

Alicia Mullins

From: Xihua He
Sent: Friday, July 07, 2006 2:23 PM
To: David Pickett; Vijay Jain; Paul Bertetti
Subject: update on stainless steel immersion tests
Attachments: 316LSSpH.xls

Follow Up Flag: Follow up
Flag Status: Flagged

I immersed the stainless steel specimen in simulated sodium-pore water at 60°C as I did for carbon steel previously. In parallel there are three test cells, two with stainless steel and one with simulated pore water only as a blank cell. For these three test cells, the pH increased with time as I observed from the immersion of carbon steel. However, after I plot the pH difference against the blank cell. The pH remained relatively constant. The file on this is attached. I also drew some solution for chemical analysis, but I didn't send to ICP lab yet due to budget issue.

The pH increase that we reported in the report may be due to solution chemical species changes. I believe we need to do chemical speciation simulation.

Thanks,
Xihua

Properties Page

Return-path: <xhe@cnwra.swri.edu>
Received: from SMURF ([129.162.200.183])
by rogain.cnwra.swri.edu (Sun ONE Messaging Server 6.0 (built Oct 29 2003))
with ESMTP id <0J2100304PPY7720@rogain.cnwra.swri.edu>; Fri,
07 Jul 2006 13:22:46 -0500 (CDT)
Date: Fri, 07 Jul 2006 13:22:34 -0500
From: Xihua He <xhe@cnwra.swri.edu>
Subject: update on stainless steel immersion tests
To: David Pickett <dpickett@cnwra.swri.edu>, Vijay Jain <vjain@cnwra.swri.edu>,
Paul Bertetti <pbertetti@cnwra.swri.edu>
Reply-to: xhe@cnwra.swri.edu
Message-id: <017c01c6a1f2\$51666360\$b7c8a281@cnwra.swri.edu>
Organization: CNWRA
MIME-version: 1.0
X-MIMEOLE: Produced By Microsoft MimeOLE V6.00.2900.2670
X-Mailer: Microsoft Outlook, Build 10.0.6626
Content-type: multipart/mixed;
boundary="====_NextPart_000_017D_01C6A1C8.68905B60"
Importance: Normal
X-Priority: 3 (Normal)
X-MSMail-priority: Normal

		<u>CELL#1</u>		<u>CELL#2</u>		<u>CELL#3</u>	
5/11/06	10:05	60.8	8.41	60.6	8.45	61.2	8.37
5/11/06	12:35	60.4		60.3		60.6	
5/12/06	6:10	60.6	8.24	60.4	8.22	60.8	8.26
5/15/06	8:05	60.6	8.74	60.2	8.64	59.6	8.68

1mL solution was drawn from cell #1 for ICP analysis, then 1 mL fresh original solution was added in.

Solution ID: SS1_1

1mL solution was drawn from cell #3 for ICP analysis, then 1 mL fresh original solution was added in.

Solution ID: PW3_1

5/16/06	9:30	60.6	8.73	60.4	8.69	60.2	8.77
5/17/06	8:10	60.4	8.72	59.8	8.67	60.2	8.76
5/18/06	8:00	60.4	8.71	60.2	8.63	60.4	8.77
5/19/06	8:50	60.4	8.82	60.4	8.85	60.2	8.88

1mL solution was drawn from cell #1 for ICP analysis, then 1 mL fresh original solution was added in.

Solution ID: SS1_2

1mL solution was drawn from cell #3 for ICP analysis, then 1 mL fresh original solution was added in.

Solution ID: PW3_2

5/22/06	8:10	60.4	8.78	60.2	8.89	60.2	8.93
5/23/06	8:30	60.4	8.91	60.4	8.87	60.2	8.92
5/24/06	10:00		8.83		8.93		8.98
5/25/06	9:30		8.98		8.96		8.88

Thermometer : Fisher Sn# 41523645 Cal: 5/23/06 Due:5/23/07

5/26/06	9:15	60.2	9.02	60.4	8.89	59.8	8.94
---------	------	------	------	------	------	------	------

1mL solution was drawn from cell #1 for ICP analysis, then 1 mL fresh original solution was added in.

