QQ-B-654A
September 5, 1980
SUPERSEDING
Fed. Spec. QQ-B-654
May 8, 1970

FEDERAL SPECIFICATION

BRAZING ALLOYS, SILVER

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers silver-containing brazing alloys for the brazing of ferrous and nonferrous base metals.

1.2 Classification. Silver-containing brazing alloy shall be of the following classification (see 6.2):

BCuP-5
BAg-4
BAg-5
BAg-7
BAg-8a
BAg-9
BAg-10
BAg-13a
BAg-18
BAg-20
BAg-22
BAg-23
Grade IV
Grade V
Grade VI
Grade VII
Grade VIII

Note: Grades IV through VIII contain cadmium and will be deleted from this specification when noncadmium bearing substitute brazing alloys have been evaluated. At that time, all the above designations will be in the AWS form, i.e., "BAg-X".

2. APPLICABLE DOCUMENTS

2.1 The following documents, of the issues in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

Federal Specifications:

PPP-B-576 - Box, Wood, Cleated, Veneer, Paper Overlaid.
PPP-B-585 - Boxes, Wood, Wirebound.
PPP-B-591 - Boxes, Shipping, Fiberboard, Wood-Cleated.

Federal Specifications: (Continued)

PPP-B-601 - Boxes, Wood, Cleated-Plywood.
PPP-B-621 - Boxes, Wood, Nailed and Lock-Corner.
PPP-B-636 - Box, Shipping, Fiberboard.
PPP-C-96 - Cans, Metal, 28 Gage and Lighter.

Federal Standard:

FED-STD-123 - Marking for Shipment (Civil Agencies).

(Activities outside the Federal Government may obtain copies of Federal specifications, standards, and commercial item descriptions as outlined under General Information in the Index of Federal Specifications, Standards and Commercial Item Descriptions. The Index, which includes cumulative bimonthly supplements as issued, is for sale an a subscription basis by the Superintendent of Documents, U. S. Government Printing Office, Washington, DC 20402.

(Single copies of this specification, other Federal specifications, and commercial item descriptions required by activities outside the Federal Government for bidding purposes are available without charge from General Services Administration Business Service Centers in Boston; New York; Washington, DC; Philadelphia; Atlanta; Chicago; Kansas City, MO; Fort Worth; Houston; Denver; San Francisco; Los Angeles; and Seattle, WA.

(Federal Government activities may obtain copies of Federal specifications, standards, and commercial item descriptions, and the Index of Federal Specifications, Standards and Commercial Item Descriptions from established distribution points in their agencies.)

Military Standard:

MIL-STD-129 - Marking for Shipment and Storage.

(Copies of Military Specifications and Standards required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless a specific issue is identified, the issue in effect on date of invitation for bids or request for proposal shall apply.

American Society for Testing and Materials (ASTM) Standards:

B 214 - Sieve Analysis of Granular Metal Powders.
E 11 - Wire-Cloth Sieves for Testing Purposes.

(Applications for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

American Welding Society (AWS):

Z49.1 - Welding and Cutting, Safety In.

(Application for copies should be addressed to the American Welding Society, 2501 N.W. 7th Street, Miami, FL 33215.)

Department of Labor:

Code of Federal Regulations, Title 29, Part 1910 - Occupational Safety and Health Standards.

(Application for copies should be addressed to the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.)

National Motor Freight Traffic Association, Inc., Agent:

National Motor Freight Classification.

(Application for copies should be addressed to the American Trucking Association, Inc., Traffic Department, 1616 P Street, N.W., Washington, DC 20036.)

Uniform Classification Committee, Agent:

Uniform Freight Classification.

(Application for copies should be addressed to the Uniform Classification Location Committee, Room 1106, 222 South Riverside Plaza, Chicago, IL 60606.)

3. REQUIREMENTS

3.1 Material. Materials used shall be such as to produce brazing alloy in full compliance with the requirements of this specification.

