

**CFFA** CHEMICAL FABRICS & FILM  
ASSOCIATION, INC.

# CFFA QUALITY STANDARD FOR VINYL COATED FABRIC WALLCOVERING

Developed by  
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## **1. PURPOSE**

The purpose of this document is to establish nationally recognized quality standards for vinyl coated fabric wallcovering for institutional and commercial use, and to provide producers, distributors and users with a basis for a common understanding of the characteristics of the product.

## **2. SCOPE**

- 2.1 This document sets forth quality standards and test methods for measuring the properties of vinyl coated fabric wallcovering, institutional and commercial.
- 2.2 General identification and installation information is included, but is not part of this Standard.
- 2.3 The Chemical Fabrics & Film Association, Inc. assumes no liability resulting from use of this Standard.

## **3. APPLICABLE DOCUMENTS**

- 3.1 ASTM Standard D-751- "Standard Methods of Testing Coated Fabrics".
- 3.2 ASTM Standard E-84 - "Standard Test Method for Surface Burning Characteristics of Building Materials"
- 3.3 Federal Specification CCC-T-191b - "Textile Test Methods".
- 3.4 ASTM Standard F-793-93- "Standard Classification of Wallcovering by Durability Characteristics".

## **4. CLASSIFICATION**

- 4.1 This "Quality Standard for Vinyl Coated Fabric Wallcovering" for institutional and commercial use covers three types based upon specific physical test requirements (Table I), and two classes based upon ASTM E-84 test results.

### **TYPES:**

- 4.1.1 Type I - Light Duty. Intended for use in areas of low wear.
- 4.1.2 Type II - Medium Duty. Intended for use in areas of medium wear.
- 4.1.3 Type III - Heavy Duty. Intended for use in areas of heavy wear.

### **CLASSES:**

- 4.1.4 Class A - Flame Spread Index of 0-25 inclusive. Smoke development of 0-50 inclusive.
- 4.1.5 Class B - Flame Spread Index of 26-75 inclusive. Smoke development of 0-100 inclusive.

**NOTE:** Flame Spread Index and Smoke Development - ASTM E-84 Test Method. Unless otherwise specified, the flame spread and the smoke development shall be conducted on glass reinforced cement board (GRC) and meet the requirements as stated in Table I.

## **5. MATERIAL AND WORKMANSHIP**

- 5.1 The supporting material shall be woven cloth, non-woven fabric or other suitable material that will enable the wallcovering to meet this standard.  
Osnaburg backing is defined as a woven sheeting fabric that, when used as a vinyl wallcovering backing, the wallcovering will meet the minimum requirements in Table I for Type II Tensile and Tear.  
Non-Woven backing is defined as a wet-laid, entangled fabric comprised of both natural and synthetic fibers that, when used as a vinyl wallcovering backing, the wallcovering will meet the minimum requirements in Table I for Type I and Type II Tensile and Tear.
- 5.2 The coating compound shall be formulated from polymerized or copolymerized polyvinyl chloride resins suitably plasticized, stabilized and pigmented to meet the specified color requirements. The minimum coating weight shall be as specified per type (Table I).
- 5.3 Workmanship shall be in accordance with good commercial practice, and the resulting wallcovering shall be free of defects affecting serviceability.

## **6. PHYSICAL REQUIREMENTS**

- 6.1 In order to conform to this Standard, wallcovering shall meet the physical test requirements described in Table I.

