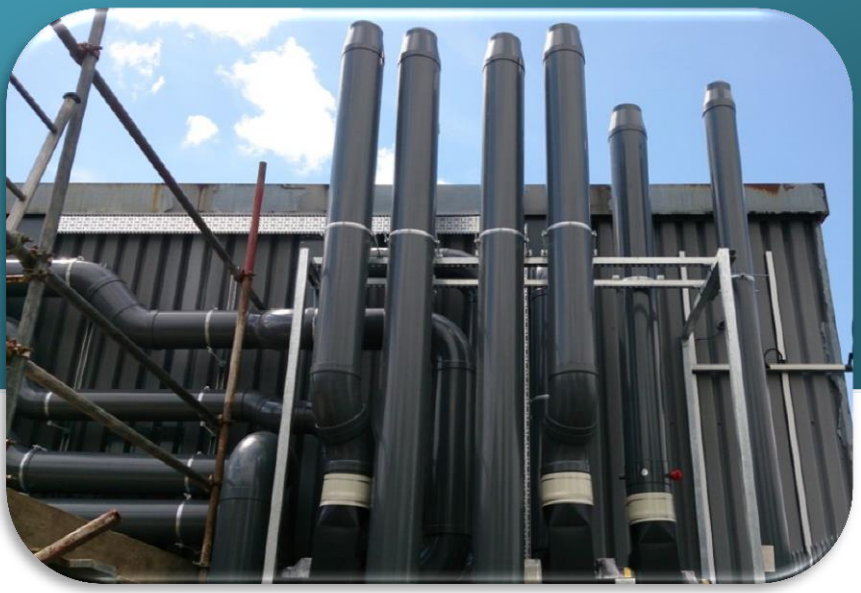
OMEGA-CHEM ® Polyvinyl chloride (PVC)



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OMEGA-CHEM ® Polyvinyl chloride (PVC)
SHEET, ROD AND TUBE

OMEGA-CHEM ® Polyvinyl chloride (PVC) is the product of the polymerisation of vinyl chloride and was one of the first fully synthetic materials developed nearly 70 years ago. Boasting high rigidity and excellent resistance to chemical attack, along with its low cost, it is the most popular thermoplastic in the world.

MAIN ADVANTAGES OF OMEGA-CHEM ® PVC SHEET, ROD AND TUBE

- High rigidity and strength at low cost compared with other thermoplastics
- Excellent electrical insulating properties
- Very high chemical resistance
- Self- extinguishing when flame is withdrawn
- Easy to work with – can be bent, glued, welded and thermoformed
- Very good moisture resistance
- East machinability
- Low cost
- Can be hot welded

WEAKNESSES OF OMEGA-CHEM ® PVC SHEET, ROD AND TUBE

- Only moderate impact resistance
- Low weatherability
- Maximum service temperature of 60°C

APPLICATIONS

- Pipe and fittings
- Chemical storage vessels
- Fume cupboards and extraction systems
- Food machinery equipment
- Electrical insulators
- Tank liners and fittings

RIGID PVC

Rigid PVC is the most common type of PVC used in the manufacture of pipe, fittings, valves, machining shapes, sheet and duct. Rigid PVC offers advantages for piping and related applications due to its low cost, high strength to weight ratio, pressure bearing capability, corrosion and chemical resistance and low friction loss characteristics. Rigid PVC is used for siding, window lineal, pipes, fittings, profiles and sheets in areas demanding extreme durability, weatherability, corrosion and flame resistance.

APPLICATIONS

- **Industrial Piping Applications** (Pipes, valves, fittings, sheet)
- **Chemical processing;** High purity applications; Water and waste water treatment; Irrigation; Agriculture; Corrosive fume handling; Food contact applications; Drain, waste and vent plumbing

FLEXIBLE (PLASTICIZED) PVC

It is a vinyl which has been heavily plasticized and is used to produce tubing, liners, film, packaging, wire and cable insulation jackets and many other products which require flexibility and resistance to tear, puncture and abrasion. As with rigid PVC, flexible PVC can be formulated with additives to achieve desirable physical characteristics for specific applications and can be easily fabricated.

