LSNReviews

From: Kuang-Tsan Ken Chiang [kchiang@cnwra.swri.edu]
Sent: Monday, June 12, 2006 12:44 PM
To: Roberto Pabalan; jmyers@cnwra.swri.org
Cc: Lietai Yang; Yi-Ming Pan; Xihua He
Subject: TGA Real Time Weight Loss Measurement - Status Report
Attachments: Deliqu1.ppt

To evaluate NaCl-KNO3-NaNO3 salt decompostion, thermogravimetric analysis (TGA) real time loss measurement was conducted (Ref. 1). The saturated NaCl-KNO3-NaNO3 solution was hold in an alumina crucible, and heated from room temperature in slow flowing air to 160 degrees C at a constant rate of 0.1 degree C/min. The weight loss of the salt mixture was monitored continuously using the TGA. The sample weight losses accelerated at temperatures above 50 degrees C, but deccelerated graually above 90 degrees C to an approximately constant value. The decreasing weight loss rate was due to majority of the moisture was evaporated. However, the sample weight continuou to decrease up the set temperature of 160 degree C. This indicated that it was difficult to drive out all the water content from the salt. During a hold time of approximately 11 hours at 160 degrees C, the sample weight fluctuated indicating possible pickup moisture from flow air. The test data is included in the attached file.

The test showed that the TGA instrument is capable of monitoring weight change continuously for this study. Additional test is planned to introduce a small amount of moisture to evalute the deliquescence behavior of the salt mixture.

Reference:
1). L.Yang, "Corrosion Under Salt Deposites at Elevated Temperatures. Part B." Updated Test Plan 5/2/2006.

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x2308

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Date: Mon, 12 Jun 2006 11:44:25 -0500
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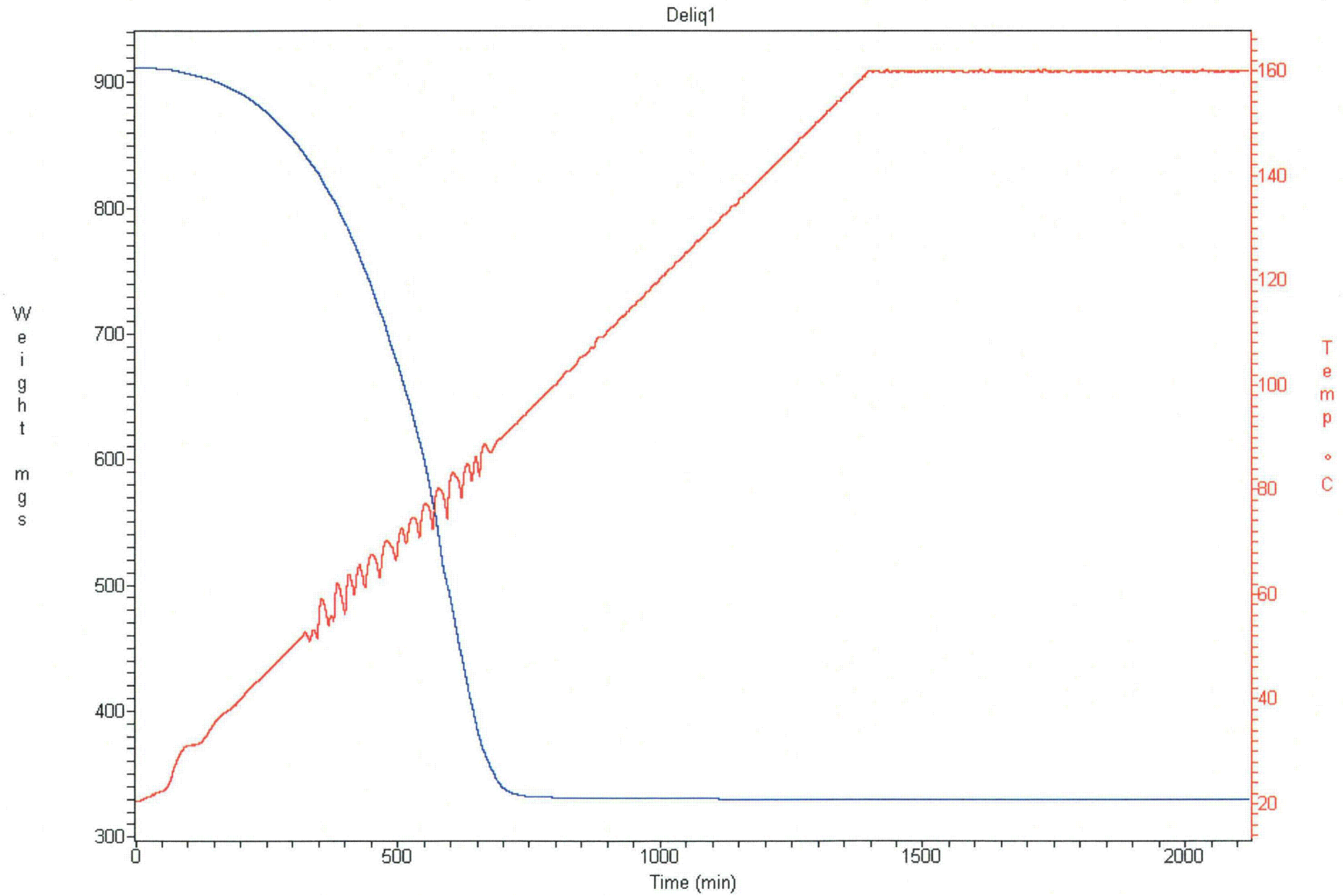
Deliq1
Weight mgs
Temp °C
Time (min)
900
800
700
600
500
400
300
160
140
120
100
80
60
40
20
0
500
1000
1500
2000