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DEPARTMENT OF DEFENSE
MILITARY STANDARD
GLOSSARY OF CLOTH
COATING IMPERFECTIONS



AMSC N/A

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FOREWORD

1. This standard is approved for use by all Departments and Agencies of the Department of Defense (DoD).
2. This standard provides definitions for the words, terms and expressions for defects peculiar to the general field of coated cloths.
3. Comments, suggestions or questions on this document should be addressed to: Attn: DLA Troop Support, 700 Robbins Street, Philadelphia, PA 19111-5096. Since contact information can change, you may want to verify the currency of this address information using Acquisition Streamlining and Standardization Information System (ASSIST) online database at <https://assist.dla.mil>.

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1. SCOPE

1.1 Purpose. The purpose of this standard is to establish definitions for the words, terms and expressions for defects peculiar to the general field of coated cloths.

1.2 Scope. This standard will serve as a source of defects in the preparation of visual examination sections of coated cloth specifications.

1.3 Classification. This standard is not intended to take 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 govern.

1.4 Applicability. The glossary of terms cited in this standard covers only visual defects for coated cloth material, more specifically, defects attributed to the coating and the resulting coated material/cloth. Defects applicable to the cloth, prior to the coating application, to which the coating is applied, are covered in ASTM D3990. The quality evaluation is performed in accordance with the provisions stated in MIL-STD-3064.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3, 4 and 5 of this standard. This section does not include documents cited in other sections of this standard or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3, 4 and 5 of this standard, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-3064 - Standard Practice Evaluation of Quality of Textile Materials

(Copy of this document is available online at <https://quicksearch.dla.mil/>.)

2.2.2 Other Government documents, drawings, and publications. N/A

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

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ASTM INTERNATIONAL

ASTM D3990 - Standard Terminology Relating to Fabric Defects

ASTM D5430 - Standard Test Method for Visually Inspecting and Grading Fabrics

(Copies of these documents are available online at <https://www.astm.org>.)

2.4 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. DEFINITIONS

3.1 Coated fabric. A fabric to which a viscous polymeric layer is applied directly to one (1) or both surfaces of the fabric.

3.2 Glossary. An alphabetical list of terms or words relating to a specific subject with technical explanations.

3.3 Imperfection. A fault, an undesirable feature, damaged area which may affect its appearance or performance.

3.4 Textile material defects. A textile material defect is defined as an abnormality or imperfection in the material which may hinder its performance or acceptability by the consumer.

4. GENERAL REQUIREMENTS

4.1 General. This standard provides a glossary of coated fabric terms for use in identifying coating defects on a material. The quality level of the material is evaluated in accordance with the provisions stated in MIL-STD-3064. The ASTM D5430 - Standard Test Method for Visually Inspecting and Grading Fabrics shall be used to establish numerical designations for grading of fabrics from a visual inspection. This method includes the description of a suitable apparatus, suggested lighting conditions and proper procedure used to conduct the inspection.

4.2 Recycled, recovered, or environmentally preferable, or biobased materials. Recycled, recovered, or environmentally preferable, or biobased materials should be used to maximum extent possible, provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

5. DETAILED REQUIREMENTS

5.1 GLOSSARY OF TERMS

5.2 INTRODUCTION. Defect terms are arranged alphabetically. Synonymous and similar terms are cross referenced as (See "Blocking").

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5.3 DEFINITIONS.

TERM	DEFINITION
Abraded area, spot or mark	An area of coating worn away by rubbing or scraping.
Abrasion	Coating worn due to friction, reduced in gauge (thickness), frequently surface roughed.
Abrasion exposing base cloth	Coating worn through to base cloth.
Adhesion	Ability of the coated cloth to stick to itself. See "Blocking".
Air pocket	Area in the coating where air is trapped. See "Blister".
Air streak	Streak caused by air trapped between cloth and the coating 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 coating 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 resulting from the coated material being allowed to rest temporarily on a heated bar or pipe.
Bare back	A spot/area on the side of coated cloth which is free of any coating or covering.
Bare spot	Uncoated area in the cloth. See "Bald spot".
Bleeding through	Migration of an ingredient to surface to form an oily film or beads; term usually used for liquid materials. Exuding, sweating.
Blister	Raised bubble or peak-out on surface coat; raised spot or void.
Blocking	Tacky, ability to adhere to self; adhesion between touching layers of material. Cloth does not unroll or separate readily.
Bloom, blooming	Coating compound ingredients surfacing, generally detrimental to adhesion or binding of the coating; blush or discoloration; non-uniform appearance.
Blotchy	Spotted, marble like appearance. See "Mottled".
Boardy	A stiff, non-pliable effect.
Brittle coating	Cracks when flexed.

