



Underwriters Laboratories Inc.®

Subject 1130

12 Laboratory Drive
 Research Triangle Park, NC 27709
 March 11, 1994

TO: Marine Council of Underwriters Laboratories Inc.,
 Subscribers to UL's Standards Service for Mechanically
 and Electrically Operated Fuel Pumps for Marine Use,
 and
 Others Interested

SUBJECT: Request for Comments on Proposed Requirements for the
 Second Edition of the Standard for Mechanically and
 Electrically Operated Fuel Pumps for Marine Use, UL 1130;
 Replacement of the Mercurous Nitrate Immersion Test;
 PROPOSED EFFECTIVE DATE

SUMMARY OF TOPICS

This bulletin proposes the following changes in requirements:

- To replace the Mercurous-Nitrate Immersion Test.

COMMENTS DUE BY: APRIL 4, 1994

* * * * *

This bulletin proposes requirements for UL 1130 for your review and comment.

Please note that proposed requirements are of a tentative and early nature and are for review and comment only. Current requirements are to be used to judge a product until these requirements are published in final form.

PROPOSED EFFECTIVE DATE

Since these proposed requirements will not necessitate a review or additional testing of currently Listed products, UL proposes that the new requirements become effective upon publication.

RATIONALE

Parts made of brass alloys containing more than 15 percent zinc are subject to applied and residual stresses during formation that may result in cracking or delamination of the part in end-use applications. This cracking or delamination can occur at room

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temperature and in other common environments. To determine that such parts can be considered acceptable for end-use applications, they are subjected to a mercurous nitrate immersion test. During this test, parts are immersed in a solution containing mercury, water, and nitric acid for 30 minutes.

The disposal of the mercurous nitrate waste material (coated parts and solution) in an environmentally-sound manner has become increasingly difficult. Also, there are potential health risks involved if the test is not conducted according to specific procedures.

After consideration of these difficulties, UL has decided to discontinue use of the mercurous nitrate immersion test. In searching for an acceptable alternate test, UL obtained information from ASTM and conducted evaluation tests to find a test that would provide results comparable to those obtained using the existing mercurous nitrate immersion test. As a result of these efforts, UL has determined that a 10-day moist ammonia air stress cracking test would be a suitable replacement. Accordingly, UL proposes to eliminate the Mercurous Nitrate Immersion Test and replace it with a 10-Day Moist Ammonia Air Stress Cracking Test.

IMPACT

Since the 10-Day Moist Ammonia Air Stress Cracking Test is considered equivalent to the Mercurous-Nitrate Immersion Test, currently Listed fuel pumps will not require a review, retest, or modification. All new submittals will be tested in accordance with the new test.

PROPOSALS

For your convenience in review, proposed additions to existing requirements are shown underlined and proposed deletions are shown ~~lined-out~~. Proposed new requirements are identified by (NEW). In the case of extensively revised paragraphs, the original text is identified by (CURRENT) and is followed by the proposed text identified by (PROPOSED). A paragraph that is proposed to be deleted is identified by (DELETED) and is shown ~~lined-out~~.

5.6 A brass fitting shall have less than 15 percent zinc content. If the zinc content exceeds 15 percent, the fitting shall comply with the ~~Mercurous-Nitrate Immersion Test, Section 24~~ 10-Day Moist Ammonia Air Stress Cracking Test, Section 24A.

Paragraph 5.6 revised (date of publication)

TABLE 13.1

TEST SETS

Set	Tests
1	Vibration Test, Section 15 Shock Test, Section 16 Temperature Test, Section 17 Stray Current Leakage Test, Section 18 Materials Test, Section 19 Fuse Protection Test ^a , Section 20 Locked Rotor Test, Section 21 Salt Spray Corrosion Test ^b , Section 14 Ignition Protection Test, Section 22
11	Salt Spray Corrosion Test ^c , Section 14 Operation Test, Section 23 ~~Mercurous Nitrate Test,~~ Section 24 <u>10-Day Moist Ammonia Air Stress Cracking Test,</u> Section 24A Fire and Thermal Shock Test, Section 25 Strain Relief Test, Section 26

^aTo be conducted as appropriate.^bThe test is to be conducted for 240 hours.^cThe test is to be conducted for 1800 hours.

