

ThermaGon 9181N (Natural)

Description

ThermaGon 9181N is a non-halogenated, thermoplastic, low smoke, low corrosive and low toxicity flame-retarded compound designed for use as wire and cable jacketing. The compound is formulated to have a good balance of flame-retardant properties, processibility and physical properties. ThermaGon 9181N is recommended for 90°C applications requiring good hot deformation resistance for electrical cables. The compound is supplied as natural pellets and may be colored with EVA or PE masterbatch to the desired color.

ThermaGon 9181N is designed to pass the IEEE-383, UL 1581, and IEC 332-3 Vertical Tray Cable Flame Tests and the IEC 332-1 Vertical Single Cable Flame Test for typical cable constructions. The compound is also designed to pass the UL 1277 Electrical Power and Control Cables Test, the UL 1655 Standard for Community-Antenna Television Cables and the UL 1666 Riser Cable Flame Test.

Typical Properties

Property	Test Method	Value	Unit
Density	ASTM D-1505	1.55	g/cm ³
Tensile Strength at Break *	ASTM D-638	1990 13.7	psi MPa
Elongation at Break *	ASTM D-638	165	%
Heat Aging *			
Retained Tensile at Break Aged 168 hours @ 121°C	ASTM D-638	2450 (123%) 16.9 (123%)	psi MPa
Retained Elongation at Break Aged 168 hours @ 121°C		140 (85%)	%
Fluid Resistance *			
ASTM #2 Oil, 4 hr. @ 70°C			
Retained Tensile		1750 (88%) 12.1 (88%)	psi Mpa
Retained Elongation		180 (109%)	%
1 Molar HCl, 168 hr. @ 23°C			
Retained Tensile		1770 (89%) 12.2 (89%)	psi Mpa
Retained Elongation		150 (91%)	%
1 Molar NaOH, 168 hr. @ 23°C			
Retained Tensile		1730 (87%) 11.9 (87%)	psi Mpa
Retained Elongation		140 (85%)	%

* Properties determined from 50 mil (1.27 mm) compression-molded plaques; Specimens pulled at 2"/min. crosshead speed.

Typical Properties (cont.)

Property	Test Method	Value	Unit
Hot Deformation at 100°C	UL 1277, UL 1581	5.20	%
Durometer Hardness	ASTM D-2240	93	Shore A
Tear Strength	ASTM D-470	61	lb/in
Cold Bend**	- 25°C	Pass (no cracks)	
Heat Shock**	121°C for 1 hour	Pass (no cracks)	
Limiting Oxygen Index	ASTM D-2863	38	%
Smoke Density (50 mil plaques) Flaming Mode D _m (corrected) Time to 90% D _m	ASTM E-662	56 7.9	D (Max) minutes
Non Flaming Mode D _m (corrected) Time to 90% D _m		208 8.1	D (Max) minutes
Halogen Gas Release	IEC 60754-1	none	
Acid Gas Test	IEC 60754-2	4.80 3.00	pH μS/mm
Smoke Index (50 mil plaques)	NES 711	46	
Toxicity Index	NES 713	0.07	
Critical Temperature Index	NES 715	340	°C

* Properties determined from 50 mil (1.27 mm) compression-molded plaques; Specimens pulled at 2"/min. crosshead speed.

** Properties determined from 30 mil (0.76 mm) insulation on 14 AWG wires.

Processing

ThermaGon 9181N can be processed with different commercially available extruders. For optimum conditions, it is recommended that 9181N be processed with a low compression and low shear screw. For tubing operations, the draw down ratio should be kept low.

The processing temperature profile may be kept relatively flat from 280 to 330°F (138 to 166°C). Processing above 350°F (177°C) is not recommended because of possible degradation of the flame retardant filler.

For complete recommended processing conditions, see bulletin on ThermaGon 9181N Processing.

Handling and Storage

Stenidy Industries recommends that ThermaGon 9181N be stored at ambient temperature (10 to 27°C), tightly sealed in the original container and away from moisture and high humidity.

Drying before processing is not required for most applications. In the event that the compound is exposed to moisture for an extended period, the compound may be dried in a desiccant dryer set at 155°F (68°C) before processing. The compound should not be dried above 180°F (82°C).

Stenidy Industries, Inc. believes the information on this data sheet to be true and accurate. Stenidy Industries makes no warranty or representation regarding the results that may be obtained by the user. In using this material, the processor should establish the conditions most suitable for the processor's production equipment and methods.

Stenidy Industries, Inc.
10305 Cottonwood Court
Zionsville, Indiana 46077
USA

www.stenidy.com
Telephone 317-873-5343

SII 9181N-0002