3.2 Chemical composition. The chemical composition of brazing alloy shall conform to table I.

TABLE I. Chemical composition requirements, percent by weight.[1,2]

Classification	Silver	Copper	Zinc	Cadmium	Tin	Phosphorous	Nickel	Lithium	Manganese
BCuP-5	14.5-15.5	Remainder	-----	----	----	4.8-5.2	----	----	----
BAg-4	39.0-41.0	29.0-31.0	26.0-30.0	----	----	----	1.5-2.5	----	----
BAg-5	44.0-46.0	29.0-31.0	23.0-27.0	----	----	----	----	----	----
BAg-7	55.0-57.0	21.0-23.0	15.0-19.0	----	4.5-5.5	----	----	----	----
BAg-8a	71.0-73.0	Remainder	-----	----	----	----	----	0.25-0.50	----
BAg-9	64.0-66.0	19.0-21.0	13.0-17.0	----	----	----	----	----	----
BAg-10	69.0-71.0	19.0-21.0	8.0-12.0	----	----	----	----	----	----
BAg-13a	55.0-57.0	Remainder	-----	----	----	----	1.5-2.5	----	----
BAg-18	59.0-61.0	Remainder	-----	----	9.5-10.5	0.025	----	----	----
BAg-20	29.0-31.0	37.0-39.0	30.0-34.0	----	----	----	----	----	----
BAg-22	48.0-50.0	15.0-17.0	21.0-25.0	----	----	----	4.0-5.0	----	6.0-9
BAg-23	84.0-86.0	----	-----	----	----	----	----	----	13.5-1
Grade IV	49.0-51.0	14.5-16.5	14.5-18.5	17.0-19.0	----	----	----	----	----
Grade V	49.0-51.0	14.5-16.5	13.5-17.5	15.0-17.0	----	----	2.5-3.5	----	----
Grade VI	49.0-51.0	17.0-19.0	20.0-24.0	9.0-11.0	----	----	----	----	----
Grade VII	44.0-46.0	14.0-16.0	14.0-18.0	23.0-25.0	----	----	----	----	----
Grade VIII	34.0-36.0	25.0-27.0	19.0-23.0	17.0-19.0	----	----	----	----	----

[1] Analysis shall be made for the elements for which specific values are shown in this table. the presence of other elements is indicated in the course of routine analysis, further analysi to determine that the total of these other elements is not present in excess of the limits spe "other elements total" in the last column in the table.

[2] Single values shown are maximum percentages, except where otherwise specified.

3.3 Form and size.

3.3.1 BCuP-5. BCuP-5 classification of brazing alloy shall be furnished in the following forms and sizes, unless otherwise specified (see 6.2):

Strip: 0.050-inch thick +/- 0.0020 inch by approximately 1/16-inch wide.
0.050-inch thick +/- 0.0020 inch by approximately 1/8-inch wide.

Rod: 1/8 inch square +/- 0,010 inch by approximately 18- or 36-inches long.

3.3.2 BAg-XX. BAg-XX classification of brazing alloy shall be furnished in the forms and sizes specified in table II (see 6.2).

TABLE II. Forms and sizes for BAg-XX.

Form	Nominal diameter (inches)	Permissible variation in diameter. plus or minus		
		Drawn wire (inches)	Drawn rod (inches)	Rolled or extruded wire and rod (inches)
Wire in coils and rods	1/32 (0.031)	0.0007	0.003	-----
	3/64 (.047)	.0008	.003	0.005
	1/16 (.063)	.0015	.003	.005
	3/32 (.094)	.0020	.003	.006
	1/8 (.125)	.0020	.003	.006

Form	Nominal thickness (inches)	Permissible variation in thickness, plus or minus (inches)
Strip widths 0.25 to 6 inches by multiples of 0.25 inches	0.002	0.0006
	.003	.0006
	.005	.0006
	.010	.0010
	.020	.0015

TABLE II. Forms and sizes for BAg-XX. - Continued

Form	Size designation[1]	Standard sieve analysis[2]
Powder	100 mesh	Through No. 60 sieve - 100 percent minimum Through No. 100 sieve - 95 percent minimum
	140C mesh	On No. 100 sieve - trace On No. 140 sieve - 10 percent maximum Through No. 325 sieve - 20 percent maximum
	140F mesh	On No. 100 sieve - trace On No. 140 sieve - 10 percent maximum Through No. 325 sieve - 55 percent maximum
	325 mesh	On No. 200 sieve - trace On No. 325 sieve - 10 percent maximum Through No. 325 sieve - 90 percent minimum

[1] Sieve sizes in accordance with ASTM E 11.
[2] Sieve analysis in accordance with ASTM B 214.

