QQ-C-40
April 15, 1963
SUPERSEDING
Int. Fed. Spec. QQ-L-00156a (NAVY-SHIPS)
February 27, 1959, and
Fed. Spec. QQ-L-156
June 5, 1934

FEDERAL SPECIFICATION

CALKING: LEAD WOOL AND LEAD PIG

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 lead pig and lead wool used for calking purposes.

1.2 Classification.

1.2 Types, grades, and forms. Calking lead shall be of the following types, grades, and forms as specified (see 6.2):

Types:

Type I.-- Lead pig (grade AA only).
Type II.-- Lead wool (grades AA, C, and D).

Grades:

Grade AA.
Grade C.
Grade D.

Forms (type I only).

Pigs.
Ingots.
Linked ingots.

2. APPLICABLE SPECIFICATIONS AND STANDARDS

2.1 The following specifications and standards, of the issues in effect on date of invitation for bids, form a part of this specification to the extent specified herein:

Federal Specifications:

PPP-B-35--Bags, Textile, Shipping, Burlap, Cotton and Waterproof Laminated.
PPP-B-636--Box, Fiberboard.
PPP-S-50--Sacks, Shipping, Paper, Reinforced.

Federal Standards:

Fed. Std. No 102--Preservation, Packing, and Packaging Levels.
Fed. Std. No. 123--Marking for Domestic Shipment (Civilian agencies).
Fed. Test Method Std. No. 151--Metals, Test Methods.

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlined under General Information in the Index of Federal Specifications, Standards, and Handbooks and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

(Single copies of this specification and other product specifications required by activities outside the Federal Government for bidding purposes are available without charge at the General Services Administration Regional Offices in Boston, New York, Washington, D. C., Atlanta, Chicago, Kansas City, Mo., Dallas, Denver, San Francisco, and Auburn, Wash.

(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks

and the Index of Federal Specifications, Standards, and Handbooks from established distribution points in their agencies.)

Military Specification:

MIL-N-3944--Non-Ferrous Products (Other Than Aluminum, Magnesium, Copper, or Their Alloys), Packaging of.

Military Standards:

MIL-STD-105--Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-109--Quality Assurance Terms and Definitions.
MIL-STD-129--Marking for Shipment and Storage.
MIL-STD-147--Palletized Unit Loads (40 Inches by 48 Inches 4-Way Partial and 4-Way Pallets).

(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.)

3. REQUIREMENTS

3.1 Material. The calking lead shall be made from ore or other material by processes of reduction and refining. For grade AA, reclaimed lead obtained by recovery of metallic lead and its alloys by the simple reclaiming process of melting, drossing, and casting is acceptable under this specification if the chemical composition requirements are within the limits specified herein. Grades C and D calking lead shall be produced from ore or other materials by a conventional process of reduction and refining or other processes which equally preclude the presence of unusual deleterious elements. Reclaimed lead is not acceptable for grades C and D.

3.2 Chemical composition.

3.2.1 The chemical composition of the calking lead shall conform to the requirements shown in table I.

Table I.--Chemical composition

Element	Grade AA (max.)	Grade C (max.)	Grade D (max.) or range
Lead	[1]99.70	[1]99.70	[1]99.82
Antimony and arsenic (total)	[2] 0.02	[2] 0.02	0.002
Iron	--	--	.002
Bismuth	--	--	.025
Zinc	--	--	.001
Copper	--	--	.040 to 0.080
Silver	--	--	.020
Tellurium	--	--	.035 to .055
Tin	--	--	.016

[1] Minimum
[2] Anitimony content only.

3.2.2 The contractor shall furnish an analysis of each melt showing the percentage of each of the elements specified in 3.2.1.

3.3 Dimensions.

3.3.1 Type I calking lead shall be furnished in one of the following forms as specified (see 6.2):

(a) Pigs--weighing from 48 to 105 pounds each.

(b) Linked ingots (or notched bar ingots)--consisting of from 3 to 6 ingot or bars, weighing from 3 to 6 pounds each linked together by small segments which can be easily severed.

(c) Single ingots (or pot pieces) weighing from 3 to 6 pounds each.

