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UNITED STATES DEPARTMENT OF AGRICULTURE FOREST SERVICE SPECIFICATION FOR CAN, FUEL, USFS, SAFETY TRANSPORT, 5-GALLON

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CONTENTS

1. SCOPE.	. 1
1.1. Scope	. 1
1.2. Interpretations and Definitions.	. 1
1.2.1. Interpretation	. 1
1.2.2. Definitions	. 1
2. APPLICABLE DOCUMENTS.	. 1
2.1. Government Documents	. 1
2.1.1. Federal Specifications, Standards, and Handbooks	. 1
2.1.2. Other Government Documents and Publications.	. 1
2.2. Nongovernment Publications	. 2
2.3. Order of Precedence.	. 3
3. REQUIREMENTS.	. 3
3.1. First Article	. 3
3.2. Materials	. 3
3.3. Construction.	. 3
3.3.1. Dimensions	. 3
3.3.2. Performance	. 4
3.4. Design Qualification Testing	. 4
3.5. UL or FM	. 4
3.6. Production Testing.	. 4
3.7. Markings and Labeling	. 4
3.7.1. Specification Markings	. 4
3.7.2. Danger Markings	. 4
3.7.3. Labeling	. 4
3.8. Color	. 4
3.9. Workmanship.	. 4
3.10. Metric Products.	. 4
4. QUALITY ASSURANCE PROVISIONS	. 5
4.1. Responsibility for Inspection	. 5
4.1.1. Responsibility for Compliance	. 5
4.1.2. Responsibility for Dimensional Requirements.	. 5
4.1.3. Test Results.	. 5

5100-622A

Z	I.2. Inspection and Tests.	5
	4.2.1. Classification of Inspection.	5
	4.2.2. Component and Material Inspection.	6
	4.2.3. Certification of Conformance.	6
	4.2.4. First Article Inspection.	6
	4.2.5. Lot Inspection	7
	4.2.6. Packaging Inspection.	8
5. F	PACKAGING	10
5	5.1. Preservation	10
5	5.2. Unit Pack	10
5	5.3. Marking	10
5	5.4. Part number	10
6. 1	NOTES	10
6	S.1. Intended Use	10
6	3.2. Acquisition Requirements	10
6	3.3. Preparing Activity	11
6	3.4. Notice	11

1. SCOPE.

1.1. Scope.

This document covers the minimum performance requirements for a 5-gallon, metal, safety, fuel can that meets US Department of Transportation regulations for transporting flammable liquids.

- 1.2. Interpretations and Definitions.
- 1.2.1. Interpretation.

To carry out the provisions of this document, the word "shall" is to be understood as mandatory.

1.2.2. Definitions.

Nonconformity: A departure of a quality characteristic from its intended level or state that occurs with severity sufficient to cause an associated product or service not to meet a specification requirement (per ANSI/ASQ Z1.4).

2. APPLICABLE DOCUMENTS.

- 2.1. Government Documents.
- 2.1.1. Federal Specifications, Standards, and Handbooks.

The following Federal specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are in effect on the date of the invitation for bids or request for proposals.

Federal Standards

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

FED-STD-376—Preferred Metric Units for General Use by the Federal Government

Unless otherwise indicated, copies of Federal specifications and standards are available online at <u>http://quicksearch.dla.mil</u> or in hardcopy from: Standardization Documents Order Desk, Building 4D, 700 Robbins Ave., Philadelphia, PA 19111-5094.

2.1.2. Other Government Documents and Publications.

The following other Government documents and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those in effect on the date of the invitation for bids or request for proposals.

U.S. Department of Transportation

49 CFR Parts 100-185

U.S. Department of Labor

29 CFR Part 1910

Copies of the Code of Federal Regulations (CFR) are available from: U.S. Government Publishing Office, 732 N. Capitol Street NW, Washington, D.C. 20401-0001 or www.gpo.gov.

2.2. Nongovernment Publications.

The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are in effect on the date of the invitation for bids or request for proposals. Nongovernment publications are typically available from the organizations that prepare or distribute the documents. These documents may also be available in or through libraries or other informational services.

American Society for Quality (ASQ)

ANSI/ASQ Z1.4—Sampling Procedures and Tables for Inspection by Attributes.

Unless otherwise indicated, copies of ASQ specifications and standards are available online at <u>www.asq.org</u> or in hardcopy from: American Society for Quality, P.O. Box 3005, Milwaukee, WI 53201-3005.

