

Northbrook, Illinois • (708) 272-8800
 Melville, New York • (516) 271-6200
 Santa Clara, California • (408) 985-2400
 Research Triangle Park,
 North Carolina • (919) 549-1400



Subjects 246 (258, 262,
 401, 668, 1091, 1468,
 1486, 1739)

333 Pfingsten Road
 Northbrook, IL 60062-2096
 March 4, 1994

(In reply, refer to Subject 246)

TO: Fire Council of Underwriters Laboratories Inc.,
 Subscribers to UL's Standard Service for the Standards
 and Outline Enumerated in Appendix A,
 and
 Others Interested

SUBJECT: Request for Comments on Proposed Requirements for the
 Standards and Outline as Enumerated in Appendix A; and
 PROPOSED EFFECTIVE DATES

SUMMARY OF TOPICS

This bulletin proposes the following change in requirements:

Proposes to revise the Standards and Outline enumerated in
 Appendix A to delete the Mercurous Nitrate Immersion Test and
 add a 10-Day Moist Ammonia Air Stress Cracking Test.

COMMENTS ON THIS PROPOSAL DUE: April 4, 1994

Attached for your review and comments are proposed requirements
 for the Standards and Outline enumerated in Appendix A.

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.

Questions regarding interpretation of requirements should be
 directed to the responsible UL staff. An Appendix designating
 the responsible UL staff for each Standard or Outline follows
 each related Appendix as "-1." For example, Appendix B-1 relates
 to Appendix B, Appendix C-1 relates to Appendix C, and so on.

A not-for-profit organization
 dedicated to public safety and
 committed to quality service

Subject 246

-2-

March 4, 1994

PROPOSED EFFECTIVE DATES

Since the proposed requirements will not necessitate a review or additional testing of currently Listed products, UL proposes that these 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 forming that may result in cracking or delamination of the part in end-use applications. This cracking or delamination can occur at room 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

This proposal, if adopted, will not require a review, retest, or modification of presently Listed equipment.

Subject 246

-3-

March 4, 1994

Request for Comments on Proposals

Please provide the following:

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

Written comments should be sent to the attention of C. H. McCall at UL's Northbrook office, 333 Pfingsten Road, Northbrook, IL 60062-2096. Please reference all correspondence to Subject 246.

All comments should be sent by April 4, 1994.

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

UNDERWRITERS LABORATORIES INC.

REVIEWED BY:



C. H. McCALL (Ext. 42320)
Senior Engineering Associate
Standards Department

KEN ZASTROW (Ext. 42284)
Senior Project Engineer
Engineering Services 411A

SR:JTM

246BUL.P94

Subject 246

March, 1994

APPENDIX A

LIST OF STANDARDS AND OUTLINE PROPOSED TO BE REVISED
AND APPENDICES IN WHICH THE PROPOSED REQUIREMENTS ARE LOCATED

STANDARDS:

<u>Document Number</u>	<u>Appendix</u>	<u>Document</u>
UL 246	B	Seventh Edition of the Standard for Hydrants for Fire-Protection Service
UL 262	C	Sixth Edition of the Standard for Gate Valves for Fire-Protection Service
UL 401	D	Third Edition of the Standard for Portable Spray Hose Nozzles for Fire Protection Service
UL 668	E	Eighth Edition of the Standard for Hose Valves for Fire Protection Service
UL 1091	F	Fourth Edition of the Standard for Butterfly Valves for Fire Protection Service
UL 1468	G	Second Edition of the Standard for Direct-Acting Pressure-Reducing and Pressure-Control Valves for Fire-Protection Service
UL 1486	H	Second Edition of the Standard for Quick Opening Devices for Dry Pipe Valves for Fire-Protection Service
UL 1739	I	Second Edition of the Standard for Pilot-Operated Pressure-Control Valves for Fire-Protection Service

OUTLINE:

<u>Document Number</u>	<u>Appendix</u>	<u>Document</u>
Subject 258	J	Shutoff Valves for Trim and Drain Purposes
246BAA.P94		

Subject 246

March, 1994

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.

A P P E N D I X B

PROPOSED REQUIREMENTS AND PROPOSED EFFECTIVE DATES FOR THE SEVENTH EDITION OF THE STANDARD FOR HYDRANTS FOR FIRE-PROTECTION SERVICE UL 246

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). A paragraph that is proposed to be deleted is identified by (DELETED) and is shown ~~lined-out~~.

246BAB.P94

PROPOSAL

19 Metallic Materials

19.1 All parts of a hydrant made of a copper alloy containing more than 15 percent zinc shall withstand, without cracking, the ~~Mercurous Nitrate Immersion Test, see Section 20~~ 10-Day Moist Ammonia Air Stress Cracking Test, see Section 19A.