3.3.3 Mixed lengths. Where brazing alloy is furnished specifying 36-inch lengths, any single package may contain pieces shorter than 36 inches, but the number of short pieces shall not exceed 10 percent of the total number in the package. and no short piece shall be less than 20 inches in length.

3.4 Brazing filler metal identification. Each brazing alloy shall be identified by its complete classification designation in accordance with 1.2. The identification marking shall consist of BCuP, BAg, or grade followed by the proper Arabic or Roman numeral. Identification by the use of a group of impressed dots shall not be permitted.

3.4.1 Strips. wire in coils and rods. Strip, wire in coils, and rods shall be identified by positive and legible methods such as imprinting or indenting the applicable classification designation on the surface of the brazing alloy or shall be identified by pressure-sensitive plastic coated tape imprinted with the applicable classification designation and attached to the brazing alloy. The identification shall be placed 1-inch from the end of each strip and rod, and 1-inch from the inner end of wire in each coil. Imprinting on the surface of the brazing alloy or on tapes shall be with fade-proof ink and shall be resistant to oils, solvents, and all atmospheric conditions, and to normal wear and tear encountered in shipping and handling.

3.4.2 Powders. Powders shall be identified with the applicable classification designation on the interior container (package) along with other marking required by 5.3.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the Inspections set forth in the specification where such inspections are deemed necessary to assure that supplies and services conform to prescribed requirements.

4.2 Sampling.

4.2.1 First procedure (to be used when material can be identified by melt).

4.2.1.1 Lot. A lot shall consist of all brazing alloy of the same classification from the same melt offered for delivery at one time.

4.2.1.2 Sampling procedure. A sample for chemical analysis shall be taken from each lot.

4.2.2 Second procedure (to be used when material cannot be identified by melt).

4.2.2.1 Lot. A lot shall consist of brazing alloy of the same classification, form, and size offered for delivery at the same time of the following amounts:

(a) 750 troy ounces or less of each size of BAg-4, -5, -7, -8a, -9, -10, -13a, -18, -20, -22, -23, grade IV, V, VI, VII, and VIII classification.
(b) 500 avoirdupois pounds or less of each size of BCuP-5 classification.

4.2.2.2 Sampling procedure. Five separate representative samples for chemical analysis shall be taken from each lot. If material is offered for delivery in packages, the 5 samples shall be taken from at least 5 packages. Samples shall not be mixed.

4.3 Examination. Brazing alloy shall be examined to determine compliance with 3.3 and 3.4.

4.4 Tests.

4.4.1 Chemical analysis. The samples selected as specified in 4.2 shall be subjected to chemical analysis to determine conformance with 3.2. If any sample fails to conform to this specification, the entire lot represented shall be rejected.

4.4.2 Action in case of rejection. When a lot which has been sampled under the procedure of 4.2.2 is rejected, the contractor at his option, may make such further analyses as are needed to identify conforming and nonconforming portions of the lot. The conforming portions only may then be offered for delivery.

4.5 Inspection of preparation for delivery requirements. An inspection shall be made to determine that the packaging. packing, and marking comply with the requirements of section 5 of this specification. Defects shall be scored in accordance with table III. The sample unit shall be one shipping container fully prepared for delivery. The lot size shall be the number of shipping containers in the end item inspection lot. Sampling shall be in accordance with MIL-STD-105, and the inspection shall be S-2 with and acceptable quality level (AQL) of 11.0 percent defects per hundred units.

TABLE III. Classification of defects.

Examine	Defects
Markings	Omitted; incorrect; illegible; improper size, location, sequence, or method of application.
Containers	Not as specified.
Strapping	Not furnished when required.
Closure	Not in accordance with the specification.

