



www.ferrari-architecture.com

**PRECONSTRAINT®** 1002T2 back PVDF    **PRECONSTRAINT®** 1202T2 back PVDF    **PRECONSTRAINT®** 1002S-1202S-1302S-1502S back PVDF

Two surface treatment options available, depending on application (T2 or formula S). These Preconstraint® composite membranes benefit from exceptional characteristics especially developed for textile architecture.

- High performance light control and translucency
- Long term durability with unrivalled tear resistance
- Exceptional dimensional stability
- Lightweight
- Durable
- 100 % recyclable



# Textile architecture

**PRECONTRAI**  
**1002T2** back PVDF

**PRECONTRAI**  
**1202T2** back PVDF

**PRECONTRAI**  
1002S-1202S-1302S-1502S- back PVDF

## ■ PVDF treatment - unique know-how

Ferrari® is a leader in PVDF treatments for architectural textile membranes. The technology has been available for over 15 years and is available in a very extensive range to meet many performance requirements.

For PVDF to really come into its own as an anti-ageing agent with anti-pollution adhesion features, a calibrated formulation concentration is required. As Formula S is a weldable formulation, fabrication is easier. It is also available in a wide range of colors.



## ■ Formula S and back PVDF

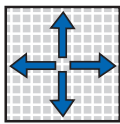


- Maintenance and cleaning are easy because Formula S contains a calibrated surface concentration of PVDF fluoropolymer. Moreover, PVDF treatment on the back provides the excellent anti-ageing qualities of fluoropolymer, without modifying fabrication procedures, and results in a better-looking finished product.
- Welding performance: with simple HF/RF welding, assembled sections stand up to high temperatures while bearing considerable tension.
- Color range: Formula S back PVDF is possible in the Précontraint® 502 range of color shades (except for aluminium and "metallic"). Other color shades upon request after studying the UV behaviour.

## ■ Technical features



Précontraint®  
Ferrari®



Dimensional  
stability



Long life



U.V.  
resistant



Flame  
retardant



Easy  
maintenance



100%  
recyclable textile



12 Year  
Warranty



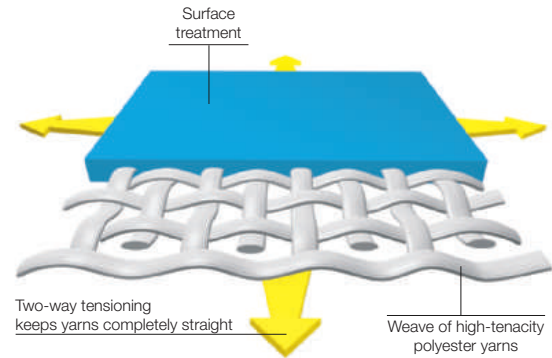
15 Year  
Warranty



## The exclusive **Précontraint® Ferrari®** technology

Worldwide patented Ferrari® Précontraint® technology consists of pre-stressing the textile base cloth both before and during the coating process. Unlike traditional textiles, Ferrari® Précontraint® membranes are subjected to regular and balanced tension, both warpwise and weftwise which results in similar elongation characteristics in both directions.

This technology results in unrivalled dimensional stability • limited creep over time • longer life • performance homogeneity from batch to batch.



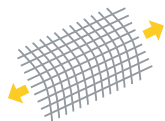
Ferrari® Précontraint® textiles respect the weft yarn direction which stays identical from one batch to the other.



Précontraint® textiles have very low crimp, that is similar in both warp and weft direction.



Précontraint® 702



Conventional coated textiles exhibit serious deformation of the weft yarn which in addition vary greatly from one batch to the other.



Conventional coated textiles present a high level of crimp in the weft direction.

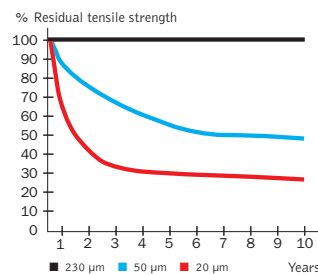


Type I classic coated textile

- **Longevity:** because Ferrari® Précontraint® membranes have thicker coating at the top of the yarns, they keep their qualities of mechanical resistance for a long time — a key factor in the long durability of your installations.

