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Technical Data Sheet

Unplasticised Polyvinyl Chloride (PVC-U)

Chemical Name(s): Polyvinyl Chloride
Common Abbreviation(s): PVC-U
Available Profiles: Sheet, Rod, Tube, Pipe

PVC-U is a rigid, unplasticised form of polyvinyl chloride known for its excellent chemical resistance, high strength, and low cost. It is widely used in construction, chemical processing, and industrial applications such as tanks, piping systems, and linings. PVC-U offers excellent fire resistance and is easy to fabricate and weld.

Benefits:

- Excellent chemical resistance
- High rigidity and strength
- Low moisture absorption
- Good electrical insulating properties
- High fire resistance (self-extinguishing)
- Cost-effective

Common Applications:

- Chemical storage tanks
- Bunded containment solutions
- Piping systems for industrial and wastewater treatment
- Ventilation ducts and scrubbers
- Lining for tanks and pipes
- Electrical insulation components

TYPICAL PROPERTIES of UNPLASTICISED POLYVINYL CHLORIDE			
	Property	**Test Method**	**Value**
Physical Properties	Density (g/cm³)	ATSM D792	1.40
	Water Absorption (%)	ASTM D570	<0.01
Mechanical Properties	Tensile Strength at 23°C (MPa)	ASTM D638	52
	Tensile Modulus (MPa)	ASTM D638	3000
	Tensile Elongation at Break (%)	ASTM D638	20-40
	Flexural Strength (MPa)	ASTM D790	80
	Flexural Modulus (MPa)	ASTM D790	3300
	Compressive Strength (MPa)	ASTM D695	60
	Hardness (Shore D)	ASTM D785	D82
	Impact Strength (kJ/m²)	ASTM D256	5.0
Thermal Properties	Coefficient of Linear Thermal Expansion (mm/mm/°C)	ASTM D696	6.7×10^{-5}
	Heat Deflection Temperature at 0.45 MPa (°C)	ASTM D648	70
	Approx. Melting Temperature (°C)	ASTM D3418	80-85
	Max Operating Temperature (°C)	-	60
Electrical Properties	Dielectric Strength (kV/mm)	ASTM D149	15
	Dielectric Constant at 1 MHz	ASTM D150	3.2
	Dissipation Factor at 1 kHz	ASTM D150	0.002
	Surface Resistivity (ohm/sq)	ASTM D257	$>10^{14}$
	Arc Resistance (sec)	ASTM D495	120-180
Flammability	Flammability Rating	UL94	V-0
Standards Compliance	ASTM D638, D790, D695, D256, D257 compliant ISO 1163 compliant for unplasticised PVC materials		
Environmental Considerations	Recyclability: PVC-U is recyclable and can be reused in a range of applications. Environmental Impact: PVC-U has a low environmental impact during production, with fire retardant properties making it safer f many industrial uses.		