American Society for Testing and Materials (ASTM)

D 1974—Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Shipping Containers

D 3951—Standard Practice for Commercial Packaging

D 5118—Standard Practice for Fabrication of Fiberboard Shipping Boxes

Unless otherwise indicated, copies of ASTM specifications and standards are available online at <u>www.astm.org</u> or in hardcopy from: ASTM International, 100 Barr Harbor Dr., West Conshohocken, PA 19428-2959.

National Motor Freight Traffic Association, Inc., Agent

National Motor Freight Classification

Unless otherwise indicated, copies are available online at <u>www.nmfta.org</u> or in hardcopy from: National Motor Freight Traffic Association, Inc., 1001 North Fairfax Street, Suite 600, Alexandria, VA 22314.

Underwriters Laboratories (UL)

UL 30 Standard for Metal Safety Cans

Unless otherwise indicated, copies of Underwriters Laboratories standards are available from <u>www.ul.com</u> or in hardcopy from: UL Headquarters, 333 Pfingsten Road, Northbrook, IL 60062.

Factory Mutual Approvals LLC (FM)

FM 6051-6052 Safety Containers and Filling, Supply and Disposal Containers for Ignitable (Flammable) Liquids

Unless otherwise indicated, copies of Factory Mutual approval standards are available from <u>www.fmapprovals.com</u> or in hardcopy from: FM Approvals/Material Group, 743 Reynolds Road, West Glocester, Rhode Island 02814.

National Fire Protection Association (NFPA)

NFPA 30 Flammable and Combustible Liquids Code

Unless otherwise indicated, copies of National Fire Protection Association codes and standards are available from <u>www.nfpa.org</u> or in hardcopy from: NFPA, 11 Tracy Drive, Avon, MA 02322

2.3. Order of Precedence.

In the event of conflict between the text of this document and the references cited herein, the text of this document takes precedence. However, nothing in this document supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS.

3.1. First Article.

Unless otherwise specified (6.2), samples shall be subject to first article inspection (4.2.4).

3.2. Materials.

Materials and components shall be as specified herein. The contractor is encouraged to use recovered materials to the maximum extent practicable—in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR)—provided all performance requirements of this specification are met.

3.3. Construction.

Construction shall comply with the applicable portions of 49 CFR Part 178 Subpart L - Nonbulk Performance-Oriented Packaging Standards. The construction shall result in stackable containers that can be neatly palletized without being placed in a box. At the indicated fill line, the can shall safely contain 5-U.S. gallons of liquid with allowances for ventilation and expansion of fuel. The fuel cans shall have separate openings for filling and pouring and also meet the requirements of UL 30 Standards for Metal Safety Cans for Type II cans or FM 6051-6052 Approval Standard for Safety Containers and Filling, Supply and Disposal Containers for Ignitable (Flammable) Liquids.

3.3.1. Dimensions.

Newly designed and fabricated gas cans shall be within the following weight and dimensions:

Weight: 9 to 13 pounds Height: 14 to 18.6 inches Length or diameter: 11 to 14 inches Width: 6 to 10 inches 3.3.2. Performance.

When tipped to discharge and all valves held open, the flowrate shall be 2.5 (minimum) to 7.5 (maximum) gallons per minute.

3.4. Design Qualification Testing.

The fuel cans shall meet the design testing requirements for "packing group II" liquids with a specific gravity of 1 listed in 49 CFR Part 178 Subpart M - Testing of Non-bulk Packaging and Packages.

3.5. UL or FM.

The fuel cans shall meet the requirements of UL 30, Standard for Metal Safety Cans, Type II or FM 6051-6052, Approval Standard for Safety Containers and Filling, Supply and Disposal Containers for Ignitable (Flammable) Liquids.

3.6. Production Testing.

Each fuel can shall pass a leak test that at a minimum meets the requirements for Packing Group II liquids listed in 49 CFR Section 178.604.

- 3.7. Markings and Labeling.
- 3.7.1. Specification Markings.

Each fuel can shall be marked with UN standard or DOT specification markings per 49 CFR Sections 178.3 and 178.503. This marking shall be permanently cast or engraved in the fuel container.

3.7.2. Danger Markings.

Each fuel can shall be marked with a yellow band as specified by 29 CFR 1910.144.

3.7.3. Labeling.

Each fuel can shall be labeled with a "Flammable Liquid" label that meets the requirements of 49 CFR Sections 172.407 and 172.419.

3.8. Color

The outside of the safety can shall be red to meet OSHA requirements of 29 CFR 1910.144(a)(1)(ii). The coating shall not render the markings required in 3.7 unreadable.

3.9. Workmanship.

Workmanship shall be equal to the best commercial practices consistent with the highest engineering standards in the industry and shall be free from any nonconformity, which may impair serviceability or detract from the product's appearance.

