

**Recommended Minimum Performance Standards for  
POLYURETHANE UPHOLSTERY FABRICS - MARINE**

**1. Scope**

- 1.1 This document sets forth recommended performance standards for polyurethane coated fabrics produced with non-woven, knit or woven substrates which are used in marine upholstery material.
- 1.2 This specification is not applicable to polyurethane materials used in indoor applications.

**2. Applicable Documents\***

For applicable documents used in this specification, refer to the 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** - a determination of the ability of a coated fabric to resist surface deterioration when exposed to various types of disinfectants.

**Accelerated Light Aging** - A determination of the resistance of chemical coated fabrics to exposure of simulated sunlight under dry or humid conditions.

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

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

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

**Flex** - A determination of the change in surface appearance of a chemical coated fabric when subjected to multiple flexing cycles.

**Hydrolytic Stability** - A determination of the resistance of a urethane coated fabric to degradation from exposure to a warm, wet environment.

**Mildew Resistance** - A determination of the ability of a urethane film surface to resist fungal growth.

**Seam Strength** - A measurement to stimulate resistance to seam tearing.

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

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

**TABLE 1**

PROPERTY	TEST METHOD	KNITS & WOVENS	NON-WOVENS
Abrasion	CFFA 1a #10 Duck	25,000 Cycles, No Appreciable Wear	25,000 Cycles No Appreciable Wear
Accelerated Light Aging <sup>1</sup>	CFFA 2	No Appreciable Color Change	No Appreciable Color Change
Adhesion	CFFA 3	3.0 lbs.	3.0 lbs.
Cold Crack <sup>2</sup>	CFFA 6a	No Cracking	No Cracking
Crocking: Dry & Wet	CFFA 7	Good, Slight Transfer	Good, Slight Transfer
Flex	CFFA 10	25,000 Cycles, No Appreciable Cracking	25,000 Cycles, No Appreciable Cracking
Hydrolytic Stability	CFFA 110 CFFA 3 CFFA 1a CFFA 10	<b>Adhesion</b> 75% Retention <b>Abrasion</b> 25,000 Cycles <b>Flex</b> 15,000 Cycles	<b>Adhesion</b> 75% Retention <b>Abrasion</b> 25,000 Cycles <b>Flex</b> 15,000 Cycles
Mildew Resistance	CFFA 120	No Growth	No Growth
Resistance to Disinfectants	CFFA 100	Visual Inspection, Manual flex	Visual Inspection, Manual Flex
Seam Strength	CFFA 14	30 X 25 lbs.	35 X 35 lbs.
Tear: Tongue (Single Rip)Trap	CFFA 16b CFFA 16c	4 X 4 lbs. NA	NA 15 X 15 lbs.
Tensile Strength	CFFA 18	50 X 50 lbs.	50 X 50 lbs.

<sup>1</sup> 300 hours using a Xenon Arc Weatherometer, or 650 hours using a QUV, wet cycle.

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

#### 4. Performance Requirements

- 4.1 Polyurethane upholstery materials are manufactured from natural and/or synthetic fibers, coated with a urethane film or coagulant on one side to provide a durable, protective surface. Depending on the application, polyurethane upholstery will be colored, decorated and/or textured to provide an aesthetically pleasing appearance and feel, while maintaining minimum performance standards under appropriate consumer usage.
- 4.2 Properties described in [TABLE 1](#) for polyurethane upholstery collectively make up the minimum performance standards. Properties are measured using CFFA Standard Test Methods. All test methods outlined in the CFFA Standard Test Methods pamphlet describe their purpose and relate the properties tested to various aspects of performance. All test methods are performed in accordance with ASTM or CFFA Standard Test Methods.
- 4.3 The test results for polyurethane upholstery, 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** – See CFFA Standard Test Method 1. Wyzenbeek Method using #10 Duck as abradent.
- 5.2 **Accelerated Light Aging** – See CFFA Standard Test Method 2. 1,000 hours using a Carbon Arc Weatherometer, 300 hours using a Xenon Arc Weatherometer, 650 hours using a QUV, Wet Cycle.
- 5.3 **Accelerated Exposure to Disinfectants** – see CFFA Standard Test Method 100
- 5.4 **Adhesion of Coating to Fabric** – See CFFA Standard Test Method 3. Use a Scott or Instron type Universal Tester.
- 5.5 **Cold Crack Resistance** – See CFFA Standard Test Method 6a. Use a 5 Lb. Roller.
- 5.6 **Crocking Resistance** - Dry & Wet – See CFFA Standard Test Method 7. Use CFFA evaluation scale.
- 5.7 **Flex Test for Crazeing or Cracking** – See CFFA Standard Test Method 10.
- 5.8 **Hydrolytic Stability** – See CFFA Standard Test Method 110. 15 days exposure in an environmental chamber at 158°F. (70°C) and 95% relative humidity.
- 5.9 **Mildew Resistance** – See CFFA Standard Test Method 120. Exposure to a mixed fungal spore suspension for 28 days @ 82° F (28°C).
- 5.10 **Seam Strength** – See CFFA Standard Test Method 14. Use a Scott or Instron type Universal Tester.
- 5.11 **Tear Strength** – See CFFA Standard Test Method 16b - single tear for knits and non-wovens, and Method 16c for non-wovens. Use a Scott or Instron type Universal Tester for both.
- 5.12 **Tensile Strength** – See CFFA Standard Test Method 17. Use a Scott or Instron type Universal Tester.

#### 6. Notes

- 6.1 Stain Resistance – will vary depending on the coated fabric and particular staining agent(s) of concern. CFFA Standard Test Method 141, a or b, may be used to determine if the coated fabric meets the minimum value(s) agreed upon by the user and supplier.
- 6.2 Water Vapor Transmission is a measure of moisture permeability of a urethane coated fabric and is relevant for certain products and applications. CFFA Standard Test Method 19, Desiccant or Water Method, under several conditions of temperature and humidity, may be used. The minimum value is to be agreed upon by user and supplier.

\*Test Methods may be accessed on line at: <https://www.cffaperformanceproducts.org/publications.asp>

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