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INCH-POUND

A-A-59666A
24 February 2005
SUPERSEDING
A-A-59666
26 December 2001

COMMERCIAL ITEM DESCRIPTION

CYLINDER, COMPRESSED GAS: DOT SPECIFICATIONS 4B, 4BA, 4BW, AND 4E

The General Services Administration has authorized the use of this commercial item description for all federal agencies.

1. SCOPE. This commercial item description (CID) provides the acquisition requirements for the purchase of empty compressed gas cylinders to be used for storage, transportation, and distribution of low pressure liquefied compressed gases including refrigerants, liquefied petroleum gases, and fire extinguishing agents.

2. CLASSIFICATION. The cylinders shall be classified by the types, classes, sizes, service pressures, and valve specifications listed below:

Type I - steel cylinder
II - aluminum cylinder

Class - intended gas service (see table I)

Size - for refrigerant and fire fighting agent cylinders (see table II)
- for liquefied petroleum gas cylinders (see table III)

Service pressure (see table IV)

Valve specification (see table V)

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any data that may improve this document should be sent to: STDZNMGT@dla.mil or Defense Supply Center Richmond (DSCR), ATTN: DSCR-VEB, 8000 Jefferson Davis Highway, Richmond, VA 23297-5616.

AMSC N/A FSC 8120

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3. SALIENT CHARACTERISTICS

3.1 Material, design, and construction. The cylinders shall be manufactured, inspected, and tested in accordance with Department of Transportation (DOT) specifications 4B, 4BA, 4BW for type I (steel) cylinders or 4E for type II (aluminum) cylinders as specified in the acquisition order (see 7.4(b)) in accordance with 49 CFR 178, Subpart C, "Specifications for Cylinders". The applicable DOT specification shall be specified in the acquisition order (see 7.4(c)). The cylinders supplied shall be newly fabricated within less than one year from the date of manufacture, completely clean, dry, and empty.

3.2 Intended gas service. The intended gas service shall be designated by the class codes found in table I (see 7.4(d)). Cylinder and valve compatibility with the intended gas product shall comply with the requirements of this document and 49 CFR 173.304, "Filling of Cylinders with Liquefied Compressed Gases".

TABLE I. Intended gas service.

Class code	Item name code[1]	Gas product
A1	03396	Generic applications
B1	49455	Bromochlorodifluoromethane, Technical
C1	49456	Butane
D1	49457	Butane-Propane Mixtures
E1	49467	Dibromodifluoromethane, Technical
F1	49468	Dichlorodifluoromethane, Technical
G1	49469	Dichlorodifluoromethane and Difluoroethane, Azeotropic Mixture
H1	49470	Dichlorotetrafluoroethane, Technical
J1	49472	Ethyl Chloride, Technical
K1	49474	Ethylene Oxide, Technical
L1	49475	Ethylene, Technical
M1	49488	Hydrogen Chloride, Anhydrous
N1	49489	Hydrogen Sulfide, Technical
P1	49507	Propane
R1	49508	Sulfur Dioxide, Technical
S1	49510	Trichloromonofluoromethane, Technical
T1	49511	Trichlorotrifluoroethane, Technical
U1	49513	Monochlorotrifluoromethane, Technical
V1	49514	Monochlorodifluoromethane
W1	49515	Monobromotrifluoromethane
X1	49518	Monobromotrifluoromethane and Monochloropentafluoroethane, Azeotropic Mixture
A2	N/A	Difluoromethane
B2	N/A	Dichlorotrifluoroethane

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TABLE I. Intended gas service - Continued.

