

## ST/FROST



### Description

Self-adhesive plotter vinyl designed for cut characters, logos and graphics. Ideal for elegant decorations with a frosted effect on glass and mirrors. When exposed to direct sunlight the effect is greatly enhanced. Suitable for external and internal use. You can say "The vinyl applied on the window allows light diffusion avoiding direct sun light in the room". Fire resistance B-S2-D0 in accordance with the European classification. The vinyl is suitable for wet and dry applications.

**Colours:** transparent, green, pink, light blue, gold and yellow.

### Technical information

#### Technical data

<b>Film:</b>	Calendered P.V.C.
<b>Film Thickness (without adhesive):</b>	80 +/- 3% µm (Op. Istr. n° 4).
<b>Liner:</b>	clay coated paper 1 side siliconised.
<b>Release:</b>	70 +/- 30 cN/20mm.
<b>Adhesive:</b>	ultra-permanent acrylic high cohesion and transparency.
<b>Grammage:</b>	25 +/- 5 g/m2.
<b>Adhesion after 20 min.:</b>	min. 400 N/m. Peel 180° at 20°C on steel (Op. Istr. n° 7).
<b>Adhesion after 72 h. :</b>	min. 700 N/m. Peel 180° at 20°C on steel (Op. Istr. n° 7).
<b>Method of application:</b>	dry or wet.
<b>Application temperature:</b>	suggested between 10° and 28°C.
<b>Shrinkage:</b>	< 0,2 mm after 48 h. at 70°C on steel (Op. Istr. n° 8).
<b>Temperature resistance:</b>	from -40°C to +80°C adhered to steel no variation (Op. Istr. n° 15).
<b>Reaction to fire classification:</b>	B-S2-D0 (Standard EN 13501-1:2007+A1 Classification report CSI n° 0626DCREA14_3).
<b>Seawater resistance:</b>	adhered to steel no variation after 100 h. at 20°C (Op. Istr. n° 14).

## Average expected lifetime

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The data below refer to the film as it is, applied on a standard flat surface and not taking into consideration the final application. Therefore, they are indicative values intended only as a source of information, and do not constitute a guarantee.

Life estimates are determined on the basis of the results of UV and Xenon accelerated aging lab tests which simulate some conditions when unprocessed, non shaped, non printed film is submitted/**exposed vertically** (+/- 10% from the vertical) and in weather conditions typical of **Central Europe, correctly applied** on a flat surface.

### Factors which drastically reduce the film's expected lifetime:

- horizontal/oblique exposure (angle greater than +/-10 ° from the vertical).
- exposure to long periods of sunlight as in southern climatic regions, areas characterised by high temperatures, high altitudes or high pollution.
- exposure facing towards the sun.
- imperfect application.
- excessive film deformation.
- Improper cleaning and maintenance (use of aggressive detergents, scratches, abrasions and contaminations that may occur during installation or the lifetime of the product).
- surfaces subject to high temperatures.

**The actual lifetime of a product depends on several factors**, including the quality and the preparation of the surface, exposure (environment, weather, exposure angle), film maintenance, pollution. **Therefore, only the operator can determine the suitability of the product and its expected lifetime.**

In order to extend as much as possible the film's lifespan, we recommend following the instructions for Application, Cleaning and Maintenance set out below in this data sheet.

### Data from lab testing (UV - XENON TEST):

7 years.

## Storage

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2 years, film must be kept warehoused at room temperature (20°C / 50% R.H.) suspended horizontally or placed in a vertically upright position in polythene bag.

## Note

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The values and the data given are based on tests we believe to be reliable and are typical values intended only as a source of information, and do not constitute a guarantee. **Purchasers must independently determine, before use, the suitability of the material for their own specific use and under their own operating conditions** with the aim to determine if the APA product is suited for the specific goal and is furthermore suited for the use and the pre-selected application-method.

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## General information

### Warranty / exclusions of liability

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APA materials are guaranteed to be free from all manufacturing defects.  
In the event of ascertained defectiveness of the product, APA shall replace the materials used upon manufacturing the decorations.  
APA shall not be liable for any additional costs, such as the work necessary for reprinting the design, the losses related to production time, the costs for removing or re-applying

the graphics. APA, in addition, does not assume responsibility for the replacement of materials not produced by APA.