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5.3 DEFINITIONS - Continued

TERM	DEFINITION
Broken edge (selvage)	Fractured, split edge.
Build-up in roll	Uneven thickness of coating or coated cloth roll, resulting from curled, doubled, folded or rolled edges or uneven application of coating.
Bruised	A discolored area caused by an uncured 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. Over-vulcanization or curing of coating polymers.
Burnt areas	See "Burned gum".
Chafe mark	See "Abrasion mark".
Charred areas	See "Burned gum".
Cold check	Rough sandpaper finish due to cold stock.
Contamination	See "Foreign material".
Crack, cracking	Fissured surface condition. Break or split in coating, usually resulting from crease.
Crazing	Minute/fine cracks.
Crater	A depression in the coating giving the opposite appearance of a blister.
Crease, pleat	Fold, pleat; doubling of surfaces that do not adhere to one another and that cannot be corrected by manual pressure.
Crowsfeet	Radial tiny lines and marks of pattern.
Curled	Curved or spiral shape.
Cut	An opening made with a sharp edged object.
Delamination, separation	Surface coat removed, scraped, peeled or otherwise taken away from the cloth; separation of coating from base cloth; separation of one cloth from another in plied material.
Depression	Hollow or indentation in a surface. See "Crater".
Dimple	Small surface depression; collapsed blister.
Dirty	Uncleanness.
Discoloration	Color other than specified, entirely or in part.
Double edge	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 coating polymer curing (vulcanization) process.
Embedded crease	A crease permanently set into the material.

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5.3 DEFINITIONS - Continued

TERM	DEFINITION
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.
Fish eye	Circular voids or separation in the coating film caused by calender rolls causing pits or by solvent spreading in cloth coating surface.
Flat embossing	Embossed finish too smooth.
Folded	Material is bent or pressed so that one part is over another. See "Doubling crease".
Foreign material	Any extraneous matter (lint, dirt, grease, etc.).
Grain depth	Too deep, too shallow, uneven. Not in accordance with stated requirement.
Heavily beaded edge	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, thin and light coating, thin spot	Thickness of coating is less than specification requirement. Varies from overall thickness.
Linty	Presence of lint from back of cloth on to surface coating or from lint in atmosphere in coating area.
Lump, globs	An agglomerate of coating compound; chunk/clump of undissolved 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.
Not as specified	When referring to color, shade and finish appearance not being in accordance with the stated requirements; does not match standard sample within established color and shade tolerances when standard sample is available.
Not smooth, rough surface	Material is rough in appearance or to touch.
Not straight edge	Uneven, referring to edges or selvages. Self-descriptive.

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5.3 DEFINITIONS - Continued

TERM	DEFINITION
Not uniform	Material varies in width, thickness, color shade, finish or grain.
Objectionable odor	Unacceptable odor that is not characteristic of the odors of chemicals commonly used in coating compounds.
Off shade	Not within established shade tolerances, 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 detached delaminated from its base and either torn off completely or remaining attached as loose flap. Caused by adherence to calender roll to back of material in a roll.
Pigmentation, color missing	Poor distribution of pigments or colorants.
Pigment, color streaks	Visible streaks of pigment color variation in coating.
Pinch	A crease where surfaces adhere.
Pinched coated	A ridge or wrinkle in the coating.
Pinhole	A pinhole is defined as any transparent or semi-transparent opening observed in the cloth under through-light $\frac{1}{2}$ conditions which may or may not be visible when the coated cloth is viewed at the same distances 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.
Piping	Surface distortion. See "Dimple".
Pirne barre	Bar marks on fabric side of single coated cloth.
Pit	A spherical depression, usually small.
Puckers	Indentations or small raised areas 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 edge	Edges folded over.
Run-out	Compound does not cover cloth.
Scalloped edge	Characterized by scallop-like ridges.
Scratch	Marking or scraping in the material.

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5.3 DEFINITIONS - Continued

TERM	DEFINITION
Scuff mark	Damage to surface due to rough handling.
Set-up	Uncured coatings that have cured during transit and/or storage (post curing).
Sharp edge	Referring to edges or selvages. Self-descriptive.
Skip	Area of no coating.
Soft coating	Tacky coating, 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, stain	An area of discoloration on the surface of the cloth.
Stitch mark	In spliced cloth, an impression in coating caused by splicing thread.
Stop mark	Characterized by thin or heavy area, resulting from machine stops.
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 the cloth. Undesirable only if so specified.
Swirls	Coating in a swirl pattern.
Tacky	Sticky.
Tear	Split; pulled apart. See "Rip".
Tight edge	Referring to edges or selvages. Causing curl, puckering or waviness.
Tunnel	An elongation area between coating layers 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 (thickness) 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".

1/ The lighting conditions stated in ASTM D5430 shall be used to check for pinholes.

6. NOTES

6.1 Intended use. To provide a glossary of defect terms for use in evaluating quality of coated fabrics that are used on military clothing and individual equipment items. These defects are typical defects in the manufacturing of coated fabrics.

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6.2 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issues, due to the extensiveness of the changes.

6.3 Subject terms:

Defects
Terms
Textile

Custodians:
Army - GL
Navy - NU
Air Force - 11

Preparing activity:
DLA - CT

Review activities:
Army- MD
Navy - AS, MC

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