INCH-POUND

MIL-STD-290H
w/CHANGE 1
29 April 2016
SUPERSEDING
MIL-STD-290H
13 May 2013

DEPARTMENT OF DEFENSE
STANDARD PRACTICE

PACKAGING AND MARKING OF PETROLEUM AND RELATED PRODUCTS

AMSC N/A

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FOREWORD

1. This standard is approved for use by all Departments and Agencies of the Department of Defense (DOD).

2. This standard should be used in conjunction with the Interservice publication AFMAN24-204/TM 38-250/NAVSUP PUB 505/MCO P4030.19J/DLAI 4145.3, Preparing Hazardous Material for Military Air Shipments, International Civil Aviation Organization (ICAO), International Maritime Dangerous Goods (IMDG), Title 49 and Title 29 Code of Federal Regulations (CFR), and any other applicable law or regulation required for the safe handling, storage, and transportation of material covered under this standard.

3. Comments, suggestions, or questions on this document should be addressed to Chief, Logistics Support Activity, Packaging, Storage and Containerization Center, ATTN: AMXLS-PK, 11 Hap Arnold Boulevard, Tobyhanna, PA 18466-5097 or emailed to usarmy.tyad.usamc.mbx.pt@mail.mil . Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at https://assist.dla.mil .

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SUMMARY OF CHANGE 1 MODIFICATIONS

1. In the Foreword, included the whole document identifier for AFMAN24-204 and updated the contact information for the preparing activity.

2. Added FED-STD-595, Colors Used in Government Procurement, to section 2, page 2. The base document FED-STD-595 is called out in paragraph 5.9.1, page 12 in the standard.

3. Updated title for MIL-PRF-23699 in section 2 and paragraph 5.9.3.3.

4. For the Interservice Publication AFMAN24-204, updated the one document identifier "MCO P4030.19" to read "MCO P4030.19J".

5. Deleted ANSI MH2 from the list of documents in section 2. The Non-Government Standard (NGS) has been withdrawn.

6. In section 2, updated the titles for ASTM International and the International Organization for Standardization.

7. Added ASTM D1974/D1974M, Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes and ASTM D5118/D5118M, Standard Practice for Fabrication of Fiberboard Shipping Boxes to the list of documents in section 2.

8. Deleted ASTM D4727/D4727M from section 2 and throughout the document.

9. Deleted SAE AMS-C-22587 from section 2. The NGS was cancelled.

10. Updated the title for SAE J2360.

11. In section 2, changed various parenthetical statements with updated addresses and URLs.

12. Page 8, para 4.6, third sentence, after "requirements of the ICAO", added the title "Technical Instruction for the Safe Transport of Dangerous Goods by Air,". This is to include the specific ICAO document, as listed in section 2.

13. Page 9, para 5.1.3.2, second sentence. Deleted "MIL-STD-2073-1 or ASTM D4727/D4727M." and replaced with "ASTM D5118/D5118M.". In the third sentence deleted "constructed and". In the third sentence deleted "MIL-STD-2073-1" and replaced with "ASTM D1974/D1974M."

14. Page 9, para 5.2.4. In the first sentence, deleted "requirements of MIL-STD-2073-1 or ASTM D4727/D4727M." and replace with "ASTM D5118/D5118M.". In the second sentence, deleted "constructed and". In the second sentence deleted "the requirements specified therein." and replaced with "ASTM D1974/D1974M."

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SUMMARY OF CHANGE 1 MODIFICATIONS (Continued)

15. Pages 10, 11, paras 5.5.4.1; 5.6.2.1; 5.7.2.1; 5.7.2.1.1. In the first sentence deleted "requirements of MIL-STD-2073-1 or ASTM D4727/D4727M." and replaced with "ASTM D118/D5118M." In the second sentence deleted "constructed and". In the second sentence deleted "MIL-STD-2073-1 or ASTM D4727/D4727M." and replaced with "ASTM D1974/D1974M."

16. Page 12, para 5.9.1. Deleted the title of FED-STD-595. The standard and title are listed in section 2.

17. Page 16, para 5.10.10. Deleted the second sentence "The type, class, and grade may be omitted from the markings when they are the same as the military symbol."

18. Page 16, para 5.10.13. Added a "NOTE: THE WORDS "TYPE I" OR "TYPE II' SHALL NOT BE APPLIED AS PART OF THE SHELF-LIFE MARKING."

19. Page 20, para 6.2o. Changed "Material Safety Data Sheet (MSDS) to read "Safety Data Sheet (SDS)".

20. Page 20, para 6.5, changed paragraph title "Changes from previous issue" to "Change notations" to coincide with the Change Notice 1 changes.

21. Pages 22-23, Table I, deleted "SAE AMS-C-22587" and "ANSI MH2" as needed in Table I.

22. Page 25, Table IV. Under the header "Marking Elements", deleted "Military Symbol (when assigned)" and pertaining data in the related rows. Also deleted "(omit when same as Military Symbol)". In NOTE 1, deleted "and the Military Symbol, when assigned,".

23. Page 26, Table V, under the header "Marking Elements" deleted "Military Symbol (when assigned)" and pertaining data in the related rows. Also deleted "(omitted when same as Military Symbol)".

24. Figures 1 through 5, deleted "Military Symbol (when assigned)" and also "(omit when same as Military Symbol)" on the containers and box drawings.

25. Figures 1, 3, 4. Deleted "Shelf Life (when specified)" in the bottom picture.

26. Figure 2. Added a "NOTE" at bottom of page concerning shelf life.

27. Figure 5. Deleted "Alternate Shelf Life location" from the side of the container.

28. Figure 5. Deleted NOTE 2. Added "NOTE 3" concerning shelf life.

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1. SCOPE

1.1 Scope. This standard provides detailed requirements and approved uniform methods for packaging, packing, and marking of petroleum and related products for shipment, handling and storage.

1.2 Application.

1.2.1 Centrally procured items. The level of protection, as well as any special marking requirements, should be incorporated in the appropriate purchasing documents.

1.2.2 Locally procured items. This standard is not mandatory for items locally procured for immediate use.

1.3 Options. Where options are indicated concerning methods of packaging or designation of the method is not specified in the contract or order, the selection should be at the option of the contractor.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3, 4, or 5 of this standard. This section does not include documents cited in other sections of this standard or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3, 4, or 5 of this standard, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified therein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

INTERNATIONAL STANDARDIZATION AGREEMENTS

STANAG 1135	- Interchangeability of Fuels, Lubricants and Associated Products used by the Armed Forces of the North American Treaty Nations

FEDERAL SPECIFICATIONS

PPP-C-96	- Cans, Metal, 28 Gage and Lighter
PPP-D-705	- Drum, Shipping and Storage: Steel, 16 and 30 Gallon Capacity
PPP-D-723	- Drums, Fiber

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PPP-D-729	- Drums, Shipping and Storage, Steel, 55 Gallon (208 Liters)
PPP-P-704	- Pails, Metal: (Shipping, Steel, 1 through 12 Gallons)

FEDERAL STANDARDS

FED-STD-313	- Material Safety Data, Transportation Data and Disposal Data for Hazardous Materials Furnished to Government Activities
FED-STD-595	- Colors Used in Government Procurement
FED-STD-595/11105	- Red, Gloss (OSHA Safety Red/DOT)
FED-STD-595/13655	- Yellow, Gloss (OSHA Safety Yellow, ANA 505)
FED-STD-595/14110	- Green, Gloss (NASA Safety Medium Green)
FED-STD-595/15450	- Blue, Gloss
FED-STD-595/17142	- Miscellaneous, Gloss (OSHA Safety Purple)
FED-STD-595/17875	- Miscellaneous, Gloss (Insignia White, ANA 511)
FED-STD-595/21105	- Red, Semigloss
FED-STD-595/22648	- Orange, Semigloss (Buff)

Color names in parentheses are per FED-STD-595, Appendix IV

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-PRF-2104	- Lubricating Oil, Internal Combustion Engine, Combat/Tactical Service
MIL-PRF-5606	- Hydraulic Fluid, Petroleum Base; Aircraft, Missile and Ordnance
MIL-PRF-6081	- Lubricating Oil, Jet Engine
MIL-PRF-6083	- Hydraulic Fluid, Petroleum Base, for Preservation and Operation
MIL-PRF-7808	- Lubricating Oil, Aircraft Turbine Engine, Synthetic Base
MIL-PRF-8188	- Corrosion-Preventive, Aircraft Turbine Engine, Synthetic Base
MIL-PRF-9000	- Lubricating Oil, Shipboard Internal Combustion Engine, High-Output Diesel
MIL-PRF-14107	- Lubricating Oil, Weapons, Low Temperature
MIL-PRF-17331	- Lubricating Oil, Steam Turbine and Gear, Moderate Service
MIL-PRF-17672	- Hydraulic Fluid, Petroleum, Inhibited.
MIL-PRF-21260	- Lubricating Oil, Internal Combustion Engine, Preservative Break-In
MIL-PRF-23699	- Lubricating Oil, Aircraft Turbine Engine, Synthetic Base, NATO Code Number, O-152, O-154, O-156, and O-167
MIL-PRF-46170	- Hydraulic Fluid, Rust Inhibited, Fire Resistant, Synthetic Hydrocarbon Base, NATO Code No. H-544

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MIL-PRF-83282	- Hydraulic Fluid, Fire Resistant, Synthetic Hydrocarbon Base, Metric, NATO Code Number H-537
DOD-PRF-85734	- Lubricating Oil, Helicopter Transmission System, Synthetic Base
MIL-PRF-87252	- Coolant Fluid, Hydrolytically Stable, Dielectric
MIL-PRF-87257	- Hydraulic Fluid, Fire Resistant; Low Temperature, Synthetic Hydrocarbon Base, Aircraft and Missile

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-129	- Military Marking for Shipment and Storage
MIL-STD-147	- Palletized Unit Loads
MIL-STD-2073-1	- Standard Practice for Military Packaging

(Copies of these documents are available online at http://quicksearch.dla.mil .)

