

**Recommended Minimum Performance Standards for  
VINYL-COATED AND OTHER CHEMICAL COATED UPHOLSTERY FABRICS - HEALTHCARE**

**1. Scope**

1.1 This document sets forth recommended performance standards for vinyl and other chemical coated fabrics produced with woven, non-woven, or knit substrates which are used as upholstery materials for indoor furniture in healthcare settings.

1.2 This performance standard is not applicable to vinyl or chemical coated fabrics used in outdoor applications.

1.3 This standard covers but is not limited to other chemical coatings widely used for upholstery such as urethane and acrylic.

**2. Applicable Documents\***

For applicable documents used in this performance standard, refer to CFFA Standard Test Methods Pamphlet, most recent Edition.

**3. Definitions**

Abrasion - Measurement of the ability of the chemical coating to resist surface wear when rubbed against another (abradent) surface.

Accelerated Exposure to Disinfectants - To determine surface changes, including color, gloss, or deterioration due to cracking, peeling, to hardening as a result of exposure to disinfectants.

Accelerated Light Aging - A determination of the resistance of chemical coated fabrics to exposure to laboratory simulated sunlight.

Adhesion - A measure of the force required to separate a chemical coating from the base substrate.

Blocking - A determination of the development of surface tack at elevated temperatures.

Cold Crack - A measure of the ability of a chemical coated fabric to withstand cracking when folded at low temperature.

Croaking - A measure of resistance to transfer of color from a chemical coating to another surface (usually a fabric) by rubbing action.

Denim Stain Resistance- To determine the resistance to transfer of color from denim fabric to a chemical coated fabric by rubbing action.

Flame and Smoke Resistance - To determine flammability and smoke generation.

Flex - A determination of the change in surface characteristics of a chemical coated fabric when subjected to multiple flex cycles.

Seam Strength - Simulates the resistance to seam tear propagation.

Stain Resistance - To determine 48-hour stain resistance using reagents commonly found in healthcare.

Tear Strength - A measurement of the force required to continue or propagate a tear in a coated fabric.

Tensile Strength - A measurement of the force required to break a coated fabric.

Volatility - A measurement of weight loss of a chemical coated fabric when subjected to an elevated temperature.

**TABLE 1**

PROPERTY	TEST METHOD	KNITS	NON-WOVENS	WOVENS
Abrasion: (Wyzenbeek) Healthcare / High Traffic ----- Healthcare/ Normal Traffic	CFFA 1a #10 Duck	100,000 cycles ----- 50,000 cycles	100,000 cycles ----- 50,000 cycles	100,000 cycles ----- 50,000 cycles
Accelerated Exposure to Disinfectants	CFFA 100	Slight Change	Slight Change	Slight Change
Accelerated Light Aging (indoor)	CFFA 2 <sup>1</sup>	No change	No change	No change
Adhesion	CFFA 3	3.0 lbs.	3.0 lbs.	3.0 lbs.
Blocking	CFFA 4	No Blocking Slight Adhesion (2)	No Blocking Slight Adhesion (2)	No Blocking Slight Adhesion (2)
Cold Crack	CFFA 6a <sup>2</sup>	No Cracking	No Cracking	No Cracking
Croaking: Dry & Wet	CFFA 7	Excellent (4)	Excellent (4)	Excellent (4)
Denim Stain Resistance	CFFA 70	Slight (8)	Slight (8)	Slight (8)
Flame and Smoke Resistance	CFFA 9	Pass	Pass	Pass
Flex	CFFA 10	25,000 Cycles No Appreciable Crazing	25,000 Cycles No Appreciable Crazing	25,000 Cycles No Appreciable Crazing
Seam Strength	CFFA 14	30 x 25 lbs.	35 x 35 lbs.	25 x 25 lbs.
Stain Resistance	CFFA 142	No stain (4)*	No stain (4)*	No stain (4)*
Tear Strength: Tongue Trap	CFFA 16b CFFA 16c	4 x 4 lbs. N/A	N/A 15 x 15 lbs.	4 x 4 lbs. N/A
Tensile	CFFA 17	50 X 50 lbs.	50 X 50 lbs.	40 x 40 lbs.
Volatility	CFFA 18 <sup>3</sup>	8%	8%	8%

<sup>1</sup>200 hours using a Weatherometer or Fadeometer, or 150 hours using a QUV - dry cycle

<sup>2</sup>Using a 5 lb. roller, 20° F (-6.6°C).

<sup>3</sup>Activated carbon technique, but at 220°F (104°C).