Technology has created the ability to foam both flexible and rigid PVC. The most significant growth has been in the lines of foamed rigid PVC. The process of foaming reduces the density of PVC by 50% or more, which significantly impacts weight and cost, while still maintaining good physical properties. This class of products has seen substantial growth in a relatively short period of time. It has replaced materials such as wood, metal, acrylic and styrene. It is used in many of the same applications as traditional PVC, but because of its lower cost, it is now the material of choice for point-of-purchase applications, signage and building construction.

APPLICATIONS

Flexible tubing; Food and beverage grade tubing; Electrical and cable insulation; Containment membrane; Protective gloves and clothing; Fabrics; Automotive industry; Electrical tape; Toys and novelties.

DELIVERY PROGRAM

RODS: Lengths 2000mm and 1000mm
DIAMETERS: 6mm, 8mm, 10mm, 12mm, 14mm, 15mm, 16mm, 18mm, 20mm, 22mm, 25mm, 28mm, 30mm, 32mm, 35mm, 40mm, 45mm, 50mm, 55mm, 60mm, 65mm, 70mm, 75mm, 80mm, 85mm, 90mm, 95mm, 100mm, 110mm, 120mm, 125mm, 130mm, 135mm, 140mm, 150mm, 160mm, 170mm, 175mm, 180mm, 190mm, 200mm, 210mm, 220mm, 230mm, 240mm, 250mm, 260mm, 270mm, 280mm, 290mm, 300mm
SHEETS: 2440mm x 1220mm; 2000mm x 1000mm
THICKNESSES: 2mm, 3mm, 4.5mm, 6mm, 8mm, 10mm, 12mm, 15mm, 18mm, 20mm, 20mm, 25mm, 30mm, 35mm, 40mm, 45mm, 50mm, 60mm, 70mm, 80mm, 90mm, 100mm

PROPERTIES of OMEGA-CHEM ® Polyvinyl chloride

Criteria	Test Method	Units	Rigid PVC	Flexible PVC
PHYSICAL				
Specific Gravity	ISO 1183	g/cm³	1,47	1,3
Specific Volume	ISO 1183	cm³/g	0,68	0,77
Water absorption	ISO62	24h, 3.1 mm thk %	0.04-0.4	0.15-0.75
THERMAL				
Min Service Temp		°C	-30	-30
Max Service Temp		°C	60	60
Max Service Temp Short Term		°C	70	70
Thermal Conductivity	ISO8302	W/(mK)	0,18	0,18
Deflection temperature at 1.80Mpa	ISO 75	°C	67	NA
Deflection temperature at 0.45Mpa	ISO 75	°C	72	NA
Vicat Softening Temp	ISO 306	°C	80	67
Specific Heat	ISO 22007	J/g.K	1.7-2	
Flammability	UL-94		V0	-
Coefficient of Linear Expansion	ISO 11359	10^{-5}m/m°C	2.1-10	-
MECHANICAL				
Impact resistance	ISO 179	KJ/m²	4	2
Hardness	ISO 868	Shore (D)	D75	A60
Notched Izod Impact Strength	ISO 180	J/m	21-1068	-
Moisture Absorption	ISO 62	%	0,14	0,25
Moisture Absorption at Saturation	ISO 62	%	0,2	0,3
Resistance to UV/ Weathering			YES	YES
Wear			3	2
Tensile Strength	ISO 527	MPa	41-55	10-24
Tensile Modulus	ISO 527	MPa (10^3)	2.41-6.9	-
Elongation	ISO 527	%	50-150	200-450
Flexural Modulus	ISO 178	MPa (10^3)	2.07-5.5	-
ELECTRICAL				
Dielectric Strength, 3mm thk	IEC243	kV/mm	13.8-19.7	11.8-15.8
Dielectric Constant at 1kHz	IEC250	at 1 kHz	4-8	4-8
Surface Resisitivity	IEC 60093	Ω	$>10^{13}$	$>10^{13}$
Volume Resistivity at 23°C, 50% RH	IEC 093	Ω. Cm	$>10^{16}$	$>10^{15}$
Dissipation Factor at 1kHz	IEC 250		0.07-0.16	0.07-0.16
Arc Resistance	ASTM D495	s	60-80	-
CHEMICAL				
Good Resistance			hot water, washing soda, corrosion and weather	hot water, washing soda, corrosion and weather
Food Safe	FDA		NO	YES

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