3.3.2 Type II calking lead (lead wool) shall consist of fine strands of lead. Unless otherwise specified (see 6.2), the diameter of the strands shall be from 0.005 to 0.015 inch and the length shall be such that the

material will cling together in handling without excessive unraveling. Unless otherwise specified (see 6.2), the lead wool shall be furnished in rope form, which shall weigh between 0.3 and 0.7 pounds per lineal foot (approximately 5/8 to 3/4 inch in diameter). The lead wool shall be furnished in 25-, 50-, and 100-pound quantities as specified (see 5.2.3 and 6.2).

3.4 Condition. All calking lead shall be of uniform softness and easily calked or driven. Grades C and D lead wool shall have a bright, silvery, metallic appearance. The material shall be capable of being calked to a dense structure using a pneumatic hammer without flaking or powdering.

3.5 Identification marking. Type I calking lead shall have the following information cast or stamped thereon in legible characters: The Federal specification symbol, grade, manufacturer's name or brand and melt or cast number. Where the size of the individual pugs or ingots does not permit marking, this information shall be furnished on the packing container (see 5.3).

3.6 Workmanship. The calking lead shall be of uniform quality, clean and free from foreign material and defects which might render the material unsuitable for the purposes intended.

4. SAMPLING, INSPECTION, AND TEST PROCEDURES

4.1 Inspection responsibility. The supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, the supplier may utilize his own or any other inspection facilities and services acceptable to the Government. Inspection records of the examinations and tests shall be kept complete and available to the Government as specified in the contract or order. 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 Inspection lot.

4.2.1 For inspection purposes, a lot shall consist of all calking lead of the same type, grade, and form produced by one manufacturer and delivered at one time for inspection but shall not exceed one car load.

4.2.2 For type II, grades C and D lead wool, or when specified (see 6.2), a lot for chemical analysis shall be further limited to the calking lead produced from one manufacturing or smelting heat. For this case, a lot that cannot be identified by heat shall be rejected.

4.3 Sampling for inspection.

4.3.1 Sampling for visual examination. Random samples of calking lead shall be selected from each lot offered for delivery in accordance with MIL-STD-105. The acceptable quality level shall be 2.5 percent defective. Type I calking lead pigs or ingots shall be selected in accordance with inspection level L-8 based on number of pigs or ingots in each lot. Type II calking wool shall be selected in accordance with inspection Level L-8 based on the number of containers in each lot.

4.3.2 Sampling for chemical analysis.

4.3.2.1 Type I. One pig or ingot shall be taken to represent each 1000 pounds or less of each lot but in no case shall more than 10 or less than 3

pigs or ingots represent the lot. An equal amount of clean, fine drillings or sawings shall be taken from each pig or ingot sampled. The saw or drill shall penetrate the entire thickness of the piece with only the surface material being discarded. Except when the spectrographic analysis is to be made on a solid sample, not less than 600 grams of thoroughly mixed sawings or drillings obtained from each lot shall be forwarded to the laboratory

for analysis. The sample for spectrographic analysis shall be truly representative of the lot and shall be satisfactory for use by the laboratory at which the spectrographic analysis is to be performed.

4.3.2.2 Type II. Equal amounts of lead wool shall be taken from one of each 20 or less containers of lead wool in the lot and thoroughly mixed. In no case shall less than 3 containers or more than 10 containers be sampled to represent the lot. Except when the spectrographic analysis is to be made on a solid sample, not less than 600 grams of thoroughly mixed strands from each lot shall be forwarded to the laboratory for analysis. The sample for spectrographic analysis shall be truly representative of the lot and shall be satisfactory for use by the laboratory at which the spectrographic analysis is to be performed.

4.4 Inspection procedures.

4.4.1 Examination. Each of the calking lead samples selected in accordance with 4.3.1, shall be visually examined to verify compliance with the requirements of this specification regarding dimensions (see 3.3), condition (see 3.4) and workmanship (see 3.6).

4.4.2 Inspection of preparation for delivery. The packing and marking of the lead shall be examined to determine compliance with the requirements of 3.5 and section 5 of this specification. Examination of packing and marking requirements not covered by referenced specifications shall be in accordance with MIL-STD-105 using an AQL of 2.5 percent defective with inspection level L-8. The classification of defects in table II are in accordance with definitions of MIL-STD-109.

4.5 Test procedures.

4.5.1 Chemical analysis. Each sample selected in accordance with 4.3.2 shall be analyzed by the wet chemical or spectrographic methods in accordance with method 111 or 112, respectively, of Fed. Test Method Std. No. 151 to determine conformance with 3.2. In case of dispute, chemical analysis by wet chemical methods shall be the basis for acceptance.