\*Surgical marker will result in slight ghosting

#### 4. Performance Requirements

4.1 Vinyl and other chemical coated upholstery fabrics are manufactured from natural and/or synthetic fibers chemically coated on one side to provide a durable, protective surface. Depending upon application, the coated fabrics will be colored, decorated and/or textured to provide an aesthetically pleasing appearance and feel.

4.2 Three coated fabric categories are included: knits, wovens and non-wovens. See Table 1 for minimum test values.

4.3 Properties described in [TABLE 1](#) for coated fabrics collectively make up the minimum performance standards. Depending upon specific tailoring and performance requirements, these properties should be used to select the construction of coated fabric most suited for each end use. Properties are measured using CFFA Standard Test Methods. All test methods are outlined in the CFFA Standard Test Methods pamphlet which describes their purpose and relates the properties tested to various aspects of performance.

4.4 The test results for coated fabrics, when tested in accordance with the CFFA Standard Test Methods, must attain the minimum values of all properties listed in [TABLE 1](#) for a given construction in order to conform to this standard.

#### 5. Test Procedures

5.1 [Abrasion Resistance](#) - See CFFA Standard Test Method 1a. Wyzenbeek Method using #10 Duck as abradent.

5.2 [Accelerated Exposure to Disinfectants](#) - See CFFA Standard Test Method 100 (see note 6.3).

5.3 [Accelerated Light Aging](#) - See CFFA Standard Test Method 2. 200 hours using a Carbon Arc or Xenon Arc Weatherometer or Fadeometer, or 150 hours using a QUV, dry cycle.

5.4 [Adhesion of Coating to Fabric](#) - See CFFA Standard Test Method 3. Use a Scott or Instron type Universal Tester.

5.5 [Blocking](#) - See CFFA Standard Test Method 4.

5.6 [Cold Crack Resistance](#) - See CFFA Standard Test Method 6a. Use a 5 lb. Roller.

5.7 [Crocking Resistance](#) - Dry & Wet. See CFFA Standard Test Method 7.

5.8 [Denim Stain Resistance](#) - See CFFA Standard Test Method 70. (Sometimes referred to as 'Reverse Crocking').

5.9 [Flame and Smoke Resistance](#) - See CFFA Standard Test Method 9.

5.10 [Flex Resistance](#) - See CFFA Standard Test Method 10. Use a Flexometer (Newark Flex) Test Unit.

5.11 [Seam Strength](#) - See CFFA Standard Test Method 14. Use a Scott or Instron type Universal Tester.

5.12 [Stain Resistance in Healthcare Environments](#) - See CFFA Test Method 142.

5.13 [Tearing Strength](#) - See CFFA Standard Test Method 16b and 16c. Use a Scott or Instron type Universal Tester.

5.14 [Tensile Strength](#) - See CFFA Standard Test Method 17. Use a Scott or Instron type Universal Tester.

5.15 [Volatility](#) - based on Activated Carbon Technique, except at 220°F. (104°C.). See CFFA Standard Test Method 18.

#### **Test Method Specifically for Hydrolysis Polyurethane Coated Fabrics**

5.16 [Hydrolytic Stability](#) - See CFFA Test Method 110.

#### 6. Notes

6.1 [Stretch and Set](#) - Stretch and set properties can affect 'puddling' in upholstered seating, a condition where a seat bottom will distort, with the coated fabric contributing to a depression or folds and wrinkles forming due to an inability to fully recover its original dimensions after being stretched. However, the prime causes of puddling are improper selection of the type of underlying urethane cushioning, and issues with seat design or construction. CFFA does not set a minimum performance standard for this property. See CFFA Standard Test Method 15.

6.2 [Mildew and/or Bacterial Resistance](#) - For healthcare applications, biological resistance requirements may be incorporated into the performance standard to address the needs of the customer. However, their use may have to be weighed against environmental restrictions specific to an institution. In healthcare applications (hospital, healthcare, etc.), biological resistance requirements may be incorporated into the specifications to meet the needs of the final customer.

6.3 [Accelerated Exposure to Disinfectants](#) - In some upholstery applications (hospital, healthcare, etc.) disinfectants are applied on a regular basis and may harm the surface by color or gloss change, cracking, peeling, or hardening. CFFA Standard Test Method 100 - Accelerated Exposure to Disinfectants can be added to the specific product specifications to determine resistance. However, it should be noted that failing to rinse properly or use disinfectants at proper dilution ratios can shorten the useful life of the product, and is the most common basis of complaints.

\*Test Methods may be accessed on line at: <http://cffaperformanceproducts.org/cffa-pages/publications.asp>

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