(NEW)

19A 10-Day Moist Ammonia Air Stress Cracking Test

19A.1 After being tested as described in 19A.2 – 19A.4, a brass part containing more than 15 percent zinc shall show no evidence of cracking or delamination when examined using 25x magnification.

19A.1 added (date of publication)

19A.2 Each test sample is to be subjected to the physical stresses normally imposed on or within a part as the result of assembly with other components. Such stresses are to be applied to the sample prior to and be effective during the test.

19A.2 added (date of publication)

19A.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 12 by 12 by 12 inches (305 by 305 by 305 mm) having a glass cover.

19A.3 added (date of publication)

19A.4 Approximately 600 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).

19A.4 added (date of publication)

(DELETED)

20 Mercurous-Nitrate Immersion Test

Section 20 deleted (date of publication)

~~20.1 Nozzles or components made from copper alloys containing more than 15 percent zinc shall withstand total immersion for 30 minutes, without cracking, in an aqueous mercurous nitrate solution containing 10 grams of mercurous nitrate and 10 milliliters of nitric acid (specific gravity 1.42) per liter of solution.~~

~~20.2 Instructions for preparation of solutions and procedures for replenishment together with descriptions for cleaning and degreasing of the samples are covered in the Mercurous Nitrate Test for Copper and Copper Alloys, ASTM B154.~~

~~20.3 The test sample shall be subjected to the physical stresses intended to be imposed on or within the sample as the result of assembly with a coupling. Such stresses shall be applied to the sample prior to and be effective during the test. A sample is to be connected to an appropriate male coupling and tightened to the minimum torque necessary to produce a leaktight assembly.~~

Subject 246

-B3-

March, 1994

~~20.4 CAUTION Testing with mercury is a definite health hazard and it is recommended that equipment be provided for the removal of mercury vapor produced in volatilization. Rubber gloves shall be used during testing.~~

~~20.5 Threaded openings are to be fitted with brass plugs or fittings assembled as specified in 20.6. Other threaded or bolted parts are to be tightened to the degree normally found acceptable to produce a leak tight assembly.~~

~~20.6 Threaded openings of the samples are to be fitted with plugs or fittings, exerting the torque designated in Table 20.1. Male threads are to be lubricated with two drops of SAE No. 10 machine oil prior to assembly.~~

Table 20.1
Torque requirements for pipe connections

Pipe size, inches	Torque, pound-inches (N·m)
2-1/2	1750 (198)
3	1800 (203)

Subject 246

March, 1994

**APPENDIX B-1
Designated Responsibility for UL
Product Category HBOR
Hydrants**

The following individual is 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.

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.

EMIL MISICHKO — at UL's Northbrook Office (Ext. 42036)

Dwayne Sloan — at UL's RTP Office (Ext. 1676)

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

246BAB1.P94

Subject 262

March, 1994

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.

A P P E N D I X C

PROPOSED REQUIREMENTS AND PROPOSED EFFECTIVE DATES FOR THE SIXTH EDITION OF THE STANDARD FOR GATE VALVES FOR FIRE-PROTECTION SERVICE UL 262

Proposed new requirements are identified by (NEW). A paragraph that is proposed to be deleted is identified by (DELETED) and is shown ~~lined-out~~.

262BAC.P94

Subject 262

-C2-

March, 1994

PROPOSAL

(DELETED)

15A. Mercurous-Nitrate Immersion Test**Section 15A deleted (date of publication)**

~~15A.1 A part made of brass containing more than 15 percent zinc shall withstand total immersion in an aqueous mercurous nitrate solution containing 10 grams of mercurous nitrate and 10 milliliters of nitric acid (specific gravity 1.42) per liter of solution for 30 minutes without cracking.~~

~~15A.2 Solutions are to be prepared and replenished and samples are to be cleaned and degreased in accordance with the Standard Method of Mercurous Nitrate Test for Copper and Copper Alloys, ASTM B154-87.~~

~~15A.3 The test is to be conducted on a sample of the finished valve component. During this test, the sample is to be subjected to the physical stresses imposed on or within the sample as the result of assembly with other components of a standpipe system, or with supply piping of a sprinkler system.~~

~~15A.4 CAUTION — Testing with mercury is a health hazard, both in the form of mercurous nitrate crystals and the form of vapor produced by volatilization. Equipment for the removal of mercury vapor produced in volatilization should be provided. Rubber gloves must be used during testing.~~

(NEW SECTION)

15B. 10-Day Moist Ammonia Air Stress Cracking Test

15B.1 After being tested as described in paragraph 15B.2 — 15B.4, a brass part containing more than 15 percent zinc shall show no evidence of cracking or delamination when examined using 25x magnification.

