Technical data sheet

Mecoline S TP 1013 F

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

■ Compound class	■ Compound category	■ Flame retardant
Sheathing	TP	ATH

■ Standards

DIN EN 50363-8 TM7	DIN VDE 0276-604 HM4	DIN EN 50525-3-11 TM7
IEC 60092-360 SHF 1	VDE 0207 part 24 HM2, HM4	VDE 0250 part 215 HM5

■ Operating temperature [C°]	■ Oil resistance level
-50 to 90	★★★★★

■ 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/cm³	**1,61**	DIN EN ISO 1183-1A
Hardness*	Shore A	**89**	DIN ISO 48-4
Mooney viscosity, ML (1+4) 160°C	MU	**58**	DIN ISO 289-1

MECHANICAL PROPERTIES

■ Thermoplastic	Unit	Typical value	Test method
Tensile strength **	N/mm²	**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

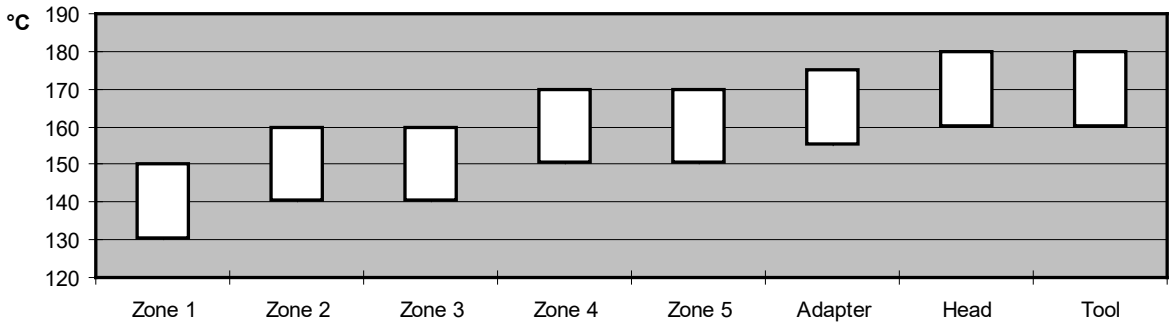
ELECTRICAL PROPERTIES*

■ Major electrical properties	Unit	Typical value	Test method
Volume resistivity (500 V, 23°C)	Ω cm	**$2{,}2*10^{11}$**	VDE 0303-30
Volume resistivity (500 V, 90°C)	Ω cm	**$3{,}8*10^{10}$**	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

S TP 1013 F TDS ENG rev11 *06.11.2020* SK