

**Product:** GenNex® 77N  
**Gendon Code:** 3302 (CV)  
3503 (E-Beam)



**Revision Date:** February 12, 2020

GenNex® 77 N Series of thermoset low smoke zero halogenated primary insulation compounds are designed to meet the requirements of UL44 for RHH/RHW-2 and XHHW-2 Type XL materials at 600 volts with optional VW-1 flame test. The GenNex 77 series is designed to process easily on standard wire and cable equipment, and provide an excellent balance of physical, electrical, and flame performance to the finished cable.

**Key Features:**

- Ease of Processing
- Excellent Flame Performance
- Halogen Free
- Excellent Physical Properties
- Colourable
- Meets VW-1 on 14awg wire

**Physical Properties:**

Density: 1.51 g/cm<sup>3</sup>  
Tensile: 1650 psi (typical)  
Elongation: 175% (typical)  
Durometer: 92 Shore A

**Electrical Properties:**

Insulation Resistance @ 15 °C	6500 MΩ·kft
Capacitance & Relative Permittivity @ 90 °C	
• SIC (24h)	3.9 (UL2556)
• Capacitance Increase, 1-14 days	0.5%
• Capacitance Increase, 7-14 days	0.3%
• Stability Factor	<1
Long Term Insulation Resistance in Water @ 90 °C	Pass (UL2556)

**Combustion Properties:**

Limited Oxygen Index (LOI):	39%
VW-1	Pass (UL 1581)
Acid Gas HCl Equivalent Test:	0.22%
NES 711 Smoke Index:	10.34

**Heat Aging:**

	<u>7d@121°C</u>
Tensile Retention	100%
Elongation Retention	100%

**Fluid Resistance:**

	<u>IRM 902 - 96h @ 100°C</u>
Tensile Retention	65%
Elongation Retention	135%

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**Suggested Running Conditions:**

Extruder L/D:	15:1 or 20:1	Comp. Ratio:	1.25:1	Screen Pack:	20 Mesh or none
Screw Type:	Single Flight metering, without mixing section				
Feed Zone:	190°F	Center Zone:	210°F	Head/Die:	230°F
Screw Cooling:	165°F	Die Cooling:	Recommended		
Gradient Cooling:	Not applicable	Color Concentrate:	EVA Binder preferred		

**Processing Techniques:**

GenNex® 77 Series of primary insulation compounds have been designed to process easily on standard extruders used in the production of wire and cable products. These materials are designed to process similar to elastomeric compounds, attaining maximum output levels at relatively low shear rates. Care should be taken to ensure that screw compression ratio levels are below 1.5:1, and flow restrictions in the crosshead are kept to a minimum. Melt temperature values above 260°F (125°C) should be avoided.

The material can be extruded using either pressure or sleeving techniques. For generation of optimum physical properties, a drawdown ratio of 1.15:1 can be used. Conductor preheating is recommended, with a suggested temperature of 150°F (65°C).

The GenNex 77 can be colored in line, however for maximum resistance to flame, it is recommended the material be supplied pre-pigmented to minimize the combustible material in the final compound.

All materials are supplied as free flowing pellets, packaged in sealed foil lined boxes and do not need to be dried prior to use. It is recommended that the foil liners be resealed after use to prevent outside contamination or water absorption during storage. If the material has been exposed to a high humidity environment, or the foil liner has not been sealed, it is recommended the material be dried for a minimum of 4 hours at 140°F (60°C) in a standard desiccant style dryer prior to use.

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