2.2.2 Other Government publications. The following other Government publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

CODE OF FEDERAL REGULATIONS (CFR)

Title 29 CFR	- Labor
Title 40 CFR	- Protection of Environment
Title 49 CFR	- Transportation

(Copies of these documents are available online at http://www.ecfr.gov , from the U.S. Government Publishing Office, 732 North Capitol Street, NW, Washington, DC 20401-0001, or by calling (866)-512-1800, (if in the DC area (202) 512-1800).)

INTERSERVICE PUBLICATION

AFMAN24-204/TM 38-250/NAVSUP PUB 505/MCO P4030.19J/DLAI 4145.3 (hereafter listed as AFMAN24-204)
- Preparing Hazardous Materials for Military Air Shipments

(Copies of this document are available online at http://www.e-publishing.af.mil/)

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

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AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z400.1/Z129.1	- American National Standard for Hazardous Workplace Chemicals – Hazard Evaluation and Safety Data Sheet and Precautionary Labeling Preparation

(Copies of this document are available online at http://www.ansi.org or ANSI Attn: Customer Service Dept., 25 W 43rd Street, 4th floor, New York, NY 10036.)

ASTM INTERNATIONAL

ASTM D1974/D1974M	- Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes
ASTM D3951	- Standard Practice for Commercial Packaging
ASTM D4919	- Standard Guide for Testing of Hazardous Materials Packagings
ASTM D5118/D5118M	- Standard Practice for Fabrication of Fiberboard Shipping Boxes

(Copies of these documents are available online at http://www.astm.org or ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.)

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)

ISO/IEC 16388	- Information technology - Automatic identification and data capture techniques - Code 39 bar code symbology specification.

(Copies of this document are available online at http://www.iso.org or e-mail customerservice@iso.org at the International Organization for Standardization, ISO Central Secretariat, 1, ch. De la Voie-Creuse CP 56-CH-1211 Geneva 20 Switzerland.)

SOCIETY OF AUTOMOTIVE ENGINEERS (SAE) INTERNATIONAL

SAE J1703	- Motor Vehicle Brake Fluid
SAE J2360	- Automotive Gear Lubricants for Commercial and Military Use

(Copies of these documents are available online at http://www.sae.org or e-mail CustomerService@sae.org or SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, or telephone (877) 606-7323 (USA and Canada) or (724) 776-4970 (outside USA).)

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NATIONAL RAILROAD FREIGHT COMMITTEE

UNIFORM FREIGHT CLASSIFICATION 6000-M

(Copies of this document are available online at http://www.railinc.com or e-mail csc@railinc.com or from Railinc, 7001 Weston Parkway, Suite 200, Cary, NC 27513, or by calling (877) 724-5462.)

INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO)

Technical Instruction for the Safe Transport of Dangerous Goods by Air

(Copies of the Technical Instructions are available at http://www.iata.org ; http://www.icao.int or e-mail Sales@icao.int or through the International Civil Aviation Organization, Attention: Document Sales Unit, 999 Robert-Bourassa Boulevard, Montreal, Quebec, Canada H3C 5H7.)

INTERNATIONAL MARITIME ORGANIZATION (IMO)

International Maritime Dangerous Goods (IMDG) Code

(Copies of the IMDG are available through the International Maritime Organization, 4 Albert Embankment, London, SE1 7SR or at www.imo.org.)

2.4 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. DEFINITIONS

3.1 Abbreviations. The following abbreviations are authorized for use. In addition, abbreviations of item descriptions will be permitted when approved by the procuring activity. Periods will not be used with abbreviations.

(a) Package units:

Bottle	BT	Container	CO
Box	BX	Drum	DR
Cake	CK	Hogshead	HH
Can	CN	Jar	JR
Carton	CT	Pack	PK
Cartridge	CA	Tube	TU

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(b) Quantitative units

Ampoule	AM	Gross	GR
Dozen	DZ	Group	GP
Each	EA	Hundred	HD
Great Gross	GG	Lot	LO

(c) Weights and measures units:

Cube	CU	Kilogram	KG
Cubic Centimeter	CC	Liter	L
Dram	DM	Ounce	OZ
Fluid Ounce	FL OZ	Pint	PT
Foot	FT	Pound	LB
Gallon	GL	Quart	QT
Quart Imperial	QI	Gallon Imperial	GB
Gill	GI	Volume	VO
Gram	G	Weight	WT

(d) Product markings:

Aircraft	ACFT	Mark	MK
Automotive	AUTO	Month	MO
Contract	CONTR	National Item	
Copy	CY	Identification Number	NIIN
Dimensions	DMN	National Stock Number	NSN
Engine	ENG	Net Weight	NET/WT
Federal Supply Class	FSC	Packed	PKD
Government Bill Of Lading	GBL	Petroleum	PETRO
Gyroscope	GYRO	Port Transportation Officer	PTO
Identification	IDENT	Preservative	PRESERV
Invoice	INV	Qualification number	QUAL
Less Than Carload	LCL	Quantity	QTY
Less Than Truckload	LTL	Reciprocating	RCIP
Lubrication	LUBE	Temperature	TEMP
Manufacturer	MFR	Transportation Officer	TO
Manufacturer's Part Number	MFR/PN	Turbine	TURB

3.2 Commercial packaging. Commercial packaging consists of the methods and materials employed by the supplier that satisfy the requirements of the commercial distribution system. Commercial packaging should provide the same level of protection against physical and environmental damage as military packaging during shipment and handling.

3.3 Containers. Containers, as specified for petroleum and related products, consist of tubes, cartridges, bags, bottles, boxes, cans, drums, jars, and pails used to protect contents from physical damage during shipment, handling, and storage. When hazardous materials are specified, the containers should be tested in accordance with ASTM D4919.

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3.4 Unit pack. Unit pack is defined as the first tie, wrap, or container applied to a single item or a quantity thereof, or to a group of items of a single stock number, preserved or unpreserved, which constitutes a complete identifiable pack. For petroleum products, the unit pack is a can, box, bottle, container, tube, cartridge, bag, drum, pail, or pack as described in sections 4 and 5 herein.

3.5 Exterior pack. Exterior pack is defined as a container or bundle that is sufficient by reason of material, design, and construction to protect material during shipment and storage. Exterior pack may be the unit pack or a container with any combination of unit or intermediate packs.

3.6 Intermediate pack. Intermediate pack should consist of a wrap or box which contains two or more identical unit packs.

3.7 Level of protection. A means of specifying the level of military preservation and packing that a given item requires to ensure that it is not degraded during shipment and storage.

3.8 Marking. Marking is the application of numbers, letters, labels, tags, symbols, or colors to items for identification and handling during shipment and storage.

3.9 Packing. Application of any exterior protective methods, materials, or devices to assure the integrity of the preserved item as either military level of packing (Level A, Level B) or commercial level of packing.

3.10 Shelf life items. Shelf life items are items of supply possessing deteriorative or unstable characteristics to the degree that a storage time period should be assigned to ensure satisfactory performance.

3.10.1 Type I shelf life items. Type I shelf life items, as determined through an evaluation of technical and test data and/or actual experience, are items of supply that possess a definite non-extendible period of shelf life.

3.10.2 Type II shelf life items. Type II shelf life items are items of supply with assigned storage time periods that may be extended after the completion of prescribed visual inspections, tests and/or restorative action(s).

4. GENERAL REQUIREMENTS

4.1 Unit containers. Unit containers for packaging petroleum and related products shall conform to the requirements of military or commercial packaging procedures as specified in table I.

4.2 Coating of metal containers. When required, metal containers shall be painted as specified in table I and 5.9.1.

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4.3 Packaging. Petroleum products, as specified in table I, shall be packaged in unit containers conforming to requirements specified in MIL-STD-2073-1. When commercial packaging is specified (see 6.2), packaging shall be in accordance with ASTM D3951. Specialty products shall be packaged as specified in 5.6 through 5.6.2.2.

4.4 Marking. Unless otherwise specified (see 6.2), packaged petroleum and related products shall be marked as specified in 5.10.1 through 5.10.30. Markings not covered by 5.10.1 through 5.10.30 shall be in accordance with MIL-STD-129.

4.4.1 Bar code marking. Unless otherwise specified (see 6.2), bar code markings are required on all shipments. Bar code marking shall be in accordance with ISO/IEC 16388.

4.5 Palletization. When specified in the contract or order (see 6.2), packaged petroleum and related products shall be palletized in accordance with 5.3.1.

4.6 Department of Transportation (DOT) regulations. All petroleum and related products herein regulated by DOT as hazardous material or hazardous substances shall be packed in containers tested to Part 178 of Title 49 Code of Federal Regulations (CFR). The containers shall also meet the requirements of AFMAN24-204 when Military Airlift Command and other DoD components are involved. The containers shall also meet the requirements of the ICAO, Technical Instruction for the Safe Transport of Dangerous Goods by Air, when International Air is involved. The containers shall also meet the requirements of the IMDG when International Vessel is involved. When specified (see 6.2), petroleum and related products shall be packed in containers meeting the internal air gauge pressure and leakage test requirements of Title 49 CFR.

