

## ThermaGon 9181B (Black)

### Description

ThermaGon 9181B 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 9181B is recommended for 90°C applications requiring good hot deformation resistance for electrical cables. ThermaGon 9181B has excellent stability to ultraviolet light and is recommended for cables exposed to outdoor light. The compound is supplied as black pellets.

ThermaGon 9181B 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 <sup>3</sup>
Tensile Strength at Break *	ASTM D-638	2080 14.3	psi MPa
Elongation at Break *	ASTM D-638	155	%
Heat Aging *			
Retained Tensile at Break Aged 168 hours @ 121°C	ASTM D-638	2270 (109%) 15.6 (109%)	psi MPa
Retained Elongation at Break Aged 168 hours @ 121°C		125 (81%)	%
UV Exposure *			
Retained Tensile at Break Aged 1000 hr., QUV A	ASTM D-638	2060 (99%) 14.2 (99%)	psi MPa
Retained Elongation at Break Aged 1000 hr., QUV A		135 (87%)	%
UV Exposure *			
Retained Tensile at Break Aged 1000 hr., QUV B	ASTM D-638	2040 (98%) 14.1 (98%)	psi Mpa
Retained Elongation at Break Aged 1000 hr., QUV B		130 (84%)	%

\* 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
Fluid Resistance * ASTM #2 Oil, 4 hr. @ 70°C Retained Tensile Retained Elongation		1915 (92%) 13.2 (92%) 165 (106%)	psi Mpa %
1 Molar HCl, 168 hr. @ 23°C Retained Tensile Retained Elongation		1890 (91%) 13.0 (91%) 140 (90%)	psi Mpa %
1 Molar NaOH, 168 hr. @ 23°C Retained Tensile Retained Elongation		1800 (87%) 12.4 (87%) 130 (84%)	psi Mpa %
Hot Deformation at 100°C	UL 1277, UL 1581	3.60	%
Durometer Hardness	ASTM D-2240	93	Shore A
Tear Strength	ASTM D-470	59	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 <sub>m</sub> (corrected) Time to 90% D <sub>m</sub>  Non Flaming Mode D <sub>m</sub> (corrected) Time to 90% D <sub>m</sub>	ASTM E-662	62 7.8  219 8.4	D (Max) minutes  D (Max) minutes
Halogen Gas Release	IEC 60754-1	none	
Acid Gas Test	IEC 60754-2	5.35 3.00	pH μS/mm
Smoke Index (50 mil plaques)	NES 711	65	
Toxicity Index	NES 713	0.024	
Critical Temperature Index	NES 715	346	°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 9181B can be processed with different commercially available extruders. For optimum conditions, it is recommended that 9181B 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 9181B Processing.

## **Handling and Storage**

Stenidy Industries recommends that ThermaGon 9181B 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 9181B-0002