

**INCH-POUND**

A-A-59383A

16 July 2008

SUPERSEDING

A-A-59383

22 February 2006

COMMERCIAL ITEM DESCRIPTION  
MARKING MEDIA, OPAQUE (POROUS AND NON-POROUS SURFACES)

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

1. SCOPE. This Commercial Item Description covers the marking of a variety of end items and product containers utilizing various type of marking media and application methods on porous and non-porous surfaces.

2. CLASSIFICATION.

2.1 Type. The marking ink shall be of the following types, as specified:

Type I – exterior packaging/end item use

Type II – interior/intermediate or unit packaging

3. SALIENT CHARACTERISTICS.

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any other data that may improve this document should be sent to: U.S. Army ARDEC, Attn: AMSRD-AAR-QES-E, Picatinny Arsenal, NJ 07806-5000 or emailed to [ardecstdzn@conus.army.mil](mailto:ardecstdzn@conus.army.mil). Since contact information can change, you may want to verify the current of this address information using the ASSIST Online database at <http://assist.daps.dla.mil>.

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3.1 Material. The marking materials shall be any type of marking-media, e.g. stencil, ink jet, stamp pad, for porous and non-porous surfaces, provided the markings comply with the requirements of this specification.

3.2 Application. The markings shall be applied on clean, dry surfaces that shall be free of dirt, oil, grease, water, corrosion, or other foreign matter. The salient characteristics of the marking media shall be verified by using either the actual end item being marked or a test specimen/ panel of the same material processed in the same manner as the end item being marked. For testing purposes, the markings shall be applied at the end item production thickness equivalent. The markings shall be allowed to dry for 1 hour prior to any testing, unless otherwise specified in the test paragraph or by the procuring activity.

3.3 Color. The markings shall be a general match to the color specified in the end item marking drawing as determined by visual inspection under illumination. The marking shall be applied at complete hiding to a non-porous test specimen and allowed to dry completely. If visual inspection proves inconclusive, a maximum color variance of  $\Delta E = 1.75$  will be considered acceptable.  $\Delta E$  is the total color difference between the color specified for the marking, and the actual color of the marking applied.  $\Delta E$  shall be calculated IAW ASTM D2244.

3.4 Condition and appearance. Markings shall be in their fully dried, cured or set condition at the time the marked item is presented for acceptance by the Government. Markings shall be smooth, uniform, unsmear in appearance and free of conspicuously ragged edges; i.e., no color extending more than 1/64 inch from the edges of the marking. There shall be no bleeding of color markings or substrate to the extent that it causes a mottled or streaky appearance. Markings shall show no lifting, wrinkling, or other visible effect on the substrate surface.

3.5 Knife test. Prepare test specimens as specified in 3.2, and test by knife blade in accordance with Method 6304 of FED-STD-141. The markings shall not powder or flake, nor shall the cut edge show the jaggedness characteristic of brittle films when tested by a knife blade. Evidence of a jagged cut, flaking, or powder shall constitute a failure.

3.6 Resistance to water. Prepare test specimens as specified in 3.2. One hour after marking application of test specimens, immerse the marked specimen in distilled water at room temperature, or slightly above (70° to 90° F) for 4 hours. Remove the test specimen from water and air dry for one hour. The markings shall be legible, retain their characteristic color, and not smear upon vigorous rubbing with fingers, nor blister, crack, or peel.

3.7 Humidity test. Prepare test specimens as specified in 3.2. Place test specimens in humidity chamber at 120°F ± 5°F and 95% ± 3% relative humidity for a total of 30 days. Periodically remove test specimens from chamber (3 to 5 day intervals) and vigorously rub marking area with fingers. The markings shall be legible, retain their characteristic color, and not smear, nor blister, crack or peel.