- **Homogeneity:** Major textile architectural projects or those that are targeting a level of standardization for industrial applications, are carried out using modules or panels that are reproduced in several units. It is therefore essential that the compensation calculations and cutting plans made from a set of values are reliable for all the fabric batches used. The Précontraint® technology guarantees this uniformity.

- **Limited creep:** The Précontraint® technology controls the weft direction and significantly reduces the creep phenomenon which appears to be 3 to 4 times higher with conventional fabrics. With Précontraint® textiles, the initial shape of the membranes is therefore controlled and maintained over time.



An independent ENKA study of three textiles (all the same material but with different degrees of coating thickness at the top of the yarns). Exposure to in natural conditions over a period of 10 years in Florida, USA.



**Airbus hangar, 1982**  
Germany — Précontraint® 1302  
Resistance to traction after 22 years:  
Warp 97 % - Weft 84 %



**Exhibition marquee, 1982**  
Port Saint Louis — Précontraint® 1302  
Resistance to traction after 18 years:  
Warp 86 % - Weft 76 %

# Textile architecture

## PRECONTRAIT® 1002T2 back PVDF

## PRECONTRAIT® 1202T2 back PVDF

| Technical specifications     | Precontrait®<br>1002 T2 back PVDF  | Precontrait®<br>1202 T2 back PVDF   | Standards                                 |
|------------------------------|--|---|---|
| Weight                       | 31 oz/sqyd   | 31 oz/sqyd  | EN ISO 2286-2                             |
| Width                        | 70 inches  | 70 inches   | (-1 mm/+1 mm)                             |
| Tensile strength (warp/weft) | 480/450 Lbs/inch   | 565/565 Lbs/inch  | ASTM D 751-00 P.16<br>Cut Strip Method    |
| Tear strength (warp/weft)    | 105/100 Lbs  | 130/110 Lbs   | ASTMD 751-00 P.37<br>Trapezoid TearMethod |
| Adhesion                     | 12 daN/ 5 cm   | 12 daN/ 5 cm  | EN ISO 2411                               |
| Flame retardancy             | <b>Class C</b> /ASTM E108 • ASTM E84<br><b>Test 2</b> /NFPA 701 • CSFM T19 • <b>VKF 5.2</b> /SN 198898<br><b>M2</b> /NF P92-507 • <b>B1</b> /DIN 4102-1<br>BS 7837 | <b>Test 2</b> /NFPA 701 • CSFM T19<br><b>Group 2</b> /AS/NZS 3837<br><b>VKF 5.2</b> /SN 198898 • <b>B1</b> /DIN 4102-1<br>BS 7837 |   |
| Surface treatment            | Fluotop® T2 (High concentration PVDF)  | Fluotop® T2 (High concentration PVDF)   |   |
| Back side treatment          | Weldable PVDF (for a better resistance to pollution of the back side of the fabric)  | Weldable PVDF (for a better resistance to pollution of the back side of the fabric)   |   |
| Product application          | Static & permanent structures  | Static & permanent structures   |   |

PVDF back treatment has the advantage of excellent anti-ageing qualities of fluoropolymer, without modifying fabrication and resulting in better-looking finished product, seen from any angle.