Solution ID: SS1_3

1mL solution was drawn from cell #3 for ICP analysis, then 1 mL fresh original solution was added in.

Solution ID: PW3_3

5/30/06	8:21	60.4	9.18	60.2	9.12	60.2	9.11
6/2/06	8:25	60.6	9.16	60.2	9.14	60.2	9.24

1mL solution was drawn from cell #1 for ICP analysis, then 1 mL fresh original solution was added in.

Solution ID: SS1_4

1mL solution was drawn from cell #3 for ICP analysis, then 1 mL fresh original solution was added in.

Solution ID: PW3_4

6/6/06	9:45	60.4	9.18	60.2	9.12	60.6	9.22
6/9/06	9:15	60.6	9.2	60.4	9.08	60.4	9.18
6/12/06	8:30	60.4	9.15	60.2	9.02	60.2	9.13
6/16/06	8:30	60.4	9.14	60.3	9.08	60.2	9.16
6/19/06	8:25	60.2	9.17	60.4	9.09	60.2	9.15
6/22/06	8:30	60.2	9.22	60.2	9.16	60.4	9.21
6/27/06	9:05	60.4	9.18	60.4	9.11	60.6	9.17
6/30/06	8:30	60.2	9.19	60.2	9.08	60.4	9.15
7/6/06	1:30	60.4	9.11	60.2	9.16	60.2	9.15

		<u>CELL#1</u>		<u>CELL#2</u>		<u>CELL#3</u>	
		T(days)	pH	pH (cell #1-#3)	pH	pH (cell #2-#3)	pH
5/11/06	10:05	0	8.41	0.04	8.45	0.08	8.37
5/12/06	6:10	0.836806	8.24	-0.02	8.22	-0.04	8.26
5/15/06	8:05	3.916667	8.74	0.06	8.64	-0.04	8.68
5/16/06	9:30	4.975694	8.73	-0.04	8.69	-0.08	8.77
5/17/06	8:10	5.920139	8.72	-0.04	8.67	-0.09	8.76
5/18/06	8:00	6.913194	8.71	-0.06	8.63	-0.14	8.77
5/19/06	8:50	7.947917	8.82	-0.06	8.85	-0.03	8.88
5/22/06	8:10	10.92014	8.78	-0.15	8.89	-0.04	8.93
5/23/06	8:30	11.93403	8.91	-0.01	8.87	-0.05	8.92
5/24/06	10:00	12.99653	8.83	-0.15	8.93	-0.05	8.98
5/25/06	9:30	13.97569	8.98	0.1	8.96	0.08	8.88
5/26/06	9:15	14.96528	9.02	0.08	8.89	-0.05	8.94
5/30/06	8:21	18.92778	9.18	0.07	9.12	0.01	9.11
6/2/06	8:25	21.93056	9.16	-0.08	9.14	-0.1	9.24
6/6/06	9:45	25.98611	9.18	-0.04	9.12	-0.1	9.22
6/9/06	9:15	28.96528	9.2	0.02	9.08	-0.1	9.18
6/12/06	8:30	31.93403	9.15	0.02	9.02	-0.11	9.13
6/16/06	8:30	35.93403	9.14	-0.02	9.08	-0.08	9.16
6/19/06	8:25	38.93056	9.17	0.02	9.09	-0.06	9.15
6/22/06	8:30	41.93403	9.22	0.01	9.16	-0.05	9.21
6/27/06	9:05	46.95833	9.18	0.01	9.11	-0.06	9.17
6/30/06	8:30	49.93403	9.19	0.04	9.08	-0.07	9.15
7/6/06	1:30	55.93403	9.11	-0.04	9.16	0.01	9.15

