



Product information

Product full identity:

Polyvinylidene Fluoride

PVDF offers good mechanical, thermal and electrical properties. Being a Fluoropolymer, it has good chemical, radiation and UV properties with a wide operating temperature range (-50°C to 150°C). This material is food compliant.

Properties

- » Good chemical resistance
- » Great UV resistance
- » Can be welded
- » Good electrical insulation
- » Food Compliant

Applications

- » Chemical tanks
- » Laboratory equipment
- » Solar power systems
- » Pumps

This document contains

- » Technical Datasheet (Page 2)
- » Chemical Datasheet (Page 3)
- » Safety Datasheet (Pages 4-6)

For any further information regarding food, fire and water certificates then please contact the sales team on 0114 256 0889

Technical Properties

Physical Properties	Test	Unit	Result
1. Specific gravity	ISO 1183	g/cm ³	1.78
3. Maximum service temp. Upper temp limit (no stronger mechanical stress involved)	-	°C	140
Lower temp limit	-	°C	-30
Mechanical Properties	Test	Unit	Result
1. Elongation at yield	ISO 527	%	8
2. Yield Stress	ISO 527	MPa	55
3. Impact strength	ISO 179	kJ/m ²	no break
4. Notch impact strength	ISO 179	kJ/m ²	12
5. Ball indentation	ISO 2039-1	MPa	120
6. Shore-D	ISO 868	-	78
7. Modulus of elasticity	ISO 527	MPa	1950
Thermal Properties	Test Method	Unit	Result
1. Coefficient of linear thermal expansion	DIN 53752	K ⁻¹	1.3 x 10 ⁻⁴
2. Thermal conductivity	DIN 52612	W/(m*K)	0.14
Electrical Properties	Test Method	Unit	Result
1. Surface resistivity	IEC 6093	Ω	10 ¹⁴
2. Dielectric strength	IEC 60243-1	kV/mm	25
Additional Data	Test Method	Unit	Result
1. Bondability	-	-	-
2. Food compliance	FDA	-	+
3. Flammability	DIN 4102	-	B1

All The above information is for guide purposes only. The data has been taken from standard test results provided by our manufacturers.

Key:

Yes	Limited	No data
+	0	-

Chemical Properties

Agent	Conc %	Working 20°C	Temp 60°C	Agent	Conc %	Working	Temp
Acetic Acid	100	+	o	Hydrofluoric acid	40	+	+
Acetone	100	+/o	-	Hydrogen peroxide	10	+	+
Ammonia	Conc.	+	+	Hydrogen Sulphide		+	+
Ammonium chloride		+	+	Isopropyl Alcohol	100	+	+
Amyl Alcohol		+	+	Mercurochrome		+	+
Benzene		+	+	Methyl alcohol	100	+	+
Bleaching Solution	12,5 Cl	o		Methyl ethyl ketone	100	-	-
Boric Acid	100	+	+	Methylene chloride	100	o	-
Brake Fluid		+	+	Nitric acid	50	+	+
Butyl Acetate		+	-	Nitrobenzine		+	o
Calcium Chloride		+	+	Oxalic Acid		+	o
Carbon disulphide	100	+		Ozone, gas	ca. 0,5 ppm	+	+
Carbon Tetrachloride		+	+	Paraffin Oil	100	+	+
Chlorine, gas	100	+	+	Perchlorethylene		+	+
Chlorobenzene	100	+	+	Petroleum	100		
Chloroform		+	+	Petroleum, aromatic free	100	+	+
Citric Acid	10	+	+	Phenol, aqu	ca.9	+	+
Cresol		+	+	Phosphoric Acid	50	+	+
Cyclohexanone	100	+	o	Potassium hydroxide liquor	50	+	+
Cyclohexene	100	+	+	Propyl alcohol		+	+
Diesel Fuel		+	+	Pyridine		+	-
Ethyl acetate	100	+	o	Silicone oil		+	+
Ethyl alcohol	96	+	+	Sodium carbonate. aqu		+	+
Ethylene Chloride	100	+	+	Sodium chloride, aqu		+	+
Formic Acid	10	+	+	Sodium Hydroxide liquor	15	+	+
Frost protection agent		+	+	Sodium Hydroxide liquor	60	+	o
Fuel, aromatic free		+	+	Sodium hydrogen sulphite		+	+
Glycerine	100	+	+	Sodium nitrate, aqu		+	+
Glycol	100	+	+	Sodium thiosulfate		+	+
Heating oil		+	+	Sulphuric Acid	96	+	+
Heptane	100	-	-	Tetrahydrofuran	100	o	-
Hydrochloric acid	10	+	+	Toluene	100	+	+/o
Hydrochloric acid	conc.	+	+	Trichlorethylene	100	-	-
				Xylene		-	-

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Yes	Limited	No data
+	o	-

Safety Properties

Substance / preparation and company detail

Polyvinylidene fluoride
Direct Plastics Limited
Rother Valley Way,
Holbrook,
Sheffield,
S20 3RW
0114 2560889

Composition / indications to components

Chemical characterization : Polyvinylidene fluoride (PVDF)

Hazardous substances : Product contains no hazardous ingredients liable to be disclosed.

