

METRIC

A-A-59105B

18 March 2004

SUPERSEDING

A-A-59105A

26 September 2003

COMMERCIAL ITEM DESCRIPTION**NITRIC ACID, TECHNICAL**

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

1. **SCOPE.** This commercial item description (CID) establishes the government acquisition requirements for technical grade nitric acid. Refer to 6.5 for special handling warning.

2. SALIENT CHARACTERISTICS

2.1 Appearance. Pour approximately 25 milliliters (ml) of the thoroughly mixed nitric acid specimen into a clean, dry test tube, allow to stand for 10 minutes, then examine visually for sediment, suspended matter, and separated material. The nitric acid specimen shall be free from sediment, suspended matter, and separated material.

2.2 Total acid content. Weigh a small glass-stoppered Erlenmeyer flask containing approximately 15 ml of water to the nearest milligram. Rapidly add two to three ml of thoroughly mixed nitric acid specimen and weigh again. Titrate with approximately 1 normal (N) sodium hydroxide solution, which has been freshly standardized, using methyl red as the indicator. Calculate the percentage weight total acid as nitric acid as follows:

$$\text{Percentage nitric acid} = \frac{6.301 AB}{(C - D)}$$

Where 6.301 = 1/10 nitric acid equivalent of dissolved solute in grams

A = Milliliters of sodium hydroxide solution used

B = Normality of sodium hydroxide solution

C = Weight of stoppered flask, water, and nitric acid in grams

D = Weight of stoppered flask and water in grams

The total acid content shall not be less than 61.0 percent nor greater than 68.2 percent by weight.

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.

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2.3 Residual acid. CAUTION: This process shall be performed utilizing a fume hood. Evaporate approximately 50 grams (g) of the nitric acid specimen weighed to the nearest milligram in an evaporating dish on a steam bath. Repeat the evaporation twice, adding 10 ml of water each time. Cautiously dilute the residue with 100 ml of cold water and transfer quantitatively to a 250 ml beaker. Titrate with approximately 0.2 N sodium hydroxide solution that has been standardized, using methyl red as the indicator. Calculate the percentage by weight residual acid as sulfuric acid as follows:

$$\text{Percentage residual acid} = \frac{4.904 AB}{W}$$

Where 4.904 = 1/10 sulfuric acid equivalent of dissolved solute in grams

A = Milliliters of sodium hydroxide solution used

B = Normality of sodium hydroxide solution

W = Weight of specimen in grams

The total residual acid, as sulfuric acid, shall not be greater than 0.5 percent by weight.

2.4 Chloride. Weigh to the nearest milligram approximately 20 g of the specimen and dilute with 300 ml of water. Heat to nearly boiling and add 10 ml of 0.5 N silver nitrate solution. Stir thoroughly and allow to settle for at least 1 hour in a dark place. Filter through a tared filter crucible, wash thoroughly with water and alcohol, and dry to constant weight at 105 °C to 110 °C. Calculate the percentage by weight of chloride as follows:

$$\text{Percent chloride} = \frac{24.74 (A - B)}{W}$$

Where 24.74 = The percentage of chloride of the molecular weight of silver chloride

A = Weight of crucible and precipitate in grams

B = Weight of crucible in grams

W = Weight of nitric acid specimen in grams

The total chloride content shall not be greater than 0.5 percent by weight.

3. REGULATORY REQUIREMENTS

3.1 Labeling, packaging, and marking. The item shall be labeled, packed, and marked in accordance with Title 49, Code of Federal Regulations (CFR), Parts 100 to 199.

3.2 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).

3.3 Material safety data sheets (MSDS). Manufacturers shall prepare and submit a MSDS in accordance with FED-STD-313, "Material Safety Data, Transportation Data and Disposal Data for Hazardous Materials Furnished to Government Activities", and the Code of Federal Regulations (CFR) requirements of 29 CFR 1910.1200, "Hazard Communication".

4. PRODUCT CONFORMANCE PROVISIONS

4.1 Product conformance. The products provided shall meet the salient characteristics of this CID, 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.

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

5. PACKAGING

5.1 Preservation, packing, and marking. For acquisition purposes, the products shall be preserved, packed, and marked as specified in the acquisition order (see 6.3(c)).

6. NOTES

6.1 Sources of documents.

6.1.1 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/>.

6.2 Sources of supply. The manufacturers and/or suppliers listed below are known to supply products that meet the salient characteristics requirements of this document. Competition is not limited to the listed firms.

Agrium U.S. Inc.
227515 E. Bowles Road
Kennewick, WA 99337
(877) 700-5490

General Chemical Corp.
501 Nichols Road
Pittsburg, CA 94565
(925) 458-7399

Mallinckrodt Baker Inc.
222 Red School Lane
Phillipsburg, NJ 08865
(800) 582-2537

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6.3 Ordering data. The acquisition order should specify the following information:

- a. CID document number and revision.
- b. Unit quantity required.
- c. Packaging requirements.

6.4 National stock numbers (NSNs). The following list of NSNs corresponds to this CID. This list may not be indicative of all possible NSNs associated with this document.

6810-00-222-9655
 6810-00-236-5670
 6810-00-237-2918
 6810-00-260-1205
 6810-00-823-8009

6.5 Warning. Nitric acid is dangerous and requires special handling. It is a strong corrosive acid and a strong oxidizer. Avoid contact with eyes, skin, or clothing. Do not breathe vapors or mist. Use only with adequate ventilation. Is harmful and may cause injury to human tissue. Thoroughly wash hands after handling. Keep away from other combustible materials. Store in a tightly closed container.

6.6 Subject term (key word) listing.

ammonia oxidation
 oxidizing agent
 sodium nitrate
 sulfuric acid

MILITARY INTERESTS:

Custodians:

Army - MD1
 Navy - SH
 Air Force - 68

Review Activities:

Army - MI, AR
 Navy - OS

CIVIL AGENCY COORDINATING ACTIVITY:

GSA - 7FLE

Preparing Activity:

DLA - GS3

(Project 6810-1715)