5. PREPARATION FOR DELIVERY

(The preparation for delivery requirements specified herein apply only for direct Government acquisitions. For the extent of applicability of the preparation for delivery requirements of referenced documents listed in section 2, see 6.5.)

5.1 Packaging. Packaging shall be level A or C, as specified (see 6.2).

5.1.1 Level A. Brazing alloy in powder form in the quantity specified (see 6.2), shall be packaged in metal cans conforming to PPP-C-96, type V, class 2 with plan B protective coating. The gross weight of metal cans shall not exceed 6 pounds (5 pounds net weight).

5.1.2 Level C. Brazing alloy in strip, wire in coils, rods or powder form in the quantity specified (see 6.2), shall be packaged to afford protection against deterioration, damage, or loss of contents during shipment from the supply source to the first receiving activity for immediate use. The contractor’s normal retail or wholesale packaging methods nay be utilized when such meets the requirements of this level.

5.2 Packing. Packing shall be level A, B, or C as specified (see 5.2).

5.2.1 Level A. Brazing alloy, packaged as specified (see 6.2), shall be packed in overseas type, wood-cleated fiberboard, nailed wood, fiberboard, wirebound wood, wood-cleated veneer paper overlaid or woodcleated plywood boxes conforming to PPP-B-591, PPP-B-621, PPP-B-636, PPP-B-585. PPP-B-576, or PPP-B-601, respectively at the option of the contractor. Boxes shall be closed and strapped in accordance with the applicable box specification or appendix thereto, except fiberboard boxes shall be closed method V in accordance with the appendix to PPP-B-636. The gross weight of wood or wood-cleated boxes shall not exceed 200 pounds: fiberboard boxes shall not exceed the weight limitations of the applicable box specification.

5.2.2 Level B. Brazing alloy, packaged as specified (see 6.2), shall be packed in domestic type wood-cleated fiberboard, nailed wood, wirebound wood, cleated plywood or wood-cleated veneer paper overlaid boxes of class 2 fiberboard boxes conforming to PPP-B-591, PPP-B-621, PPP-8-585, PPP-B-601, PPP-B-576 or PPP-B-636, respectively at the option of the contractor. Box closure shall be as specified in the applicable box specification or appendix thereto, with method I closure applicable for PPP-B-636 boxes. The gross weight of wood or wood-cleated boxes shall not exceed 200 pounds: fiberboard boxes shall not exceed the weight limitations of the applicable box specification.

5.2.3 Level C. Brazing alloy, packaged, as specified (see 6.2), shall be packed in containers which will insure acceptance by common carrier and safe delivery at destination. Shipping containers shall comply with the Uniform Freight classification and National Motor Freight Classification, as applicable.

5.3 Marking. In addition to any special marking required by the contract or order (see 6.2) or herein, interior containers (packages) and exterior shipping containers shall be marked in accordance with MIL-STD-129.

5.3.1 Special marking.

5.3.1.1 Interior packages. Shipment marking information for brazing alloy shall be provided on interior packages. The information shall include lot identification, classification, size when applicable, specification number, manufacturer’s or distributor’s name, manufacturer’s

or distributor's brand or type designation. In addition, all packages, or the smallest integral unit within a shipping container shall carry the following warning label, as a minimum, prominently displayed in legible type on the package:

WARNING: Protect yourself and others. Read and understand this label.
FUMES AND GASES can be dangerous to your health. Infrared radiation (heat rays) from flame or hot metal can injure eyes.
Read and understand the manufacturer's instructions and your employer's safety practices.
Keep your head out of the fumes.
Use enough general ventilation or exhaust at the flame or both to keep fumes and gases from your breathing zone, and the general area.
Wear correct eye, ear and body protection.
See American National Standard Z49.1 "Safety in Welding and Cutting" published by the American Welding Society, 2501 N.W. 7th St., Miami, FL 33125; OSHA Safety and Health Standards, 29 CFR 1910 are for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.
DO NOT REMOVE THIS LABEL

6. NOTES

6.1 Intended use.

6.1.1 BCuP-5 classification of brazing alloy is of the copper-phosphorous alloy type. It is intended for joining copper and copper-base alloys. It is not intended for joining ferrous or nickel base alloys.