Class code	Item name code[1]	Gas product
C2	N/A	Dichlorotrifluoromethane (74%); Difluoroethane (26%)
D2	N/A	Difluoromethane (50%); Pentafluoroethane (50%)
E2	N/A	Difluoromethane (45%); Pentafluoroethane (55%)
F2	N/A	Difluoromethane (20%); Pentafluoroethane (40%); Tetrafluoroethane (40%)
G2	N/A	Difluoromethane (10%); Pentafluoroethane (70%); Tetrafluoroethane (20%)
H2	N/A	Difluoromethane (23%); Pentafluoroethane (25%); Tetrafluoroethane (52%)
J2	N/A	Monochlorodifluoromethane (49%); Monochloropentafluoroethane (51%)
K2	N/A	Monochlorodifluoromethane (53%); Difluoroethane (13%); Monochlorotetrafluoroethane (34%)
L2	N/A	Monochlorodifluoromethane (61%); Difluoroethane (11%); Monochlorotetrafluoroethane (28%)
M2	N/A	Monochlorodifluoromethane (45%); Difluoroethane (7%); Monochlorodifluoroethane (5.5%); Octafluorocyclobutane (42.5%)
N2	N/A	Monochlorodifluoromethane (60%); Monochlorotetrafluoroethane (25%); Monochlorotetrafluoroethane (15%)
P2	N/A	Monochlorodifluoromethane (55%); Isobutane (4%); Monochlorodifluoroethane (41%)
R2	N/A	Monochlorodifluoromethane (44%); Octafluoropropane (56%)
S2	N/A	Monochlorodifluoromethane (70%); Octafluoropropane (5%); Monochlorotetrafluoroethane (25%)
T2	N/A	Monochlorotetrafluoroethane
U2	N/A	Pentafluoroethane
V2	N/A	Pentafluoroethane (60%); Propane (2%); Monochlorodifluoromethane (38%)
W2	N/A	Pentafluoroethane (38%); Propane (2%); Monochlorodifluoromethane (60%)
X2	N/A	Pentafluoroethane (50%); Trifluoroethene (50%)
Y2	N/A	Pentafluoroethane (44%); Trifluoroethene (52%); Tetrafluoroethane (4%)
Z2	N/A	Pentafluoroethane (7%); Trifluoroethane (46%); Monochlorodifluoromethane (47%)

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TABLE I. Intended gas service - Continued.

Class code	Item name code[1]	Gas product
A3	N/A	Propylene (1.5%); Monochlorodifluoromethane (87.5%); Dilfuoroethane (11%)
B3	N/A	Propylene (3%); Monochlorodifluoromethane (94%); Dilfuoroethane (3%)
C3	N/A	Tetrafluoroethane
D3	N/A	Trifluoroethane
E3	N/A	Trifluoromethane
F3	N/A	Trifluoromethane (39%); Hexafluoroethane (61%)
G3	N/A	Trifluoromethane (40%); Monochlorotrifluoromethane (60%)

[1]The above identification codes are the item name codes for each one of the above listed cylinders found in the Federal Item Identification Guide T162.

3.3 Preconditioning and internal preservation. After hydrostatic and any other testing, cylinder internal surfaces shall be cleaned and dried to be free of moisture, oil, grease, grit, machining products, loose scale, slag, or other foreign materials. Rust bloom or particulate matter (approximately 1.0 to 1.5 grams) generated subsequent to inspection as a result of handling and shipping is acceptable. Cylinders tested hydrostatically and/or internally flushed for cleaning or cylinders that were tested or flushed with moisture laden air shall be immediately dried with hot filtered air or nitrogen to insure the effluent air or gas has a dew point of less than 30 ˚F (-1.1 ˚C). Immediately after internal drying, the cylinder shall be closed with the designated valve or plug. If the cylinder is closed with a valve, it shall be pressurized to approximately 5 pounds per square inch gage (psig) with dry oil-free nitrogen type I, grade A or B, class I, in accordance with A-A-59503, "Nitrogen, Technical", or type I, grade L or better, in accordance with Compressed Gas Association (CGA) G-10.1, "Commodity Specification for Nitrogen" (DoD adopted). The cylinder shall then be tagged at the valve "PRESERVED WITH NITROGEN GAS".

3.4 Water capacity. The cylinder water capacity shall comply with the applicable DOT 4BA, 4BW, or 4E requirements for the intended gas service and with any additional requirements specified in the acquisition order (see 7.4(e)).

3.5 Size. The cylinder size shall be one of the coded options listed in tables II and III (see 7.4(f)). The outside diameter and the height to the base of the valve shall be as specified in tables II and III for the size cylinder selected. The dimensional tolerances shall be ±1/4 inch in diameter and ±1 inch in height. Where tighter tolerances are required, they shall be cited in the procurement document and shall take precedence over the tolerances cited here.

