

Chemical resistance of PVC and PUR cable jackets

Anorganic	Concentration	Degree of resistance PVC	Degree of resistance PUR
Alaune	c.s.	+	
Aluminum salts	ec.	+	
Ammonia , a	10%	+	+
Ammonium acetate, a	ec.	+	
Ammonium carbonate, a	ec.	+	-
Ammonium chloride, a	ec.	+	+
Barium salts	ec.	+	+
Boric acid	100%	+	O
Calcium chloride, a	c.s.	+	O
Calcium chloride, a	10 and 40%		+
Calcium nitrate, a	c.s.	+	
Chrome salts, a	c.s.	+	+
Potassium carbonate, a (potash)		+	
Potassium chlorate, a	c.s.	+	
Potassium chloride, a	c.s.	+	O
Calcium dichromate, a		+	
Calcium iodide, a		+	
Calcium nitrate, a	c.s.	+	+
Potassium permanganate , a		O	-
Potassium sulfate, a		+	+
Copper salts, a	c.s.	+	+
Magnesium salts, a	c.s.	+	O
Sodium carbonate, a (Natron)		+	O
Sodium bisulfate, a		+	
Sodium chloride , a (common salt)		+	+
Sodium thiosulfate, a (fixing salt)		+	O
Nickel salts, a	c.s.	+	+
Phosphoric acid	50%	+	-
Mercury	100%	+	+
Mercury salts, a	c.s.	+	+
Nitric acid	30%	-	-
Hydrochloric acid	concentration	-	
Sulfur	100%	+	+
Sulfur dioxide,	gaseous	+	O
Carbon disulfide		-	-
Hydrogen sulfide		+	-
Sea water		+	+
Silver salts, a		+	+
Hydrogen peroxide, a	3%	+	+
Zinc salts, a		+	-
Tin(II) chloride		+	

Organic	Concentration	Degree of resistance PVC	Degree of resistance PUR
Ethyl alcohol	100%	-	-
Formic acid	30%	-	-
Benzine/Benzene		-	+
Succinic acid, a	c.s.	+	
Acetic acid	20%	O	O
Hydraulic oil		-	O
Isopropyl alcohol	100%	-	O
Kerosene			+
Machine oil		O	O
Methyl alcohol, a	100%	O	O
Mineral oil, depending on type (ASTM)			±
Oxalic acid, a	c.s.	+	
Paraffin oil			+
Plant oils and greases		+	+
Cutting oil		O	+
Tartaric acids, a		+	
Citric acid		+	

Legend: ec. = each concentration + = resistant
c.s. = cold saturated O = conditionally resistant
a = aqueous - = unstable

Properties of isolation materials

Material	Abb.	Short abbreviation	Service temperature °C	Dielectric constant 10 ³	spec. contact Ohm x cm	Tensile strength N/mm ²	Elongation at break %	Absorption of water (20 °C) %	Weathering resistance	Fuel resistance	Oil resistance	Flammability
Polyvinyl chloride	PVC	Y	-30/+70	4-7	10 ¹² - 10 ¹⁵	10-25	150-300	0.4	moderate	moderate	good	self-extinguishing
Polyvinyl chloride 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	low	moderate	flammable
Low pressure polyethylene	HDPE	2Y	-50/+100	2.3	10 ¹⁷	30	800	0.1	moderate	low	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
Polytetrafluoroethylene	PTFE	5Y	-190/+260	2.1	10 ¹⁸	14-40	240-400	0.01	very good	very good	very good	not flammable
tetrafluoroethylene hexafluoropropylene Copolymer	FEP	6Y	-100/+200	2.1	10 ¹⁸	20-25	250-350	0.01	very good	very good	very good	not flammable
Ethylene tetrafluoroethylene	ETFE	7Y	-100/+150	2.6	10 ¹⁶	40-50	100-300	0.01	very good	very good	very good	not flammable
Perfluoroalkoxy polymer	PFA	-	-190/+260	2.1	10 ¹⁵	30	300	0.01	very good	very good	good	not flammable
Chloroprene rubber	CR	5G	-40/+100	6.0-8.0	10 ¹³	25	450	1.0	very good	low	good	self-extinguishing
Silicon rubber	SI	2G	-60/+180	2.8-3.2	10 ¹⁵	5-10	200-350	1.0	very good	low	moderate	flame flammable
Ethylene vinyl acetate	EVA	4G	-30/+125	5-7	10 ¹³	5	200	0.01	good	low	low	flammable
Ethylene propylene rubber	EPM/ EPDM	3G	-30/+120	3.2	10 ¹⁴	5-25	200-450	0.02	good	low	low	flammable
Thermoplastic polyolefin Elastomer	TPE-O	18Y	-40/+120	2.7-3.6	5 x 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
Styrol triblock Copolymer	TPE-S	-	-75/+105/140	2.2-2.6	10 ¹⁶	9-25	500-700	1-2	moderate	good	low	flammable

Only for basic materials, deviations are possible depending on the indented use/design.