**A.P.A. SpA cannot be held responsibility for any damages other than the substitution of the goods.**

APA guarantees to maintain the interval of the variability of the colours of its products in the best possible way, using instrumental and visual checks.

To avoid colour variation, all the parts of the vinyl applied have to belong to the same production batch. It is also the case for decorations that are required for a long duration of time, updating or improvements of the decoration. Therefore, it is recommended to ask beforehand for the required material, belonging to the same production batch.

The feature of a metal colour depends of the angle of vision of the products. For a uniform colour all parts must be applied maintaining the same direction of orientation.

No salesman, representative, agent or distributor has authority to supply data different from those reported in this Technical Data Sheet. To make improvements all products may be modified without prior notice.

For a safe use of the self-adhesive materials by A.P.A. it is recommended to read the dedicated safety information.

For a safe use of the cleaners mentioned in this data sheet it is recommended to read the dedicated safety sheets.

#### **Plotter cut, peeling and transport**

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Film quality cut depends strictly on the type of plotter used, the user conditions, the plotter blade, and on the cut pressure exercised on the blade. Therefore, it is important to know the characteristics of your own tool equipment and make prior cut test on film with the blade in good conditions.

**For an optimal weeding, the regulation of the blade cut depth should produce a slight liner incision.**

A light pressure causes an incomplete film cut.

An excessive cut causes the net liner cut with consequent problems of plotter trail, characters lifting and excessive blade usage.

**We recommend to weed just after the cut or within the shortest possible time.**

This avoids a reunification of the adhesive with consequent weeding difficulties.

In order to transport the graphics from the liner to the surface to be decorated, we suggest the use of an Application Tape with a medium-strong adhesive capability. If necessary, to facilitate the detachment, turn over the cut graphic on the table with the liner facing upward and pull the liner instead of the tape.

#### **Application**

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**The film is conceived for a highly professional use.**

**The staff that apply the vinyl must possess the requirements and the training necessary.**

**The film is suitable for applications on glass and acrylic panels, opaque and transparent.**

Before making the decoration always make a compatibility test between the self-adhesive film and the surface to be decorated.

Make a general cleaning of the surface with liquid cleanser and ensure that all oils, waxes or other residuals, including those made by the cleaning, are removed, failure to do so could compromise the film adherence and cause a detachment over time.

We do not recommend application on polycarbonate sheets as the emission of volatile substances may detach the film.

It is recommended to apply the film in a room with a temperature between 10 and 28°C.

**The film is applicable both in dry and water.**

## **Cleaning the vinyl**

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Use water with soft cloths and non-aggressive detergents.

**Do not use rough sponges and cloths, abrasive creams or very strong solvents.**

Cleaning with unsuitable products and tools could cause a premature deterioration of the vinyl. To remove ground in dirt, we advise the use of the quick cleaner APA CLEANER FILM and water. **Do not use wax or polishing products** which, in addition to being difficult to remove, may alter or accelerate the deterioration of the film.

Some films with high pigment content may leave a light coloured mark on the cloth upon cleaning. This event is normal, and becomes more visible if the film is rubbed vigorously or cleaned with detergents containing solvent. So as not to alter the appearance of the film, we recommend cleaning the surface gently and evenly.

If water under pressure is used for cleaning, never aim the jet at the edges of the film because the force of the water could lift it or detach it. However the nozzle must be perpendicular and never oblique to the surface to be cleaned and at least 1 meter away.

## **Maintenance**

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The surface of the vinyl is delicate and therefore should be treated with care. Avoid rubbing against objects that could cause scratches or ripping of the vinyl beyond repair. An extended exposition to solar rays and to atmospheric agents could provoke a premature aging of the film, especially for the parts exposed horizontally or to the south.

**In conclusion, we recommend protecting the decorated surface from the sun and the elements to the greatest extent possible.**

If a film deterioration should arise, for example, fading, change of colour or become brittle, then an immediate removal is recommended.

