

MIL-STD-1487
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MILITARY STANDARD
GLOSSARY OF CLOTH
COATING IMPERFECTIONS



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MIL-STD-1487

DEPARTMENT OF DEFENSE
WASHINGTON, D. C. 20301

Glossary of Cloth Coating Imperfections

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1. This Military Standard is mandatory for use by all Departments and Agencies of the Department of Defense.
2. Recommended corrections, additions, or deletions should be addressed to U. S. Army Natick Laboratories (GL), Natick, Massachusetts 01760.

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FOREWORD

1. The purpose of the standard is to furnish a common vocabulary for use by Government procurement agencies and their contractors. It is designed to fill a need for a glossary of coating imperfections for all coated cloths.
2. Defects are likely to occur from many causes such as variation in the quality of the basic materials and variation in manufacturing processes and finishing operations. This standard, however, does not attempt to pin down the cause of the defects but merely to identify the defect in the finished product.
3. Contributions by the Coated Fabrics Industries are acknowledged as are comments submitted by agencies that reviewed the draft of the standard. Users are requested to submit to the preparing activity comments, new terms and definitions that are considered applicable to this standard.

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1. SCOPE

1.1 General.- This standard establishes definitions for the words, terms and expressions for defects peculiar to the general field of coated cloths.

1.2 Application.- It is anticipated that this standard will serve as a source of defects in the preparation of visual examination sections of coated cloth specification.

1.2.1 This standard is not intended to take the place of a particular inspection procedure aid which may be provided for inspectors to verify conformance with a particular specification. The quality requirements specified in the basic specification are governing.

1.2.2 This standard covers only visual defects for coated cloth material, more specifically, defects applicable to the coating and coating material. Defects applicable to the cloth to which coating is applied are covered in FED-STD-4.

2. REFERENCE DOCUMENT

STANDARD

FEDERAL

FED-STD-4 - Glossary of Fabric Imperfections

(Copies of specifications, standards, drawings, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer).

3. GLOSSARY OF TERMS

3.1 Introduction.- Defect terms are arranged alphabetically. Synonymous and similar terms are cross referenced, "See...".

3.2 Definitions.-

Abraded area	-An area of cloth worn away by rubbing or scraping.
Abrasion	-Coating friction worn, reduced in gauge, frequently surface roughed.
Abrasion exposing base cloth	-Coating worn through to base cloth.
Abrasion mark	-An abraded spot.

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Adhesions	-See "Blocking".
Air pocket	-See "Blister".
Air streak	-Streak caused by air trapped between cloth and compound or by air entrapped between calender roll and coating film as applied to cloth. (See "Railroad tracks").
Baggy	-Waviness in material; inability to lie flat due to distortion of cloth or uneven tension in coating.
Bald spot	-A deficiency of finish in a small area.
Bar	-A mark caused when coating machine is stopped or operated with an uneven or jerky motion.
Bar mark	-Surface mark or indentation by the bars of a festooning oven or chamber used for suspension of the coated cloth during vulcanization or similar operation where material is allowed to rest temporarily on a heated bar or pipe, e.g., on heating pipes on spreader steam table.
Bare back	-A cloth face which is free of any coating or covering.
Bare spot	-Uncoated area in the cloth. See "Bald spot".
Bleeding	-Migration of an ingredient to surface to form an oily film or beads; term usually used for liquid materials. Exudation, sweating.
Blister	-Raised bubble or peak-out of surface coat; raised spot or void.
Blocking	-Tacky, ability to adhere to self; adhesion between touching layers of material. Cloth does not unroll readily.
Bloom, blooming	-Coating compound ingredients surfacing, generally detrimental to adhesion or cementing; blush or discoloration; non-uniform appearance.
Blotchy	-See "Mottled".
Boardy	-A stiff or tinny effect.
Brittle coating	-Cracks when flexed.
Broken edge (selvage)	-Fractured.
Build-up in roll	-Uneven thickness of coated cloth roll resulting from curled, doubled, folded or rolled edges or uneven application of coating.
Bruise	-A scar caused by an uncrued article striking a non-coated object.
Burn	-Cloth charred by excessive heat; singe; scorch.
Burned gum	-Coating that has been carbonized or deteriorated resulting from excessive heat. This condition may also be caused by incompatibility of compounding ingredients or improper mixing of compound. Overvulcanization.