4.7 Reclaimed materials. The containers and materials used in this standard may contain reclaimed materials to the maximum extent possible, provided such materials will not jeopardize the intended use, performance, or design life of the containers and materials. Reclaimed materials shall have been collected or recovered from solid waste and reprocessed to become a source of raw materials, as opposed to virgin raw materials. None of the above shall be interpreted to mean that the use of used, rebuilt, or remanufactured end products is allowed under this standard. The reclaimed or recovered materials shall be in accordance with the Resource Conservation and Recovery Act (RCRA) of Title 40 CFR to the maximum extent possible.

5. DETAILED REQUIREMENTS

5.1 Packaging products in unit containers.

5.1.1 Unit pack. When unit packs are specified in the contract or order, unit containers shall conform to the requirements of table I for the appropriate level specified in the contract or order (see 6.2).

5.1.2 Intermediate pack. When intermediate containers are specified in the contract or order, petroleum and related products shall be packed in containers conforming to table II or III.

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5.1.3 Exterior pack. When petroleum and related products are specified to be packed in exterior containers by the contract or order (see 6.2), the filled and closed containers shall be packed level B or commercial.

5.1.3.1 Military intermediate packs of filled containers of less than 1-pint capacity. Unless otherwise specified (see 6.2), intermediate packs in the quantities and arrangements specified in table II shall be packed in containers conforming to requirements of MIL-STD-2073-1. Exterior packs shall also be packed in containers conforming to requirements of MIL-STD-2073-1.

5.1.3.2 Military intermediate packs of filled containers of 1-pint capacity and over. Unless otherwise specified (see 6.2), filled and closed containers of capacities of one pint and over, and intermediate packs in the quantities and arrangements specified in table II, shall be packed in containers conforming to requirements of MIL-STD-2073-1. Exterior packs shall also be packed in fiberboard containers conforming to ASTM D5118/D5118M. The fiberboard containers shall be closed in accordance with ASTM D1974/D1974M. Containers with protruding closures shall be protected with cell spacers or buffer pads formed from scored sheets of fiberboard or from polystyrene materials or full height, snug fitting, half-slotted style, interlocking fiberboard partitions. The design number and arrangement of the pads shall prevent movement and provide clearance. Boxes shall be top loading or end loading.

5.2 Packaging standard grease cartridges (for cartridge-type grease guns).

5.2.1 Unit pack. Unless otherwise specified (see 6.2), grease shall be furnished in grease cartridges conforming to the requirements specified in table I for military or commercial.

5.2.2 Intermediate pack. When specified in contract or order (see 6.2), unit packed grease shall be furnished in intermediate containers conforming to the requirements specified in table III for military or commercial.

5.2.3 Exterior pack. Unless otherwise specified (see 6.2), unit pack grease shall be furnished in exterior containers conforming to the requirements specified in table III.

5.2.4 Level B. Unless otherwise specified (see 6.2), not more than 60 grease filled cartridges for the intermediate pack, as specified in 5.2.2, shall be packed in fiberboard containers conforming to ASTM D5118/D5118M. The fiberboard containers shall be closed in accordance with ASTM D1974/D1974M. Containers may be top loading or end loading.

5.2.5 Minimal. Unless otherwise specified (see 6.2), 60 grease filled cartridges for commercial pack shall be packed in accordance with the requirements of ASTM D3951.

5.3 Packaging products in drums. When drums are specified in the contract or order (see 6.2), they shall conform to the requirements in table I for the appropriate level specified. When military air shipment is specified (see 6.2), drums shall meet the requirements of ASTM D4919, Title 49 CFR and AFMAN24-204. When International Air shipment is specified (see 6.2), drums shall meet the requirements of ICAO. When International Vessel shipment is specified (see 6.2), drums shall meet the requirements of IMDG.

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5.3.1 Palletization. When palletization of packed petroleum and related products is specified in the contract or order (see 6.2), the packed items shall be palletized in accordance with MIL-STD-147. Marking of palletized loads shall be in accordance with MIL-STD-147. Unless otherwise specified (see 6.2), double wing pallets of high density or very high density woods (hardwoods) shall be used.

5.4 Packaging products in pails. Unless otherwise specified (see 6.2), petroleum and related products shall be unit packed in pails conforming to the requirements in table I for military or commercial.

5.5 Packing products in bottles and jars.

5.5.1 Unit pack. Unless otherwise specified (see 6.2), petroleum and related products shall be unit packed in bottles or jars conforming to the requirements in table I for military or commercial.

5.5.2 Intermediate pack. Unless otherwise specified (see 6.2), petroleum and related products shall be packed in intermediate containers conforming to the requirements in table III.

5.5.3 Commercial unit pack. Unless otherwise specified (see 6.2), petroleum and related products shall be packaged in bottles or jars conforming to the requirements of ASTM D3951.

5.5.4 Exterior pack. Unless otherwise specified (see 6.2), petroleum and related products packed in containers specified above shall be exterior packed in accordance with the requirements specified in table III.

5.5.4.1 Level B. Unless otherwise specified (see 6.2), unit and intermediate packs of the quantities and arrangements specified in table III shall be packed in fiberboard containers conforming to ASTM D5118/D5118M. The fiberboard boxes shall be closed in accordance with ASTM D1974/D1974M. For 1-pound unit containers and larger, full-height partitions with full size top and bottom pads shall be used.

5.5.4.2 Minimal. Unless otherwise specified (see 6.2), filled bottles, jars, and collapsible tubes shall be packed in a manner that will afford adequate protection against damage during direct shipment from the supply source to the first receiving activity. Shipping containers shall conform to the Uniform Freight Classification 6000-M or the carrier's rules and regulations applicable to the mode of transportation.

5.6 Packaging of specialty products.

5.6.1 Unit pack. Packaging of specialty products, such as stick form grease, aerosol and non-aerosol containers, vials, and syringes shall be unit packed in accordance with ASTM D3951.

5.6.2 Exterior pack. Unless otherwise specified (see 6.2), stick form grease and other specialty products shall be packed level B or minimal.

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5.6.2.1 Level B. Unless otherwise specified (see 6.2), stick form grease units and other specialty products to be packed as specified in 5.6.2 shall be packed in fiberboard containers conforming to ASTM D5118/D5118M. The fiberboard boxes shall be closed in accordance with ASTM D1974/D1974M. The item's weight shall be not more than the weight limit specified in the appropriate container specification.

5.6.2.2 Minimal. Unless otherwise specified (see 6.2), stick form grease units and other specialty products shall be packed in a manner that will provide adequate protection against damage during direct shipment from the supply source to the first receiving activity. Shipping containers shall conform to the Uniform Freight Classification 6000-M rules or the carrier's rules and regulations applicable to the mode of transportation.

5.7 Packaging of wax.

5.7.1 Unit pack of 1-pound wax cakes. Single 1-pound cakes or four 1/4-pound cakes shall be wrapped in wax paper or unit packed in plastic bags and packed in folding or set-up boxes.

5.7.2 Exterior pack. 1-pound wax cakes shall be packed level B or minimal or as specified in the contract or order (see 6.2).

5.7.2.1 Level B. Twenty 1-pound cakes or 80 1/4-pound cakes shall be unit packed in fiberboard containers conforming to ASTM D5118/D5118M. The fiberboard containers shall be closed in accordance with ASTM D1974/D1974M.

5.7.2.1.1 10- and 11-pound wax slabs. When wax slabs are in five or six 10- or 11-pound slabs, the wax shall be packed in fiberboard containers conforming to ASTM D5118/D5118M. The fiberboard containers shall be closed in accordance with ASTM D1974/D1974M.

5.7.2.1.2 Packaging of solid wax. Solid wax shall be unit packed in fiber drums conforming to Type II Grade C of PPP-D-723. Net contents of hot-filled drums shall be 370 ± 30 pounds.

5.7.2.2 Minimal packing of solid wax. Solid wax shall be packed in accordance with ASTM D3951.

5.8 Cleaner, lubricant, and preservative (CLP).

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5.8.1 Unit container sizes of CLP. CLP shall be unit packaged in one of the following high density polyethylene containers:

a. 0.5-fluid ounce plastic bottle.
b. 4-fluid ounce plastic bottle.
c. 1-pint plastic bottle with trigger sprayer.
d. 1-gallon plastic bottle.
e. 1-liter plastic bottle with a trigger sprayer.

5.8.2 Exterior pack. Exterior pack of CLP shall be packed level A, or minimal or as specified in the contract or order (see 6.2). Unit packs per container shall not exceed the following:

a. 0.5-fluid ounces ---------- 240 units/container
b. 4-fluid ounces ---------- 120 units/container
c. 1-pint---------- 20 units/container
d. 1-gallon---------- 4 units/container
e. 1-liter ---------- 12 units/container

5.8.2.1 Level A. Level A packing for overseas shipment only. CLP shall be packed in wood containers conforming to Title 49 CFR or ASTM D4919.

5.8.2.2 Minimal. Minimal packing of CLP shall be packed in accordance with the requirements of ASTM D3951, or as specified in the contract or order (see 6.2).