## PRECONTRAIT® 1002S-1202S-1302S-1502S

| Technical specifications     | Precontrait®<br>1002 S back PVDF  | Precontrait®<br>1202 S back PVDF  | Precontrait®<br>1302 S back PVDF  | Precontrait®<br>1502 S back PVDF   | Standards                                 |
|------------------------------|---|---|---|--|---|
| Weight                       | 31 oz/sqyd  | 31 oz/sqyd  | 40 oz/sqyd  | 44 oz/sqyd   | EN ISO 2286-2                             |
| Width                        | 70.87 inches  | 70.87 inches  | 70.87 inches  | 70.87 inches   | (-1 mm/+1 mm)                             |
| Tensile strength (warp/weft) | 480/450 Lbs/inch  | 565/565 Lbs/inch  | 880/740 Lbs/inch  | 1250/950 Lbs/inch  | ASTM D 751-00 P.16<br>Cut Strip Method    |
| Tear strength (warp/weft)    | 105/100 Lbs   | 130/110 Lbs   | 155/130 Lbs   | 240/200 Lbs  | ASTMD 751-00 P.37<br>Trapezoid TearMethod |
| Flame retardancy             | <b>Test 2</b> /NFPA 701<br>CSFM T19 • <b>Class A</b> /ASTM E84<br><b>Class C</b> /ASTM E108 • <b>M2</b> /UNE 23.727<br>SITAC/ETA/SIS 650082<br><b>VKF 5.2</b> /SN 198898<br><b>M2</b> /NF P 92-507<br><b>B1</b> /DIN 4102-1 • BS 7837 | <b>Test 2</b> /NFPA 701<br>CSFM T 19<br>SITAC/SIS 650082<br><b>VKF 5.2</b> /SN 198898<br><b>B1</b> /DIN 4102-1<br>BS 7837 | <b>Test 2</b> /NFPA 701<br>CSFM T 19<br>SITAC/SINTEF/SIS 650082<br><b>VKF 5.3</b> /SN 198898<br><b>B1</b> /ONORM B 3800-1<br><b>B1</b> /DIN 4102-1<br>BS 7837 | <b>Test 2</b> /NFPA 701 • CSFM T 19<br>SITAC/SINTEF/ETA/SIS 650082<br><b>B1</b> /DIN 4102-1<br>BS 7837 |   |
| Surface treatment            | Formula S: calibrated PVDF alloy  |   |   |  |   |
| Back side treatment          | Weldable PVDF (for better resistance to pollution on the reverse side of the fabric).   |   |   |  |   |

PVDF back treatment has the advantage of excellent anti-ageing qualities of fluoropolymer, without modifying fabrication and resulting in better-looking finished product, seen from any angle.

### 100% recyclable

Ferrari® developed the Taxyloop® technology specifically for the recycling of composite PVC membranes and textiles. Through the management of its end-of-life products Ferrari® is committed to sustainable development.  
[www.taxyloop.com](http://www.taxyloop.com)

### Sustainable development

Ferrari® development is based on strict adherence to good safety and environmental practices, that include an understanding of Life Cycle Analysis (LCA), selection of the best materials, and eco-design.  
The Company obtained its first ISO 14001 certification in 2003.

### Specification service

The Ferrari® specification service is available to inform you, advise you and suggest innovative solutions for your specific requirements.

To detail your project, fill in a form under:  
[www.ferrari-architecture.com](http://www.ferrari-architecture.com)

CSI Specifications Available

# FERRARI



#### EUROPE

FERRARI SA  
La Tour du Pin - FRANCE  
Tel: +33 (0)4 74 97 41 33  
Fax: +33 (0)4 74 97 67 20

STAMOID AG  
Eglisau - SWITZERLAND  
Tel: +41 (0)44 868 26 26  
Fax: +41 (0)44 868 27 27

#### EAST EUROPE

FERRARI RUSSIA  
Moscow - RUSSIA  
Tel: +7 495 933 65 72  
Fax: +7 495 933 65 81

#### NORTH AMERICA

FERRARI TEXTILES CORP.  
Florida - USA  
Tel: +1 954 942 3600  
Fax: +1 954 942 5555

#### LATIN AMERICA

FERRARI LATINOAMERICA S.A.  
Santiago - CHILE  
São Paulo - BRAZIL  
Tel/Fax: +56 2 264 1543

#### MIDDLE EAST

FERRARI DUBAI  
Dubai - U.A.E  
Tel: +971 4 886 5506  
Fax: +971 4 886 5507

#### ASIA - PACIFIC

FERRARI HONG-KONG LTD  
HONG-KONG  
Tel: +852 3622 1340  
Fax: +852 3622 1354

#### CHINA

FERRARI CHINA  
Shanghai  
Tel: +86 21 6211 6012  
Fax: +86 21 6211 6389