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Burnt areas	-See "Burned gum".
Burnt stock	-Random cured coating particles.
Chafe mark	-See "Abrasion mark".
Charred areas	-See "Burned gum".
Checked coating	-See "Burned gum".
Cold check	-Rough sandpaper finish due to cold stock.
Contamination	-See "Foreign material".
Crack	-Break in coating, usually resulting from a crease.
Cracked coating	-See "Burned gum".
Cracking	-Fissured surface condition.
Crazing	-Minute cracks.
Crater	-A depression in the coating giving the opposite appearance of a blister.
Crease	-Fold; pleat; doubling of surfaces that do not adhere to one another and that cannot be corrected by manual pressure.
Crows feet	-Radial lines and marks of pattern indicated by the name.
Curled	-Undulated.
Cut	-An opening made with a sharp edged object.
Delamination	-Surface coat removed, scraped, peeled or otherwise taken away from the cloth; separation of coating from base cloth; separation of one cloth; separation of one cloth from another in a plied material.
Depression	-Hollow in a surface. See "Crater".
Dimple	-Small surface depression; collapsed blister.
Dirty	-Uncleaness.
Discoloration	-Color other than specified, entirely or in part.
Double	-Edges or selvages curled to the extent that material folds on itself.
Doubling crease	-A crease folded back on itself.
Dry areas	-Excessive heat applied in vulcanization process.
Embedded crease	-A crease permanently set into the material.
Embedded foreign matter	-Inclusion; foreign matter which on removal leaves an uncoated, poorly coated area or a through hole.
Excess dusting material	-Heavy deposit of dusting material.
Excessive coating	-Area that has a heavier coating than the surrounding area or characterized by lumps or ridges.
Finish mark	-Finish coat leaves uneven appearance.
Finish run out	-Finish does not cover entire sheet.
Finish streak	-Finish coat applied to surface that leaves streaks.

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Fish eye	-Non-uniform release of coating film from calender rolls causing pits in coating surface. (This condition could also be caused by solvents in spreading).
Flat embossing	-Embossed finish too smooth.
Folded	-Material is bent or pressed so that one part is over another (see "Doubled").
Foreign material	-Any extraneous matter (lint, dirt, grease, etc.).
Globs	-See "Lump".
Grain depth	-Too deep, too shallow, uneven. Not in accordance with stated requirement.
Heavily beaded	-Referring to edges and selvages. Material cannot be rolled in uniform layers.
Hole	-An opening of undetermined cause. Area not covered by base cloth and coating compound.
Indistinct	-Finish or grain not clearly evident.
Insufficient coating	-See "Thin area".
Light area	-See "Thin area".
Liner impression	-See "Mark-off".
Linty	-Pick off of lint from back of cloth on to surface coating or from lint in atmosphere in coating area.
Lump	-An agglomerate of coating compound; undiluted coating stock; imbedded foreign material; surface protrusion usually of the base coating material as distinguished from imbedded foreign material.
Luster	-A characteristic of the finish, i.e., the dullness, brightness, glossiness of the finish.
Mark-off	-Imprint of the back of material onto the face when the material is rolled.
Mottled	-Blotchy or spotted appearance of cloth; marble-like appearance caused by undiffused stock feeding into calender bite at the same time.
Not as specified	-When referring to color, shade, finish or not in accordance with stated requirements; does not match standard sample within established color and shade tolerances when standard sample is available.
Not smooth	-Material is rough in appearance or to touch.
Not straight	-Referring to edges or selvages. Self-descriptive.

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Not uniform	-Material varies in width, thickness, color, shade finish or grain.
Objectionable odor	-Odors of chemicals commonly used in coating compounds shall not be regarded as objectionable. (Choice of curing agents, plasticizers etc. should be such that ordinary odors from such ingredients are minimized to an acceptable degree).
Off shade	-Not within established shade tolerance, shaded side to side, side to center.
Paper picks	-Particles of paper adhering to film surface. See "Foreign material".
Pick-off	-An area where coating is delaminated from its base and either torn off completely or remaining attached as loose flap. Caused by adherence to calender roll or to back of material in a roll.
Pick-up	-This occurs when an additional substance is picked up from a calender roll or the back of material; opposite of pick-off.
Pigmentation missing	-Poor distribution of pigments.
Pigment streaks	-Visible streaks of pigment variation in coating.
Pinch	-A crease where surfaces adhere.
Pinched coating	-A ridge or wrinkle in the coating.
Pinhole	-A pinhole is defined as any transparent or semitransparent opening observed in the cloth under through-light <u>1/</u> conditions which may or may not be visible when the coated cloth is viewed at the same distance in average daylight or the equivalent thereof; a point presenting an opening large enough to allow penetration of a pinpoint of light in through lighting.

