

TECHNICAL BULLETIN: 2010.02

Hydrolysis of **Pinnacle™** Performance Fabrics

Subject: Hydrolysis of **Pinnacle** Performance Fabrics
Designs included in this bulletin:

- *Antigua*
- *Cabo*
- *Cascade*
- *Serengeti*

Summary: OMNOVA Solutions manufactures a variety of urethane-coated fabrics used in a range of indoor environments including healthcare applications. This upholstery needs to be durable and perform when exposed to patients' body heat and moisture, without worrying about damage to the upholstery finish or delamination. OMNOVA's *Antigua*, *Cabo*, *Cascade* and *Serengeti* coated fabrics designs have been specifically designed to not delaminate due to hydrolysis related failures in indoor environments.

Hydrolysis: Hydrolysis is the transformation of a chemical compound by reaction with water/moisture. In coated fabric upholstery applications, hydrolysis can cause a faux leather surface to lose surface integrity or delaminate from its textile backing. This can be caused by a person's body heat and moisture after sitting on the upholstered surface for an extended period of time.

OMNOVA Solutions has tested the above designs against the industry standard and the requirements set forth in ASTM D3690 02 – *Standard Performance Specification for Vinyl-Coated and Urethane-Coated Upholstery Fabrics-Indoor*. This specification sets performance requirements for vinyl-coated and urethane-coated upholstery fabrics produced with woven, knit or nonwoven substrates which are used in the manufacture of new indoor furniture. This performance specification is not applicable to fabrics used in porch, deck or lawn furniture.

The referenced **Pinnacle** fabrics designs meet Grade A performance requirements set by in ASTM D3690 02, which specifies performance requirement grade levels including breaking strength, tack tear, coating adhesion, colorfastness to cracking and blocking as well as requirements for hydrolytic stability - adhesion, surface abrasion and resistance to flexing. The Grade A requirements are excerpted from ASTM D3690 02 and summarized in the table on the reverse side:

Performance Requirements ASTM D3690 02 (2009)

PROPERTY (MD × CD)	GRADE A
Breaking strength (lbf)	55 × 55
Tongue tear strength (lbf)	6 × 5
Tack tear resistance (lbf)	30 × 30
Adhesion (lbf/in)	3.0
Surface abrasion	No appreciable color change @ 200 cycles
Resistance to flexing	No cracking or delamination @ 15,000 cycles
Blocking @ elevated temperature	Rating 2, no blocking; coating adheres slightly
Crack resistance @ low temperature	No cracking @ -10° ± 1°F (-23° ± 1°C)
Colorfastness to cracking DRY and WET	Grade 4.0 min
Colorfastness to xenon light	Step 4 min
Loss of plasticizer	10% max
Hydrolytic stability*	Adhesion Surface abrasion Resistance to flexing
Flammability	Must maintain 75% of original strength No cracking or delamination @ 25,000 cycles No breaks in coating @ 15,000 cycles
	FMVSS-302 Pass NY/NJ Port of Authority Pass California Tech Bulletin, 117 Pass FAR 25.853A Pass BIFMA Pass UFAC Fabric, Class 1 Pass NFPA 260 Pass

*Hydrolytic stability details:

Exposure in laboratory chamber to temperature of 158° ± 2°F (70° ± 1°C) and relative humidity of 95 ± 5% for 15 days.

Testing is performed after 15 days of exposure:

Adhesion (% loss)

Surface abrasion (visual) – Wyzenbeek – cotton duck – 25,000 cycles.

Resistance to flexing (visual) – 15,000 cycles.

The referenced coated fabrics meet or exceed ASTM D3690 02 Grade A performance requirements in OMNOVA's internal analytical testing. Additionally, third party testing has verified the hydrolytic stability. Test results are available upon request.



For the latest designs, more information, or to order, contact OMNOVA Solutions:

866.332.5226

upholstery@omnova.com

www.omnova.com/pinnacle



OMNOVA Solutions Inc. • 175 Ghent Road • Fairlawn, OH 44333

Telephone: 330-869-4200 • www.omnova.com

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