

RavaSafe® ZH-LSF 451 is a thermoplastic zero halogen, low smoke flame retardant compound designed for sheathing applications.

This compound presents a high temperature stress crack resistance which allows it to be used as sheathing for all types of large and armored / shielded cables and lower water absorption.

Standard norms (type of material): EN 50363 (M1); IEC 60502-1 (ST8); VDE 0207 (HM 4); BS 7655 (LTS1 , LTS2, LTS3, LTS4); IEC 60092 (SHF1); UNE 21123-4

Technical properties:

Physical and Mechanical Properties	Typical Value	Units (SI)	Test Method
Density, 23°C	1,51	g/cm³	ISO 1183-1 (ASTM D792)
Melt flow index (150°C /21,6kg)	7,1	g/10 min	ISO 1133 (b)
Hardness (15 seconds)	50	Shore D	ISO R 868 (ASTM D2240)
Water immersion test (24h @ 70°C)	0,12	mg/cm²	IEC 60811-402
Water immersion test (7d @ 70°C)	0,8	mg/cm²	BS 7655-6.1
Tear strength	7,7	N/mm	BS 6469-99.1
Unaged mechanical properties (200 mm/min)			
Tensile strength	15	MPa	IEC 60811-501
Elongation at break	190	%	
Thermal ageing 7 days at 120°C			
Tensile strength variation (Δ)	5	%	IEC 60811-501
Elongation at break variation (Δ)	-18	%	
Water Absorption 7 days at 70°C			
Tensile strength variation (Δ)	-13	%	BS 7655-6.1
Elongation at break variation (Δ)	-26	%	
Thermo Mechanical Properties			
Tear strength 50°C	6,3	N/mm	BS 6469-99.1
Thermal Crack Resistance (80°C)	Pass	-	Internal Method
Shrinkage (1h @ 80°C)	<0,1	%	IEC 60811-502/503
Hot Pressure Deformation (6h @ 90°C)	<50	%	IEC 60811-508
Elongation at break (-40°C)	>30	%	IEC 60811-505
Cold Bending Test (-40°C)	Pass	-	Internal Method
Oil resistance test 4h at 70°C (IRM 902 – immersion)			
Tensile strength variation (Δ)	-5	%	IEC 60811-404
Elongation at break variation (Δ)	10	%	

Flammability	Typical Value	Units (SI)	Test Method
Oxygen Index	33	%	ISO 4589-2 (ASTM D2863) IEC 60754-1
Halogen content	< 0,5	%	
Acid gas emission			
pH	> 4,3	/	IEC 60754-2
Conductivity	< 2,5	µS/mm	IEC 60754-1

Recommended extrusion profile:

Extrusion Temperatures	Zones							
	Z1	Z2	Z3	Z4	Z5	Collar	Head	Die
Temperature (Imperial)	266°F	284°F	302°F	320°F	320°F	329°F	338°F	338°F
Temperature (SI)	130°C	140°C	150°C	160°C	160°C	165°C	170°C	170°C

RavaSafe® ZH-LSF 451 is a product able to run on standard extruders, based on low compression screw and head. This compound is supplied in aluminum foil bags. Pre-drying is not required before extrusion process.

RavaSafe® ZH-LSF 451 is colorable. A full range of specific color masterbatches (RAVACOLOR™) and additive masterbatches (RAVABOOST™) are available.

For any further information, please contact Ravago W&C.

The material description is subject to changes during the validation period of the product.

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