1/ The through-light inspection shall be performed in a darkened area using the lighting table described as follows: The light table shall have a clear glass top and shall be illuminated with a minimum of two 25-watt fluorescent tubes. The tubes shall be positioned 9 to 10 inches below the glass top and 6 to 8 inches from the sides and ends of the light housing. The spacing between tubes shall be 5 to 6 inches and the interior of the light housing shall be white. During the examination when the surface of the coated cloth is in contact with the light table, the illumination in the darkened room shall be 20 \pm 5 foot candles of natural or artificial

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Footnote to "Pinhole" (cont'd)

light. An instrument for measuring light intensity, the Weston Illumination Meter Model 756, or 703, type 8 with viscor filter made by Daystrom, Inc., Weston Industries, Newark, New Jersey.

Piping	-Surface distortion. See "Dimple".
Pirne barre	-Bar marks on fabric side of single coated cloth.
Pit	-A spherical depression, usually small.
Pleat	-See "Crease".
Puckers	-Indentations resulting from shrinkage of the cloth. (May also be caused by improper tension or knife dragging during coating).
Railroad tracks	-Depression in surface forming a pattern indicated by the name; dual parallel impressions in warp direction, varying lengths.
Rancid	-Having the bad smell of stale fats or oils.
Repair	-Material where defect is corrected by patch, sewing or other means.
Ridgy	-Having or rising in a ridge or ridges.
Rip	-Cut or torn apart roughly.
Ripples	-Resembling small waves.
Rolled	-Edges folded over.
Rough surface	-See "Not smooth".
Run-out	-Compound does not cover cloth.
Scalloped	-Characterized by scallop-like ridges.
Scratch	-Marking or scraping in the material.
Scuff mark	-Damage to surface due to rough handling.
Separation	-See "Delamination".
Set-up	-Uncured coatings that have cured during transit and/or storage.
Sharp	-Referring to edges or selvages. Self-descriptive.
Skip	-Area of no coating.
Soft coating	-Self-descriptive, usually resulting from inadequate curing.
Soiled	-Spots of foreign material from back of cloth, atmosphere, coating operation or manual handling etc. See "Dirty" and "Foreign material".
Sparkle	-Bright spots in the finish.
Spliced	-Two cloths joined together and coating extended over joint.
Spot	-An area of discoloration on the surface of the cloth.
Stain	-See "Spot".

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Stitch mark	-In spliced cloth, an impression in coating caused by splicing thread.
Stop mark	-Characterized by thin or heavy area.
Streak	-A line or long thin mark; stripe or smear, generally differing in color or texture from the surrounding area.
Strike through	-Coating compound shows through on uncoated side of cloth. Undersirable only if so specified.
Swirls	-Coating in a swirl pattern.
Tacky	-Sticky.
Tear	-Split; pulled apart. See "Rip".
Thin area, thin spot, thinly coated	-Thickness of coating is less than specification requirement. Varies from overall thickness.
Tight	-Referring to edges or selvages. Causing curl, puckering or waviness.
Tunnel	-An elongation area between coatings on a multiple coating job or between the cloth and coating.
Two-tone	-Two distinct shades of color.
Uncoated	-No visible coating applied.
Uneven coating	-Variation in gauge in same finished coated cloth.
Uneven dust	-Dusting material not evenly applied over entire coating.
Wavy	-Characterized by wave-like appearance. See "Baggy".
Weak spot	-Usually an area where material is missing or undergauge.
Wrinkle	-See "Crease".
Custodians:	Preparing activity:
Army - GL	Army - GL
Navy - SA	
Air Force - 11	Project No. 8305-0952
Review activities:	
Navy - AS, SA, MC	
Air Force - 11, 45, 82	
User activities:	
Army - MD, AV, ME	
Navy - OS, SH, YD	

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER

2. DOCUMENT TITLE

3a. NAME OF SUBMITTING ORGANIZATION

4. TYPE OF ORGANIZATION (Mark one)

 VENDOR USER MANUFACTURER OTHER (Specify): _____

b. ADDRESS (Street, City, State, ZIP Code)

5. PROBLEM AREAS

a. Paragraph Number and Wording:

b. Recommended Wording:

c. Reason/Rationale for Recommendation:

6. REMARKS

7a. NAME OF SUBMITTER (Last, First, MI) - Optional

b. WORK TELEPHONE NUMBER (Include Area Code) - Optional

c. MAILING ADDRESS (Street, City, State, ZIP Code) - Optional

8. DATE OF SUBMISSION (YYMMDD)

(TO DETACH THIS FORM, CUT ALONG THIS LINE.)