5.9 Exterior color coating of metal containers.

5.9.1 General. The exterior coating (paint type) on metal containers shall be as specified in the contract or order for all containers except as specified in 5.9.2 through 5.9.5.1. Type I cans requiring unpainted top and bottom lids shall be provided with a 1/4-inch unpainted margin on both ends of the 8-ounce can bodies, a 1/2-inch unpainted margin on both ends of the 1-quart can bodies, and a 3/4-inch unpainted margin on both ends of the 1-gallon can bodies. Striping on side seams shall not be required. Exterior paint shall not be required on friction rings, on the tops and bottoms of cans, or on collapsible tubes with a holding capacity of four ounces or less. The exterior tops and bottoms of 5-gallon cans (and larger) shall be painted. When commercial level is specified, exterior painting of metal containers shall conform to FED-STD-595 or the supplier's commercial color, except solid RED, YELLOW, or GREEN coatings shall be used only as specified in 5.9.2 through 5.9.5.1. Except as specified in 5.9.3.1 and 5.9.3.2, the silver colored, uncolored, or plain tin-plate cans shall not be allowed for 1-quart and 1-gallon type I cans (metal, round, open-top, hermetically sealed when filled).

5.9.1.1 Painting. Containers of 1-gallon capacity or less for any products having stringent particulate contamination limits shall not have a coating (paint) applied to the ends of the containers, nor shall paint be applied within 1/2-inch of the ends. Side striping shall not be required.

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5.9.2 Hydraulic fluid.

5.9.2.1 MIL-PRF-5606 - Hydraulic Fluid, Petroleum Base; Aircraft, Missile and Ordnance. Containers of 1-gallon capacity or less and 10-gallon drums shall be coated RED, a color approximating Color No. 11105 or 21105 of FED-STD 595. Except for 10-gallon drums, containers larger than 1-gallon shall be coated BUFF, approximating Color No. 22648 of FED-STD-595. Exterior tops and bottoms of cans shall not be coated.

5.9.2.2 MIL-PRF-83282 - Hydraulic Fluid, Fire Resistant, Synthetic Hydrocarbon Base, Metric, NATO Code Number H-537. Containers of 1-gallon capacity or less shall be coated RED, a color approximating Color No. 11105 or 21105 of FED-STD-595. Containers larger than 1-gallon shall be coated BUFF, approximating Color No. 22648 of FED-STD-595. The exterior tops and bottoms of the cans shall not be coated.

5.9.2.3 MIL-PRF-6083 - Hydraulic Fluid, Petroleum Base for Preservation and Operation. Containers of 1-gallon capacity or less shall be coated RED, a color approximating Color No. 11105 or 21105 of FED-STD-595. Containers larger than 1-gallon shall be coated BUFF, approximating Color No. 22648 of FED-STD-595. Five-gallon pails and 55-gallon drums shall have a WHITE band (approximately one inch wide) painted on the side directly below the top head chime. Exterior tops and bottoms of the cans shall not be coated.

5.9.2.4 MIL-PRF-46170 - Hydraulic Fluid, Rust Inhibited, Fire Resistant, Synthetic Hydrocarbon Base, NATO Code No. H-544.

5.9.2.4.1 Type I. Containers of Type I hydraulic fluid shall be coated BUFF, approximating Color No. 22648 of FED-STD-595.

5.9.2.4.2 Type II. Per MIL-PRF-46170, Type II is no longer available.

5.9.2.5 MIL-PRF-87257 - Hydraulic Fluid, Fire Resistant; Low Temperature, Synthetic Hydrocarbon Base, Aircraft and Missile. Containers of hydraulic fluid of 1-gallon capacity or less shall be coated RED, a color approximating Color No. 11105 or 21105 of FED-STD-595. Containers larger than 1-gallon shall be coated BUFF, approximating Color No. 22648 of FED-STD-595. The exterior tops and bottoms of the cans shall not be coated.

5.9.2.6 Hermetically sealed cans. For all hydraulic fluid cans, contractor's commercial hermetically sealed cans, 1-gallon capacity and smaller, may be used provided the container base color is red and all required markings are provided on the can.

5.9.3 Synthetic lubricating oils.

5.9.3.1 MIL-PRF-7808 - Lubricating Oil, Aircraft Turbine Engine, Synthetic Base. Exterior tops, bodies, and bottoms of 8-ounce, 1-quart, and 1-gallon containers shall not be painted. Contractor's commercial hermetically sealed containers, 1-gallon capacity and smaller, may be used provided the container base color is silver or unpainted and all required markings are provided on the can.

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5.9.3.2 MIL-PRF-8188 – Corrosion-Preventive, Aircraft Turbine Engine, Synthetic Base. Exterior tops, bodies, and bottoms of 1-gallon capacity and smaller containers shall not be painted.

5.9.3.3 MIL-PRF-23699 - Lubricating Oil, Aircraft Turbine Engine, Synthetic Base, NATO Code Number, O-152, O-154, O-156, and O-167. Exterior tops and bottoms of 8-ounce and 1-quart cans shall not be painted. The bodies shall be GREEN approximating Color No. 14110 of FED-STD-595 and the markings shall be YELLOW approximating Color No. 13655 of FED-STD-595. Contractor's commercial hermetically sealed containers, 1-gallon capacity and smaller, may be used provided the container base color is green and all required markings are provided in yellow on the can.

5.9.3.4 DOD-PRF-85734 - Lubricating Oil, Helicopter Transmission System, Synthetic Base. The exterior tops and bottoms of 1-quart and 1-gallon cans shall not be painted. The bodies shall be PURPLE approximating Color No. 17142 of FED-STD-595 and the markings shall be WHITE approximating Color No. 17875 of FED-STD-595. Contractor's commercial hermetically sealed containers, 1-gallon capacity and smaller, may be used provided the container base color is purple and all required markings are provided in white on the can.

5.9.4 Petroleum lubricating oil.

5.9.4.1 MIL-PRF-6081 - Lubricating Oil, Jet Engine. Exterior tops and bottoms of 1-quart and 1-gallon cans containing petroleum lubricating jet engine oil shall not be painted.

5.9.4.2 MIL-PRF-87252 - Coolant Fluid, Hydrolytically Stable, Dielectric. Exterior tops and bottoms of 1-quart and 1-gallon cans shall not be painted. The bodies shall be BLUE approximating Color No. 15450 of FED-STD-595 and the markings shall be a contrasting color.

5.9.5 Brake fluid.

5.9.5.1 SAE J1703- Motor Vehicle Brake Fluid . Exterior tops and bottoms of 1-pint, 1-quart, and 1-gallon containers shall not be painted.

5.10 Marking.

5.10.1 Marking of materials. All markings shall be clear, legible, durable, and non-fading. Marking of unit packs, intermediate packs, and exterior packs shall be accomplished by labeling, stamping, stenciling, printing, lithographing, silk-screening, photo-marking, or embossing, or by the use of other similar processes.

5.10.2 Labels. Labels shall be used for address markings (see 5.10.25). Labels shall be permitted for the contract data, and shall be used when required by regulation or status. Unless prohibited by the contract or order, printed pressure sensitive labels are authorized for identification markings on unit, intermediate, and exterior containers. When labels are used, the labels shall be waterproof, regardless of the level of protection of the pack cited.

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5.10.3 Color of markings. Military markings on BUFF coated containers shall be BLACK. Markings on uncoated containers, such as fiberboard or plastic, and on containers coated other than BUFF, shall be of a contrasting color.

5.10.4 Identification, contract data, and address markings.

5.10.4.1 Identification and contract data markings on unit containers of 1-gallon capacity or less. When required by the contract, identification, and contract data shall be marked on unit container sizes of 1-gallon capacity or less as specified in table I (see figure 1).

5.10.4.2 Identification and contract data markings on unit and intermediate containers. When required by the contract, identification, and contract data shall be marked on unit and intermediate containers as specified in table II (see figure 2).

5.10.4.3 Identification, contract data, and address markings on drums. Identification, contract data, and address markings shall be marked on drums and pails as specified in table III (see figures 3 and 4). When shipments are palletized, address markings are not required on individual containers.

5.10.4.4 Identification, contract data, and address markings on unit loads. Identification, contract data, and address markings shall be marked on individual shipping containers (boxes) as required (see figure 5). All pallet loads shall be marked in accordance with MIL-STD-147.

5.10.5 Location and sequence of markings. The sequence of marking elements shown in the figures and tables herein are recommended but are not mandatory. The location of the data may be varied as dictated by the size of the marking and the size and shape of the container. Only applicable information shall be marked on containers, not the words in the tables, e.g., "code" or "military symbol". Containers not specified in this standard shall be marked to conform to the tables herein as closely as possible. Markings on containers of a 5-gallon capacity (or greater) shall be of sufficient size to be easily readable from six feet.

5.10.6 NATO (North Atlantic Treaty Organization) code. The NATO code number is an identifying designation consisting of a letter and a number assigned to a petroleum product standardized for use by the NATO Armed Forces. The NATO code number shall be placed above the military symbol and enclosed in a rectangle, which shall be either a continuous or broken line. When required, the NATO code number is available from the MIL/DoD Standard or from the NATO Standardization Agreement (STANAG) 1135.

5.10.7 Military symbol. When required, the military symbol shall be the identifying designation as assigned in a particular product specification.

5.10.8 Item description. The item description shall be the exact name and description cited in the contract.

5.10.9 Specification number. The specification number, drawing number, or cut sheet number shall be the same as that appearing in the contract or order. It shall include the revision and amendment designation, if any. For hermetically sealed cans 1-gallon capacity or less, the revision or amendment number may be embossed on the head of the can. Non-specification

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products, e.g., "brand name or equal" shall be identified with the appropriate brand name and part number cited in the contract or order.

5.10.10 Type, class, and grade. The applicable type, class, and grade of the product, as designated in the product specification, shall be shown.