Table 13.1 revised (date of publication)

(DELETED)

24. Mercurous-Nitrate Immersion Test

24.1 ~~Brass parts made of copper alloy containing more than 15 percent zinc shall withstand total immersion, for 30 minutes without cracking, in an aqueous mercurous nitrate solution containing 10 grams (0.35 oz) of mercurous nitrate and 10 ml of nitric acid (specific gravity 1.42) per liter of solution.~~

Paragraph 24.1 deleted (date of publication)

24.2 ~~Instructions for the preparation of solutions and procedures for replenishment, together with descriptions for cleaning and degreasing of samples, are covered in the Mercurous Nitrate Test for Copper and Copper Alloys, ASTM B154-82.~~

Paragraph 24.2 deleted (date of publication)

~~24.3 A pump is to be subjected to the physical stresses normally imposed on or within a part as the result of assembly with other components or with tubing or piping. Such stresses are to be applied to the sample prior to and be effective during the test.~~

Paragraph 24.3 relocated as paragraph 24A.2 (date of publication)

~~24.4 The pump fitting used in this test is to be rigidly anchored or otherwise supported. A length of appropriately sized Schedule 80 pipe (ANSI B36.1) is to be connected to a female pipe threaded section of the body, or an appropriate pipe fitting is to be connected to a male pipe threaded section, the male threads having first been lubricated with SAE No. 10 machine oil.~~

Paragraph 24.4 relocated as paragraph 24A.3 (date of publication)

~~24.5 CAUTION — Testing with mercury is a definite health hazard, and it is recommended that equipment for the removal of mercury vapor produced in volatilization be provided. Rubber gloves should be used during testing. The ASTM test procedure referenced in paragraph 24.2 provides further advice on the use and disposal of mercurous substances.~~

Paragraph 24.5 deleted (date of publication)

(NEW SECTION)

24A. 10-Day Moist Ammonia Air Stress Cracking Test

24A.1 After being tested as described in 24A.2 — 24A.5, a brass part containing more than 15 percent zinc shall show no evidence of cracking or delamination when examined using 25x magnification.

Paragraph 24A.1 added (date of publication)

24A.2 A pump is to be subjected to the physical stresses normally imposed on or within a part as the result of assembly with other components or with tubing or piping. Such stresses are to be applied to the sample prior to and be effective during the test.

Paragraph 24.3 relocated as paragraph 24A.2 (date of publication)

24A.3 The pump fitting used in this test is to be rigidly anchored or otherwise supported. A length of appropriately sized Schedule 80 pipe (ANSI B36.1) is to be connected to a female pipe threaded section of the body, or an appropriate pipe fitting is to be connected to a male pipe threaded section, the male threads having first been lubricated with SAE No. 10 machine oil.

Paragraph 24.4 relocated as paragraph 24A.3 (date of publication)

24A.4 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 12 by 12 by 12 inches (305 by 305 by 305 mm) having a glass cover.

Paragraph 24A.4 added (date of publication)

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24A.4 Approximately 60 ml of aqueous ammonia having a specific gravity of 0.90 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 with the temperature constant at approximately 93°F (34°C).

Paragraph 24A.4 added (date of publication)

Request for Comments on Proposals

Please provide the following:

1. Your comments concerning the proposed requirements; and
2. Your comments concerning the proposed effective date, should the proposals be adopted.

Written comments should be sent to the attention of Anthony Caporale at UL's RTP office, 12 Laboratory Drive, Research Triangle Park, NC 27709.

All comments should be sent by April 4, 1994.

Questions regarding interpretation of requirements should be directed to the responsible UL Staff. Please see Appendix A to this Bulletin regarding designated responsibility for the subject product category.

Unless specifically requested to do otherwise, UL will not acknowledge comments indicating concurrence with these proposals.

UNDERWRITERS LABORATORIES INC.

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APPENDIX A**Designated Responsibility for UL
Product Category ITXQ,
Fuel Pumps**

The following individuals are involved with the investigation of products covered under the subject category. The Primary Designated Engineer (shown in UPPERCASE letters) coordinates the establishment and uniform interpretation of UL requirements applicable to the product category. The Designated Engineers (shown in lowercase letters) at each UL office work with the Primary Designated Engineer to interpret requirements and maintain UL standards.

Should you have questions regarding the interpretation of the requirements proposed in this bulletin or any adopted requirements that affect your product, you are encouraged to contact the individual at the office to which you normally submit your products.

MILES BEAM - at UL's RTP Office (Ext. 1687)

Keith Landreth - at UL's RTP Office (Ext. 1506)

The Responsible Department Manager for the subject category is Tom Wollan at UL's RTP Office. The Managing Engineer oversees the significant interpretations made by the Primary Designated Engineer and arbitrates any differences regarding interpretation of UL requirements.

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