3.10. Metric Products.

Products manufactured to metric dimensions will be considered on an equal basis with those manufactured using inch/pound units, provided they fall within the tolerances specified using conversion tables contained in the latest revision of FED-STD-376, and all other requirements of this specification are met.

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 (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his/her 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 or tests set forth in this specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements. Inspection records of the examination and tests shall be kept complete and available to the Government.

4.1.1. Responsibility for Compliance.

All items shall meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in this specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to establish conformance to requirements; however, this does not authorize submission of known nonconforming material—either indicated or actual—nor does it commit the Government to accept nonconforming material.

4.1.2. Responsibility for Dimensional Requirements.

Unless otherwise specified in the contract or purchase order, the contractor is responsible for ensuring that all specified dimensions have been met. When dimensions cannot be examined on the end item, inspection shall be made at any point or at all points in the manufacturing process necessary to ensure conformance with all dimensional requirements.

4.1.3. Test Results.

The contractor shall have available copies of all test results performed to assure the quality or acceptability of the product submitted for acceptance. The test results shall also show the product's acceptable range or expected test result and the item's test value. All test equipment shall be calibrated and current at the time of testing. Calibration shall be to a recognized State or Federal standard.

- 4.2. Inspection and Tests.
- 4.2.1. Classification of Inspection.

The inspection requirement specified herein are classified as follows:

- a. First article inspection (4.2.4)
- b. Lot inspection (4.2.5)

4.2.2. Component and Material Inspection.

In accordance with 4.1, components and materials shall be inspected in accordance with all the requirements of referenced documents and standards unless otherwise excluded, amended, modified, or qualified in this specification or applicable purchase document.

4.2.3. Certification of Conformance.

Unless otherwise specified (6.2), as part of first article presentations and lot inspections, it shall be acceptable for the contractor to provide certificates of conformance for all materials and components in lieu of lot-by-lot testing. If the contractor changes component or material suppliers, a new certification based on actual test results shall be required. All certificates shall include as a minimum:

- a. Product description, including specification, type, class, and form (when applicable)
- b. Date of manufacture
- c. Purchase source, address, and telephone number
- d. Purchase date
- e. Lot number traceable to materials used in production
- 4.2.3.1. Certificates of Conformance Required.
 - a. Construction in conformance with 49 CFR Part 178 Subpart L (3.3).
 - b. Compliance with UL 30, Metal Safety Cans, Type II or compliance with FM 6051-6052 (3.5).
 - c. Compliance with 29 CFR 1910.144 (3.7.2).
 - d. Labeled in compliance with 49 CFR 178.3 and 178.503. (3.7.2).
 - e. Labeled in compliance with 49 CFR 172.407 and 172.419 (3.7.3).
- 4.2.3.2. COC Contents.

The COC shall include the following:

Specification with type, class, etc.

Quantity purchased

Purchase source, address, and telephone number

Purchase date

4.2.4. First Article Inspection.

Unless otherwise specified, first article inspection is required. The fuel cans submitted for first article inspection shall be inspected and approved under the appropriate provisions of Federal Acquisition Regulation 52.209. Unless otherwise specified, the first article inspection samples submitted in accordance with 3.1 shall be inspected in as specified in 4.2.4 and 4.2.5. The presence of any nonconformity, whether major or minor shall be cause

for nonacceptance of the first article submission. All inspection and testing of the first article sample(s) shall stop upon a single failure. The contractor shall be informed as to the nature of the failure, but the Government is not obligated to continue testing an item once it is known to be noncompliant or when it is considered in the best interest of the Government.

Table 1—First article inspection

Nonconformance	Section	Major Classification	Minor Classification
Certificates of conformance missing or incomplete	4.2.3	X	_
Visual and dimensional inspection not as specified	Table 2	X	_

4.2.4.1. First Article Inspection Package.

The contractor shall submit to the Government preproduction samples consisting of three completed fuel cans and the following:

- a. All certificates of conformance (4.2.3)
- b. Copies of inspection records

4.2.5. Lot Inspection.

Each end item lot shall be sampled as specified in 4.2.5.1 and inspected as specified in 4.2.5.2. A sample unit shall be one complete fuel can.

4.2.5.1. Lot Sampling for Lot Inspection.

Lot sampling for inspection shall be in accordance with ANSI/ASQ Z1.4. The lot size shall be expressed in units of complete fuel cans. The inspection level shall be 1 and acceptable quality level (AQL) expressed in terms of nonconformities per hundred units shall be 4.0 for major nonconformities and 15.0 for combined major and minor nonconformities.