5.10.11 National stock number (NSN). The national stock number shall be the exact NSN consisting of 13 digits, e.g., 1500-00-000-0000. If the NSN is not available, the applicable federal supply class (FSC), if known, shall be shown in addition to the manufacturer's part number (MFR/PN). Sufficient space shall be left blank immediately above the MFR/PN for the subsequent placement of the NSN.

5.10.12 Military airlift requirements. When military airlift shipment is required, the contracting officer shall provide all necessary instructions and forms in accordance with AFMAN24-204.

5.10.13 Shelf life markings. There are two types of shelf life items (see 3.10, 3.10.1, 3.10.2) and when specified in the contract, the shelf-life markings for Type I or II outlined below shall be marked below the item identification data on all unit pack, intermediate and exterior containers, and unpacked items.

NOTE: THE WORDS “TYPE I” or “TYPE II” SHALL NOT BE APPLIED AS PART OF THE SHELF LIFE MARKING.

a. Marking for Type I shelf life items shall be as follows:

MFD DATE
EXP DATE

Instructions:

For the Date of Manufacture (MFD DATE), show the month and year of manufacture.

For the Expiration Date (EXP DATE), show the month and year of expiration (computed by adding the number of assigned shelf-life months to the Date of Manufacture).

b. Marking for Type II shelf life items shall be as follows:

MFD DATE
INSP/TEST DATE

Instructions:

For the Date of Manufacture (MFD DATE), show the month and year in which the material was manufactured.

For the Inspect/Test Date, show the month and year of test (computed by adding the number of assigned shelf-life months to the Date of Manufacture).

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c. After Type II shelf-life material is visually inspected and/or laboratory tested and then extended to a new inspect/test date, a DD Form 2477 Series, Shelf-Life Extension Notice, shall be attached in a conspicuous place at the storage location. Extension notices shall be attached to all exterior, intermediate, and unit containers prior to shipment.

5.10.13.1 Date of manufacture. When shelf life marking is not required, the date of manufacture (of contents) shall be designated by the center month of each quarter and year, namely February, May, August, and November, in which manufacturing took place. The date of manufacture may be indicated on the lids of hermetically sealed cans by embossing.

5.10.14 Batch or lot number. The batch or lot number shall be that series of numbers, letters, or both, established by the manufacturer to record production and control of products. Where lot or batch numbers are applicable, both shall be provided. On containers larger than 1-gallon, the word "BATCH" or "LOT" shall precede the applicable batch or lot number and shall be applied on the side of the container and applied in such a manner, utilizing quality materials, to preclude the tendency to obliterate or smear. On hermetically sealed containers of 1-gallon capacity or less, the lot/batch number may be embossed on the lid of the container.

5.10.15 Contract number. The contract number given in the applicable procurement document shall be used on containers larger than 1-gallon and all intermediate and shipping containers.

5.10.16 Qualification number. The qualification number is the identification code assigned to a product that has been tested for compliance with the specification or commercial item description in advance of procurement. The qualification number, for container marking purposes, is that series of numbers or letters shown in the column "Test and Qualification Reference" of the applicable Government or industry Qualified Products List (QPL), e.g., WORT-P97-3 or AML-AE-1234.5. For Government Qualified Products Lists, if the QPL does not include a qualification number as specified above, the information listing under the column "Government Designation" of the QPL shall be shown. The qualification number shall be required on all unit containers 1-gallon and larger and all intermediate and shipping containers. The abbreviation "QUAL" shall precede the applicable qualification number on all unit containers larger than 1-gallon, and all intermediate and shipping containers. When a contractor is supplying a "rebrand" qualified product manufactured by another company, the name of the qualified holder shall prefix the qualification number on all containers requiring qualification number marking.

5.10.17 Net weight (of contents). Containers shall show the net weight (of contents) by volume or by weight in pounds, as appropriate for the commodity. For items identified as hazardous materials the unit of measure must be expressed in SI units.

5.10.18 Regulatory marking and labeling. Regulatory marking and labeling of hazardous materials shall be done in accordance with Title 49 CFR, International Civil Aviation Organization (ICAO) and International Maritime Dangerous Goods (IMDG) and AFMAN24-204, to satisfy all modes of transportation from the shipping activity to the first receiving activity.

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5.10.19 Proper shipping name. The proper shipping name is the name of each item of hazardous material shown in Roman print in Part 172.101 of Title 49 CFR. The proper shipping name shall be marked on the outside of each shipping container. It shall be distinct and apart from the item description.

5.10.20 UN/NA (United Nations/North American Hazardous Materials Code) identification number. The UN/NA identification number is assigned to each item of hazardous material regulated for transportation in accordance with the requirements of Title 49 CFR. This number shall be marked on the outside of each unit pack shipping container and intermediate container and shall appear immediately after the proper shipping name.

5.10.21 Other precautionary and statutory markings. Markings required by statute or regulation shall not be obscured by other markings. Special markings may be required by the specification and/or the contract (see 6.2).

5.10.22 Flash point and boiling point markings. Unit and intermediate packs and shipping containers packed with flammable and combustible liquids with a flash point below 200 °F shall be marked with the flash point of the contents. If the flash point is less than 73 °F, the boiling point shall also be included. Flash point and boiling point markings shall be expressed in degrees Fahrenheit and shall be applied to the identification-marked side by means of labeling, printing, stamping, or stenciling. The flash point shall be determined by using the appropriate test prescribed in Part 173.120(c) of Title 49 CFR.

5.10.23 Precautionary marking of hazardous and chemical materials. All unit and intermediate packs of hazardous and chemical materials shall be labeled in accordance with applicable laws, statutes, regulations, UN standards, and ordinances including Federal, state, and municipal requirements. In addition, unit and intermediate containers that serve as shipping containers shall be marked with the applicable precautionary information in accordance with ANSI Z400.1/Z129.1. All markings shall be located as specified in tables IV and V. When the container size and configuration does not permit precautionary markings within the prescribed location, they shall be located on the opposite side of the unit container as specified in figure 1. Letters in the signal words "POISON", "CAUTION", and "WARNING" shall be large, legible, and appropriate for the space available.

5.10.24 Unit of issue. The unit of issue, unit of measure, and quantity shall be as specified in the contract or order (see 6.2). For items identified as hazardous materials the unit of measure must be expressed in SI units

5.10.25 Address marking. Address markings specified in the contract or order shall be applied to the shipping containers by means of labels, tags, or as otherwise specified (see 6.2).

5.10.25.1 Full carloads and full truckloads. The domestic address is not required on shipping containers and palletized unit loads shipped in full carloads or full truckloads to a single consignee.

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5.10.25.2 Less-than-carloads (LCL) and less-than-truckloads (LTL). The domestic address is required on shipping containers and palletized unit loads for less-than-full-carloads or less-than-full-truckloads lots. The domestic address is not required on shipping containers in a palletized unit load. One address marking shall be applied to each unit load in a LCL or LTL shipment.

5.10.26 Gross weight. The gross weight shall consist of the combined weight of the item, cushioning materials, and containers. The capital letters "WT" shall precede the gross weight numerals. All weights shall be numerically indicated and shall be expressed in pounds to the next largest whole pound.

5.10.27 Cube. The letter "CU" shall precede the cubic displacement numerals. The cube shall be the cube displacement of the shipping container, calculated from the extreme overall length, width, and height. The dimensions shall be shown in cubic feet. The cube shall be expressed decimally to the nearest one-tenth of a foot. Irregular, cylindrical, or round items shall be considered as rectangular.

5.10.28 Contractor's name. Where the contractor's name requires two lines, a readily identifiable abbreviation is permitted.

5.10.29 Returnable drums deposit marking. When drums are to be returned to the supplier for a deposit refund, drums shall be conspicuously marked to indicate the amount of deposit due and the location to which it is returnable.

5.10.30 Safety Data Sheet (SDS). When specified in the contract or order (see 6.2), a Safety Data Sheet (SDS) (formerly Material Safety Data Sheet (MSDS)) shall be prepared and submitted in accordance with the requirements of FED-STD-313 and Part 1910.1200 of Title 29 CFR.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. This standard is intended for use in packaging, packing, marking and labeling of petroleum and related products for shipment, handling, and storage.

6.2 Acquisition requirements. Acquisition documents should specify the following:

a. Title, number, and date of this standard.
b. Level of packaging (see 4.3 and Table I).
c. Marking (see 4.4 and 5.10 thru 5.10.30).
d. When bar code marking are not required (see 4.4.1).
e. Palletization (see 4.5 and 5.3.1).

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f. Specify when military air shipment requirements also applies (see 4.6 and 5.3). When military airlift is required the contracting officer will provide necessary instructions and forms in accordance with AFMAN24-204/TM 38-250/ NAVSUP PUB 505/MCO P4030.19J/DLAI 4145.3.
g. Packaging product in unit containers (see 5.1.1 thru 5.1.3.2).
h. Packaging of grease cartridges (see 5.2.1 thru 5.2.5).
i. Packaging products in drums (see 5.3 thru 5.3.1.).
j. Packaging products in pails, bottles and jars (see 5.4 and 5.5).
k. Packaging of specialty products (see 5.6 thru 5.6.2.2).
l. Packaging of wax (see 5.7).
m. Packaging of CLP (see 5.8).
n. Unit of issue (see 5.10.24).
o. Safety Data Sheet (SDS) (see 5.10.30).
p. Specify when commercial air or vessel shipment requirements also apply. When commercial air is required the contracting officer will provide necessary instructions and forms in accordance with ICAO. When commercial vessel is required the contracting officer will provide necessary instructions and forms in accordance with IMDG.

