



## Properties of cable insulation and sheathing

Applies only to the base materials. Deviations are possible depending on the use/design. Please refer to the relevant page in the catalogue.

Usage criteria	Material					
	Material resistant to org. oils	Polyvinylchloride	Polyethylene	Polyurethane	Polytetrafluoroethylene	Tetrafluoroethylene Hexafluoropropylene copolymer
Parameter						
Abbreviations	Special TPE	PVC	PE	PUR	PTFE	FEP
Code as per VDE	–	Y	2Y	11Y	5Y	6Y
Operating temperature	-50 +120	-30 +70	-50 +70	-50 +90	-190 +260	-100 +200
Dielectric constant (10–3)	2.4	4.0	2.3	4.0 – 6.0	2.1	2.1
Volume resistivity ( $\Omega \times \text{cm}$ )	1015	1012 – 1015	1017	1012	1018	1018
Tensile strength in N/mm <sup>2</sup> (MPa)	5 – 20	10 – 25	15 – 30	15 – 45	15 – 40	20 – 25
Elongation at break in %	400 – 600	150 – 400	400 – 800	300 – 600	240 – 400	250 – 350
Water absorption (20 °C) in %	1 – 2	0.4	0.1	1.5	0.01	0.01
Weather resistance	very good	good	good	very good	very good	very good
Fuel resistance	good	moderate	moderate	good	very good	very good
Oil resistance	Resistance to org. oil: very good	moderate	moderate	good	very good	very good
Flammability	flammable	self-extinguishing	flammable	self-extinguishing*	non-flammable	non-flammable

Usage criteria	Material					
	Ethylene tetrafluoroethylene	Chloroprene rubber	Silicone rubber	Ethylene propylene dien rubber	Thermoplastic elastomer polyolefin based	Thermoplastic elastomer polyester based
Parameter						
Abbreviations	ETFE	CR	SI	EPDM	TPE-O	TPE-E
Code as per VDE	7Y	5G	2G	3G	–	12Y
Operating temperature	-100 +150	-40 +100	-60 +180	-30 +120	-40 +120	-70 +125
Dielectric constant (10–3)	2.6	6.0 – 8.0	2.8 – 3.2	3.2	2.7 – 3.6	3.7 – 5.1
Volume resistivity ( $\Omega \times \text{cm}$ )	$10^{16}$	$10^{13}$	$10^{15}$	$10^{14}$	$5 \times 10^{14}$	$10^{12}$
Tensile strength in N/mm <sup>2</sup> (MPa)	40 – 50	10 – 25	5 – 10	5 – 25	≥ 6	3 – 25
Elongation at break in %	100 – 300	300 – 450	200 – 350	200 – 450	≥ 400	280 – 650
Water absorption (20 °C) in %	0.01	1	1.0	0.02	1.5	0.3 – 0.6
Weather resistance	very good	very good	very good	good	moderate	very good
Fuel resistance	very good	moderate	low	moderate	moderate	good
Oil resistance	very good	good	moderate	moderate	moderate	very good
Flammability	non-flammable	self-extinguishing	hardly flammable	flammable	flammable	flammable