

INCH-POUND

A-A-59383C  
06 March 2012  
SUPERSEDING  
A-A-59383B  
17 July 2009

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 type used for end items and interior & exterior packaging.

3. **SALIENT CHARACTERISTICS.**

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.

Comments, suggestions, or questions on this document should be addressed to: Commander, US Army ARDEC, ATTN: RDAR-QES-E, Picatinny Arsenal, New Jersey 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 currency of this address information using the ASSIST Online database at <https://assist.dla.mil>.

AMSC N/A

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## A-A-59383C

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 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, unsmearred in appearance and free of conspicuously ragged edges. 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 Toughness test. Prepare test specimens as specified in 3.2, and test by knife blade in accordance with Toughness 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 meet the requirements of paragraph 3.4. The markings shall not smear, blister, crack, or peel when abrasion tested in accordance with ASTM D5264, ASTM D5181, ASTM D4060, or other equivalent abrasion test in accordance with paragraph 3.7.

3.7 Resistance to smearing. Prepare test specimens as specified in 3.2. Markings shall meet the requirements of paragraph 3.4. The markings shall be tested 15 minutes after application using a Sutherland rub tester in accordance with ASTM D5264. The test shall be conducted using weave cotton sheeting receptor material and 1.81 kg (4 lb) weight for ten strokes. GA-CAT (ASTM D5181), Taber (ASTM D4060), or other commercial equivalent abrasion tester may be used provided the specified test conditions are met or exceeded. The markings shall not show evidence of smearing, blistering, cracking, or peeling following the test.

## A-A-59383C

3.8 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.

3.9 Resistance to weathering. Prepare test specimens as specified in 3.2. The test specimen shall be exposed to accelerated weathering in accordance with cycle number 1 of ASTM D822 for a period of 100 hours. After completion of 100 hours exposure, the markings shall be examined for cracking, checking, and flaking. The lightness-darkness difference,  $\Delta L^*$ , shall be measured before and after testing in accordance with paragraph 3.10 and the  $\Delta L^*$  value shall not change by more than 8 units after exposure. Evidence of any changes in the above listed characteristics shall be classified as a failure.

3.10 Contrast ratio. Prepare test specimens as specified in 3.2. Calculate the lightness-darkness difference,  $\Delta L^*$  of the CIELAB color-difference formula, between the marking and substrate in accordance with ASTM D2244. Unless otherwise specified, the tested marking shall show a minimum  $\Delta L^*$  as specified in Table I. Testing shall be conducted using a spectral based or filter based colorimeter. A 1" x 1" solid square marking is recommended to facilitate colorimetric measurement.

TABLE I: Minimum  $\Delta L^*$  Values

Surface Material	Minimum $\Delta L^*$
Wood	35
Corrugated Fiberboard	15
Barrier Bag Material	35
Coated Metal	25
Polyethylene Laminate	25
Other Materials	30
** - In the case of black markings on lighter backgrounds $\Delta L^*$ will result in a negative number. Use absolute value for all calculations of $\Delta L^*$ .	

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

3.12 Other properties. Other properties shall be as specified in the end item/packaging document or contract.

## A-A-59383C

TABLE II: 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
Toughness test	3	0	1	3.5
Resistance to water	3	0	1	3.6
Resistance to smearing	3	0	1	3.7
Resistance to gasoline	3	0	1	3.8
Resistance to weathering	3	0	1	3.9
Contrast ratio	5	0	1	3.10

3.13 Sampling. Test sample sizes shall be in accordance with Table II. 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.

3.14 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. 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.

4.4 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

## A-A-59383C

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 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 reduces 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.

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, P.O. Box C700, West Conshohocken, PA 19428-2959.

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

7.1.3 Federal Acquisition Regulations (FARs) may be obtained online at [www.gpoaccess.gov/cfr/index.html](http://www.gpoaccess.gov/cfr/index.html) and from the Superintendent of Documents, US 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 Control, PO Box 3005, Milwaukee, WI 53201-3005 or 600 North Plankinton Avenue, Milwaukee, WI 53203.

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/ marking media required.

## A-A-59383C

- 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-208 (i.e., Types I thru IV) may continue to be used where necessary.

7.4 Contrast ratio. Contrast ratio is a measurement of the lightness-darkness of a marking and the material on which it is applied. It is calculated using the  $\Delta L^*$  value of the CIELAB color-difference formula described in ASTM D2244.

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 - 69  
GSA - FAS

### Preparing Activity

Army- AR

### Review activities

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

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