55.508
CaCl2 5
KCl 4

55.508
5
4

Outputs:

Dissoved CaCl2 (Mole) 5.00E+00
Dissoved KCl (Mole) 3.42E+00
Dissoved CaCl2 (molal) 5.16656273
Dissoved KCl (molal) 3.532456437
Boiling T at 1 atm (oC)

5.00E+00
3.55E+00
5.006268207
3.556503998
119.484

Stream	in	in	in	out	out	out
Phase	Aqueous	Solid	Vapor	Aqueous	Solid	Vapor
Temperature, C	120	120	120	119.484	119.484	119.484
Pressure, atm	1	1	1	1	1	1
pH	4.07339			4.02598		
Total mol/hr	74.18219	0.581425	1.78949	76.26446	0.447949	0.069508
Flow Units	mol/hr	mol/hr	mol/hr	mol/hr	mol/hr	mol/hr
H2O	53.7185		1.789487	55.4385		0.069508
HCL	2.30E-08		3.21E-06	2.49E-08		1.29E-07
CACL2	0.686722			0.639082		
KOH	6.96E-16			6.53E-16		
OHION	9.22E-09			8.43E-09		
CAOHION	1.08E-05			9.20E-06		
CLION	12.0451			12.2739		
HION	7.57E-06			9.06E-06		
KION	3.41858			3.55205		
CAION	4.31327			4.36091		
KCL		0.581425			0.447949	
CACL2.0.33H2O						
CACL2.1H2O						
CACL2.2H2O						
CACL2.4H2O						
CACL2.6H2O						
CAOH2						
CAO						
KCACL3						
KOH.1H2O						
KOH.2H2O						
KOH.4H2O						
CA2CL2O						
CA2CL2O.2H2O						
CAOHCL						
Total g/hr	1777.54	43.346	32.2382	1818.47	33.3952	1.25221
Volume, L/hr	1.33256	0.021815	57.3119	1.36765	0.016807	2.22315
Enthalpy, cal/hr	-4.95E+06	-60046.6	-1.02E+05	-5.08E+06	-46264.8	-3965.3
Density, g/L	1333.92	1986.97	0.562505	1329.63	1986.97	0.563259
Vapor fraction			1			1
Solid fraction		1			1	
Organic fraction						
Osmotic Pres, atm	1221.71			1190.23		
Redox Pot, volts						
Ionic Strength	0.220516			0.21812		