**For a good maintenance of the vinyl regular cleaning is recommended.** To maintain the original finish of the vinyls with clear colours it is essential not to allow dirt to accumulate.

## **Removal**

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During the removal process it is important to apply heat with a heat gun to the self-adhesive vinyl.

The operations of the vinyl removal are conditioned by many factors, such as the time passed from the application, exposure of the decoration either outdoors or indoors, type of surface, temperature of the room and of the surface, etc... **Therefore it is difficult to quantify and determine General Data the speed and execution time of the removal by A.P.A. S.p.A.**

Should glue traces remain on the surface, these can easily be removed with the ready-for-use liquid APA REMOVER. Before using APA REMOVER always test the compatibility of the product on a corner of the surface which has to be cleaned.

**The company APA cannot be held responsible of any damage caused during the removal phase and/or damages of the surface upon which the film has been applied.**

CSI SpA  
Certificazione e Testing

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Mutual Recognition Agreements

## RAPPORTO DI CLASSIFICAZIONE CLASSIFICATION REPORT 0626\DC\REA\14\_3

Rapporto di classificazione di reazione al fuoco del prodotto

*Reaction to fire classification report of product* ..... : **FILM CALANDRATO CON  
ADESIVO  
ULTRAPERMANENTE**

Descrizione

*Description* ..... : **Vedi pag. 2 / see page 2**

Per conto di

*On behalf of* ..... : **A.P.A S.p.A.**

Indirizzo

*Address* ..... : **Via Marradi, 1  
20123 Milano**

Norma tecnica: EN 13501-1 - Classificazione al fuoco di prodotti ed elementi da costruzione -  
**Parte 1: Classificazione sulla base dei dati di prova derivati da prove di reazione al fuoco**  
*Technical standard: EN 13501-1 Fire classification of construction products and building  
elements - Part 1: Classification using test data from reaction to fire tests*

Data / Date ..... : **04/09/2014**

## 1. DATI GENERALI / *GENERAL DATA* :

Identificazione delle norme di riferimento / *Standard reference identification*:

- EN 13501-1:2007+A1 - Classificazione al fuoco di prodotti ed elementi da costruzione - Parte 1: Classificazione sulla base dei dati di prova derivati da prove di reazione al fuoco
- EN 13501-1:2007+A1 *Fire classification of construction products and building elements - Part 1: Classification using test data from reaction to fire tests.*
- EN ISO 11925-2:2010 Prove di reazione al fuoco prodotti edilizi - parte 2 - innesco quando soggetto al diretto contatto della fiamma
- EN ISO 11925-2:2010 *Reaction to fire tests for building products - part. 2 -ignitability when subjected to direct impingement of flame.*
- EN 13823:2010 Prove di reazione al fuoco prodotti edilizi - Prodotti edilizi escluse le pavimentazioni esposti ad un attacco termico di un singolo elemento in combustione
- EN 13823:2010 *Reaction to fire tests for building products \_ Building products excluding floorings exposed to the thermal attack by a single burning item.*

## 2. IDENTIFICAZIONE DELLE PROCEDURE / *PROCEDURES IDENTIFICATION*

- Procedura normalizzata / *Standard procedure* : ..... : **SI / YES**
- Controllo calcoli e trasferimento dati / *Calculation and data transfer check* ..... : **SI / YES**

## 3. DETTAGLI DEL PRODOTTO CLASSIFICATO / *DETAILS OF CLASSIFIED PRODUCT*

### 3.1 Natura e impiego / *Nature and end use application* :

Il prodotto **FILM CALANDRATO CON ADESIVO ULTRAPERMANENTE** è definito come un rivestimento murale decorativo. La sua classificazione è valida per le seguenti condizioni di impiego:

*The product **FILM CALANDRATO CON ADESIVO ULTRAPERMANENTE** is defined as a decorative wallcovering. Its classification is valid for the following end use application(s):*

