

## **Architectural Fusions Care & Maintenance**

*Includes Belbien, Reatec and LG Benif Interior Films*

In most all cases, the stains can be easily cleaned off by using a household cleaner such as dishwashing liquid. In other cases, a solution of denatured alcohol will generally remove the stain. For severe stains, it is possible to use lacquer thinner or acetone in some instances.

**Note:** It is highly advisable to test any strong solvent's compatibility with the fusion in an inconspicuous area prior to applying the solvent to a visible area. Read the following topics for solvent resistance. **It is important to refrain from using abrasive cleaners on any vinyl fusion because it could damage the surface.**

## **Custom Printed Graphic Architectural Fusions**

It is recommended to clean printed films with a damp rag using water. If a cleaning solution is needed, a non-abrasive cleaner such as Windex should be used. **Use of harsh or abrasive chemicals such as denatured alcohol may damage the printed image.**

## **Solvent Resistance**

The exterior series is more resistant to strong solvents than the Interior series. This is because of an anti-corrosive film layer that is incorporated with the exterior series.

The anti-corrosive film layer is comparable in nature to the makeup of fluoride or Teflon. However, it is important to refrain from making a "direct comparison" because they are somewhat different.

The following solvents were exposed to the exterior series and appreciable change was observed.

- Toluene
- MEK (Methyl Ethyl Ketone)
- Acetone

*If you have any questions regarding care or maintenance of the Fusions product,  
please contact Surfacequest Solutions at 952-835-2880*

# REATEC Technical Information

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## Physical Description

REATEC is a durable, realistic and flexible architectural film backed by a pressure sensitive adhesive with an integrated air removal system, intended for applications to hard, non-porous surfaces.

## Material Standards

- Roll Width - 122cm (48" ) Roll Length: 50m (164' ) Cut meter lengths are available upon request.
- Nominal Thickness: approx. 0.2mm nominal (8.5 mils)
- Base Chemical Composition: Poly Vinyl Chloride (PVC)

## Installation Environment

A. Lowest Acceptable Temperature for Installation

12°C (54°F)

B. Ideal Temperature for Installation

20°C - 25°C (68°F - 77°F)

C. Do Not Exceed Surface Temperature for Installation 29°C (85°F)

## Storage Conditions

Product should be stored immediately upon receipt, below 38°C (100°F), avoiding direct sunlight and high humidity. Use within 1 year of purchase.

## Fire Safety Criteria

ASTM E-84 (Standard Method of Test for Surface Burning Characteristics of Building Materials) - All REATEC finishes meet Class A rating.

ANSI/UL 10B, "Fire Test of Door Assemblies." - Edition 10 - Revision Date 2009/04/13

ANSI/UL 10C, "Positive Pressure Fire Test of Door Assemblies." - Edition 2 - Issue Date 2009/01/26 CAN/ULC-S104, "Standard Method for Fire Tests of Door Assemblies." - Edition 3 - Issue Date 2010/07/01



Certificate Number 20150530-R27442

ARCHITECTURAL CLADDING FILM, REATEC DECORATIVE FILM WITH A PRESSURE SENSITIVE ADHESIVE BACKING, INTENDED FOR APPLICATION TO HOLLOW METAL AND METAL COMPOSITE FIRE DOOR SURFACES AS WELL AS DOOR FRAMES. THE REATEC DECORATIVE FILMS ARE ALSO INTENDED FOR APPLICATION TO WOOD COVERED COMPOSITE OR WOOD CORE TYPE FIRE DOORS SURFACES AS WELL AS DOOR FRAMES.

ASTM E162-13 (Standard Method of Test for Surface Flammability of Materials Using a Radiant Heat Energy Source)

- Radiant Panel Index, Is = 0

ASTM E662-13 (Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials)

- Average Dm = 58 (Flaming) 64 (Non-Flaming)

BSS 7239 (Toxic Gas Generation by Materials on Combustion Boeing Aircraft Standard)

- Hydrogen Cyanide (HCN) = 4.5 ppm (Flaming) 0 ppm (Non-Flaming)
- Carbon Monoxide (CO) = 75 ppm (Flaming) 40 ppm (Non-Flaming)
- Nitrogen Oxides (NO+NO<sub>2</sub>) = 2 ppm (Flaming) 0 ppm (Non-Flaming)
- Sulfur Dioxide (SO<sub>2</sub>) = 5 ppm (Flaming) 5 ppm (Non-Flaming)
- Hydrogen Fluoride (HF) = 0 ppm (Flaming) 0 ppm (Non-Flaming)
- Hydrogen Chloride (HCL) = 1.75 ppm (Flaming) 3 ppm (Non-Flaming)

# REATEC Technical Information

## Dimensional Stability Test

**Test Methodology:** A single 150mm x 150mm (5.90 x 5.90 inches) swatch of REATEC was applied to the center of a 200 x 200mm (7.87 x 7.87 inches) flat aluminum panel. One crossing surface cut was made in the center of the finish. After 2 days at 65°C (149°F), the maximum gap in the cut was measured.

**Test Result:** No gap greater than 0.3mm (0.012 inches)

## Thermal Durability Test

**Test Methodology:** A REATEC sample was applied to a aluminum panel which was then exposed to various temperatures for a 12 day period.

**Test Result:** No peeling or color change occurred between -30°C to +65°C (between -86°F to +149°F)

## Colorfastness to Light Test - Sunshine Carbon Arc Lighting Methodology

**REATEC & MIRACLEAN:** No change after 250 hours

**EXTREME DURABILITY FILM:** No Change after 5000 hours

## Abrasion Test

**Test Methodology:** Final abrasion point by Taber testing machine (wheel: CS-17, 1kg weight)

**Test Result:** Greater than 7000 cycles without significant visible wear

## High Temperature Durability Test

**Test Methodology:** A REATEC sample was applied to an aluminum panel and maintained for 28 days at a temperature of 65°C (149°F).

