

P-C-458c

April 7, 1965

SUPERSEDING

Int. Fed. Spec. P-C-00458b (GSA-FSS)

December 3, 1962 and

Fed. Spec. P-C-458a

April 1, 1954

FEDERAL SPECIFICATION**CLOTH, ABRASIVE, CROCUS**

This specification was approved by the Commissioner, Federal Supply Services, General Services Administration, for the use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 **Scope.** Crocus cloth covered by this specification is a cloth uniformly coated on one surface with crocus.

1.2 Classification.

1.2.1 **Type and classes.** Crocus cloth shall be of one type and of the following classes, as specified (see 6.2):

Class 1—Sheet

Class 2—Roll

1.2.2 **Dimensions.** Sheets and rolls shall be of the dimensions outlined in 3.3.1 and 3.3.2, as specified (see 6.2).

2. APPLICABLE SPECIFICATIONS, STANDARDS, AND OTHER PUBLICATIONS

2.1 **Specifications and standards.** The following specifications and standards, of the issues in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

Federal Specifications:

RR-S-366—Sieves, Standard for Testing Purposes.

CCC-T-191—Textile Test Methods.

Federal Standards:

Fed. Std. No. 102—Preservation, Packaging, and Packing Levels.

Fed. Std. No. 123—Marking for Domestic Shipment (Civilian Agencies).

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlined under General Information in the Index of Federal Specifications and Standards and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.

(Single copies of this specification and other product specifications required by activities outside the Federal Government for bidding purposes are available without charge at the General Services Administration Regional Offices in Boston, New York, Washington, D. C., Atlanta, Chicago, Kansas City, Mo., Dallas, Denver, San Francisco, Los Angeles, and Seattle, Wash.

(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks and the Index of Federal Specifications and Standards from established distribution points in their agencies.)

Military Specification:

MIL-P-3816—Packaging and Packing of Abrasives and Abrasive Products for Shipment and Storage.

Military Standards:

MIL-STD-105—Sampling Procedures and Tables for Inspection by Attributes.

MIL-STD-129—Marking for Shipment and Storage.

(Copies of Military Specifications and Standards required by contractors in connection with specific procurement functions should be obtained from the

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procuring activity or as directed by the contracting officer.)

2.2 Other publication. The following document forms a part of this specification. Unless otherwise indicated, the issue in effect on date of invitation for bids shall apply.

Department of Commerce Commercial Standard:

CS217—Grading of Abrasive Grain on Coated Abrasive Products.

(Application for copies should be addressed to the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.)

3. REQUIREMENTS

3.1 Material.

3.1.1 Abrasive. The abrasive shall consist essentially of ferric oxide (Fe_2O_3) and quartz.

3.1.1.1 Fineness of abrasive. The abrasive shall be of the following fineness when tested as specified in 4.4.5:

	U. S. Standard Sieve No.
All through	140
Not more than 20 percent retained on	325

3.1.1.2 Grading control and tolerance. Grading of material particles shall be in accordance with CS217, and the tolerances therein shall apply to abrasive grain recovered from the coated abrasive product.

3.1.2 Adhesive. The adhesive shall be a good quality, animal-hide glue base, suitable for the purpose intended.

3.1.3 Backing. The backing material shall be a good quality jeans cloth properly dyed and filled preparatory to coating. The grey cloth shall conform to the requirements of table I, when tested as described in 4.4.2.

TABLE I—Backing requirements

Grey cloth		Minimum	Tolerance
Yards per pound	30 inches		
wide		3.54	3.36—3.72
Yarns per inch:			
Warp		96	93—99
Filling		64	61—67

3.2 Coated abrasive cloth.

3.2.1 Breaking strength. The average breaking strength of crocus cloth, per inch width, shall conform to the requirements of table II when tested as described in 4.4.3.

TABLE II—Crocus cloth breaking strength (minimum) requirements (pounds/inch)

Warp	100
Filling	45

3.2.2 Flexibility. There shall be no evidence of major cracking in the abrasive coating or flaking of the abrasive coating from the cloth backing, when tested as described in 4.4.4.

3.3 Form and dimensions.

3.3.1 Sheet. Unless otherwise specified (see 6.2), crocus cloth shall be furnished in sheets 9 inches wide and 11 inches long with a plus or minus tolerance of 1/8 inch in length and of 1/16 inch in width.

3.3.2 Roll. Unless otherwise specified, crocus cloth shall be furnished in rolls not less than 50 yards long and in widths as specified (see 6.2).

3.4 Identification marking. Every roll, 6 inches and wider, shall be marked at least once in every 3 feet and each sheet shall be marked in a legible and permanent manner with the following information:

- Manufacturer's name or trademark of such known character that the source of manufacture may be readily determined.
- The name of the abrasive or the manufacturer's trade designation, of such known character for the abrasive, that the abrasive grain may be readily determined.

