Tedlar® SP

polyvinyl fluoride film

Highly Conformable Film for Aircraft Interiors

Introduction

Tedlar® SP polyvinyl fluoride (PVF) film is designed to provide excellent conformability to substrates while maintaining the superb durability, color stability, chemical resistance, and ease of cleaning expected of *Tedlar*® PVF film. *Tedlar*® SP also offers custom color capability not previously available in PVF film.

Tedlar® SP is an unoriented film. It possesses high elongation and moderate yield stress. After lamination using conventional means, it can be easily embossed and will maintain high pattern definition. *Tedlar*® SP can also be subjected to high levels of forming without significant recovery stresses.

An outstanding feature of *Tedlar*® SP is its availability as a multilayer film without resorting to adhesives or heat sealing. The *Tedlar*® SP process allows a pigmented base layer to be covered with an integral clear top layer. The resulting film can be laminated, formed, embossed, or otherwise converted as though it were a monolayer film. The gloss level and texture of the clear layer can be controlled by external means, such as using matte-finished molds and/or elevated temperatures.

Tedlar® SP provides the same high degree of protection now available with other *Tedlar*® films. Unique properties of *Tedlar*® PVF film include excellent resistance to weathering, outstanding mechanical properties, and inertness towards a wide variety of chemicals, solvents, and staining agents. The surface is easy to clean with a common cleaning agent or solvent. The clear top layer in multilayer films provides exceptional stain and coining resistance because the layer is virtually all polyvinyl fluoride polymer.

Tedlar® SP can be made in a wide range of colors and thicknesses. Most popular for aircraft interiors are 1-mil transparent films and 2-mil multilayer pigmented films. Representative physical properties are shown in **Table 1**. Suggested applications include deeply contoured parts requiring surface protection such as aircraft stow bins, sidewalls, and ceiling panels. Standard aircraft interior colors are available and custom colors can be developed upon request.

Table 1
Typical Properties of *Tedlar*® SP PVF Highly Conformable Film

Property	Test Method	2-mil Pigmented	1-mil Transparent
Unit Weight, g/m²	ASTM D4321-83	74	36 g/m²
Tensile Strength, MPa (kpsi)	ASTM D882-80	37 (5.5)	41 (6)
Elongation, %	ASTM D882-80	225	200
Shrinkage, % at 150°C (302°F)	ASTM D1204-78	2	2
Gloss 85°, 60°, 20°	Gardner	9.5, 12, 3	6, 16, 3
Haze, Internal	Gardner	N/A	2
Haze, Total	Gardner	N/A	44
Color, Delta E	—	1.0	N/A

Formability

The greater formability of *Tedlar*® SP PVF film is obtained by extending the ultimate elongation over a very broad range. *Tedlar*® SP is a versatile film that can be applied over a variety of substrates including Nomex® aramid fiber, polycarbonate, fiberglass-reinforced polyester ABS, and aluminum. Formable *Tedlar*® SP is manufactured in 1.0, 2.0, and 3.0 mil thicknesses. *Tedlar*® SP film typically draws 10–12 in over irregular shapes when sharp edges on the mold surfaces are avoided. It is recommended that film thickness and surface temperature be optimized for the depth of draw and part size. Film forming surface temperatures between 100–170°C (212–338°F) provide excellent form shapes. The elapsed time to reach the above temperature window is not important. However, it is possible to overheat the film. To avoid part failure by overheating during forming and to minimize part cost, the film or laminate surface temperature should not exceed 170°C (338°F).

Color

Designers will appreciate the wide range of color and gloss options available with *Tedlar*® SP. *Tedlar*® SP PVF film can be used alone or in accented texture color styling. Low luster *Tedlar*® SP multilayer film offers specular gloss in the 10–15 range at 85° Gardner scale, offering an excellent surface for silk-screen printing. Standard aircraft colors are available to provide a neutral background for a wide variety of accent colors.

Transparent *Tedlar*® SP is also available and can be laminated as a protective cap sheet over silk-screened base sheets to lock in their beauty. To maintain maximum draw, transparent *Tedlar*® SP is recommended on pigmented *Tedlar*® SP base sheets.

Adhesion

Tedlar® SP is supplied with different surface characteristics. Films are available as one-side adherable (A) or two-side adherable (B). Adherable surfaces are used with adhesives for bonding to a wide variety of substrates. These surfaces have excellent compatibility with many classes of adhesives, including acrylics, polyesters, epoxies, rubbers, and pressure-sensitive systems.

Cleanability

Tedlar® SP PVF films exhibit superior stain resistance and cleanability. Laboratory tests confirm that *Tedlar*® SP is resistant to staining agents and will not fade or streak even after heavy cleaning.