Possible dangers

Classification : Not classified

Physical/ chemical hazards : Flammable

Health risks : Dust can cause mechanical irritation.

Hazards for the environment: Based on our information, there is no danger to the environment.

The product is according to Directive 1999/45/EC and its annexes are not classified as dangerous.

First-aid measures

General information : The product is being classified as non-toxic.

In case of inhalation : In case the plastic burns and combustion gases are inhaled, remove person to fresh air and keep warm and get medical help if necessary.

In case of skin contact : Burns caused by molten material on skin need to be rapidly cooled down with water; do not attempt removal of plastic without medical assistance. If irritation develops, seek medical attention.

In case of eye contact : Flush eyes well with copious quantities of water. Seek medical attention, if irritation persists.

In case of ingestion : The product is non-toxic; no first aid procedures are required.

First-fighting measures

Suitable extinguisher: Water, foam, gaseous and dry extinguishing media

Particular endangerments by fire fighting and hazardous combustion products: Hazardous combustion products may emerge, apart from harmless Water (H₂O); carbon dioxide (CO₂) and mainly carbon monoxide (CO) depending on the amount of available environmental oxygen, containing ketones and aldehyde. Formation of further decomposition and oxidation products depends upon the fire conditions. Under special fire conditions traces of other toxic substances are possible.

Fire fighting: Approved pressure demand breathing apparatus and protective clothing should be used for all fires.

Additional Information: Residues after the fire, after appropriate rules dispose.

Measures in case of unintended release

Personal precautions : N/A

Environmental precaution : N/A

Methods for cleaning up : Mechanical removal

Handling and storage

Advice on safe handling: During machining of the stock shapes, evacuate swarf to prevent slipping or tripping.

Storage: Store inert product dry and cool. Keep storage and working areas sufficiently ventilated. Keep away from source of flame, heat and ignition. Due to the risk of collapsing, do not stack more than 2 pallets on to of each other. Pallets should not stack on to of each other along aisles.

Safety Properties

Limitation of exposition

Ingredients with occupational exposure limits to be monitored : none

General protective and Hygiene measures : Keep the workplace sufficiently ventilated; thereby smoking; eating and drinking are not allowed.

Continuous supply of fresh air to the workplace together with removal of processing fumes through exhaust systems is recommended. Avoid breathing in gaseous degradation products and dust that may result by material overheating.

Hand protection : Safety gloves in case of contact with warm material

Eye protection : Safety goggles or shield during machining

Body protection : Working clothes

Respiratory protection : Adequate ventilation at workplace is required

Physical and chemical characteristics

Aggregate : solid

Colour : product-specific

Odour : slight, product specific

Safety related facts

Boiling point : N/A

Melting point : 169 °C (DIN/EN/ISO 3146)

Corrosion temperature : > 350 °C

Flash point : N/A

Self ignition temperature : 400 °C (ASTM D1929)

Explosion hazard or limit : non explosive

Oxidizing characteristics : None

Density (20 °C) : 1.78 g/cm³ (ISO 1183)

Solubility (in Water 20 °C) : insoluble

Viscosity : N/A

Additional Information : None

Stability and reactivity

Conditions to avoid: Temperatures above melting point

Material to avoid: Strong oxidant

Hazardous decomposition products: Carbon monoxide CAS-Nr. 630-08-0

Hydrogen fluoride (HF) CAS-Nr. 7664-39-3

Toxic information

Toxicology : Based on our experience and information available, no adverse health effects are expected if handled as recommended with suitable precautions for designated uses.

Primary Irritation on skin : N/A

Primary Irritation on eyes : N/A

Sensitization : not known

Practical Tests : N/A

Additional information : N/A

Ecological information

The material does not harm the environment but is not biologically degradable.

Waste-disposal information

The product must be disposed in accordance with the local authorities.

Transport information

Not classified as hazardous under transport regulations.

Safety Properties

Regulations

The product does not require a hazard warning label in accordance with EC directives.

Further information

The information is based on our current knowledge. They are meant to describe our products in respect to safety requirements. They do not represent any guarantee of the described product in the sense of the legal guarantee regulations.