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TABLE II. Cylinder sizes: refrigerants and fire fighting agents.

Size code	Diameter (inches)	Height[1] (inches)	Tare weight (lbs.)	Water capacity (lbs.)	Volume (cubic inches)
A	6.75	11.0	16	8.5	236
B	6.75	21.0	20	21.5	596
C	8.18	27.0	30	42.0	1,165
D	12.18	36.0	60	122.0	3,384
E	10.18	49.0	60	122.0	3,384
F	33.0	55.0	510	1,000.0	27,737

[1]Height to base of valve.
NOTE: Unless otherwise specified, the cylinder inlet threads shall be 3/4 - 14 NGT.

TABLE III. Cylinder sizes: liquefied petroleum gas.

Size code	Capacity (lbs.)	Diameter (inches)	Height[1] (inches)	Tare weight (lbs.)	Water capacity (lbs.)	Volume (cubic inches)
Steel						
G	20.0	12.25	13.75	18.5	47.6	1,320
H	30.0	12.25	20.00	25.5	71.4	1,980
I	40.0	12.25	25.12	30.0	95.2	2,640
J	60.0	12.16	37.37	45.0	143.0	3,966
K	100.0	14.75	42.50	77.0	240.0	6,657
L	200.0	24.00	34.06	142.0	476.0	13,203
M	300.0	30.00	34.00	216.0	714.0	19,804
N	420.0	30.00	45.62	270.0	1,000.0	27,737
O	25.5	9.00	29.00	27.0	60.7	1,684
Aluminum						
P	60.0	12.19	37.38	58.0	143.0	3,966
Q	100.0	14.50	43.69	72.0	238.0	6,601
R	20.0	12.25	14.75	13.0	47.6	1,320
S	30.0	12.50	21.00	16.5	71.5	1,983
T	33.0	12.25	22.37	16.0	80.0	2,219
U	40.0	12.50	26.53	19.5	95.3	2,644

[1]Overall height.
NOTE: Unless otherwise specified, the cylinder inlet threads shall be 3/4 - 14 NGT.

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3.6 Tare weight. The cylinder's maximum tare weight shall be as specified in tables II and III (see 7.4(g)), and shall be inclusive of the valve and cylinder but without the valve protection cap. The tare weight shall be stamped into the head of the cylinder in a position other than in sequence with another DOT permanent marking. The marking shall be displayed as required by CGA TB-15, "Tare Weights: Requirements for Marking of Cylinders (Post Manufacture)". The marking shall represent the tare weight of the cylinder and valve with an accuracy of one percent and shall be displayed in pounds (LB) and ounces (OZ) unless otherwise specified.

3.7 Service pressure. The cylinder service (operating) pressure shall be one of the coded options listed in table IV (see 7.4(h)). Service pressure shall not exceed 500 psig. The rated service pressure for cylinders in liquefied compressed gas applications shall not be less than the pressures cited in 49 CFR 173.301, "General Requirements for Shipment of Compressed Gases in Cylinders and Spherical Pressure Vessels", and 49 CFR 173.304.

TABLE IV. Service pressure.

Code	Service pressure (psig)
A	240
B	260
C	300[1]
D	400[1]

[1]Refrigerants and fire fighting agents only.

3.8 Cylinder ownership markings. The U.S. Government ownership symbol, "US GOVT", as originally registered with the Bureau of Explosives and now the DOT, shall be stamped into the shoulder of the cylinder in letters 3/8 inch high. Cylinders less than 4 inches in diameter shall be stamped in 1/4-inch letters. The symbol shall be stamped directly below or offset 90 degrees from the DOT permanent markings.

3.9 Treatment and painting. The treatment and painting of cylinders shall be by any method or system that will provide a finish that will meet the requirements of the CGA TB-17, "Test Methods for Evaluating Paints and Coatings on Refillable Steel Compressed Gas Cylinders", Tests 1, 3, 5, 6, and 8 apply. The cylinders shall be color coded and stenciled in accordance with the requirements of MIL-STD-101, "Color Code for Pipelines and for Compressed Gas Cylinders", for the designated gas for which the cylinder is designed.