6.3 Subject term (key word) listing.

bottles	hydraulic fluid
brake fluid	jar
cans	labels
cartridge	Level B
CLP	oil
commercial	pail
container colors	palletization
drums	synthetic lubricating oils
fiberboard	tubes
grease cartridges	wax

6.4 International standardization agreement implementation. This standard implements STANAG 1135 - Interchangeability of Fuels, Lubricants and Associated Products used by the Armed Forces of the North American Treaty Nations. When changes to, revision, or cancellation of this standard are proposed, the preparing activity must coordinate the action with the U.S. National Point of Contact for the international standardization agreement, as identified in the ASSIST database at https://assist.dla.mil.

6.5 Change notations. The margins of this standard are marked with vertical lines to indicate modifications generated by this change. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations.

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TABLE I. Unit containers for petroleum and related products.

UNIT CONTAINERS	SPECIFICATION REQUIREMENTS			CLOSURE AND SEALS	COATING REQUIREMENTS
	MILITARY	LEVEL C (deleted)	COMMERICAL		
Bottles	Bottles shall be round, oblong or rounded square with sloping shoulders. Side walls shall be thicker than shoulders. Bottle openings shall be of sufficient size to permit easy removal of contents.		Bottles normally used for the products being furnished.	Adequate to prevent leakage.	Not applicable.
Cans, metal 28 gauge and lighter	PPP-C-96 Type I - Round, open top, double seamed ends. Type III - Open top, double seamed ends key opening with reclosure feature. Type IV - Round, square or oblong; both ends double seamed onto body. Type V, Class 2 - Multiple friction plug. Type V, Class 4 - Screw cap. Type V, Class 9 - Press valve closure shall be with a plastic, push-pull spout. Type VIII - Round, dome or cone top; both ends double seamed onto body. Type IX, Class I - Round can, soldered side seam, double seamed concave top and bottom. Type IX, Class 2- Round can, soldered side seam, double seamed concave dome top with 1-inch opening. Type IX, Class 3 - Round can, draw seamless body and dome top with 1-inch opening and double seamed bottom. The metallic coating weight of cans shall not be less than 1.25-pound hot-dipped tinplate or 0.25-pound electrolytic tinplate, side seams may be cemented or soldered.			Inner seals shall be furnished with a closure for Type V, Class 4 of PPP-C-96 for containers of one pint or more. Type IX, cans shall be fitted with a pressure valve for dispensing a surface spray. The Class 2 and 3 cans shall be fitted with a cap to protect the valve. Cans containing suspended solids that may settle out shall contain a metal ball to facilitate agitation of solids in suspension.	Exterior coating of cans (tops, bodies, and bottoms) and metal screw caps shall be in accordance with 5.9.

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TABLE I. Unit containers for petroleum and related products (continued).

UNIT CONTAINERS	SPECIFICATION REQUIREMENTS			CLOSURE AND SEALS	COATING REQUIREMENTS
	LEVEL B	LEVEL C (deleted)	COMMERICAL		
	Type I quart and gallon cans may also have welded side seams. Type I cans shall be fabricated from not less than 35 gauge (MSC) tinplate. Type V Class 4 and Class 8 or 9 cans of 1-gallon capacity shall be provided with a handle affixed to the top of the can. Cans shall be of commercial sizes as regularly supplied by the petroleum industry for the product being furnished.				
Cartridge, grease	Both ends of the cartridge shall be unpainted. Each cartridge shall be marked below the removable cover, "Remove cover and place this end in gun first."				Not applicable.
Drums, steel, (120 pounds grease), fully removable lug cover head	PPP-D-705, 20 Gauge, Type III			Adequate to prevent leakage. Gasket required.	The exterior coating of drums shall be in accordance with the color coating requirements specified in 5.9. Side seams shall be coated with a clear lacquer.
Drums, steel, 16 gallons fully removable head.	PPP-D-705, Type VI			Adequate to prevent leakage. Gasket required.	The exterior coating of drums shall be in accordance with color and coating requirements specified in 5.9. Side seams may be coated with a clear lacquer.
Drums, steel, 55 gallon, closed head	PPP-D-729, 16 Gauge, Class A			Adequate to prevent leakage. Drums used for MIL-PRF-17331 and MIL-PRF-17672 shall not be fitted with zinc coated closures.	Fog-spraying is not mandatory for contractor-furnished drums. If these drums are fog-sprayed, they must be steamed cleaned and dried before filling. The exterior coating of the drums shall be in accordance with the color and coating requirements specified in 5.9. Type III and MIL-PRF-17672. Drums used for MIL-PRF-17331 and MIL-PRF-17672 shall not have interiors coated with zinc phosphate.

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TABLE I. Unit containers for petroleum and related products (continued).

UNIT CONTAINERS	SPECIFICATION REQUIREMENTS			CLOSURE AND SEALS	COATING REQUIREMENTS
	LEVEL B	LEVEL C (deleted)	COMMERICAL		
Drums, steel, 55 gallon, open head	PPP-D-729, Type III and IV			Adequate to prevent leakage. Gasket required.	Contractor furnished drums, fog spraying of surface is not mandatory. Drums intended to be filled with aviation fuels shall not have the materials that are soluble in aviation fuels. In the drums are fog sprayed, they shall be steamed cleaned. The color and coating of drums shall be in accordance with the color and coating requirements specified in 5.9.
Jars	Jars shall be round spout-type with an opening wide enough to permit easy removal of contents with a spatula.		Jars normally used for the product being furnished.	Adequate to prevent leakage.	Not applicable.
Pails, metal with fully removable cover	PPP-P-704, Type II, Class 8			Adequate to prevent leakage. Gasket required.	The exterior coating for pails shall be in accordance with the color and coating requirements specified in 5.9.
Pails, metal, tight head	PPP-P-704, Type I, Class 3, 24 gauge, 1-5 gallon			A vented closure, illustrated in figures 9, 10, 11 or 12 of PPP-P-704, or a 1-3/4 inch screw cap closure equipped with an inner seal and a separate 1/2-inch vent tube installed directly opposite the closure shall be used. The vent shall be installed by the pail manufacturer and equipped with a cap attached to the vent tube. Only metal self-venting closures are acceptable for aviation engine lubricating oils and aviation hydraulic fluids. Self-venting closures for products conforming to the following specifications shall conform to figure 9 or 10 of PPP-P-704 and need not be colored olive drab: MIL-PRF-2104, SAE J2360, MIL-PRF-9000, MIL-PRF-14107, and MIL-PRF-21260.	The exterior coating for pails shall be in accordance with the color and coating requirements specified in 5.9.
Tubes	Type I - Metal Type II - Plastic Type III - Laminated polyethylene-aluminum foil-paper		Tubes normally used for the product being furnished.	The caps shall be made from thermo-set, thermo plastic or the same material as used for the tube.	Not applicable.

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TABLE II. Classification of cans and requirements for arrangement in interior and exterior packs.

Size of cans	Number of intermediate packs	Arrangement of intermediate packs in exterior packs		Arrangement of cans in intermediate or exterior packs		Total number of cans
		Floored	Layers	Floored	Layers	
Composite and Type I and Type VIII, rounds cans						
8-ounce	2	1x2	1	4x3	3	72
1-quart	None	-	-	4x3	2	24
1-gallon	None	-	-	2x3	1	6
Type III, open-top, key-opening with reclosure feature cans						
1-pound	None	-	-	4x3	2	24
Type V, Class 2 and Type VIII, round cans						
4-ounce	4	1x2	2	3x2	4	96
8-ounce	6	1x2	3	3x4	1	72
1.75-pound	None	-	-	3x4	2	24
6.5-pound	None	-	-	3x2	1	6
1-pint	None	-	-	4x6	2	48
1-quart	None	-	-	4x3	2	24
1-gallon	None	-	-	2x3	1	6
Type V, Classes 4, 6, 8 and 9 and Type VIII, round and oblong cans						
2-ounce	4	1x2	2	3x8	2	192
4-ounce	4	1x2	2	4x6	1	96
8-ounce	6	1x3	2	2x6	1	72
1-pint	None	-	-	12x4	1	48
1-quart	None	-	-	4x6	1	24
1-gallon	None	-	-	2x3	1	6
1-pint	None	-	-	12x4	1	48
Type IX, Classes 1, 2 and 3, cans, pressurized with valve						
12-ounce	2	1x2	1	4x6	1	48
16-ounce	2	1x2	1	4x6	1	48

TABLE III. Packing arrangement of tubes, bottles and jars.

Unit weight of contents	Intermediate pack arrangements				Exterior pack arrangements				
	Number of unit containers	Arrangement of unit containers			Number of intermediate packs	Arrangement of packs			Number of unit containers
		No. of layers	No. of rows	No. in rows		No. of layers	No. of rows	No. in rows	
2-ounce or less	48	2	4	6	4	1	2	2	192
4-ounce	24	1	4	6	4	2	1	2	96
6-ounce	24	1	4	6	4	2	1	2	96
8-ounce	24	1	4	6	2	2	1	1	48
1-pound	N/A	N/A	N/A	N/A	N/A	1	4	6	24
1-quart	N/A	N/A	N/A	N/A	N/A	1	3	4	12

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TABLE IV. Markings on drums and pails for military and commercial.