Paragraph 15B.1 added (date of publication)

15B.2 Each test sample is to be subjected to the physical stresses normally imposed on or within a part as the result of assembly with other components. Such stresses are to be applied to the sample prior to and be effective during the test.

Paragraph 15B.2 added (date of publication)

15B.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 12 by 12 by 12 inches (305 by 305 by 305 mm) having a glass cover.

Paragraph 15B.3 added (date of publication)

Subject 262

-C3-

March, 1994

15B.4 Approximately 600 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 15B.4 added (date of publication)

Subject 262

March, 1994

**APPENDIX C-1
Designated Responsibility for UL
Product Category HMRZ
Fire Main Equipment, Gate Valves**

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) work with the Primary Designated Engineer to interpret requirements and maintain 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.

KEN ZASTROW — at UL's Northbrook Office (Ext. 42284)
Eugene Wirth — at UL's Santa Clara Office (Ext. 2294)
Steve Corrado — at UL's RTP Office (Ext. 1433)

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

262BAC1.P94

Subject 401

March, 1994

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.

A P P E N D I X D

PROPOSED REQUIREMENTS AND PROPOSED EFFECTIVE DATES FOR THE THIRD EDITION OF THE STANDARD FOR PORTABLE SPRAY HOSE NOZZLES FOR FIRE PROTECTION SERVICE UL 401

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). A paragraph that is proposed to be deleted is identified by (DELETED) and is shown ~~lined-out~~.

401BAD.P94

Subject 401

-D2-

March, 1994

PROPOSED

5.3 A copper-alloy part containing more than 15 percent zinc shall comply with the requirements in the Mercurous Nitrate Immersion Test, Section 22 10-Day Moist Ammonia Air Stress Cracking Test, Section 22A.

5.3 revised (date of publication)

(DELETED)

22 Mercurous-Nitrate Immersion Test

Section 22 deleted (date of publication)

~~22.1 A nozzle or components made from copper alloys containing more than 15 percent zinc shall withstand total immersion for 30 minutes, without cracking, in an aqueous mercurous nitrate solution containing 10 grams of mercurous nitrate and 10 milliliters of nitric acid (specific gravity 1.42) per liter of solution.~~

~~22.2 Instructions for preparation of solutions and procedures for replenishment together with descriptions for cleaning and degreasing of the samples are covered in the Mercurous Nitrate Test for Copper and Copper Alloys, ASTM B154-92.~~

~~22.3 The test sample is to be subjected to the physical stresses intended to be imposed on or within the sample as the result of assembly with a coupling. Such stresses are to be applied to the sample prior to and be effective during the test. A sample is to be connected to an appropriate male coupling and tightened to the minimum torque necessary to produce a leaktight assembly.~~

~~22.4 CAUTION Testing with mercury is a health hazard and it is recommended that equipment be provided for the removal of mercury vapor produced in volatilization. Rubber gloves should be used during testing.~~

(NEW SECTION)

22A 10-Day Moist Ammonia Air Stress Cracking Test

22A.1 After being tested as described in 22A.2 – 22A.4, a brass part containing more than 15 percent zinc shall show no evidence of cracking or delamination when examined using 25x magnification.

22A.1 added (date of publication)

22A.2 Each test sample is to be subjected to the physical stresses normally imposed on or within a part as the result of assembly with other components. Such stresses are to be applied to the sample prior to and be effective during the test.

22A.2 added (date of publication)

22A.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 12 by 12 by 12 inches (305 by 305 by 305 mm) having a glass cover.

22A.3 added (date of publication)

Subject 401

-D3-

March, 1994

22A.4 Approximately 600 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).

22A.4 added (date of publication)

Subject 401

March, 1994

**APPENDIX D-1
Designated Responsibility for UL
Product Category VUFZ
Standpipe Equipment, Nozzles, Spray Hose, Portable**

The following individual is 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.

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.

GEORGE LAVERICK — at UL's Northbrook Office (Ext. 42665)

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

401BAD1.P94

Subject 668

March, 1994

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.

A P P E N D I X E

PROPOSED REQUIREMENTS AND PROPOSED EFFECTIVE DATES FOR THE EIGHTH EDITION OF THE STANDARD FOR HOSE VALVES FOR FIRE PROTECTION SERVICE UL 668

Proposed new requirements are identified by (NEW). A paragraph that is proposed to be deleted is identified by (DELETED) and is shown ~~lined-out~~.