6.1.2 BAg-4, -5, -7, -8a, -9, -10, -13a, -18, -20, -22, and -23 classification of brazing alloy are of the silver alloy type with no cadmium added. They are intended for joining most ferrous and nonferrous metals, except aluminum and magnesium.

6.1.2.1 BAg-5, -9, -10, and -20 classification of brazing alloy are of the silver-copper-zinc alloy type. They are used for brazing copper and copper alloys and have good wetting and flow characteristics.

6.1.2.2 BAg-4, -13a, and -22 classification of brazing alloy contain nickel which improves the wetting of tungsten carbide and are used for carbide tip brazing. In addition, BAg-13a has no zinc additions made to it; its use is advantageous when zinc volatilization is objectionable in furnace brazing operations.

6.1.2.3 BAg-7 and -18 classification of brazing alloy contain tin. BAg-7 has good wetting properties for nickel and nickel base alloys. BAg-18, with a higher tin content, has good wetting properties for stainless steel, nickel, and nickel base alloys and carbon steel.

6.1.2.4 BAg-8a classification of brazing alloy contains lithium which promotes wetting of difficult-to-braze metals and alloys. This brazing alloy is used to braze precipitation-hardening and other stainless steels in the 1400 deg. F and 1600 deg. F range.

6.1.2.5 BAg-23 classification of brazing alloy is a silver-manganese alloy with no other elements intentionally added. It is used in brazing stainless steel, cobalt base alloys, nickel-chromium, iron alloys and complex carbides, particularly where high service temperatures are encountered.

6.1.3 Grades IV, V, VI, VII, and VIII classification of brazing alloy are of the cadmium-containing silver alloy type. They are currently intended for joining the metals in 6.1.2. Their use was previously preferred because of their low brazing temperature range and satisfactory service performance. However, poisonous fumes are produced on heating these brazing alloys which makes their use objectionable for brazing operations. They will be deleted from QQ-B-654 when substitute brazing alloys have been evaluated for satisfactory service performance.

6.2 Ordering data. Purchasers should select the preferred options permitted herein and include the following information on procurement documents:

(a) Title, number, and date of this specification.
(b) Classification of material required (see 1.2).
(c) Form and size of material required (see 3.3.1 and 3.3.2).
(d) Selection of applicable levels of packaging and packing (see 5.1 and 5.2).
(e) Quantity to unit package (see 5.1.1 and 5.1.2).
(f) Special marking, if required (see 5.3).
(g) BCuP-5 brazing alloy should be ordered by the avoirdupois pound. Other classifications of brazing alloys contained herein should be ordered by the troy ounce (1 troy ounce equals approximately 1.1 avoirdupois ounce).

6.3 The approximate solidus, liquidus, and brazing temperature ranges are given in table IV.

TABLE IV. Approximate solidus, liquidus, and brazing temperature range.

Classification	Solidus (deg. F)	Liquidus (deg. F)	Brazing temperature range (deg. F)
BCuP-5	1190	1475	1300-1500
BAg-4	1240	1435	1435-1650
BAg-5	1225	1370	1370-1550
BAg-7	1145	1205	1205-1400
BAg-8a	1410	1410	1410-1600
BAg-9	1240	1325	1325-1550
BAg-10	1275	1360	1360-1550
BAg-13a	1420	1640	1600-1800
BAg-18	1115	1325	1325-1550
BAg-20	1250	1410	1410-1600
BAg-22	1160	1300	1300-1500
BAg-23	1760	1780	1780-2000
Grade IV	1160	1175	1175-1400
Grade V	1170	1270	1270-1500
Grade VI	1160	1185	1185- --
Grade VII	1125	1145	1145-1400
Grade VIII	1125	1295	1295-1550

6.4 Cross reference data. The brazing alloys covered by this specification are equivalent to the alloys of QQ-B-654 as follows:

This specification	QQ-B-654
BCuP-5	Grade III
BAg-4	---
BAg-5	Grade I
BAg-7	---
BAg-8a	---
BAg-9	Grade II
BAg-10	---
BAg-13a	---
BAg-18	---
BAg-20	---
BAg-22	---
BAg-23	---
Grade IV	Grade IV
Grade V	Grade V
Grade VI	Grade VI
Grade VII	Grade VII
Grade VIII	Grade VIII
---	Grade O

6.5 Sub-contracted material and parts. The preparation for delivery requirements of referenced documents listed in section 2 do not apply when material and parts are acquired by the contractor for incorporation into the equipment and lose their separate identity when the equipment is shipped.

Military Custodians:
Army - AR
Navy - SH

CIVIL AGENCY COORDINATING ACTIVITY:
GSA - FSS

Review Activities:
Army - ME, MD
Navy - YD

Preparing Activity:
Navy - SH

User Activities:
Navy - MC
Air Force - 99

Project 3439-0360

U.S. GOVERNMENT PRINTING OFFICE : 1981 - 341-705/1164

Orders for this publication are to be placed with General Services Administration, acting as an agent for the Superintendent of Documents. See section 2 of this specification to obtain extra copies and other documents referenced herein.

FEDERAL SPECIFICATION

BRAZING ALLOYS, SILVER

This amendment, which forms a part of QQ-B-654A, dated 5 September 1980, is approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal Agencies.

PAGE 2

2.1, under "Military Standard" Add:

"MIL-STD-105 - Sampling Procedures and Tables for Inspection By Attributes."

PAGE 5

3.3, title: Delete and substitute: "Form, size and tolerances".

3.3.1, line 2: Delete "forms and sizes" and substitute "forms, sizes and tolerances".

3.3.2, line 2: Delete "forms and sizes" and substitute "forms, sizes and tolerances."

Table II: Delete and substitute:

FSC 3439

TABLE II. Forms, sizes, and tolerances for BAg-XX.

Form	Nominal diameter (inches)	Permissible variation in diameter, plus or minus		
		Drawn wire (inches)	Drawn rod (inches)	Rolled or extruded wire and rod (inches)
Wire in coils, spools and rods	1/32 (0.031)	0.0007	0.003	-----
	3/64 (.047)	.0008	.003	0.005
	1/16 (.063)	.0015	.003	.005
	3/32 (.094)	.0020	.003	.006
	1/8 (.125)	.0020	.003	.006

Form	Nominal[1] width (inches)	Permissable variation in width plus or minus (inches)	Nominal thickness (inches)	Permissable variation in thickness plus or minus (inches)
Strip in coils and spools	0.250 to 1.000	+/- 0.003	0.002	+/- 0.0003
	1.001 to 4.000	+/- .005	.003	+/- .0003
	4.001 to 6.000	+/- .008	.005	+/- .0004
			.010	+/- .0008
			.020	+/- .0012

[1] Strip widths 0.25 to 6 inches by multiples of 0.25 inches.

3.3.3: Delete and substitute:

"3.3.3 Mixed lengths. Where brazing alloy is furnished specifying 18-inch or 36-inch lengths, any single package may contain pieces shorter than specified, but the number of short pieces shall not exceed 10 percent of the total number in the package, and no short piece shall be less than 60 percent of the nominal length specified."

3.4.1: Delete and substitute:

"3.4.1 Strips or wire in coils and rods. Strip or wire in coils or rods shall be identified by positive and legible methods such as imprinting or indenting the applicable classification designation on the surface of the brazing alloy or shall be identified by pressure.sensitive plastic coated tape imprinted with the applicable classification designation and attached to the brazing alloy. The identification shall be placed 1-inch from the end of each strip and rod, and 1-inch from the inner end of wire in each coil. Imprinting on the surface of the brazing alloy or on tapes shall be with fade-proof ink and shall be resistant to oils, solvents, and all atmospheric conditions, and to normal wear and tear encountered in shipping and handling."