4.2.5.2. Inspection of Visual and Dimensional Characteristics.

Samples shall be inspected for the nonconformities listed in table 2. Unless otherwise specified, nonconformities shall be scored on an individual basis.

Table 2—Inspection of visual and dimensional characteristics

Examine	Nonconformity	Major Classification	Minor Classification
Dimension and weight	Does not fall within the dimension and weight ranges (3.3.1).	Х	_
Capacity	Fuel container less or greater than 5 U.S. gallon volume to fill line.	Х	_
	Does not allow for 0.3 gal volume for fuel expansion.	Х	_
Design	Nonstackable fuel can.	-	Х

Examine	Nonconformity	Major Classification	Minor Classification
	Unable to remove or stow fuel spout assembly.	Х	_
	Fuel container does not empty at a flowrate between 2.5 and 7.5 gallons per minute.	Х	_
	Fuel container design does not allow for easy refueling.	_	Х
	Handles and openings not smooth to operate, binding or sticking is present.	Х	_
Markings	Fuel container not marked per 3.7.1.	Х	-
	No danger markings per 3.7.2.	-	Х
	No "Flammable Liquid" label per 3.7.3.	-	Х
Color	Fuel container not red in color.	Х	-
External	Damage and scratches on new fuel cans.	_	Х
	Paint peeling or chipping because of poor quality or workmanship.	_	Х
	Shows evidence of corrosion, pitted metal and/or rust.	Х	-
Internal	Excess grease inside container.	_	Х
	Shows evidence of corrosion, pitted metal and/or rust.	Х	-
	Coating is flaking, peeling, or chipped.	Х	-

4.2.6. Packaging Inspection.

In the lot-by-lot inspection, an examination shall be made to determine that packing and marking comply with section 5 requirements. Nonconformities shall be scored in accordance with table 3. The sample unit shall be one shipping container, fully packaged, except that it shall not be palletized and it need not be closed. Shipping containers fully packaged that have not been palletized shall be examined for nonconformities in closure.

4.2.6.1. Sampling for Packaging Inspection.

The lot size shall be the number of shipping containers in the end-item inspection lot. The inspection level shall be S-2 and the AQL shall be 2.5 nonconformities per hundred units.

Component	Nonconformity
Markings	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application.
Materials	Any component missing or not as specified.
	Any component damaged, affecting serviceability.
Workmanship	Inadequate application of components, such as incomplete closure of container flaps, improper taping, loose strapping, or inadequate stapling.
	Bulged or distorted container.
Contents	Number of items per container is more or less than required.

Table 3 — Packaging inspection

5. PACKAGING.

5.1. Preservation.

Preservation shall be in accordance with ASTM D 3951 and as specified in the contract or purchase order.

5.2. Unit Pack.

The unit pack must meet the requirements of the latest version of ASTM D 5118. The unit pack shall be a single fuel can packed in a close-fitting, fiberboard box with a minimum edge crush strength of 32 lbs. per inch. Boxes shall be in compliance with the National Motor Freight Classification. Each box shall be closed in accordance with the latest version of ASTM D 1974, except that the inspection shall be in accordance with 4.2.6.

5.3. Marking.

In addition to any special marking required by the contract or purchase order, shipping and unit containers shall be marked in accordance with MIL-STD-129 with the addition of the applicable National Fire Equipment System (NFES) number (including the nomenclature "NFES"), which shall appear as the last line of the MIL-STD-129 label.

5.4. Part number.

The part number designation for the fuel can meeting this specification shall be 5GLSTC-RED. This part number must be listed on the MIL-STD-129 label and does not require a manufacturer to renumber their product.

6. NOTES.

6.1. Intended Use.

The safety can meets the requirements of the Department of Transportation for the transportation of fuel. It also meets the requirements of OSHA to contain, store, and dispense flammable liquids.

6.2. Acquisition Requirements.

Acquisition documents must specify the following:

- a. Title, number, and date of this specification
- b. If a first article sample inspection is not required
- c. Specific instructions regarding arrangements for selection, inspection, and approval of the first article sample(s)
- d. When lot-by-lot testing is required in lieu of certificates of conformance
- e. Preservation, packing, and marking required in addition to specification requirements

6.3. Preparing Activity.

U.S. Department of Agriculture, Forest Service, National Technology and Development Program, 5785 Highway 10 West, Missoula, MT 59808, <u>https://www.fs.fed.us/eng/techdev/mtdc.htm</u>.

6.4. Notice.

When Government drawings, documents, or other data are used for any purpose other than in connection with a related Government procurements operation, the U.S. Government thereby incurs neither responsibility nor any obligation whatsoever.