PVC: Product Information

About

Polyvinyl chloride, commonly known as PVC, is a widely used thermoplastic polymer known for its versatility, durability, and cost-effectiveness. Here's an introduction to PVC, covering its properties, applications, and environmental considerations

Properties

•**Durability**: PVC is highly durable and resistant to abrasion, impact, and weathering, making it suitable for both indoor and outdoor applications.

•**Chemical Resistance**: It has good resistance to many chemicals, acids, alkalis, and salts, which enhances its usability in various environments.

•**Fire Resistance**: PVC is inherently flaming retardant, meeting stringent fire safety standards without additional additives.

•**Electrical Insulation**: It has excellent electrical insulation properties, making it suitable for wiring, cable insulation, and electrical components.

•**Mechanical Strength**: PVC exhibits good mechanical strength and toughness, although it can vary depending on the formulation and additives used.

•**Ease of Processing**: PVC is easy to mold, extrude, and thermoform, allowing for a wide range of manufacturing processes and applications.

Applications

•**Construction**: Pipes and fittings, window profiles, doors, siding, flooring, and roofing membranes.

•**Electrical**: Insulation for wires and cables, electrical conduits, and junction boxes.

•**Automotive**: Interior trim, door panels, dashboard components, and seals.

•**Healthcare**: Medical tubing, blood bags, IV containers, and medical devices.

•**Packaging**: PVC films and sheets for packaging applications.

PVC: Data Sheet

PROPERTIES	TEST METHOD	UNIT Of MEASURE	VALUE
GENERAL	-		
DENISTY	ASTM D792 or ISO 1183	g/cm³	1,3
WATER ABSORPTION	ASTM D570 or ISO 62	%	0,2
MECHANICAL			
TENSILE STRENGTH	ASTM D638 or ISO 527	MPA	45-60
ELONGATION AT BREAK	ASTM D638 or ISO 527	%	15-300
Flexural Modulus	ASTM D790 or ISO 178	GPa	1,5-3
SHORE HARDNESS	ASTM D2240 or ISO 868	SCALE D	75-85
THERMAL			
MELTING TEMPERATURE	NOT AVAILIBLE	°C	250-270
Heat Deflection Temperature (HDT)	ASTM D648 or ISO 75	°C	60-80
SPECIFIC THERMAL CAPACITY	NOT AVAILIBLE	J/(kg.K)	1,7- 2
COEFFICIENT OF LINEAR THERMAL EXPANSION	ASTM E831 or ISO 11359	µm/m·K	70-110
ELECTRICAL			
Volume Resistivity	ASTM D149 or IEC 60243	Ω	10^15 to 10^17
DIELECTRIC STRENGTH	ASTM D149 or IEC 60243	-	-

STOCK SHAPES | MACHINED PARTS AND COMPONENTS | APPLICATIONS DEVELOPMENT

Machining

When machining thermoplastic stock shapes, remember...

- Thermal expansion is up to 10 times greater with plastics than metals.
- Plastics lose heat more slowly than metals, so avoid localized overheating.
- Softening (and melting) temperatures of plastics are much lower than metals and plastics are much more elastic than metals.

Getting Started

Getting started:

- Positive tool geometries with ground peripheries are recommended.
- HSS/Tip tooling with polished top surfaces is suggested for optimum tool life and surface finish.
- Use adequate chip clearance to prevent clogging.
- Adequately support the material to restrict deflection away from the cutting tool.

General

Coolants are generally not required for most machining operations, but are strongly suggested during drilling operations, especially with notch sensitive materials such as Nylon, PET-P, PAI, PBI and glass or carbon reinforced products.

In addition to minimizing localized part heat-up, coolants prolong tool life. For optimum surface finishes and close tolerances, nonaromatic, water-soluble coolants are suggested. General purpose petroleum-based cutting fluids, although suitable for many metals and plastics, may contribute to stress cracking of amorphous plastics such as Polycarbonate.

Due to these differences, you may wish to experiment with fixtures, tool materials, angles, speeds and feed rates to obtain optimum results.

General Note

The data shown fall within the normal parameters of product properties. They should only be used as a guide to initial material selection for the relevant application and for material specification limits. Further technical information is available for specific application requirements. When no value is listed, insufficient details were available to present a usable value.

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THE RIGHT APPLICATION IS KEY

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