

ENCLOSURE MATERIALS COMPARISON

Material strength and cost comparison of commonly used enclosure materials.

Chemical Resistance of Commonly Used Enclosure Materials

Continuum of Use	Category of Chemicals		
	Acid	Alkalines	Solvents
Recommended	Stainless Steel Fiberglass	Fiberglass Stainless Steel	Fiberglass Stainless Steel Aluminum Powder Coated Steel
Acceptable	PC PVC Powder Coated Steel	PC Galvanized Steel Powder Coated Steel	Galvanized Steel
Limited or Unacceptable	Aluminum Galvanized Steel	PVC Aluminum	PC PVC

Relative Material Strength & Cost Comparison of Commonly Used Enclosure Materials

Material	Relative Physical Strength	Relative Cost	Application Conditions	Temperature Limitations
Aluminum	Average	Average	Indoor and Outdoor, Marine, Solvents, Petrochemical Sulfates, Nitrates and Specific Acids.	None for enclosure applications
Fiberglass	Average	Low - Average	Indoor and Outdoor for continuously damp and highly corrosive environments. Petrochem, Water Treatment, Food Processing, Coating, Salts and Chemicals, Solar.	Average: -40°F(-40°C) to 250°F(121°C) Vynckier: -58°F(-50°C) to 302°F (150°C)
Mild Steel: Galvanized Painted	High	Average - Low	Indoor and Outdoor where the respective coating provides acceptable protection in a mildly corrosive environment.	None for enclosure applications.
Stainless Steel	High	Average - High	Indoor and Outdoor in highly corrosive applications. Food and Dairy Processing or Marine.	None for enclosure applications.
Acrylic	Average	Low	Enclosure Windows. Weatherable, Scratch Resistant. Good resistance to Solvents.	-31°F(-35°C) to 180°F(82°C)
Poly-carbonate	Average	Low - Average	Enclosure Windows. Not recommended for direct sunlight, exposure to organic solvents and concentrated alkalis.	-31°F(-35°C) to 248°F(120°C)
Nylon	Average	Low	Cord Grip, Hinges, Latches.	-22°F(-30°C) to 212°F(100°C)
Gaskets: Neoprene	Low	Low	Oil Resistance. Seams may be a problem.	-40°F(-40°C) to 225°F(107°C)
Silicone	Low	Average	Oil Resistance. Temperature & Chemical Resistance.	-40°F(-40°C) to 350°F(175°C)
Urethane	Low	Average	Water and Oil Resistance, Chemical Resistance.	-40°F(-40°C) to 200°F(93°C)