Table II.--Classification of defects (for packing and marking not covered by referenced specifications)

Categories	Defects
Critical:	None defined.
Major:	
101	Blocking missing, as applicable.
102	Closure of containers nonconforming.
103	Shipping containers not modified when required
104	Strapping missing or incorrectly applied.
105	Quantity exceeds limit specified.
106	Gross weight of shipping container exceeds limit specified.
107	Marking missing, illegible or incorrect.
108	Containers damaged or punctured.
Minor:	None defined.

4.5.2 When specified (see 6.2), calking tests shall be made to determine compliance with 3.4. The conditions for the test shall be specified in the contract or order.

4.6 Rejection and retest. If any sample fails to conform to this specification, the entire lot shall be rejected, subject to retest provisions in Fed. Test Method Std. No. 151.

4.7 Inspection of preparation for delivery. The packing and marking of calking lead wool and lead pig shall be inspected to determine conformance to the applicable requirements of section 5.

5. PREPARATION FOR DELIVERY

(For civil agency procurement, the definitions and applications of the various levels of packing shall be in accordance with Fed. Std. No. 102.)

5.1 Segregation. All material shall be separated by type, grade, and form before packing.

5.2 Packing. Packing shall be level A, B, or C, as specified (see 6.2).

5.2.1 Level A.

5.2.1.1 Type I. Type I lead pig, see 3.3.1, shall be packed in accordance with the level A requirements of MIL-N-3944. The alternate packing method specified therein may be utilized when specified (see 6.2).

5.2.1.2 Type II, grade AA. Lead wool shall be packed in any of the following containers. Selection of container shall be at the option of the supplier.

5.2.1.2.1 Twenty-five pound quantities.

5.2.1.2.1.1 Cotton sheeting bags. Bags shall conform to type II, bag number C-33 of PPP-B-35.

5.2.1.2.1.2 Osnaburg bags. Bags shall conform to type II, bag number C-54 of PPP-B-35.

5.2.1.2.1.3 Burlap bags. Bags shall conform to type I, bag number B-1 of PPP-B-35.

5.2.1.2.1.4 Fiberboard boxes. Fiberboard boxes shall conform to class 2 of PPP-B-636.

5.2.1.2.2 Fifty or 100 pound quantities.

5.2.1.2.2.1 Cotton sheeting bags. Bags shall conform to type II, bag number C-23 of PPP-B-35.

5.2.1.2.2.2 Osnaburg bags. Bags shall conform to type II, bag number C-53 of PPP-B-35.

5.2.1.2.2.3 Burlap bags. Bags shall conform to type I, bag number B-10 of PPP-B-35.

5.2.2 Level B.

5.2.2.1 Type I. Type I lead pig, see 3.3.1, shall be packed in accordance with the level B requirements of MIL-N-3944. The alternate packing method specified therein may be utilized when specified (see 6.2).

5.2.2.1.1 Five-pound cakes (GSA only). Twenty 5-pound cakes (100 pounds) of lead shall be packed in a new fiberboard shipping container, conforming to PPP-B-636. Container shall be style FTC, type I (CF) or type II (SF), class 1 (domestic service), burst test 350 pounds (minimum), size limit 100 inches, weight limit 120 pounds, of approximate dimensions of 14-1/2 inches (length) by 8-3/4 inches (width) by 3-3/4 inches (depth). After placing the cover over the box body, closure shall be made by steel strapping, one strap lengthwise, a second strap girthwise, both straps approximately centered on the box.

5.2.2.2 Type II, grade AA. Lead wool shall be packed as specified in 5.2.2, level A, except fiberboard boxes where referenced, shall conform to class 1 or class 2, as specified (see 6.2).

5.2.2.2.1 Plastic bags. Alternatively, lead wool, when approved by the procuring or ordering activity, shall be packed in minimum 0.010-inch-gage polyethylene bags. Bag closure shall be by heat sealing or any other suitable means. The bag construction and closures shall be such as to afford adequate protection during handling, multiple domestic shipments and indeterminate storage.

5.2.3 Level C. Calking lead, except type II, grades C and D, shall be packed to insure carrier acceptance and safe delivery to destination in compliance with the rules and regulations applicable to the mode of transportation.