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3.8 Resistance to smearing. Prepare test specimens as specified in 3.2. Markings shall present legible characters of uniform boldness and general appearance, and the markings shall not smear when tested 15 minutes after application at  $75^{\circ}\text{F} \pm 5^{\circ}\text{F}$  when rubbed vigorously for ten strokes with approximately 80 by 80 weave cotton sheeting.

3.9 Resistance to gasoline (non-porous surfaces only). Prepare test specimens as specified in 3.2. The markings shall be wetted alternately with gasoline conforming to ASTM D4814 and distilled water, five times for each liquid, allowing for complete drying before applying the next wetting. After 24 hours the alternately wetted markings shall be visually compared to a set of untreated markings for changes in legibility, boldness, clarity, sharpness, color, and appearance of blurring and streaking. Evidence of any visible changes in the above listed characteristics shall be evidence of failure.

3.10 Resistance to weathering. Prepare test specimens as specified in 3.2. Markings shall be exposed to accelerated weathering in accordance with ASTM D822 as follows:

Type I: Cycle Number 2 for 300 hours.

Type II: Cycle Number 3 for 24 hours.

Upon test completion per Table I, the exposed markings shall be examined for cracking, checking, flaking, and change in color using an unexposed marked specimen as reference. Evidence of any changes in the above listed characteristics shall constitute a failure of this test.

TABLE I. Conformance Inspection.

Examination or Test	Conformance Criteria			Requirement Paragraph / Inspection Method
	Sample Size	Accept / Reject		
Color	5	0	1	3.3
Condition and appearance	32	0	1	3.4
Knife test	3	0	1	3.5
Resistance to water	3	0	1	3.6
Humidity test	3	0	1	3.7
Resistance to smearing	3	0	1	3.8
Resistance to gasoline	3	0	1	3.9
Resistance to weathering	3	0	1	3.10
Drying opacity	5	0	1	3.15
Gloss test	3	0	1	3.16

3.11 Drying opacity (hiding power). Prepare test specimens as specified in 3.2, and determine the contrast ratio in accordance with ASTM D2805. Unless otherwise specified, the tested ink shall show a minimum contrast ratio of 0.5 for porous surfaces

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such as wood or Styrofoam, and shall be a minimum of 0.9 for markings on non-porous surfaces such as metal or plastic. Testing shall be conducted using a commercial grade over the counter (OTC) optical reflectance scanner using ambient light within the visible spectrum.

3.12 Gloss. Prepare test specimens as specified in 3.2. The markings shall be tested for gloss in accordance with ASTM D523, evaluated by glossmeter with 60 degree geometry, with a maximum gloss reading of 10 being acceptable.

3.13 Examination and testing. Each marking inspection lot shall be subjected to the conformance inspection listed in Table I.

3.14 Other properties. Other properties shall be as specified in the end item packout contract or the marking medium supply contract (Also, see 7.2).

3.15 Sampling. Test sample sizes shall be in accordance with Table I below. The test shall be conducted by taking a sample from the batch of the marking media and applying it either to (i) actual parts to be marked or (ii) test samples made out of the same materials used for the end item to be marked.

3.16 Marking media lot formation. An inspection lot of marking media undergoing test/verification of its salient characteristics shall consist of one or more batches of homogeneous marking media, produced by one manufacturer to the same specification under one set of operating conditions and processes

#### 4. REGULATORY REQUIREMENTS.

4.1 Toxicity. The use of benzene, carbon-tetrachloride, or fluorohydrocarbon solvent and any known carcinogens or known ozone depleting chemicals (ODC) or volatile organic compounds (VOC) containing substances is absolutely forbidden. Trace amounts (< 1 ppb) of benzene derivatives present in commercial grades of acceptable aromatic compounds are permissible. Marking substances (media) shall contain no chlorinated or fluorocarbonic compounds or other hydrolysable compounds.

4.2 Labeling. Marking substance containers shall be labeled to comply with the "Federal Hazardous Substances Act Regulations" 16 CFR, Part 1500.

