

**Main properties
of insulation materials commonly
used by OMERIN SAS:**

Properties	Polyvinyl chloride	low density	Polyethylene high density	Chemically cross-linked	Halogen-free polyolefine	Polyurethane	Ethylene tetrafluoro-ethylene	Fluorethylene propylene	Perfluoro-alkoxy alkane	Polytetrafluoro-ethylene	Polyimide	Silicone rubber	VARPREN®
	PVC	LDPE	HDPE	XLPE	HFBR	PUR	ETFE	FEP	PFA	PTFE	PI	SIR	VARPREN®
Physical													
Operating temperature:													
- at low temperature (°C)	-30	-50	-50	-50	-30	-50	-90	-90	-90	-90	-90	-60	-30
- in continuous operating service (°C)	+105	+70	+80	+90	+105	+120	+150	+205	+260	+260	+260	+180	+155
- in short circuit state (°C)	+160	+150	+180	+250	+160	+180	+200	+250	+300	+300	+350	+350	+200
Density (g/cm ³)	1.23 to 1.50	0.91	0.93	0.91	1.5	1.11 to 1.18	1.75	2.15	2.15	2.15	1.67	1.20 to 1.50	1.45 to 1.57
Electrical													
Dielectric strength (kV/mm)	30	20	20	25	20	20	36	24	25	25	28	25	15
Electrical resistance (Ω.cm)	1 016	1 017	1 017	1 017	1 015	1 015	1 016	1 018	1 018	1 018	1 015	1 015	1 014
Relative permittivity at industrial frequency	8	2.3	2.3	2.5	3.6	6	2.6	2.1	2.05	2	2.7	3.22 to 3.67	5
tan δ at industrial frequency (x 10 ⁻⁴)	1 000	10	10	40	20	300	2	3	2	2	13	37 to 258	200
Chemical													
Resistance to weak acids	Very good	Very good	Very good	Very good	Fair	Very good	Very good	Very good	Very good	Very good	Very good	Good	Good
Resistance to weak alkalis	Very good	Very good	Very good	Very good	Fair	Very good	Very good	Very good	Very good	Very good	Good	Good	Good
Mechanical													
Flexibility	Good	Medium	Poor	Medium	Poor	Good	Medium	Medium	Good	Poor	Medium	Excellent	Excellent
Resistance to abrasion.	Good	Medium	Good	Good	Good	Excellent	Excellent	Medium	Good	Good	Excellent	Good	Good
Tensile strength (MPa)	15	10	20	22	12	50	45	20	27.5	40	18	5	6
Elongation at break (%)	250	400	500	300	180	350	200	250	300	350	70	200	300
Other													
Flame resistance	Medium	Poor	Poor	Poor	Excellent	Medium	Excellent	Excellent	Excellent	Excellent	Excellent	Good	Good
Halogen-free	No	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	Yes	Yes
Thermal resistivity (K.m/W)	5	3.5	3.5	3.5	5	5	4.4	5	4.4	4.5	5	5	5
Steam resistance	Poor	Poor	Poor	Fair	Poor	Poor	Good	Excellent	Excellent	Excellent	Fair	Good	Poor

Note: The information given above is purely indicative and testing under operating conditions as close as possible to reality is preferable. In no event shall OMERIN be held liable. Our technical departments are at your service to provide any clarifications required.

**Resistance fluorinated insulation
to chemical products**

	FEP and PTFE	PFA	ETFE
Hydrocarbons (oils, petrol, greases, etc.)	Excellent	Excellent	Excellent
Weak acids	Excellent	Excellent	Excellent
Strong acids	Excellent	Excellent	Very good (except for highly oxidant acids when boiling)
Weak alkalis	Excellent	Excellent	Excellent
Strong alkalis	Very good (except hot alkaline metals)	Excellent	Very good (except very strong alkalis at high temperatures)
Organic solvents	Very good except some halogenated solvents that may cause softening at high temperature and pressure.	Excellent	Excellent

Fluorinated insulation materials are known to be highly resistant to chemical products such as solvents or hydrocarbons, but they are also capable of resisting all other types of aggressive or corrosive environments. The table below indicates the degrees of resistance of fluorinated insulation materials to chemical products with varying corrosive properties. For further information about fluorinated insulation materials, contact our technical department.

Thermal classification of insulations

Temperature class

- Y: 90 °C • A: 105 °C • E: 120 °C • B: 130 °C • F: 155 °C • H: 180 °C • C: > 180 °C