3.10 Components. The cylinder shall be fitted with a neck flange with a mated valve protection cap. The cylinder shall also be supplied with the designated valve or plug as specified.

3.10.1 Neck flange. Each cylinder neck flange shall be a welded part of the cylinder head and shall be free of visible defects (cracks, pits, scales, etc.) or foreign materials (sand, flux, etc.). The flange threads shall be free of any damage.

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3.10.2 Valve protection cap. The cylinder neck flange shall mate with a valve protection cap of the size and thread as designated for the neck flange. The cap shall turn smoothly and freely on its threads to full thread engagement. The cap shall be free of any cracks or dents and shall be painted the same color and with the same quality as the shoulder of the cylinder.

3.10.3 Closure. If required, the cylinder shall be furnished with a designated valve according to MIL-DTL-2, "Valves, Cylinder, Gas (for Compressed or Liquefied Gases)". The valve shall be one of the coded options listed in table V (see 7.4(i)). The valve shall meet all of the requirements of the MIL-DTL-2 and its designated specification sheet as referenced by the type designator. When a valve is not designated, the cylinder shall be closed with a brass plug (hex wrenching flats) and Teflon® or equivalent polytetraflouroethylene (PTFE) tape to afford proper sealing and easy removal.

TABLE V. Valve specification.

Valve code	Detail specification number	Type designation	Valve code	Detail specification number	Type designation
001	MIL-DTL-2/1	V1-510-0	065 066 067 068 069	MIL-DTL-2/46	V46-590-2 V46-590-3 V46-590-4 V46-590-5 V46-590-6
002	MIL-DTL-2/2	V2-510-0	070	MIL-DTL-2/47	V47-950-2
003	MIL-DTL-2/3	V3-200-1	071	MIL-DTL-2/48	V48-346-2
004 005 006 007 008	MIL-DTL-2/5	V5-346-2 V5-346-3 V5-346-4 V5-346-5 V5-346-6	072	MIL-DTL-2/49	V49-920-2
009 010 011 012 013	MIL-DTL-2/6	V6-590-2 V6-590-3 V6-590-4 V6-590-5 V6-590-6	073	MIL-DTL-2/50	V50-330-12
014	MIL-DTL-2/7	V7-240-0	074	MIL-DTL-2/51	V51-677-9
015	MIL-DTL-2/8	V8-240-0	075 076 077 078 079	MIL-DTL-2/52	V52-660-14 V52-660-16 V52-660-17 V52-660-18 V52-660-19
016	MIL-DTL-2/9	V9-240-0	080 081 082 083	MIL-DTL-2/53	V53-660-2 V53-660-3 V53-660-4 V53-660-5
017	MIL-DTL-2/10	V10-240-0	084	MIL-DTL-2/54	V54-660-1

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TABLE V. Valve specification - Continued.

Valve code	Detail specification number	Type designation	Valve code	Detail specification number	Type designation
018	MIL-DTL-2/11	V11-580-2	085	MIL-DTL-2/55	V55-540-2
019		V11-580-3	086		V55-540-3
020		V11-580-4	087		V55-540-4
021		V11-580-5	088		V55-540-5
022		V11-580-6	089		V55-540-6
023	MIL-DTL-2/14	V14-510-14	090	MIL-DTL-2/56	V56-680-8
024		V14-510-15	091		V56-680-10
			092		V56-680-11
025	MIL-DTL-2/15	V15-320-3	093	MIL-DTL-2/57	V57-621-8
026		V15-320-4	094		V57-621-10
			095		V57-621-11
027	MIL-DTL-2/16	V16-320-4	096	MIL-DTL-2/58	V58-677-9
028	MIL-DTL-2/17	V17-940-4	097	MIL-DTL-2/59	V59-347-8
			098		V59-347-10
			099		V59-347-11
029	MIL-DTL-2/18	V18-350-2	100	MIL-DTL-2/60	V60-500-2
030	MIL-DTL-2/19	V19-350-3	101	MIL-DTL-2/61	V61-930-2
031		V19-350-4			
032		V19-350-5			
033	MIL-DTL-2/20	V20-820-1	102	MIL-DTL-2/62	V62-350-2
034	MIL-DTL-2/21	V21-820-0	103	MIL-DTL-2/63	V63-350-2
035	MIL-DTL-2/22	V22-660-13	104	MIL-DTL-2/64	V64-330-2
036		V22-660-14			
037		V22-660-15			
038		V22-660-16			
039		V22-660-17			
040		V22-660-18			
041		V22-660-19			
042		V22-660-20			
043	MIL-DTL-2/23	V23-300-1	105	MIL-DTL-2/65	V65-330-2
044	MIL-DTL-2/24	V24-510-1	106	MIL-DTL-2/66	V66-590-2
			107		V66-590-3
			108		V66-590-4
			109		V66-590-5
			110		V66-590-6