Fire and Smoke

Tedlar® is one of the safest materials designed for interiors of transportation vehicles. Tests at the University of San Francisco and Ohio State have been performed that verify the superior film performance versus all competitive products and industry standards.*

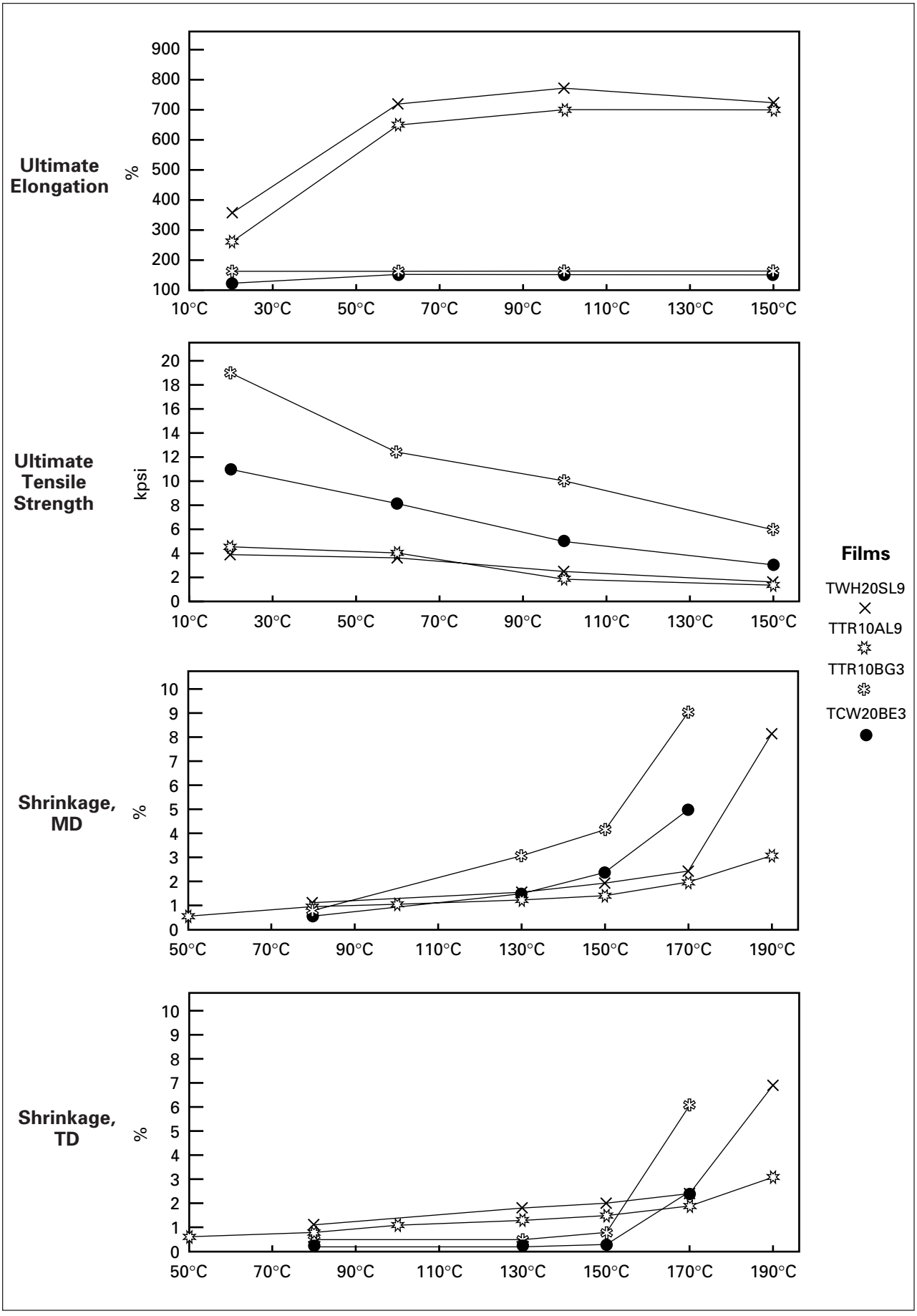
Abrasion Resistance

Comparative testing of aircraft laminate materials clearly demonstrates superior abrasion resistance of *Tedlar*® SP PVF film over other commonly used surfacing materials. This exceptional abrasion resistance makes it possible to replace heavyweight components in many interior applications.

---

*Journal of Combustion Toxicology, Vol. 3, by Carlos Hilado and others, August 1976.

Figure 1. Comparison of Properties—Highly Conformable vs. Standard Film



For more information, or to place an order, please contact:

DuPont *Tedlar*®
P.O. Box 88
Sheridan Drive and River Road
Buffalo, NY 14207-0088

(800) 255-8386

Fax: (716) 879-4545

Europe

DuPont de Nemours Int'l SA
2, chemin du Pavillon
P.O. Box 50
CH-1218 Le Grand-Saconnex
Geneva, Switzerland
(022) 7175111

Canada

DuPont Canada, Inc.
P.O. Box 2200, Streetsville
7070 Mississauga Road
Mississauga, Ontario, Canada
L5M 2H3
(905) 821-5180

Japan

DuPont Kabushiki Kaisha
Tedlar® PVF Film
4th Floor Chiyoda Honsha Bldg.
5-18, Sarugaku-cho 1-chome
Chiyoda-Ku, Tokyo 101 Japan
(011) 81-3-5281-3428

Asia Pacific

DuPont Asia Pacific Ltd.
TST P.O. Box 98851
1122 New World Office Bldg.
(East Wing)
Salsibury Road, TST
Kowloon, Hong Kong
(011) 852-3-734-5345

DuPont Singapore PTE Ltd.
1 Maritime Square #07-01
World Trade Center
Singapore 099253
65-273-2244

DUPONT®

Tedlar®

Only by DuPont

(10/95) 242172B Printed in U.S.A.
[Replaces: H-56692]
Reorder No.: H-56692-1