3.5 Workmanship. Crocus cloth shall be free from imperfections affecting its appearance or which may impair its serviceability.

4. SAMPLING, INSPECTION, AND TEST PROCEDURES

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, the supplier may utilize his own facilities or any commercial laboratory acceptable to the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure that supplies and services conform to prescribed requirements.

4.2 Sampling. The sample size levels of inspection shall be in accordance with MIL-STD-105.

4.2.1 Lot. All crocus cloth of the same class manufactured under essentially the same conditions and offered for delivery at one time shall be considered a lot for the purpose of examination and tests.

4.2.2 Sampling for visual, dimensional, and workmanship characteristics of the end item. Sampling for these characteristics shall be in accordance with inspection level S-4.

4.2.3 Sampling for tests. Samples for test shall be selected in accordance with inspection level S-2. Samples may be selected from those selected in accordance with 4.2.2.

4.3 Inspection and tests. The acceptable quality levels (AQL's) shall be in accordance with MIL-STD-105.

4.3.1 Inspection.

4.3.1.1 Individual sheets and rolls. Samples of crocus cloth selected in accordance with 4.2.3 shall be examined in accordance with table II. The AQL's for defects listed

in table III shall be 2.5 percent defective for major defects and 4.0 percent defective for minor defects.

4.3.2 Lot acceptance tests. Samples selected in accordance with 4.2.3 shall be subjected to the tests in 4.4, AQL 6.5 percent defective.

TABLE III—Classification of defects, end item

Defect	Major	Minor
Extraneous material on cloth	X	
Any cloth weaving or finishing defect three or more times the thickness of the normal yarn	X	
Severely distorted cloth (hitch backs, cracks, etc.)		X
Poorly cut edges (torn, selvage not removed)	X	
Uncoated areas	X	
Absence of filling in the backing	X	
Crease or wrinkle, hard embedded	X	
Soft wrinkle or crease		X
Sheets or rolls not of size specified	X	
Identification marking omitted, illegible, incomplete or incorrect		X
Holes and tears	X	
Damage or defects not affecting function or serviceability		X

4.4 Tests.

4.4.1 Grain size. Grading to determine the grain (grit) size, including recovery of grain from the sheets, preparation of grain for grading, and procedures shall be in accordance with the grading of grain as included in CS217.

4.4.2 Cloth backing. The weight and thread count of the grey cloth shall be determined on a specimen of grey cloth representing the cloth used on the lot. The grey cloth shall be conditioned, prior to test, for not less than 12 hours, at $70^{\circ} \pm 2^{\circ}\text{F.}$, and 65 percent ± 2 percent relative humidity. Tests shall be in accordance with method 5040 of CCC-T-191 for determination of weight, and method 5050 for determination of thread count.

4.4.3 Breaking strength. The breaking strength shall be determined by the cutstrip

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method in accordance with method 5102 of CCC-T-191, except that the jaws of the tensile testing machine shall be set 5 inches apart and except that specimens 1 inch wide shall be cut both longitudinally (direction of warp) and transversely (direction of fill) from the sample sheet material, and specimens 1 inch wide shall be cut longitudinally (direction of warp) from the sample roll material. The test specimens shall be conditioned for 12 hours at a temperature of $70^{\circ} \pm 2^{\circ}\text{F.}$, and 50 percent ± 2 percent relative humidity. The average breaking strength shall be computed from at least 3 specimens. Samples tearing at the jaws of the tensile testing machine shall be discarded (3.2.1).

4.4.4 Flexibility. At least five flexibility test pieces 1 inch in width shall be cut longitudinally (direction of warp) from a sheet or roll under test. The specimens shall be flexed with the ends parallel over a 3/16-inch smooth steel rod, securely held in a vise or other suitable means, with the abrasive side away from the rod. They shall be given 20 to and fro motions of approximately 3 inches, under tension of about 30 pounds at a temperature of $70^{\circ} \pm 2^{\circ}\text{F.}$, and a relative humidity of 50 percent ± 2 percent. Specimens shall be inspected in a flat position for evidence of cracking in the abrasive coating, or flaking of this coating from the cloth backing, as a result of these tests (see 3.2.2 and table II). The test pieces shall be conditioned for not less than 12 hours at $70^{\circ} \pm 2^{\circ}\text{F.}$, or 50 percent ± 2 percent relative humidity before testing.

4.4.5 Fineness of abrasive.

4.4.5.1 Particle size of abrasive. Cut a 90-square-inch specimen and a 1-by 9-inch (9-square-inch) specimen from a sheet, or roll under test and reduce each to a convenient size for immersion in water. Place the pieces of the 90-square-inch-sample in an 800-ml. beaker, cover with a watchglass and heat until the abrasive is free of the cloth. Remove the cloth, and wash the adhering abrasive back into the beaker with

a jet of hot water. Reheat to dissolve any glue or starch which may agglomerate the mineral particles and pour the contents of the beaker on a No. 140 sieve stacked on a No. 325 sieve and wash thoroughly, using hot water. Dry the sieve and the abrasive and weigh the abrasive, if any, on each sieve to the nearest milligram. Determine the total weight of abrasive per 90 square inch by following procedure described in 4.4.5.2 or 4.4.5.3.

