



# RavaSafe® ZH-LSF 21

## Ravago Manufacturing Europe - Thermoplastic

### General Information

#### Product Description

RavaSafe® ZH-LSF 21 is a thermoplastic zero halogen, low smoke flame retardant compound designed for general purpose insulation and sheathing applications. This compound combines excellent flame retardancy, good processing, good mechanical properties and lower water absorption.

Typical Application: Telecom, LV power cable application Standard norms (type of material) : EN 50363 (T17, TM7), VDE 0207 / 0250 (HM2&4, HI2) , BS 7655 (LTS1 , LTS2, LTS3, LTS4) , IEC 60502 (ST8), IEC 60092-360 (SHF1)

#### General

Material Status	• Commercial: Active		
Availability	• Europe	• Latin America	• North America
Additive	• Flame Retardant		
Features	• Flame Retardant • Good Processability	• Halogen Free • Low Smoke Emission	• Low to No Water Absorption
Uses	• Wire & Cable Applications		
Appearance	• Colors Available		
Processing Method	• Extrusion		

### Properties <sup>1</sup>

Physical	Nominal Value	Unit	Test Method
Density / Specific Gravity	1.53	g/cm <sup>3</sup>	ASTM D792
Density (23°C)	1.53	g/cm <sup>3</sup>	ISO 1183
Melt Mass-Flow Rate (MFR) <sup>2</sup> (150°C/21.6 kg)	7.9	g/10 min	ISO 1133
Water Immersion - 7 days (70°C)	1.23	mg/cm <sup>2</sup>	IEC 60811-402
Mechanical	Nominal Value	Unit	Test Method
Tensile Stress <sup>3</sup>	11.5	MPa	IEC 60811-501
Tensile Strain <sup>3</sup> (Break)	170	%	IEC 60811-501
Elastomers	Nominal Value	Unit	Test Method
Tear Strength (23°C)	6.50	kN/m	BS 6469 99.1
Hardness	Nominal Value	Unit	Test Method
Durometer Hardness (Shore D, 15 sec)	49		ASTM D2240
Shore Hardness (Shore D, 15 sec)	49		ISO 868
Aging	Nominal Value	Unit	Test Method
Change in Tensile Stress			
70°C, 4 hr, in IRM 902 Oil	-7.0	%	IEC 60811-404
120°C, 168 hr	6.0	%	IEC 60811-501
Change in Tensile Strain at Break			
70°C, 4 hr, in IRM 902 Oil	-10	%	IEC 60811-404
120°C, 168 hr	-16	%	IEC 60811-501

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Flammability	Nominal Value	Unit	Test Method
Oxygen Index	39	%	ASTM D2863
Oxygen Index	39	%	ISO 4589-2
Acid Gas Emission Conductivity	< 2.50	µS/mm	IEC 60754-2
Acid Gas Emission pH	> 4.30		IEC 60754-2
Halogen Content	< 1	%	IEC 60754-1

### Processing Information

Extrusion	Nominal Value	Unit
Cylinder Zone 1 Temp.	130	°C
Cylinder Zone 2 Temp.	140	°C
Cylinder Zone 3 Temp.	150	°C
Cylinder Zone 4 Temp.	160	°C
Cylinder Zone 5 Temp.	160	°C
Adapter Temperature	165	°C
Head Temperature	170	°C
Die Temperature	170	°C

### Extrusion Notes

RavaSafe® ZH-LSF 21 is a product able to run on standard extruders, based on low compression screw and head. This compound is supplied in aluminium foil bags. Pre-drying is not required before extrusion process.

### Notes

<sup>1</sup> Typical properties: these are not to be construed as specifications.

<sup>2</sup> Procedure B

<sup>3</sup> 200 mm/min