- Rivestimento parete – Incollato su supporto incombustibile o cartongesso
- *Wall covering – Glued on non combustible substrate or gypsum plasterboard*
- Rivestimento soffitto – Incollato su supporto incombustibile o cartongesso
- *Ceiling covering – Glued on non combustible substrate or gypsum plasterboard*

### 3.2 Descrizione / *Description*:

Il prodotto **FILM CALANDRATO CON ADESIVO ULTRAPERMANENTE** è compiutamente descritto nei rapporti di prova in sussidio della classificazione elencati in 5.1

*The product **FILM CALANDRATO CON ADESIVO ULTRAPERMANENTE** is fully described in the test reports in support of the classification listed in 5.1.*

## 4. DICHIARAZIONI / *DECLARATIONS*

- Questo rapporto di classificazione definisce la classificazione assegnata al prodotto indicato in copertina secondo le procedure stabilite nella norma EN 13501-1 /
- *This classification report defines the classification assigned to the product mentioned on the cover in accordance with the procedures given in EN 13501-1.*
- I risultati di prova contenuti nel presente rapporto di classificazione si riferiscono esclusivamente al campione provato
- *Test results contained in this classification report relate only to the specimens tested.*
- Il presente rapporto di prova non può essere riprodotto parzialmente senza l'autorizzazione del Responsabile di Laboratorio
- *The test report shall not be reproduced except in full without the written approval of the Managing Director.*

## 5. RAPPORTI DI PROVA E RISULTATI DI PROVA IN SUPPORTO DI QUESTA CLASSIFICAZIONE

### TEST REPORTS AND TEST RESULTS IN SUPPORT OF THIS CLASSIFICATION

#### 5.1 Rapporti di prova / test reports

Nome del laboratorio / Name of laboratory	Nome del Committente / Name of sponsor	Numero di Identificazione del rapporto di prova / Test report ref. No.	Metodo di prova / test method
CSI S.p.A.	A.P.A S.p.A.	0626/DC/REA/14_1	EN 13823
CSI S.p.A.	A.P.A S.p.A.	0626/DC/REA/14_2	EN ISO 11925-2

#### 5.2 Risultati di prova per prodotti da costruzione esclusi i pavimenti

Test results for construction products except floorings

Metodo di prova  <i>Test method</i>	Parametro  <i>Parameter</i>	Numero di prove  <i>Number of tests</i>	Risultati / <i>Results</i>	
			Parametri continui media / <i>Continuous parameter average</i>	Parametri di conformità / <i>Compliance parameter</i>
EN ISO11925-2				
Attacco della fiamma in superficie <i>Surface flame attack</i>	Fs ≤ 150 mm	6	(-)	S / Y
Applicazione 30 s / 30 s exposure	Fs ≤ 150 mm	6	(-)	S / Y
Attacco della fiamma all'estremità <i>Edge flame attack</i>	Innesco della carta da filtro/ <i>Ignition of the filter paper</i>	12	(-)	N / N
Applicazione 30 s / 30 s exposure				
Gocce/parti accese / <i>Flamig droplets/particle</i>				
EN 13823				
	FIGRA <sub>0,2MJ</sub>	3	0	(-)
	FIGRA <sub>0,4MJ</sub>		0	(-)
	LFS < Edge		(-)	S / Y
	THR <sub>600s</sub> [MJ]		0,6	(-)
	SMOGRA [m²/s²]	3	14,3	(-)
	TSP <sub>600s</sub> [m²]		57,8	(-)
	Gocce/parti accese <i>Flaming droplets/particles</i>	3	(-)	N / N





## 6. CLASSIFICAZIONE E CAMPO DIRETTO DI APPLICAZIONE *CLASSIFICATION AND DIRECT FIELD OF APPLICATION*

### 6.1 Riferimenti e campo diretto di applicazione / *Reference and direct field of application*

Questa classificazione è stata condotta conformemente alla clausola 8.2 della EN 13501-1:2007+A1.  
*This classification has been carried out in accordance with clause 8.2 of EN 13501-1: 2007+A1.*