5.3.4 Type II, grades C and D lead wool shall be furnished in 25- or 50-pound quantities, as specified (see 6.2), packed in reinforced

paper sacks conforming to grade X of PPP-S-50.

5.2.5 Palletized unit loads. When specified (see 6.2), type II calking lead shall be palletized in accordance with MIL-STD-147.

5.3 Marking.

5.3.1 Civil agencies. In addition to any special marking required in the contract or order, marking of shipping containers shall be in accordance with Fed. Std. No. 123.

5.3.2 Military agencies. In addition to any special marking required in contract or order, marking of the shipping containers shall be in accordance with MIL-SDT-129.

6. NOTES.

6.1 Intended use.

6.1.1 Type I calking lead is intended for use in calking joints in gas, water, and sewer lines, wherever it is practicable to use cast lead calking.

6.1.2 Type II, lead wool, is intended for use in calking joints in gas, water, and sewer lines where it is impracticable to use cast lead, such as inverted joints or in wet trenches. Joints calked with lead wool will withstand greater displacement, without leaking than cast lead joints. Type II, grades C and D material is intended for use where high density lead calking is required.

6.2 Ordering data. Purchasers should exercise any desired options offered herein, and procurements documents should specify the following:

(a) Title, number, and date of this specification.

(b) Type, grade, and form of the calking lead required (see 1.2 and 3.3).

(c) Form of type II calking material, if other than specified (see 3.3.2)

(d) Weight of individual containers of type II material (see 3.3.2 and 5.2.3).

(e) Identification by heat when required (see 4.2.2).

(f) Method and conditions for calking test when required (see 4.5.1).

(g) Applicable level of packing and marking required (see 5).

(h) Palletization of Type II material when required (see 5.2.5).

6.3 The ability to attain sound calked lead joints depends on the condition of the surface of the lead wool strands. Moisture and oil contamination have been found to rapidly oxidize the lead surface making the lead wool unsuitable for calking purposes. The manufacturer should insure that the process used to produce the lead wool will not result in contamination of the lead with oil. The manufacturer should also insure that the grades C and D lead wool is free of moisture prior to packing and that the integrity of the moisture barrier shipping container is not violated. Minimizing storage time for the lead wool is desirable.

6.4 Transportation description. The transportation and minimum weights applicable to this commodity is:

Calking, lead wool:

Rail: Lead wool.

Carload minimum weight 30,000 pounds.

Motor: Lead wool.

Truckload minimum weight 36,000 pounds, subject to Rule 115, National Motor Freight Classification.

Calking, lead pig.

Rail: Lead ingots.

Carload minimum weight 40,000 pounds.

Motor: Lead ingots.

Truckload minimum weight 40,000 pounds, subject to Rule 115, National Motor Freight Classification.

Notice. When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely regulated Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

Copies of this specification may be purchased for 5 cents each.

QQ-C-40
AMENDMENT-2
November 17, 1970
SUPERSEDING
Int. Amendment-1(NAVY-Ships)
March 9, 1970

FEDERAL SPECIFICATION

CALKING: LEAD WOOL AND LEAD PIG

This amendment, which forms a part of Federal Specification QQ-C-40, dated April 15, 1963, was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

Page 3

4.1: Delete and substitute:

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier 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 supplies and services conform to prescribed requirements.

4.3.1, lines 8 and 11: Delete "L-8" and substitute "S-4" respectively.

4.3.1: Add the following: "When Government source inspection is specified in the contract or purchase order, type II calking wool shall be selected in accordance with MIL-STD-105 at inspection level III with an acceptable quality level (AQL) of 2.5 percent defective."

Page 4

4.4.2, line 10: Delete "L-8" and substitute "S-4".

Page 5

5.2.2.1 and 5.2.2.1.1: Delete in their entirety and substitute the following:

5.2.2.1 Type I. Type I lead pig (see 3.3.1) shall be palletized in accordance with the level B requirements of MIL-N-3944. Not more than 2,000 net pounds of form (a) material shall be placed on a pallet. Four hundred ingots of form (b) or (c) material shall be placed on a pallet.

Pages 6 and 7

6.4: Delete in its entirety.

Page 7

Delete the Notice in its entirety.

Military Custodians:
Army - MR
Navy - SH

Preparing activity:
Navy - SH

FSC 5330, 9650