

# SYMALIT<sup>®</sup> PVDF ESD

PRODUCT DATA SHEET

SYMALIT PVDF ESD is a highly crystalline conductive grade of polyvinylidene fluoride (PVDF) combining good mechanical, thermal and electrical properties with excellent chemical resistance.

SYMALIT PVDF ESD is a versatile engineering material especially suitable for the manufacture of components for the petro-chemical, chemical, metallurgical, paper, textile, and nuclear industries.

## Physical properties (indicative values <sup>■</sup>)

PROPERTIES	Test methods	Units	VALUES
Colour	-	-	black
Density	ASTM D 792	g/cm <sup>3</sup>	1.78 - 1.83
Water absorption:			
- after 24 h immersion in water of 23°C	ASTM D 570	%	-
<b>Thermal Properties</b>			
Melting temperature	ISO 1183	°C	150 - 170
Glass transition temperature	DMTA	°C	-
Thermal conductivity at 23°C	ASTM D 433	W/(K.m)	-
Coefficient of linear thermal expansion:			
- average value between 23 and 100°C	ASTM D 696	m/(m.K)	12.5 - 14 x 10 <sup>-5</sup>
Specific Heat Capacity	DSC	kJ/(kg.K)	-
Vicat Point B	DIN 53460/B	°C	-
Temperature of deflection under load:			
- method A: 1.82 MPa	ASTM D 648	°C	-
Max. allowable service temperature in air:			
- continuously : for min. 20,000 h	-	°C	150
Min. service temperature	-	°C	-40
Flammability:			
- Oxygen Index	ASTM D 2863	%	43
- according to UL 94	-	-	V-0
<b>Mechanical Properties at 23°C</b>			
Tension test:			
- tensile stress at yield	ISO 527-1/-2	MPa	40
- tensile strength	ISO 527-1/-2	MPa	-
- tensile strain at break	ISO 527-1/-2	%	15 - 30
- tensile modulus of elasticity	ISO 527-1/-2	MPa	1800 - 2200
Flexural Modulus	ISO 178	MPa	-
Compression test:			
- compressive stress	ASTM D 695	MPa	-
Charpy impact strength - notched	ISO 180	kJ/m <sup>2</sup>	8
Hardness Shore D	ISO 868		76
Abrasion Resistance Taber	Taber CS 17/1 kg	mg/1000 rev.	-
Friction Coefficient:			
- static	ASTM D 1894		-
- dynamic	ASTM D 1894		-
<b>Electrical Properties at 23 °C</b>			
Dielectric strength	ASTM D 149	kV/mm	-
Surface resistivity	IEC 93	Ohm	< 10 <sup>6</sup>
Dielectric constant at 1 MHz	ASTM D 150	-	-
Dielectric dissipation factor tan δ at 1 MHz	ASTM D 150	-	-

Note: 1 g/cm<sup>3</sup> = 1,000 kg/m<sup>3</sup>; 1 MPa = 1 N/mm<sup>2</sup>; 1 kV/mm = 1 MV/m.

### Legend:

All values are results of tests, made by raw material suppliers and Quadrant EPP AG and from literature. Most of the figures given in the table are results of tests made on extruded or injection molded sheets. Lining laminates can only be tested, if the fabric backing is removed carefully by machining. Otherwise the fabric backing influences the results. These values are average values and can vary depending on product, production method and specimen preparation.

All tests are done according to the standards mentioned in the table or equivalent standards of other organisations (ISO, ASTM, DIN).

- This table is a valuable help in the choice of a material. The data listed here fall within a normal range of product properties of dry material. **However they are not guaranteed and they should not be used to establish material specification limits nor used alone as the basis of design.**

## AVAILABILITY

**Round Rods:** Ø 10 - 200 mm - **Sheets and Plates:** Thicknesses 0.8 - 25 mm - **Lining Laminates:** Thickness 1.5 - 6 mm

**Pipes:** Ø 25 - 200 mm - **Welding Rods:** Thicknesses 3 - 4 mm

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