Add as new paragraph 3.4.1.1:

"3.4.1.1 Wire on spools. Wire on spools too small to be marked by the method of 3.4.1 shall be identified by marking with fade-proof ink on the flange along with other marking required by 5.3."

Add as new paragraph 3.4.1.2:

"3.4.1.2 Preformed rings. Preformed rings shall be identified by the method of 3.4.1 or when furnished in individual envelopes preformed rings shall be identified by marking with fade-proof ink on the envelopes along with other marking required by 5.3."

PAGE 7

4.4.1: Add: "Chemical analysis shall be in accordance with method 111.2 or method 112.2 of FED-STD-151."

PAGE 8

4.4.2: Add: "In case of dispute, chemical analysis shall be in accordance with method 111.2 of FED-STD-151."

5.1.2: Delete and substitute:

"5.1.2 Level C. Brazing alloy in strip or wire in coils or on spools, preformed rings, rods or powder form in the quantity specified (set 6.2), shall be packaged to afford protection against deterioration, damage, or loss of contents during shipment from the supply source to the first receiving activity for immediate use. The contractor's normal retail or wholesale packaging methods may be utilized when such meets the requirements of this level."

PAGES 9 and 10

5.3.1.1: Delete and substitute:

"5.3.1.1 Interior packages. Shipment marking information for brazing alloy shall be provided on interior packages. The information shall include lot identification, classification, length, size when applicable, specification number, manufacturer's or distributor's name, manufacturer's or distributor's brand or type designation. In addition, all packages or the smallest integral unit within a shipping container shall carry one of the following warning labels or equivalent, prominently displayed in legible type on the package as applicable:

WARNING: Protect yourself and others. Read and understand this label.

FUMES AND GASES can be dangerous to your health. HEAT RAYS (INFRARED RADIATION from flame or hot metal) can injure eyes.

- Read and understand the manufacturer's instructions and your employer's safety practices.
- Keep your head out of the fumes.
- Use enough ventilation, exhaust at the flame, or both, to keep fumes and gases from your breathing zone, and the general area.
- Wear correct eye, ear, and body protection.
- See American National Standard Z49.1 Safety in Welding and Cutting published by the American Welding Society, 550 N.W. LeJeune Rd., F.O. Box 351040 Miami, FL 33135; OSHA Safety and Health Standard, 29 CFR 1910, available from the U.S. Government Printing Office, Washington, D.C., 20402.

DO NOT REMOVE THIS LABEL

WARNING
CONTAINS CADMIUM
POISONOUS FUMES AND GASES HAY BE FORMED ON HEATING

Do not breath fumes and gases. Use only with adequate ventilation such as fume collectors, exhaust ventilators or air-supplied respirators.

If chest pain, cough or, fever develops after use, call physician immediately. Keep children away when using.

See American National Standard Z49.1,
SAFETY IN WELDING AND CUTTING
Published by the American Welding Society,
550 N.W. LeJeune Road, P.O. Box 351040
Miami, FL 33135."

DO NOT REMOVE THIS LABEL

LAST PAGE

DD 1426, Standardization Document Improvement Proposal: Delete address and substitute:

"COMMANDER
NAVAL SEA SYSTEMS COMMAND (SEA 55Z3)
DEPARTMENT OF THE NAVY
WASHINGTON, DC 20362".

MILITARY INTEREST

Custodians

Army - AR
Navy - SH

Review Activities

Army - ME, MD
Navy - YD

User Activities

Navy - MC
Air Force - 84

CIVIL AGENCY COORDINATING ACTIVITY:

GSA - FSS

Preparing Activity:
Navy - SH
(Project 3439-0450)

* U.S. GOVERNMENT PRINTING OFFICE: 1984 -- 705 -- <UT> A132<UT>

INCH-POUND

NOTICE
OF VALIDATION

QQ-B-654A
NOTICE 1
7 February 1991

FEDERAL SPECIFICATION

BRAZING ALLOYS, SILVER

QQ-B-654A, dated 5 September 1980, has been reviewed and determined to be valid for use in acquisition.

Preparing activity:
Navy-SH

AMSC N/A AREA 3439

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