

ACRYLITE® Soundstop

Noise Barrier Properties

Product Description

ACRYLITE® SOUNDSTOP noise barrier panels provide effective transparent noise mitigation along roads and railways. Easy to install, form and fabricate, ACRYLITE® SOUNDSTOP noise barrier panels are extremely resistant to weathering from UV exposure and retains a high transparency for many years providing architecturally appealing structures.

Availability

ACRYLITE® SOUNDSTOP noise barrier panels are a standard clear transparent material. ACRYLITE® SOUNDSTOP GS CC noise barrier panels include embedded polyamide filaments and are typically used on bridges and overpasses. In the event of impact by a car or truck, the embedded filaments will retain panel fragments, thereby eliminating hazards of falling fragments.

Physical Properties	Test Method	ACRYLITE® Soundstop (a)	ACRYLITE® Soundstop GS GG (b)
Mechanical			
Specific Gravity	ASTM D-792	1.19	1.19
Tensile Strength		10,000 psi (69 MPa)	10,000 psi (69 MPa)
Elongation at Break (%)		4.5	4.8
Modulus of Elasticity	ASTM D-638	400,000 psi (2800 MPa)	400,000 psi (2800 MPa)
Flexural Strength		17,000 psi (117 MPa)	16,500 psi (114 MPa)
Modulus of Elasticity	ASTM D-790	480,000 psi (3300 MPa)	475,000 psi (3300 MPa)
Compressive Strength (Yield)	ASTM D-695	17,000 psi (117 MPa)	18,000 psi (124 MPa)
Rockwell Hardness	ASTM D-785	M-93	M-95
Resistance Against Stone Projectiles (15 mm)	EN 1794-1	Pass	Pass
Unnotched Charpy Impact		6.5 ft -lbs/in ²	6.5 ft -lbs/in ²
Weathered 5 years AZ -5°F	ASTM D-4812	6.5 ft -lbs/in ²	6.5 ft -lbs/in ²
Optical (Colorless)			
Refractive Index	ASTM D-542	1.49	1.49
Light Transmission, Total		92%	92%
Weathered 5 years AZ	ASTM D-1003	92%	92%
Haze		1%	1%
Weathered 5 years AZ	ASTM D-1003	1.5%	1.5%
Yellowness Index		< 1	< 1
Weathered 5 years AZ	ASTM E-313	1.5	1.5
Thermal Properties			
Resistance to Brushfire (15 mm thickness)	EN 1794-2	Class 2	Class 2
Deflection Temperature under load, 264 psi	ASTM D-648	195°F (91°C)	210°F (99°C)
Co-efficient of Linear Expansion		0.000040 in/in/°F (0.072 mm/m °C)	0.000040 in/in/°F (0.072 mm/m °C)
Vicat Softening Temperature	ASTM D-1525	220 °F (105°C)	239°F (115°C)
Flammability, Burning Rate (15 mm thickness)	ASTM D-635	0.6 in/min (14 mm/min)	0.8 in/min (20 mm/min)
Self Ignition Temperature	ASTM D-1929	850°F (455°C)	910°F (490°C)
Smoke Density Rating (15 mm thickness)	ASTM D- 2843	20%	20%
Service Temperature	-	< 160°F (71°C)	< 180°F (82°C)
Sound Transmission Loss	ASTM E-90	15 mm 32 dB	15 mm 32 dB
		20 mm 34 dB	20 mm 34 dB
		25 mm 36 dB	25 mm 36 dB
		15 mm Thickness	3.66 lb/ft 2 (17.9 Kg/m2)
20 mm Thickness	4.86 lb/ft 2 (23.8 Kg/m2)	4.86 lb/ft 2 (23.8 Kg/m2)	
25 mm Thickness	6.1 lb/ft 2 (29.8 Kg/m2)	6.1 lb/ft 2 (29.8 Kg/m2)	
Weight per Square Foot			

(a) Typical values: should not be used for specification purposes.

(b) Values shown are for 0.250" (6 mm) thickness unless noted otherwise.

Some values will change with thickness.

Chemical Resistance of ACRYLITE® SOUNDSTOP noise barrier sheet

The table below gives an indication of the chemical resistance of ACRYLITE® SOUNDSTOP noise barrier panels and ACRYLITE® SOUNDSTOP GS CC noise barrier panels. Plastic materials can be attacked by chemicals in several ways. The methods of fabrication and/or conditions of exposure of ACRYLITE® SOUNDSTOP, as well as the manner in which the chemicals are applied, can influence the final results even for “R” coded chemicals. Some of these factors include:

Fabrication – stress generated while sawing, sanding, machining, drilling, and/or forming.

Exposure – length of exposure, stresses induced during the life of the product due to various loads, changes in temperatures, etc.

Application of Chemicals – by contact, rubbing, wiping, spraying, etc.

The table should be used as only a general guide and, in case of doubt, it should be supplemented by tests made under actual working conditions. The codes used to describe chemical resistance are:

R = Resistant

ACRYLITE® SOUNDSTOP noise barrier panels withstand this substance for long periods and at temperatures up to 120°F (49°C).

LR = Limited Resistance

ACRYLITE® SOUNDSTOP noise barrier panels resist the action of this substance for short periods at room temperatures. The resistance for a particular application must be determined.

N = Not Resistant

ACRYLITE® SOUNDSTOP noise barrier panels are not resistant to this substance. It is swelled, attacked, dissolved or damaged in some manner.

Chemical	Code	Chemical	Code
Acetone	N	Heptane	R
Ammonium Chloride	R	Hexane	R
Ammonium Hydroxide (Concentrated)	R	Hydrochloric Acid	R
Aromatic Based Graffiti Removers	N	Ice Ban® Ultra™ M	R
Battery Acid	R	Isopropyl Alcohol	LR
Benzene	N	Kerosene	R
Butyl Acetate	N	Lacquer Thinner	N
Calcium Chloride (100%)	R	Magnesium Chloride	R
Calcium Hypochlorite	R	Methyl Alcohol (30%)	LR
Calcium / Magnesium Acetate	R	Methyl Alcohol (100%)	N
Citric acid (20%)	R	Methyl Ethyl Ketone (MEK)	N
CMAK (Potassium Acetate/Calcium Magnesium acetate)	R	Methylene Chloride	N
Diesel Oil	R	Potassium Acetate	R
Ethyl Alcohol (30%)	LR	Sodium Acetate	R
Ethyl Alcohol (95%)	N	Sulphuric Acid (3%)	R
Ethylene Glycol	R	Sulphuric Acid (30%)	R
Gasoline	LR	Sulphuric Acid (Concentrated)	N
		Toluene	N

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Printed in the USA.

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