Marking Elements (Military and Commercial)	Size	Reference	Side Markings			Top Markings		
			Drums		Pails	Drums		Pails
			Closed Head	Open Head (see Note 1)		Closed Head	Open Head	
NATO (when assigned)	3/4	5.10.6		X	X	X	X	
Item Description	1/2	5.10.8	X	X	X	X	X	
Specification Number	1/2	5.10.9	X	X	X	X	X	
Type, Class, Grade	1/2	5.10.10	X	X	X	X	X	
National Stock Number	1/2	5.10.11		X	X	X	X	
Overseas Address (see Note 2)	1				Opposite side	X	X	
Domestic Address	1		X	X				X
Date of Manufacture	Legible	5.10.13.1		X	X	X	X	
Contractor's Name	Legible	5.10.28	X	X	X			
Batch or Lot Number	Legible	5.10.14		X	X	X	X	
Contract Number	Legible	5.10.15		X	X	X	X	
Qualification Number (when applicable)	Legible	5.10.16		X	X	X	X	
Net Weight	Legible	5.10.17		X	X	X	X	
Gross Weight	Legible	5.10.26		X	X	X	X	
Cube	Legible	5.10.27		X	X	X	X	
Shelf Life	1/2	5.10.13	X	X	Opposite side			
Precautionary Marking (when required)	1	5.10.23	X	X	Opposite side			
Flash Point (when required)	1/2	5.10.22	X	X	Opposite side			
Regulatory Markings (as required)	As required by regulation	5.10.18	X	X	Opposite side			

AN "X" INDICATES MARKINGS ARE REQUIRED IN THE LOCATION SHOWN.

NOTES:

1. When space does not permit placing required markings on the 400-pound drum between the rolling hoops, the NATO symbol may be placed immediately above the upper rolling hoop.
2. Overseas address shall be placed on side of drum opposite other side of markings if top head construction will not permit such marking.

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TABLE V. Identification and contract data marking on unit and intermediate containers (folding, setup, and fiberboard).

Marking Elements (Military and Commercial)	Reference	Size
NATO Code (when assigned)	5.10.6	Legible
Item Description	5.10.8	Legible
Specification Number	5.10.9	Legible
Type, Grade, Class	5.10.10	Legible
National Stock Number	5.10.11	Legible
Quantity	5.10.24	Legible
Unit of Issue	5.10.24	Legible
Precautionary Marking (when required)	5.10.23	Legible
Flash Point Marking (when required)	5.10.22	Legible
Bar Code Marking	4.4.1	Legible
Date of Manufacture	5.10.13.1	Legible
Shelf Life (when specified)	5.10.13	Legible
Batch or Lot Number	5.10.14	Legible
Regulatory Markings (as required)	5.10.18	Legible or as required

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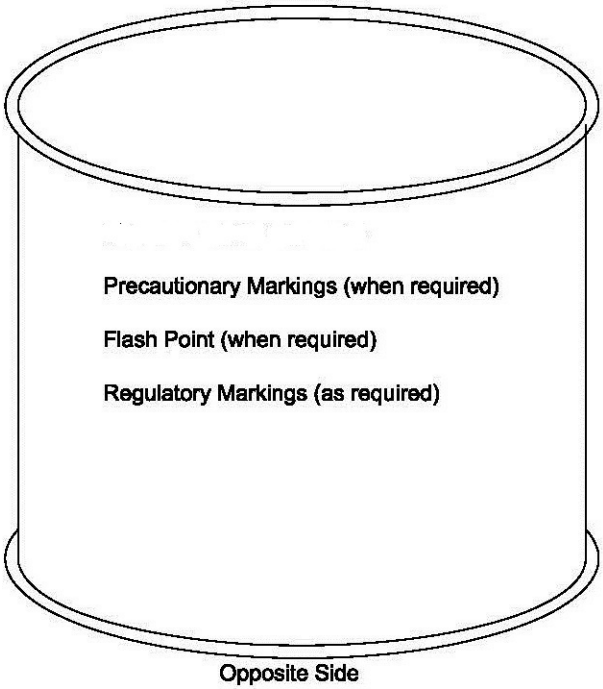
The sequence and location of marking elements as shown in this figure are recommended but are not mandatory. The sequence of data and location may be varied as necessary to meet the marking requirements.

Side



Opposite Side

FIGURE 1. Marking of unit containers (1-gallon or less) for military shipments.

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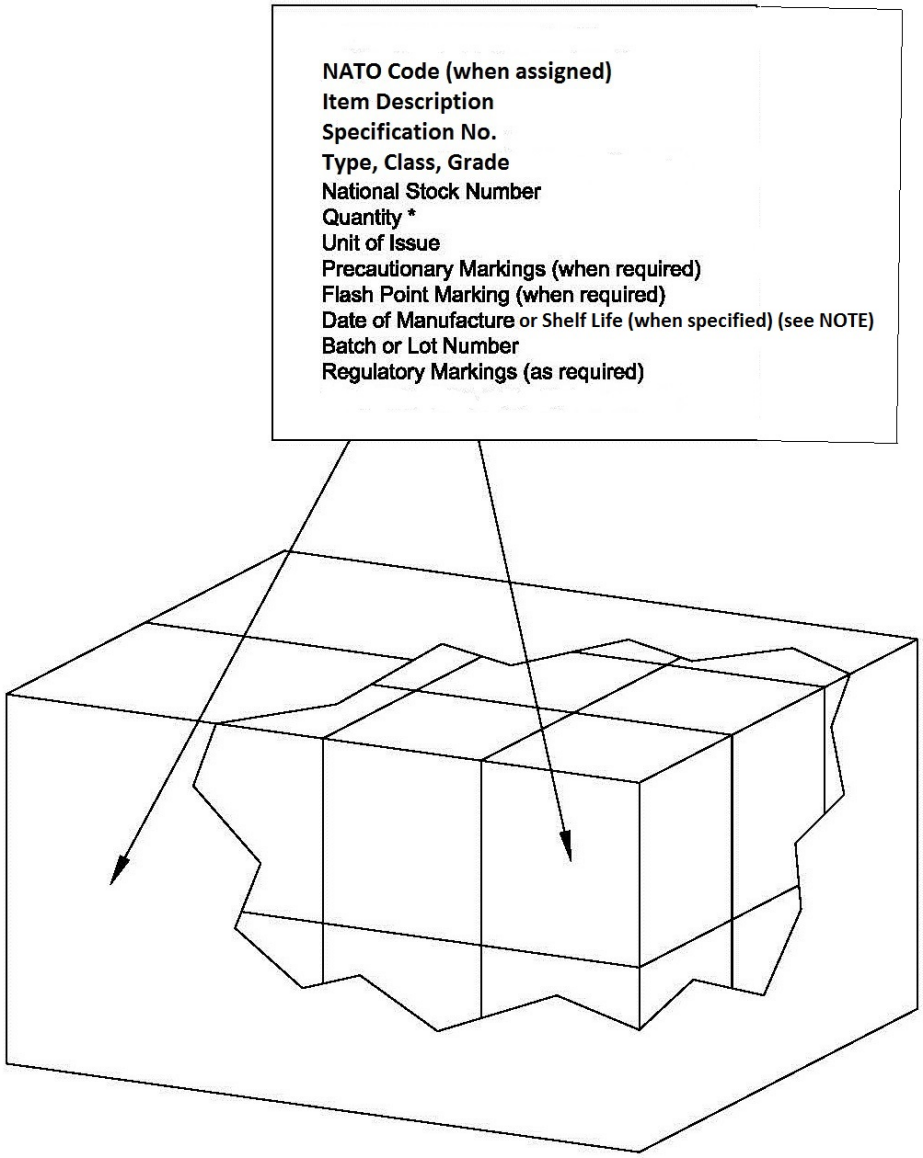
The sequence and location of marking elements as shown in this figure are recommended but are not mandatory. The data markings and location may be varied to meet marking requirements.



* Quantity would be only variation on labels.
Quantity/Unit of issue examples are:
Unit pack - 1 cn, 4 fl oz
Intermediate pack - 24 cn, 4 fl oz

NOTE: Per MIL-STD-129, 5.10.1b NOTE: When two or more unit packs of the same item are consolidated within any intermediate or exterior containers and have different shelf life dates, the earliest dates shall be shown on those containers.

FIGURE 2. Marking unit and intermediate packs; military and commercial.

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The sequence and location of marking elements as shown in this figure are recommended but are not mandatory. The data markings and location may be varied to meet marking requirements.