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TABLE V. Valve specification - Continued.

Valve code	Detail specification number	Type designation	Valve code	Detail specification number	Type designation
045	MIL-DTL-2/26	V26-590-2	111	MIL-DTL-2/67	V67-510-1
046		V26-590-3			
047		V26-590-4			
048		V26-590-5			
049		V26-590-6			
050	MIL-DTL-2/27	V27-280-2	112	MIL-DTL-2/68	V68-580-2
			113		V68-580-3
			114		V68-580-4
			115		V68-580-5
			116		V68-580-6
051	MIL-DTL-2/28	V28-890-2	117	MIL-DTL-2/69	V69-330-12
052	MIL-DTL-2/29	V29-350-2	118	MIL-DTL-2/70	V70-350-2
053	MIL-DTL-2/37	V37-326-4	119	MIL-DTL-2/71	V71-660-2
			120		V71-660-3
			121		V71-660-4
			122		V71-660-5
			123		V71-660-6
054	MIL-DTL-2/38	V38-910-4	124	MIL-DTL-2/72	V72-670-12
055	MIL-DTL-2/39	V39-540-2	125	MIL-DTL-2/73	V73-705-0
056		V39-540-3			
057		V39-540-4			
058		V39-540-5			
059		V39-540-6			
060	MIL-DTL-2/41	V41-540-2	126	MIL-DTL-2/74	V74-660-1
061	MIL-DTL-2/42	V42-870-2	127	MIL-DTL-2/75	V75-577-8
			128		V75-577-10
062	MIL-DTL-2/43	V43-660-12	129	MIL-DTL-2/76	V76-296-2
			130		V76-296-3
			131		V76-296-4
			132		V76-296-5
			133		V76-296-6
063	MIL-DTL-2/44	V44-510-14	134	MIL-DTL-2/77	V77-660-13
064		V44-510-15	135		V77-660-14
			136		V77-660-16

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3.10.4 Neck rings or foot rings. When specified, the cylinder shall be furnished with a valve protection neck ring or foot ring (see 7.4(j)). The neck ring shall fully protect the cylinder valve from destructive damage during cylinder tip over and the foot ring shall hold the cylinder in a stable vertically upright position. Each shall be securely welded to the cylinder heads. The valve protection ring shall be designated to provide easy attachment of the cylinder accessories.

3.10.5 Pressure relief device. If required, the cylinder and valve assembly shall be furnished with a pressure relief device (see 7.4(k)) as stipulated in the designated valve specification type designator. When required, additional relief devices shall be installed in the cylinder shell. All pressure relief devices shall be selected, designed, and tested in accordance with CGA S-1.1, "Pressure Relief Device Standards - Part 1 - Cylinders for Compressed Gases".

4. REGULATORY REQUIREMENTS

4.1 Transportation safety. Manufacturers and users of compressed gas cylinders shall comply with all applicable DOT statutes and regulations for the inspection, test, storage, transportation, environmental impact, ownership accountability, and disposal of compressed gas cylinders and their contents.

4.2 Recovered materials. The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR).

5. PRODUCT CONFORMANCE PROVISIONS

5.1 Product conformance. The products provided shall meet the salient characteristics of this commercial item description, conform to the producer's own drawings, specifications, standards, and quality assurance practices, and be the same product offered for sale in the commercial marketplace. The government reserves the right to require proof of such conformance.