4.4.5.2 Weight of abrasive, centrifuge method. Place the pieces of 9-square-inch-samples in a 250-ml. beaker containing 50 ml. of distilled water. Cover with a watchglass and heat until the abrasive is free from the cloth. Remove the cloth and wash the adhering abrasive back into the beaker with a jet of hot water. Boil the contents of the beaker until the volume is reduced to approximately 50 ml. and transfer to a weighed 100-ml., round bottom centrifuge tube with pour spout. Place the tube in a centrifuge and centrifuge at approximately 1500 r.p.m. until the liquid is clear and abrasive has settled. Pour off the clear liquid; add 40 ml. of hot water to the tube and stir the settled abrasive. Centrifuge 3 times as prescribed, decanting and adding water as prescribed above. After the third centrifuge, decant the liquid and dry the tube and abrasive in an oven at 100°C. Weigh the tube and abrasive to the nearest milligram to obtain the abrasive weight per 9 square inches. Multiply by 10 to obtain the weight per 90 square inches.

4.4.5.3 Weight of abrasive, filtration method (alternate). Place the pieces of the 9-square-inch-sample in a 250-ml. beaker, add water and cover with a watchglass and heat until the abrasive is free from the cloth. Remove the cloth, wash the adhering abrasive back into the beaker with a jet of hot water. Heat to dissolve adhesive and filter the contents of the beaker through a dried and weighed No. 590 S & S White Ribbon (or a No. 40 Whatman) filter paper and wash thoroughly with warm water.

Dry the filter paper and the residue (or ignite in a platinum crucible). Weigh the filter and abrasive and obtain the weight of abrasive by difference. If this filter is ignited, brush the mineral from the crucible onto the balance and obtain the weight of mineral directly. Weigh to the nearest milligram and multiply weight by 10 to obtain weight per 90 square inches.

4.4.5.4 Report: Weight of mineral, 140 mesh sieve, if any (3.1.1.1).

$$\frac{\text{Weight of mineral on 325 mesh sieve}}{\text{Weight of mineral per 90 square inches}} = \text{percent retained on 325 mesh sieve}$$

4.5 Inspection of preparation for delivery requirements. An inspection shall be made to determine that the packaging, packing, and marking comply with the requirements in section 5.

5. PREPARATION FOR DELIVERY

(For civil agency procurement, the definitions and applications of the levels of packaging and packing shall be in accordance with Fed. Std. No. 102.)

5.1 Level A, B, or C. The cloth shall be packaged, packed, and marked in accordance with the requirements of MIL-P-3816, as specified for the applicable level.

5.2 Marking.

5.2.1 Civil agencies. In addition to any special marking required by the contract or order, packages and shipping containers shall be marked in accordance with Fed. Std. No. 123.

5.2.2 Military activities. In addition to any special marking required by the contract or order, packages and shipping containers shall be marked in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. Crocus cloth is used to produce a high polish on metal surfaces.

6.2 Ordering data. Purchasers should exercise any desired options offered herein and procurement documents should specify the following:

- (a) Title, number, and date of this specification.
- (b) Class and dimensions (see 1.2 and 1.2.1).
- (c) Length and width of sheets, if other than that specified (see 3.3.1).
- (d) Length and width of rolls (see 3.3.2).
- (e) Level of packaging and packing (see 5.1).
- (f) Marking, if required (see 5.2).

6.3 Transportation description. The transportation descriptions and minimum weights applicable to this commodity are:

Rail:

Abrasive cloth.
Carload minimum weight 36,000 pounds.

Motor:

Abrasive cloth.
Truckload minimum weight 30,000 pounds, subject to Rule 115, National Motor Freight Classification.

6.4 Crocus. A name applied to mineral-oxide powders of a deep-yellow, brown or red color. Polishing crocus is usually red iron oxide (ferric oxide).

6.5 Work value. Coated abrasives including crocus cloth, should be stored in a cool, even temperature where the relative humidity is between 40 to 50 percent. Best work value will be obtained ordinarily if stored and worked in rooms having a relative humidity of approximately 50 percent. It will

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...a work value of only about 50 percent if used in a 70 percent relative humidity. Coated abrasives should not be stored on concrete floors.

MILITARY CUSTODIANS:

Army—MR

Navy—SH

Air Force—69

Review activities:

Army—MR, MO, MU

Navy—SH

Air Force—69, 85

User activities:

Navy—MC, YD

Copies of this specification may be purchased for 5 cents each.