

## ThermaGon 9786N (Natural)

### Description

ThermaGon 9786N 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 for demanding jacketing applications on cables requiring 105°C rating. ThermaGon 9786N demonstrates good flame-retardant properties and excellent physical properties, including heat aging resistance, hot deformation resistance, and resistance to fluids. ThermaGon 9786N also demonstrates very low shrinkback and low die swell properties. The compound is supplied as natural pellets and may be colored with standard color concentrates based on EVA or PE resins.

ThermaGon 9786N 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	1.57	g/cm <sup>3</sup>
Tensile Strength at Break *	ASTM D-638	1900 13.1	psi MPa
Elongation at Break *	ASTM D-638	200	%
Heat Aging *			
Retained Tensile at Break Aged 168 hours @ 136°C	ASTM D-638	1805 (95%) 12.4 (95%)	psi MPa
Retained Elongation at Break Aged 168 hours @ 136°C		170 (85%)	%
Fluid Resistance *			
ASTM #2 Oil, 4 hr. @ 70°C			
Retained Tensile		1635 (86%) 11.3 (86%)	psi Mpa
Retained Elongation		190 (95%)	%
1 Molar HCl, 168 hr. @ 23°C			
Retained Tensile		1785 (94%) 12.3 (94%)	psi Mpa
Retained Elongation		200 (100%)	%
1 Molar NaOH, 168 hr. @ 23°C			
Retained Tensile		1885 (99%) 13.0 (99%)	psi Mpa
Retained Elongation		220 (110%)	%

\* Properties determined from 50 mil (1.27 mm) compression-molded plaques; Specimens pulled at 20"/min. crosshead speed.

## Typical Properties (cont.)

Property	Test Method	Value	Unit
Hot Deformation at 100°C	UL 1277, UL 1581	1.70	%
Durometer Hardness	ASTM D-2240	92	Shore A
Tear Strength	ASTM D-470	58	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>	ASTM E-662	125 8.3	D (Max) minutes
Non Flaming Mode D <sub>m</sub> (corrected) Time to 90% D <sub>m</sub>		226 9.0	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	41	
Toxicity Index	NES 713	0.04	
Critical Temperature Index	NES 715	352	°C

\* Properties determined from 50 mil (1.27 mm) compression-molded plaques; Specimens pulled at 20"/min. crosshead speed.

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

## Processing

ThermaGon 9786N can be processed with different commercially available extruders. For optimum conditions, it is recommended that 9786N 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 300 to 340°F (149 to 171°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 9786N Processing.

## Handling and Storage

Stenidy Industries recommends that ThermaGon 9786N 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.

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