

SUMMARY OF TOPICS

The following changes in requirements to the Standard for Liquid-Level Gauges for Anhydrous Ammonia and LP-Gas, UL 565, are being proposed:

1. Revisions to the 10-day moist ammonia-air stress cracking test

STP BALLOTS AND ALL COMMENTS DUE: February 19, 2018

For your convenience in review, proposed additions to existing requirements are shown underlined and proposed deletions are shown ~~lined-out~~.

1. Revisions to the 10-day moist ammonia-air stress cracking test

RATIONALE

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Different countries around the world use ASTM B858 and ISO 6957 for testing their products that are made from brass materials for stress corrosion cracking. UL proposes to harmonize with Sections 6 Apparatus, 7 Reagents and Materials, 8 Test Media, 9.3 to 9.4 Test Sample Preparation and 10.1 to 10.4 Test Procedure of ASTM B 858-06, Standard Test Method for Ammonia Vapor for Determining Susceptibility to Stress Corrosion Cracking in Copper Alloys. The pH level of the test solution shall be High 10.5 $\pm$ 0.1 and the exposure temperature shall be 25°C $\pm$ 1°C for all testing. This change will also reduce the test from ten days to one day and help provide a more consistent method to conduct the test for manufacturers.

PROPOSAL

PERFORMANCE

14 10-Day Moist Ammonia-Air Stress Cracking Test

14.1 After being subjected to the conditions described in ~~14.2—14.4~~ 14.2 – 14.3, a pressure confining brass part containing more than 15 percent zinc shall ~~show no evidence of cracking when examined using 25X magnification.~~

a) Show no evidence of cracking, delamination, or degradation; or

b) Perform as intended when tested as described in 14.4.

14.2 Each test sample ~~is to be subjected to the physical stresses normally imposed on or within a part as a result of assembly with other components. Such stresses are to be applied to the sample prior to and maintained during the test. Samples with threads, intended to be used for installing the product in the field are to have the threads engaged and tightened to the torque specified in Table 14.1. Teflon tape or pipe~~

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compound are not to be used on the threads. One test sample of each size is to be subjected to the physical stresses normally imposed on or within a part as the result of assembly with other components. Samples with female tapered pipe threads, intended to be used for installing the product in the field, are to have the threads engaged and tightened to the torque specified in Table 14.1. Samples with female threads other than tapered pipe threads shall be torqued as specified by the manufacturer. Polytetrafluoroethylene (PTFE) tape or pipe compound is not to be used on any threads. Samples with male threads are evaluated in "as-received" condition.

14.3 Three samples are to be degreased and then continuously exposed in a set position for ten days to a moist ammonia-air mixture maintained in a glass chamber approximately 305 by 305 by 305 mm (12 by 12 by 12 inch) having a glass cover. The samples are then to be tested in accordance with Apparatus, Section 6, Reagents and Materials, Section 7, Test Media, Section 8, Test Sample Preparation (9.3 – 9.4), Test Procedure (10.1 – 10.4) of the Standard Test Method for Ammonia Vapor Test for Determining Susceptibility to Stress Corrosion Cracking in Copper Alloys, ASTM B858-06, except the pH level of the test solution shall be High 10.5 $\pm$ 0.1 and the exposure temperature shall be 25 $\pm$ 1°C.

14.4 Approximately 600 ml of aqueous ammonia having a specific gravity of 0.94 is to be maintained at the bottom of the glass chamber below the samples. The samples are to be positioned 1-1/2 inches (38.1 mm) above the aqueous ammonia solution and supported by an inert tray. The moist ammonia-air mixture in the chamber is to be maintained at atmospheric pressure and at a temperature of 34 $\pm$ 2°C. After the exposure period, the samples are to be examined for cracks or other signs of stress corrosion using a microscope having a magnification of 25X. Parts exhibiting degradation as indicated in 14.1 (a), as a result of the test exposure described in 14.2 and 14.3 shall be subjected to and comply with the Hydrostatic Strength Test Section 11.

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