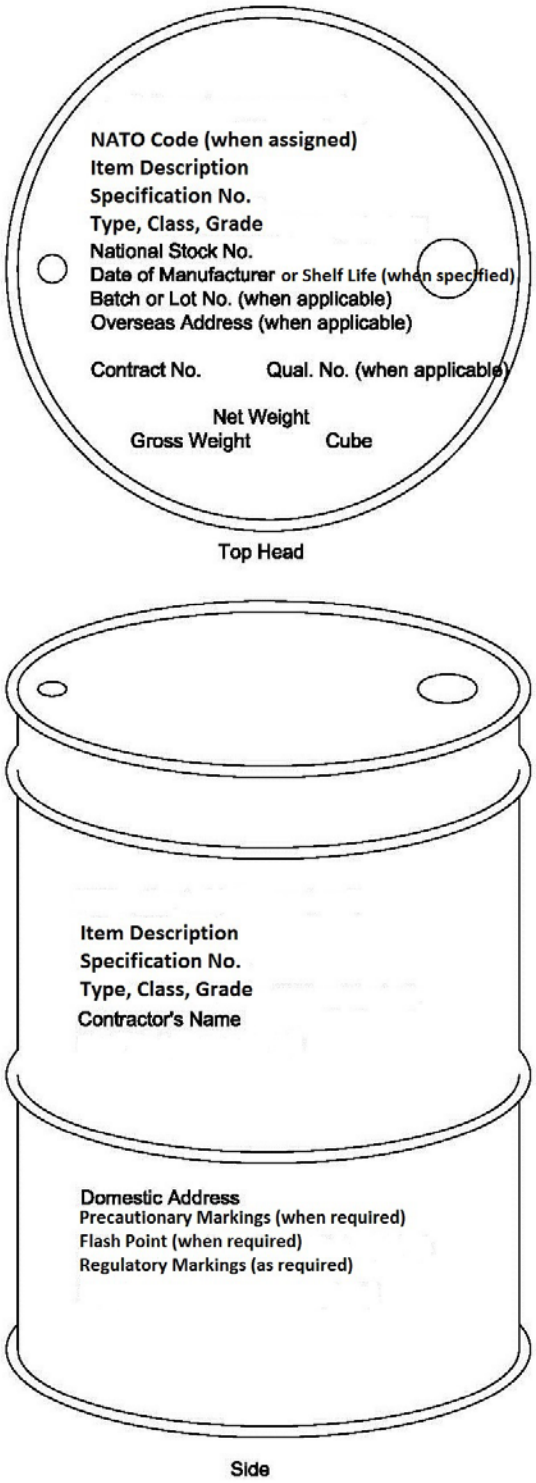

FIGURE 3. Marking of closed-head drums.

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The sequence and location of marking elements as shown in this figure are recommended but are not mandatory. The data markings and location may be varied to meet marking requirements.

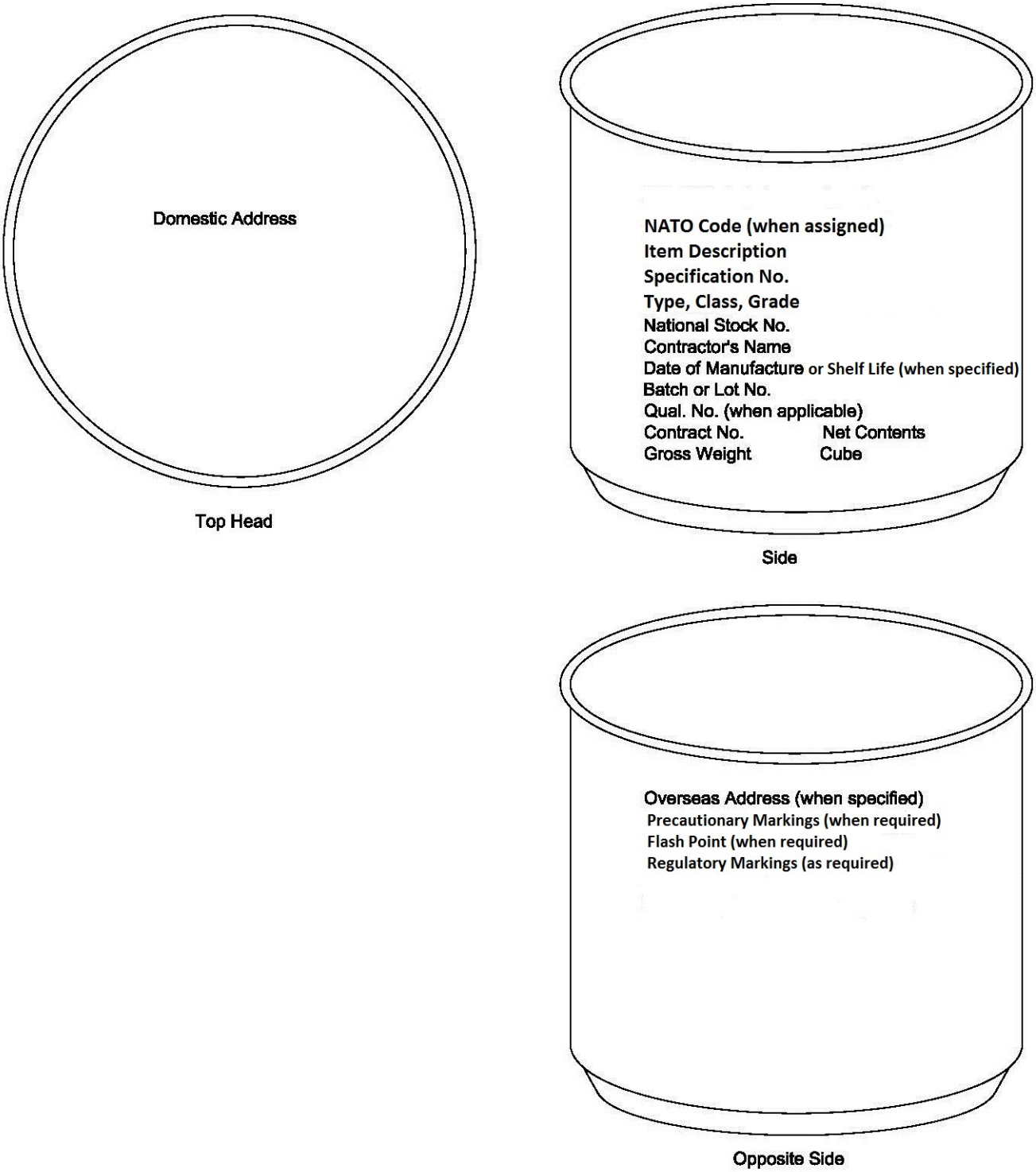

FIGURE 4. Marking of pails for military and commercial.

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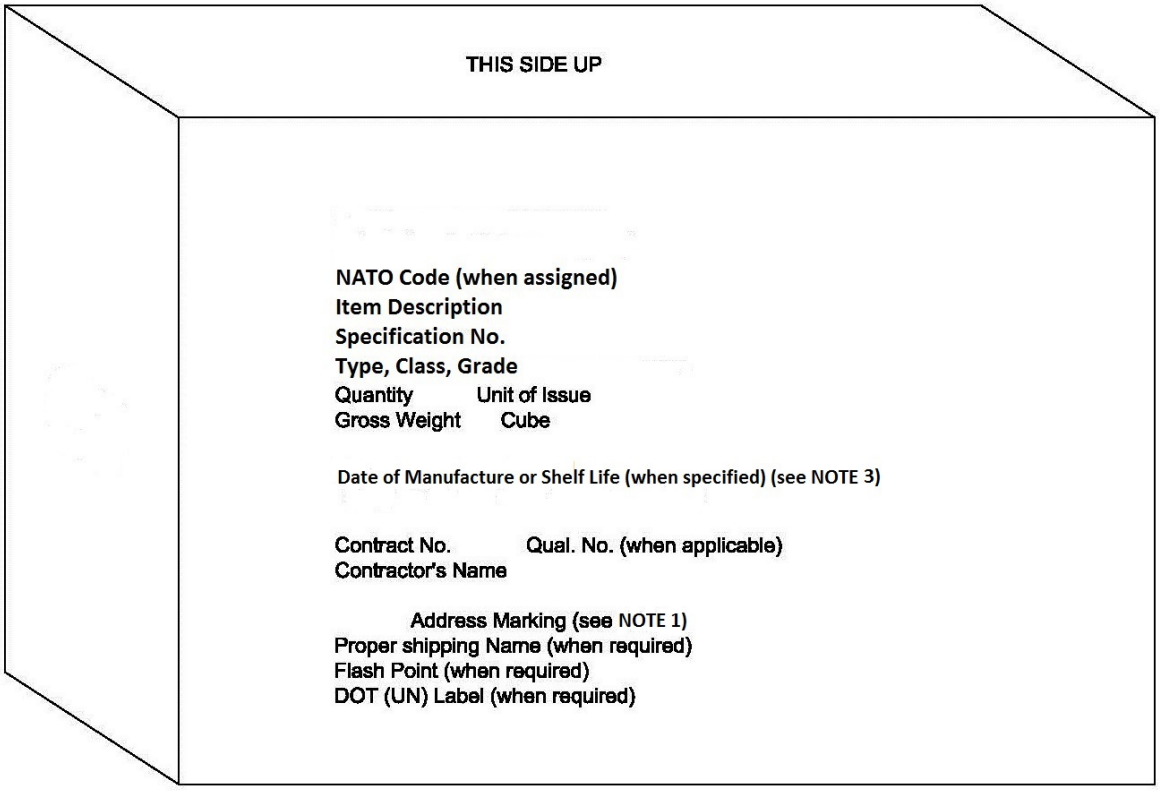
The sequence and location of marking elements as shown in this figure are recommended but are not mandatory. The data markings and location may be varied to meet marking requirements.



NOTES:

1. If container is too small to accommodate address labels on identification marked side, apply address labels onto opposite side of container. When shipments are palletized, address markings are not required on individual containers.
2. Deleted.
3. Per MIL-STD-129, 5.10.1b NOTE: When two or more unit packs of the same item are consolidated within any intermediate or exterior containers and have different shelf life dates, the earliest dates shall be shown on those containers.

FIGURE 5. Marking of fiberboard exterior packs (military and commercial).

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Custodians:
Army – SM
Navy – SA
Air Force – 68
DLA – DH

Reviewers:
Army – AR, AV, CR, CR4, MI, MR
Navy – AS, MC, SH
Air Force – 69
DLA – GS, GS4, PS

Preparing activity:
Army – SM

(Project: PACK-2016-003)

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