**TABLE 1**  
**Physical Test Requirements**

	<u>TYPE I</u>	<u>TYPE II</u>	<u>TYPE III</u>
Total Wt., oz/yd. <sup>2</sup> (Kg/m <sup>2</sup> ), Min.	7 (0.237)	13 (0.442)	22 (0.748)
Coating Wt., oz/yd. <sup>2</sup> (Kg/m <sup>2</sup> ), Min.	5 (0.170)	7 (0.237)	12 (0.407)
Breaking Strength, Lbs. force Newtons Min.			
Machine Direction	40 (178)	50 (222)	100 (445)
Cross Machine Direction	30 (133)	55 (245)	95 (423)
Tearing Strength, Scale Reading Min.			
Machine Direction	12	25	50
Cross Machine Direction	12	25	50
Coating Adhesion, Lbs. force for 1" width, (Newtons for 2.5 cm width)	2 (8.9)	3 (13.35)	3 (13.35)
Abrasion Resistance (Cycles/Mm.) <sup>1</sup>	200	300	1000
Colorfastness to Light <sup>2</sup>	200	200	200
Blocking, scale rating Max.	2	2	2
Crocking, scale rating Min.	Good	Good	Good
Cold Crack Resistance 20°F (-7°C)	No Change	No Change	No Change
Heat Aging <sup>3</sup> (7 days at 158°F (70°C))	Note 3	Note 3	Note 3
Shrinkage, percent Max.			
Machine Direction	2	2	2
Cross Machine Direction	1	1	15
Stain Resistance <sup>4</sup>	1-9	1-12	1-12
Washability (Cycles, Min.) <sup>1</sup>	100	100	100
Scrubability (Cycles, Min.) <sup>1</sup>	200	300	500

1) Cycles are defined as double rubs.

2) There shall be no change in color or shade, discoloration, exudation, development of tackiness, or stiffness after prescribed hours of exposure.

3) Shall not become stiff, brittle, discolored, or show loss of grain.

4) Shall show no appreciable effect of staining.

## 7. TEST METHODS

7.1 The wallcovering shall be tested by the test methods listed in Table II.

**TABLE II**  
**Test Methods**

<u>TEST</u>	<u>TEST METHOD</u>
Total Weight	Federal Standard No. 191b - Method 5041
Coating Weight	Paragraph 7.1.1
Breaking Strength	ASTM D-751 - Grab Method
Tear Strength (1)	ASTM D-751 - Pendulum Impulse Method
Coating Adhesion	ASTM D-751
Abrasion Resistance (2)	Federal Standard No. 191b - Method 5304
Colorfastness to Light (3)	Federal Standard No. 191b - Method 5660
Blocking	Federal Standard No. 191b - Method 5872
Crocking	Federal Standard No. 191b - Method 5651-b
Cold Crack Resistance	Paragraph 7.1.2
Heat Aging (4)	Federal Standard No. 191b - Method 5850
Shrinkage	Paragraph 7.1.3
Stain Resistance (5)	Federal Standard No. 191b - Paragraph 445
Washability	ASTM F793-93
Scrubability	ASTM F793-93

NOTE 1: Type I to be tested without the augmenting weight. Type II and Type III to be tested with the augmenting weight

NOTE 2: Use #220 grit. Pressure to be 3 pounds, tension to be 6 pounds

NOTE 3: Exposure to be 200 hours.

NOTE 4: Exposure conditions to be 158°F ± 3°F (70 ± 2°C) for seven days

NOTE 5: Test period to be 24 hours. Each of the following reagents shall be included:

- Distilled water, cold, 1 ml (75 ± 5°F) (23.9 ± 8°C)
- Distilled water, hot, 1 ml (120 ± 5°F) (48.9 ± 2.8°C)
- Ethyl alcohol, 1 ml (50% by volume)
- Vinegar (3% acetic acid)
- Alkali solution, 1 ml (1% sodium hydroxide)
- Acid solution (5 acetic or hydrochloric acid)
- Soap solution, 1 ml
- Detergent solution, 1 ml (mild)
- Pure orange juice, 1 ml
- Butter, 1 mg
- Catsup, 1 g
- Tea, 1 ml

Water or mild detergent may be used to wipe the spot before examining for staining.