**Test Result:** No change in adhesion

## High Humidity Durability Test

**Test Methodology:** A REATEC sample was applied to an aluminum panel and maintained for 28 days at 40°C (104°F) and 90% relative humidity.

**Test Result:** No change to finish

## Low Temperature Impact Test

**Test Methodology:** DuPont Impact Tester 0°C 100g 1/2 inches diameter

**Test Result:** No change

## Solvent / Chemical Resistance Test

**Test Methodology:** Test chemicals were applied to the surface of REATEC and left to stand for 6 hours.

The samples were then rinsed with water and left to air dry 24 hours.

Testing Results	REATEC	EXTREME DURABILITY FILM	MIRACLEAN
Petroleum Benzine	●	●	●
Ethyl Alcohol	●	●	●
n-hexane	●	●	●
Toluene	●	●	●
Ethyl Acetate	●	●	●
Methylethylketone	●	●	●
Ammonia	●	●	●
Hydrochloric Acid (10%)	●	●	●
Caustic Soda (10%)	●	●	●
Results Key	● No Changes	● Changes to Finish	● Material Lifting

# REATEC Technical Information

## Stain Resistance Test

**Test Methodology:** The surface of REATEC was wiped with a cloth dampened with either water, neutral detergent or ethyl alcohol after 24 hours of contact with the following materials:

Testing Results	REATEC	EXTREME DURABILITY FILM	MIRACLEAN
Vinegar	●	●	●
Coffee	●	●	●
Ketchup	●	●	●
Soysauce	●	●	●
Marker (water based)	●	●	●
Crayon	●	●	●
Hair dye	●	●	●
Marker (permanent)	●	●	●
Shoe polish (black)	●	●	●
Results Key	● Cleans with a damp cloth ● Cleans with Ethyl Alcohol	● Cleans with Mild Detergent solution ● Slightly Stained	● Noticeably Stained

## Adhesion Strength Test

**Test Methodology:** A 25.4mm (1 inch) by 180mm (7 inches) section of REATEC was applied to the surface of the test substrates. Some test surfaces were prepped by the application of primer at 20°C, and then left open for 1 hour prior to application of REATEC. The test panels were then stored for 48 hours at 20°C. The REATEC finish was then peeled off at 300mm (11-4/5 inches) per minute at a 180 degree angle by using Tensilon Tensile Testing Machine.

Substrate	Without Primer	With Primer
Plywood	3.20	30.10
Gypsum Board	—	7.9
Silicate Calcium Board	3.00	23.1
Melamine on Steel	23.9	35.2
Phosphate Coated Steel	24.3	35.2
PVC on Steel	34.1	39.8
Aluminum Plate	27.1	—
Stainless Steel	25.0	—
Acrylic Panel	31.4	42.1
Mortar	3.00	22.9

unit: N/25.4mm

# REATEC Technical Information

## Anti-Bacterial Test

- **Anti-Bacterial Test**

**Test Methodology:** The Bacteria were cultivated on standard agar at 35°C (95°F)

Tested Bacteria	Products Tested	Original Count	Count post 24 hours
Colon Bacillus	TA-4701 ~ 4801	2.4 X 10 <sup>5</sup>	< 10
	Other REATEC		5.6 X 10 <sup>4</sup>
Staphylococcus Aureus	TA-4701 ~ 4801	4.5 X 10 <sup>5</sup>	< 10
	Other REATEC		1.8 X 10 <sup>4</sup>
MRSA	TA-4701 ~ 4801	2.4 X 10 <sup>5</sup>	< 10
	Other REATEC		7.0 X 10*3 <sup>3</sup>

\*Tested by JFRL (Japan Food Research Laboratories)

- **Acute Toxicity Test** (LD50) Tested by JFRL (Japan Food Research Laboratories)

**Test Results:** LD50 > 20g/kg (0.71oz/2.20lbs)

- **Mutagenicity Test** Tested by JFRL (Japan Food Research Laboratories)

**Test Results:** Negative

- **Anti-Mold Test** ASTM-G21 Test, at 28°C ± 2°C (82.4°F ± 35.6°F) and over 95% RH

**Test Methodology:** ASTM-G21, preservation 28°C±2°C, relative humidity 95%and above.

Tested Products	10 Days	14 Days	21 Days	28 Days
TA-4701 ~ 4801	0	0	0	0
Other REATEC	2	2	3	3

\*Tested by Tokyo Metropolitan Industrial Technology Research Institute

**Grade 0-4** 0: Mold not found 1: Under 10% of surface area 2: 10-30% of surface area 3: 31-60% of surface area 4: 61-100% of surface area

Tested Molds: Aspergillus niger, Penicillium funiculosum, Chaetomium globosum, Aureobasidium pullulans, and Trichoderma virens

## MIRACLEAN Bacterial Resistance Test

Tested Products	10 Days	14 Days	21 Days	28 Days
MIRACLEAN	1,700	480	6,900,000	8,800
Ceramic Tile	51,000	59,000	5,500,000	130,000

\*Tested by Tokyo Metropolitan Industrial Technology Research Institute.

\*The above test data are measured values and not intended to guarantee performance.

cfu/10cm<sup>2</sup>

## Formaldehyde Emission Test

**Test Methodology:** JIS A6921:2003 with UV-2550 Ultraviolet Visible Light Spectrophotometer, 415mm, 23°C

**Test Result:** No Detection (less than 0.1 mg/l)

## Certification and Verifications Organizations that Reatec is listed by