668BAE.P94

Subject 668

-E2-

March, 1994

PROPOSAL

(NEW SECTION)

17A. 10-Day Moist Ammonia Air Stress Cracking Test

17A.1 After being tested as described in paragraph 17A.2 — 17A.4, a brass part containing more than 15 percent zinc shall show no evidence of cracking or delamination when examined using 25x magnification.

Paragraph 17A.1 added (date of publication)

17A.2 Each test sample is to be subjected to the physical stresses normally imposed on or within a part as the result of assembly with other components. Such stresses are to be applied to the sample prior to and be effective during the test.

Paragraph 17A.2 added (date of publication)

17A.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 12 by 12 by 12 inches (305 by 305 by 305 mm) having a glass cover.

Paragraph 17A.3 added (date of publication)

17A.4 Approximately 600 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 17A.4 added (date of publication)

(DELETED)

18. Mercurous Nitrate Immersion Test for Copper Alloys

Section 18 deleted (date of publication)

~~18.1 Components made of copper alloys containing more than 15 percent zinc shall withstand total immersion for 30 minutes, without cracking, in an aqueous mercurous nitrate solution containing 10 grams of mercurous nitrate and 10 mL of nitric acid (specific gravity 1.42) per liter of solution.~~

~~18.2 The test sample is to be subjected to the physical stresses imposed on or within a part as the result of assembly with other components of the hose valve, or with piping, during this test.~~

Subject 668

-E3-

March, 1994

~~18.3 Instructions for preparation of solutions and procedures for replenishment, together with descriptions for cleaning and degreasing of samples, are covered in the Method for Mercurous Nitrate Test for Copper and Copper Alloys, ASTM B154-87.~~

~~18.4 CAUTION Testing with mercury is a definite health hazard and equipment must be provided for the removal of mercury vapor produced in volatilization. Rubber gloves must be used during testing.~~

~~18.5 Pipe threaded ends are to be engaged with brass plugs or fittings assembled as specified in paragraph 18.6. Other threaded or bolted parts are to be tightened to the degree found acceptable to produce a leaktight and vibration resistant assembly.~~

~~18.6 Pipe threaded ends of the samples are to be fitted with plugs or fittings, with the torque specified in Table 18.1. Male threads are to be lubricated with SAE No. 10 machine oil prior to assembly.~~

**TABLE 18.1
TORQUE REQUIREMENTS FOR
PIPE CONNECTIONS**

Nominal Pipe Size, Inches ^a	Torque
	Pound-Inches (Newton-Meters)
1	1200 (135.6)
1-1/4	1450 (163.8)
1-1/2	1550 (175.1)
2	1650 (186.4)
2-1/2	1750 (197.7)
3	1800 (203.4)
^a Dimensions as specified in ANSI B1.20.1.	

Subject 668

March, 1994

**APPENDIX E-1
Designated Responsibility for UL
Product Category VTSR
Standpipe Equipment, Hose Valves**

The following individual is 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.

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.

GEORGE LAVERICK — at UL's Northbrook Office (Ext. 42665)

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

668BAE1.P94

Subject 1091

March, 1994

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.

APPENDIX F

PROPOSED REQUIREMENTS AND PROPOSED EFFECTIVE DATES FOR THE FOURTH EDITION OF THE STANDARD FOR BUTTERFLY VALVES FOR FIRE PROTECTION SERVICE UL 1091

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). A paragraph that is proposed to be deleted is identified by (DELETED) and is shown ~~lined-out~~.

1091BAF.P94

Subject 1091

-F2-

March, 1994

PROPOSAL

9. Brass Materials

9.1 Parts that are exposed to water under service conditions and that are made of drawn, cast, or machined brass containing more than 15 percent zinc shall resist cracking. See ~~Mercurous Nitrate Immersion Test, Section 19~~ 10-Day Moist Ammonia Air Stress Cracking Test, Section 18A.

Paragraph 9.1 revised (date of publication)

(NEW SECTION)

18A. 10-Day Moist Ammonia Air Stress Cracking Test

18A.1 After being tested as described in paragraphs 18A.2 — 18A.4, a brass part containing more than 15 percent zinc shall show no evidence of cracking or delamination when examined using 25x magnification.

Paragraph 18A.1 added (date of publication)

18A.2 Each test sample is to be subjected to the physical stresses normally imposed on or within a part as the result of assembly with other components. Such stresses are to be applied to the sample prior to and be effective during the test.

Paragraph 18A.2 added (date of publication)

18A.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 12 by 12 by 12 inches (305 by 305 by 305 mm) having a glass cover.

Paragraph 18A.3 added (date of publication)

18A.4 Approximately 600 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 18A.4 added (date of publication)