5.2 Market acceptability. The product offered must have been previously sold either to the government or on the commercial market.

5.3 Foreign manufacture. If the cylinder product being offered is foreign-made, the contractor shall offer manufacturer's records confirming that the fabrication meets the requirements of 49 CFR 178, Subpart C.

5.4 Manufacturer's and inspector's reports and records. The contractor or the cylinder manufacturer shall offer and make available the manufacturer's and inspector's reports and records confirming the fabrication of the purchased cylinders was performed by a DOT registered manufacturer and that all requirements of 49 CFR 178, Subpart C and this purchase document have been met.

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6. PACKAGING

6.1 Preservation, packaging, labeling, and marking. Unless otherwise specified in the acquisition order (see 7.4(l)), the cylinders supplied shall be preserved, packaged, labeled, and marked in accordance with 49 CFR 178. When required, palletization shall be as specified in the acquisition order (see 7.4(m)).

7. NOTES

7.1 Part or identification number (PIN). The following PIN procedure is for government purposes and does not constitute a requirement for the contractor.

AA59666 - 1 C1 B A 037 Example of reference part number: AA59666 - 1C1BA037

- 037 — Valve specification code (see table V)
- A — Service pressure code (see table IV)
- B — Size code (see tables II and III)
- C1 — Class code - intended gas service (see table I)
- 1 — Type 1 - Type I - Steel cylinder; Type 2 - Type II - Aluminum cylinder
- AA59666 — CID number

AA59666 - 1 C1 B A 037 indicates: steel cylinder; intended gas service 49456, butane; diameter 6.75 inches, height 21 inches, tare weight 20 pounds, water capacity 21.50 pounds, volume 596 cubic inches; service pressure 240 psig; valve type V22-660-15.

7.2 Sources of documents.

7.2.1 CFR and FAR. Copies of CFR and FAR may be obtained from the Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954. Electronic copies of CFR documents may be obtained from http://www.access.gpo.gov/. Electronic copies of FAR documents may be obtained from http://www.arnet.gov/far/.

7.2.2 Military specifications and standards. Copies of military specifications and standards may be obtained from Standardization Documents Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094. Electronic copies of military specifications and standards may be obtained from http://assist.daps.dla.mil.

7.2.3 CGA publications. Copies of CGA publications may be obtained from the Compressed Gas Association, 4221 Walney Road, 5th Floor, Chantilly, VA 20151-2923. Electronic copies of CGA publications may be obtained from http://www.cganet.com/.

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7.3 National stock numbers (NSNs). The NSNs associated with the products described in this CID are too numerous to be listed here. A current listing of the assigned NSNs may be obtained from the Defense Supply Center Richmond, Attn: DSCR-JDTA (Technical), 8000 Jefferson Davis Highway, Richmond, VA 23297-5616.

7.4 Ordering data. The acquisition order should specify the following:

a. CID document number, revision, and CID PIN.
b. Type (see 3.1).
c. Applicable DOT specification 4B, 4BA, 4BW, or 4E (see 3.1).
d. Intended gas service (see 3.2).
e. Water capacity (see 3.4).
f. Size (see 3.5).
g. Tare weight (see 3.6).
h. Service pressure (see 3.7).
i. Valve, if required (see 3.10.3).
j. Neck ring/foot ring, if specified (see 3.10.4).
k. Pressure relief device, if required (see 3.10.5).
l. Preservation, packaging, labeling, and marking requirements, if different (see 6.1).
m. Palletization, if required (see 6.1).

7.5 Subject term (key word) listing.

aluminum
fire extinguishing
liquefied
petroleum
refrigerant
steel

MILITARY INTERESTS:

Custodians:
Army - CE
Navy - SH
Air Force - 68

Reviewer Activities:
Navy - CG, MC, MS
Air Force - 11

CIVIL AGENCY
COORDINATING ACTIVITY:

GSA - FSS

Preparing Activity:
DLA - GS7

(Project 8120-1056)