### 6.2 Classificazione / *Classification*

Il prodotto **FILM CALANDRATO CON ADESIVO ULTRAPERMANENTE** in relazione al suo comportamento alla reazione al fuoco è classificato:  
*The product FILM CALANDRATO CON ADESIVO ULTRAPERMANENTE in relation to its fire reaction behaviour is classified.*

**B**

La classificazione aggiuntiva in relazione allo sviluppo di fumo è:  
*The additional classification in relation to smoke production is:*

**s2**

La classificazione aggiuntiva in relazione alle gocce/particelle accese è:  
*The additional classification in relation to flaming droplets/particles is:*

**d0**

Il formato per la classificazione di reazione al fuoco per i prodotti da costruzione eccetto i pavimenti è la seguente:  
*The format of the reaction to fire classification for construction products except flooring is:*

Comportamento al fuoco <i>Fire behaviour</i>		Sviluppo di fumo <i>Smoke production</i>			Parti infiammate <i>Flaming droplets</i>	
<b>B</b>	<b>-</b>	<b>s</b>	<b>2</b>	<b>-</b>	<b>d</b>	<b>0</b>

### 6.3 Campo di applicazione / *Field of application*

Questa classificazione è valida per le seguenti condizioni di impiego /  
*This classification is valid for the following end use conditions:*

- Incollato su supporto incombustibile o cartongesso  
*Glued on non combustible substrate or gypsum plasterboard*
- Senza cavità  
*Without gap*
- Tipo di fissaggio: incollato  
*Type of fixings: glued*





Questa classificazione è anche valida, per i seguenti parametri del prodotto /  
*This classification is also valid, , for the following product parameters:*

- Colore: qualsiasi  
*Colour: any*
- Altre denominazioni commerciali incluse:  
*Other trade names included:*  
SERIE NW  
SERIE S  
SERIE FS  
SERIE T  
SERIE ST  
SERIE AP (prodotti con processo di calandratura e dotati di adesivo ultrapermanente / *manufactured with calendering and with ultrapermanent adhesive*)  
SERIE L (prodotti con processo di calandratura e dotati di adesivo ultrapermanente / *manufactured with calendering and with ultrapermanent adhesive*)

## 7. LIMITAZIONI / *LIMITATIONS*

### 7.1 Avvertimento / *Warning*

Questo documento non rappresenta un'approvazione di tipo od una certificazione del prodotto  
*This document does not represent type approval or certification of the product.*

La classificazione assegnata al prodotto in questo rapporto è relativa ad una dichiarazione di conformità del fabbricante nel contesto del sistema 3 di attestazione di conformità e marcatura CE ai sensi della regolamento sui prodotti da costruzione.

Il fabbricante ha presentato una dichiarazione, che è conservata in archivio. Questo conferma che il progetto del prodotto non richiede specifici processi, procedure o fasi (p.e. senza aggiunta di ritardanti di fiamma, limitazione del contenuto organico, o aggiunta di cariche) che sono diretti a migliorare la prestazione al fuoco per ottenere la classificazione ottenuta. Come conseguenza il fabbricante ha concluso che il sistema 3 di attestazione è appropriato. Il laboratorio di prova, pertanto, non ha svolto alcun ruolo nel campionamento del prodotto per la prova, anche se conserva riferimenti appropriati, forniti dal fabbricante, a fornire la tracciabilità dei campioni provati.

*The classification assigned to the product in this report is appropriate to a declaration of conformity by the manufacturer within the context of system 3 attestation of conformity and CE marking under the Construction Products Regulation.*

*The manufacturer has made a declaration, which is held on file. This confirms that the products design requires no specific processes, procedures or stages (e.g. no addition of flame-retardants, limitation of organic content, or addition of fillers) that are aimed at enhancing the fire performance in order to obtain the classification achieved. As a consequence the manufacturer has concluded that system 3 attestation is appropriate.*

*The test laboratory has, therefore, played no part in sampling the product for the test, although it holds appropriate references, supplied by the manufacturer, to provide for traceability of the samples tested.*

DATA  
*Date*

04/09/2014

RESP. DIVISIONE  
*Division Head*

Paolo Mele

RESP. DEL CENTRO  
*Managing Director*

Raoul Gatti