

T15 Selection Table

T15: Properties of insulating and sheathing materials

Only for the basic materials. Variations are possible depending on application/design. See the relevant catalogue page.

Material	Parameter											
	Abbreviation	VDE symbol	working temperature	dielectric constant (10^{-3})	volume resistivity ($\Omega \times \text{cm}$)	tensile strength N/mm ² MPa	Elongation %	Water absorption (20 °C) %	Weather resistance	Fuel resistance	Oil resistance	Flammability
Bio-oil resistant material	Lapp type: P4/11	–	-40 +120	2.4	10^{15}	10 – 20	450 – 550	1 – 2	very good	good	Bio-oil resistant very good	flammable
Polyvinylchloride	PVC	Y	-30 +70	4.0	$10^{12} - 10^{15}$	10 – 25	150 – 300	0.4	moderate	moderate	good	self-extinguishing
Polyvinylchloride heat resistant	PVC	Y	-20 +90	3.5	$10^{12} - 10^{15}$	10 – 25	150 – 300	0.4	moderate	moderate	good	self-extinguishing
High pressure Polyethylene	LDPE	2Y	-50 +70	2.3	10^{17}	20 – 30	500	0.1	good	poor	moderate	flammable
Low Pressure Polyethylene	HDPE	2Y	-50 +100	2.3	10^{17}	30	800	0.1	moderate	poor	moderate	flammable
Polyurethane	PUR	11Y	-40 +90/100	4.0 – 6.0	10^{12}	30 – 45	300 – 600	1.5	very good	good	good	self-extinguishing*
Polyamide	PA	4Y	-40 +80	3.5 – 7.0	10^{14}	50 – 180	200 – 300	1 – 2	good	moderate	good	flammable
Polybutylene terephthalate	PBTP	–	-60 +110	3.0 – 4.0	10^{16}	50 – 100	50 – 300	0.5	good	good	good	flammable
Polytetrafluorethylene	PTFE	5Y	-190 +260	2.1	10^{18}	14 – 40	240 – 400	0.01	very good	very good	very good	non-flammable
Tetrafluorethylene Hexafluorpropylene Copolymer	FEP	6Y	-100 +200	2.1	10^{18}	20 – 25	250 – 350	0.01	very good	very good	very good	non-flammable
Ethylene-tetrafluorethylene	ETFE	7Y	-100 +150	2.6	10^{16}	40 – 50	100 – 300	0.01	very good	very good	very good	non-flammable
Perfluoralkoxy-polymer	PFA	–	-190 +260	2.1	10^{15}	30	300	0.01	very good	very good	good	non-flammable
Chloropren rubber	CR	5G	-40 +100	6.0 – 8.0	10^{13}	25	450	1	very good	poor	good	self-extinguishing
Silicone rubber	SI	2G	-60 +180	2.8 – 3.2	10^{15}	5 – 10	200 – 350	1.0	very good	poor	moderate	less flammable
Ethylene vinyl acetate	EVA	4G	-30 +125	5 – 7	10^{13}	5	200	0.01	good	poor	poor	flammable
Ethylene propylen rubber	EPM/EPDM	3G	-30 +120	3.2	10^{14}	5 – 25	200 – 450	0.02	good	poor	poor	flammable
Thermoplastic polyolefin elastomer	TPE-O	–	-40 +120	2.7 – 3.6	5×10^{14}	≥ 6	≥ 400	1.5	very good	moderate	moderate	flammable
Thermoplastic polyester elastomer	TPE-E	12Y	-70 +125	3.7 – 5.1	10^{12}	3 – 25	280 – 650	0.3 – 0.6	very good	good	very good	flammable
Styrene triple block copolymer	TPE-S	–	-75 +105/140	2.2 – 2.6	10^{16}	9 – 25	500 – 700	1 – 2	moderate	good	poor	flammable

* only with additional flame retardener