4.3 Material Safety Data Sheets (MSDS). Safety data sheets shall be furnished in accordance with FED-STD-313 – Appendix B of which shows the pertinent government mailing addresses to which the MSDS are to be submitted.

#### 5. PRODUCT CONFORMANCE.

5.1 The products provided shall meet the salient characteristics of this Commercial Item Description, shall conform to the producer's own drawings, specifications, standards, and

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quality assurance practices, and be the same product offered for sale in the commercial market. The Government reserves the right to require proof of such conformance.

5.2 Quality control. Suppliers are reminded that they have an obligation to use traceable and auditable quality control (QC) techniques that exhibit control over their processes – such as Statistical Process Control (as defined in ASQ B1-B3) that systematically reduce process variations. Use of these QC techniques, and their objective results observable in product quality, shall be audited by the Government or the Prime Contractor to find evidence of their use which will demonstrate overall adequacy of measurement techniques and process controls. Consistent use of these QC techniques will ensure product quality levels at least equal to, if not greater than, those cited in applicable technical documents, or herein.

5.3 Market Acceptability. The following market acceptability criteria are necessary to document the quality of the product to be provided under this CID.

5.3.1 The manufacturer of the item must have been producing a product meeting the requirements of this CID for at least two years.

5.3.2 The company must have sold at least 1000 units meeting this CID in the commercial marketplace over the past 2 years.

6. PACKAGING. Preservation, packing, and marking shall be as specified in the contract or order.

7. NOTES.

7.1 Source of documents.

7.1.1 ASTM Standards are available online at <http://www.astm.org/> or from the ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA, 19428-2959.

7.1.2 Federal Standards and Specifications may be obtained from ASSIST on-line, <http://assist.daps.dla.mil>

7.1.3 Federal Acquisition Regulations (FARs) may be obtained online at <http://www.acquisition.gov/far/> and from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

7.1.4 Federal Hazardous Substances Act Regulations 16 CFR, Part 1500 may be obtained online at [www.cpsc.gov/BUSINFO/fhsa.html](http://www.cpsc.gov/BUSINFO/fhsa.html).

7.1.5 ASQ B1-B3 may be obtained online from <http://www.asq.org/> and from the American Society for Quality, PO Box 3005, Milwaukee, Wisconsin 53201-3005 or 600 North Plankinton Avenue, Milwaukee, WI 53203.

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7.2 Ordering data. The contract or order should specify the following:

- a. Title, number, revision and date of this commercial item description.
- b. Composition (ingredients) and color(s) of ink/markings media required.
- c. Size of container – and if necessary, shape or type.
- d. Arrangements for inspections and inspection facilities, if other than specified in the basic procurement.
- e. Packaging, packing and special marking – to include necessity, or not, of bar coding, also, if required, alternative applicator style/ method, and, if required, palletization.
- f. MSDS's required by FED-STD-313 as a minimum- plus media peculiar MSDS's.

7.3 Supersession data. Stencil ink types specified in CID A-A-208B (i.e., Types I thru IV) may continue to be used where necessary.

7.4 Opacity. Opacity is a measurement of how much light passes thru the material. Opacity is calculated from reflectance measurements of the tested material, first (i) with black backing and then (ii) with white backing. This ratio is the drying opacity measurement. It can be viewed as either a ratio (i.e., 0.0 to 1.0) or as a percentage (i.e., 0% to 100%). The formula for Opacity = [Reflectance of tested material with Black backing] divided by [Reflectance of tested material with White backing].

7.5 Key words.

Ink  
Packaging

7.6 Changes from the previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

Custodians

Army- AR  
Navy- SA  
Air Force- 99  
GSA-FSS

Review activities

Army - CE3, GL  
Navy – AS, CG  
Air Force – 03, 11, 84

Preparing Activity  
Army - AR

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NOTE: The activities list above were interested in this document as of its publication date. Since organizations and responsibilities change, you should verify the currency of the information above using the ASSIST Online at <http://assist.daps.dla.mil>.