

Insulation materials

The choice of insulation material is made according to extension wire (cable) application. Most important properties are temperature, water, and aggressive media resistance. Approximate values for some commonly used materials are given in the table below.

		Standard PVC	Heat-resistant PVC	Silicone rubber	Chloroprene rubber	Fiber-glass	Teflon FEP	Teflon PTFE
Dielectric constant	μ_r	5.5...6.5	5.0...6.0	2.3	3		2.1	2.1
Resistance at 20 °C	$[\Omega \cdot \text{cm}]$	10^{12}	10^{14}	$> 10^{14}$	$10^9 \dots 10^{12}$		$> 2 \cdot 10^{18}$	$> 10^{18}$
Tensile strength	$[\text{kp}/\text{cm}^2]$	125	125	40	100...250		190...220	175...270
Max. operation temperature	$[\text{°C}]$	70	105	200	80	400	205	260
Specific weight	$[\text{g}/\text{cm}^3]$	1.3	1.3	1.15...1.3	1.35...1.65		2.14...2.17	2.14...2.19
Flammability		A	A	A	A	B	C	C
Moisture absorption		negligible	negligible	negligible	negligible	none	none	none
Water pressure resistance		good	good	fair	good	poor	very good	very good
Resistance to chemicals	bases	+	+	+	+	+	+	+
	acids	+	+	+	+	+	+	+
	alcohol	+	+	+	+	+	+	+
	petrol	+	+	+	○	+	+	+
	benzene	-	-	-	-	+	+	+
	petroleum oils	+	+	+	+	+	+	+

A = self-extinguishing B = non-combustible C = non-flammable + = good ○ = fair - = not recommended