

Halogen-free, thermoplastic, flame retardant sheathing compound for low and medium voltage cables

■ Compound class Sheathing	■ Compound category TP	■ Flame retardant MDH
■ Standards DIN EN 50363-8 TM7 IEC 60092-360 SHF 1 UL 1277 Oil Res I	DIN VDE 0276-604 HM4 VDE 0207 part 24 HM2, HM4 UL 1277 Oil Res II	DIN VDE 0281 part 14 TM7 VDE 0250 part 215 HM5 IEC 60502-1 ST8
■ Operating temperature [C°] -75 to 105	■ Oil resistance level ★★★★★	

■ Typical applications

Halogen-free, low smoke, thermoplastic, highly oil and extra fuel resistant, flame retardant compound for the sheathing of low and medium voltage cables for moving applications. (e. g. Green Energy/Shipboard)



Shipboard



Green Energy

■ Features



Flame retardant



Halogen-free



Low smoke



Flexible



Flexible at low temperatures



Oil resistant

PHYSICAL PROPERTIES

■ Physical properties	Unit	Typical value	Test method
Density*	g/cm ³	1,60	DIN EN ISO 1183-1A
Hardness*	Shore A	88	DIN ISO 7619-1
Mooney viscosity, ML (1+4) 160°C	MU	71	DIN 53 523
■ Water absorption **	Unit	Typical value	Test method
Water absorption after 24h at 90°C	mg/cm ²	0,99	DIN EN 60811-402
Water absorption after 240h at 70°C	mg/cm ²	0,97	DIN EN 60811-402

MECHANICAL PROPERTIES

■ Thermoplastic	Unit	Typical value	Test method
Tensile strength **	N/mm ²	15,0	IEC 60811-501
Elongation at break **	%	220	IEC 60811-501
Pulley flexing test	Cycles	>30.000	EN 50 396 cl. 6.2

■ After ageing in air oven 168h at 136°C **	Unit	Typical value	Test method
Variation in tensile strength	%	-11,3	IEC 60811-401
Variation in elongation at break	%	-15,5	IEC 60811-401

THERMAL PROPERTIES **

■ Low temperature tests	Unit	Typical value	Test method
Cold bend test at -40°C	-	No cracks	IEC 60811-504
Brittleness temperature	°C	-75	ASTM D 746
Elongation at break @ -40°C	%	37	DIN EN ISO 527
Elongation at break @ -50°C	%	24	DIN EN ISO 527
■ Heat tests	Unit	Typical value	Test method
Hot pressure test: penetration 6h at 90°C	%	14	IEC 60811-508
Hot pressure test: penetration 6h at 100°C	%	16	IEC 60811-508
Hot pressure test: penetration 6h at 120°C	%	21	IEC 60811-508
Heat shock 1h at 150°C	%	Pass	IEC 60811-509

RESISTANCE **

■ Fluid IRM 902 168h at 100°C	Unit	Typical value	Test method
Variation in tensile strength	%	-3,3	IEC 60811-404
Variation in elongation at break	%	-16,8	IEC 60811-404
Variation in weight	%	+9,0	IEC 60811-404
■ Fluid IRM 902 100h at 150°C	Unit	Typical value	Test method
Variation in tensile strength	%	-26,0	IEC 60811-404
Variation in elongation at break	%	+5,0	IEC 60811-404
Variation in weight	%	+17,0	IEC 60811-404
■ Fluid IRM 902 1440h at 80°C	Unit	Typical value	Test method
Variation in tensile strength	%	-6,7	IEC 60811-404
Variation in elongation at break	%	-15,5	IEC 60811-404
Variation in weight	%	7,0	IEC 60811-404
■ Fluid IRM 903 168h at 70°C	Unit	Typical value	Test method
Variation in tensile strength	%	-10,0	IEC 60811-404
Variation in elongation at break	%	-23,6	IEC 60811-404
Variation in weight	%	+12,0	IEC 60811-404
■ Diesel 24h at 23°C	Unit	Typical value	Test method
Variation in tensile strength	%	-11,3	IEC 60811-404
Variation in elongation at break	%	-14,5	IEC 60811-404
Variation in weight	%	+5,0	IEC 60811-404
■ Diesel 24h at 100°C	Unit	Typical value	Test method
Variation in tensile strength	%	-31,3	IEC 60811-404
Variation in elongation at break	%	-15,5	IEC 60811-404
Variation in weight	%	+18,0	IEC 60811-404

■ Ozone resistance	Unit	Typical value	Test method
Method A (250 ppm, 24h, 25°C)	%	no cracks	EN 50396

BURNING PROPERTIES *

■ Main burning properties	Unit	Typical value	Test method
LOI	%	40	ASTM D 2863 A
Amount of halogen acid gas	mg/g	<5	IEC 60754-1
Toxicity index	-	4.57	EN 50305
■ Acid gas emission	Unit	Typical value	Test method
Corrosivity: pH (min.)	-	6,45	IEC 60754-2
Conductivity (max.)	µS/mm	0,72	IEC 60754-2

* pressed plaques, 165°C / 5 min.

** extruded tapes

PROCESSING GUIDE

■ **Extruder Type**

Standard extruders for elastomeric or thermoplastic processing.

■ **Screw configuration**

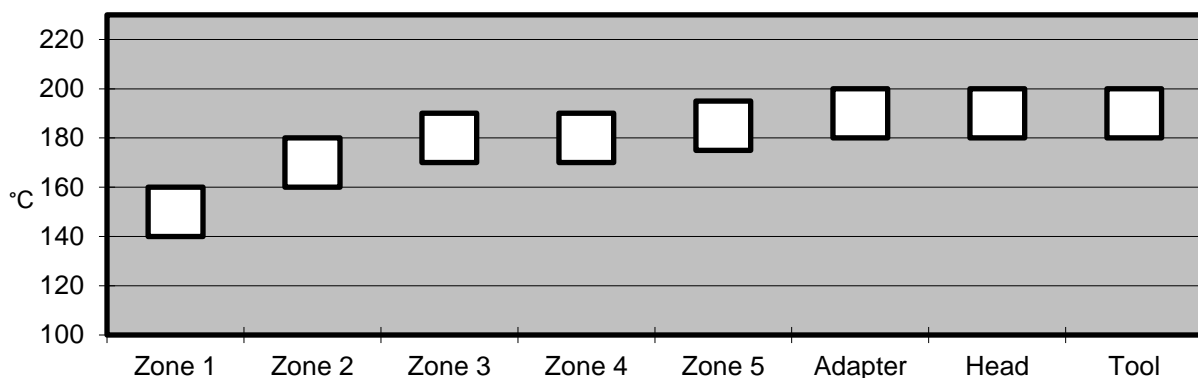
Low compression screw with L/D of 20 to 25 and compression ratio of 1:1.2

■ **Tooling**

For insulation pressure tools, for jacketing tube tools are recommended. Note: Pressure Tooling may have an effect on low temperature flexibility.

■ **Temperature profile extruder**

The profile shown below may vary slightly depending on extruder type, head design & output.



■ **Maximum mass temperature**

200 – 210°C

■ **Drying**

Not necessary if the compound has been stored in original packing under cool (max. 30°C) and dry conditions. Mecoline compounds used from open packing require pre-drying during 4–6 hours at 60–70°C.

STORAGE INFORMATION

■ **Form & packaging**

Pellets in sizes 2.8mm
Moisture-resistant bags (25kg) & octabins (alu-innerliner, max. 1250kg)

■ **Shelf life**

1 year after date of manufacturing

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