7.1.1 Coating Weight. The wallcovering shall have a minimum coating weight when tested as follows:

- (a) Take 5 samples, each not less than 4 square inches (25 square centimeters) in area from across the width of the wallcovering in a line at right angles to the selvage. No sample shall be taken closer to either selvage than 10 of the width.
- (b) Condition the samples at  $70 \pm 2^\circ\text{F}$  ( $21 \pm 1^\circ\text{C}$ ) and  $65 \pm 2$  relative humidity for 24 hours prior to testing.
- (c) Determine the average weight of the 5 samples using a calibrated scale accurate to 0.25.
- (d) Determine the area of the samples accurate to within 1.
- (e) Remove the coatings from the sample using suitable solvents. Dry the fabric by heating it in an oven for sufficient time to insure removal of all solvent. Care should be taken to select time, temperature and solvent to insure that there is no deterioration of fabric.
- (f) Condition the samples at  $70 \pm 2^\circ\text{F}$  ( $21 \pm 1^\circ\text{C}$ ) and  $65 \pm 2$  relative humidity for 24 hours and then determine the average weight of the samples as described in (c) above.
- (g) Determine the area of the samples accurate to within 1 and compare with samples as determined in (d) above. The difference between the area of the conditioned samples before the removal of coating and the area of the conditioned fabric samples after the removal of the coating shall not be greater than 3.
- (h) Determine coating weight by deducting the average weight of the fabric (f) above from the average weight of the coated fabric (c) above. This value must be converted to ounces per square yard ( $\text{Kg}/\text{m}^2$ ) and compared to Table I.

7.1.2 Cold Crack Resistance - Testing as follows:

Cut a 2 in. x 8 in. (50 mm by 200 mm) specimen with the 8 in. (200 mm) dimension in the machine direction and cut another specimen with the 8 in. (200 mm) dimension in the cross machine direction. Condition the samples and a 0.5 in. (12.5 mm) mandrel at  $+20^\circ\text{F}$  ( $-7^\circ\text{C}$ ) for 30 minutes. After conditioning and without removal from the test conditions, the specimen shall be bent quickly around the mandrel, and the specimen shall meet not more than 0.25 in. (6 mm) behind the mandrel. The uncoated side shall contact the mandrel.

7.1.3 Shrinking Resistance - Three specimens 10 in. x 10 in. (250 mm x 250 mm) shall be accurately measured in each direction to the nearest 1/32 in. (0.5 mm). The specimens shall be soaked for 30 minutes in distilled water at room temperature, removed and dried at  $200^\circ\text{F}$  ( $87^\circ\text{C}$ ) for 30 minutes. The specimens shall then be conditioned at the standard conditions as provided in ASTM Specification D-751 for a minimum of 8 hours prior to remeasuring. The percent shrinkage in each direction shall be calculated using the following formula:

$$\text{Shrinkage} = [(A-B)/A] \times 100$$

Where A = Length before test.  
B = Length after test.

## **8. LENGTH AND WIDTH**

8.1 The nominal length and width shall be as agreed upon between purchaser and seller.

8.2 The length and width shall be within plus 3 minus 0 of the nominal length and width measured with a 1/16 in. (1 mm) calibrated tape. Measurements to be made with the wallcovering standard to its full length on a flat surface.

8.3 Widths shall be trimmed unless otherwise specified.

8.4 The minimum length of a piece shall be 9' unless otherwise specified.

## **9. PACKAGING**

9.1 The wallcovering shall be packaged in accordance with the supplier's standard practice.

### **IDENTIFICATION AND INSTALLATION**

(Not Part of Standard)

#### **IDENTIFICATION**

Statement suggested for use in representing products as conforming to all requirements of this Standard.

"This Type \_\_\_\_\_, \_\_\_\_\_ Duty, Class \_\_\_\_\_ vinyl coated fabric wallcovering for institutional and commercial use conforms in all respects to CFFA-W-101-B "Quality Standard for Vinyl Coated Fabric Wallcovering", revised in 1995. Full responsibility for the conformance to the Standard is assured by (name and address of producer or distributor)."

#### **INSTALLATION**

Vinyl coated fabric wallcovering for institutional and commercial use should be installed in strict accordance with the printed instructions of the manufacturer.