

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

■ Compound class Sheathing	■ Compound category TP	■ Flame retardant ATH
■ Standards DIN EN 50363-8 TM7 IEC 60092-360 SHF 1	DIN VDE 0276-604 HM4 VDE 0207 part 24 HM2, HM4	DIN VDE 0281 part 14 TM7 VDE 0250 part 215 HM5
■ Operating temperature [C°] -50 to 90	■ 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/Offshore)



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	1,61	DIN EN ISO 1183-1A
Hardness*	Shore A	89	DIN ISO 7619-1
Mooney viscosity, ML (1+4) 160°C	MU	58	DIN 53 523

MECHANICAL PROPERTIES

■ Thermoplastic	Unit	Typical value	Test method
Tensile strength **	N/mm ²	10,8	IEC 60811-501
Elongation at break **	%	300	IEC 60811-501
Pulley flexing test	Cycles	>30.000	EN 50 396 cl. 6.2
■ After ageing in air oven 168h at 80°C **	Unit	Typical value	Test method
Variation in tensile strength	%	+16,7	IEC 60811-401
Variation in elongation at break	%	-9,0	IEC 60811-401

■ After ageing in air oven 168h at 136°C **	Unit	Typical value	Test method
Variation in tensile strength	%	-6,5	IEC 60811-401
Variation in elongation at break	%	-11,0	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	-42	ASTM D 746
■ Heat tests	Unit	Typical value	Test method
Hot pressure test: penetration 6h at 90°C	%	12	IEC 60811-508
Hot pressure test: penetration 6h at 100°C	%	18	IEC 60811-508
Heat shock 1h at 150°C	%	Pass	IEC 60811-509

RESISTANCE **

■ Fluid IRM 902 1440h at 80°C	Unit	Typical value	Test method
Variation in tensile strength	%	+13,0	IEC 60811-404
Variation in elongation at break	%	+4,3	IEC 60811-404
Variation in weight	%	+6,7	IEC 60811-404
■ Fluid IRM 902 336h at 90°C	Unit	Typical value	Test method
Variation in tensile strength	%	+6,5	IEC 60811-404
Variation in elongation at break	%	-3,0	IEC 60811-404
Variation in weight	%	+6,9	IEC 60811-404
■ Fluid IRM 902 120h at 100°C	Unit	Typical value	Test method
Variation in tensile strength	%	+9,3	IEC 60811-404
Variation in elongation at break	%	-4,7	IEC 60811-404
Variation in weight	%	+8,0	IEC 60811-404
■ Fluid IRM 902 100h at 150°C	Unit	Typical value	Test method
Variation in tensile strength	%	-10,1	IEC 60811-404
Variation in elongation at break	%	+37,1	IEC 60811-404
Variation in weight	%	+16,4	IEC 60811-404
■ Diesel 24h at 23°C	Unit	Typical value	Test method
Variation in tensile strength	%	-9,1	IEC 60811-404
Variation in elongation at break	%	-14,2	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	%	+10,2	IEC 60811-404
Variation in elongation at break	%	-21,4	IEC 60811-404
Variation in weight	%	+18,0	IEC 60811-404

BURNING PROPERTIES *

■ Main burning properties	Unit	Typical value	Test method
LOI	%	38	ASTM D 2863 A
Toxicity index (ITC)	-	3,6	EN 50305
Toxicity index (max.)	-	1,2	NES 713
Amount of halogen acid gas	mg/g	<5	IEC 60754-1
■ Acid gas emission	Unit	Typical value	Test method
Corrosivity: pH (min.)	-	5,0	IEC 60754-2
Conductivity (max.)	μS/mm	0,4	IEC 60754-2

ELECTRICAL PROPERTIES*

■ Major electrical properties	Unit	Typical value	Test method
Volume resistivity (500 V, 23°C)	Ω cm	2,2*10¹¹	VDE 0303-30
Volume resistivity (500 V, 90°C)	Ω cm	3,8*10¹⁰	VDE 0303-30

* pressed plaques, 165°C / 5 min.

** extruded tapes

PROCESSING GUIDE

■ **Extruder Type**

Standard extruders for elastomeric or thermoplastic processing.

■ **Screw configuration**

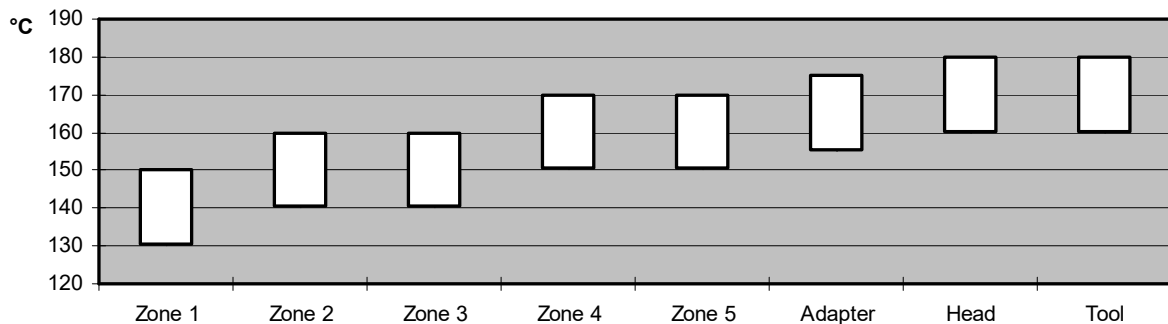
Low compression screw with L/D of 20 to 25 and compression ratio of 1:1.2

■ **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**

170 – 180°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 & 5.5mm
Moisture-resistant bags (25kg) & octabins (alu-innerliner, max. 1250kg)

■ **Shelf life**

1 year after date of manufacturing

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