

Product Information

Nylon N605HS BK05

Nylon **N605HSL BK05** is an impact modified nylon 6 compound formulated primarily for extrusion applications, in particular convolute tubing. It is heat stabilized to enable finished tubing to retain toughness and ductility, even after prolonged exposure to the automotive under-hood environment.

N605HSL BK05 exhibits a balance of outstanding flexibility, ductility and toughness characteristics, combined with excellent abrasion resistance. Typical of Nylon 6 compounds, **N605HSL BK05** also maintains excellent resistance to the effects of a broad range of chemicals, oils and solvents.

High melt strength and broad processing latitude permit good dimension control combined with excellent production rates.

PRELIMINARY PROPERTIES DRY AS MOLDED

<u>PROPERTY</u>	<u>ASTM TEST METHOD</u>	<u>ENGLISH</u>		<u>S.I.</u>	
		<u>UNITS</u>	<u>VALUE</u>	<u>UNITS</u>	<u>VALUE</u>
Melting Range	D789	°F	420-428	°C	215-220
Specific Gravity	D792	-	1.07	-	1.07
Water Absorption (24 hrs. immersion)	D570	%	1.3	%	1.3
Heat Deflection Temp. at 264 lbs/in ² (1.82MPa)	D648	°F	115	°C	46
Tensile Strength at Yield	D638	lbs/in ²	6,500	MPa	45
Elongation at Break	D638	%	175-225	%	175-225
Flexural Modulus	D790	lbs/in ²	190,000	MPa	1,310
Izod Impact Strength (Notched, 1/8" specimen)	D256	ft. lbs ² of notch	2.8	J/m	150

All data generated using test specimens injection molded from black pigmented material. Inclusion of other additives may change some or all of these test results. Test specimens are stored in a moisture proof container immediately after molding and contain less than 0.2% moisture; tests are conducted at 23°C and 50% relative humidity unless otherwise stated.

These mechanical property test data have been developed using injection molded specimens tested under standardized conditions; furthermore, many of the mechanical properties of thermoplastic materials can be influenced by changes in processing conditions, environmental factors such as temperature and humidity, and rate of application of stress. Therefore, these test results, which characterize typical production material, should not be used either to establish specification limits or alone as the basis for engineering design.

N605HSL.BK05

EXTRUSION GUIDELINES

Material Handling

N605HSL.BK05 is supplied in sealed containers, and drying prior to extrusion is not required. If drying becomes necessary, a dehumidifying or desiccant dryer operating at 150°F is recommended. Drying time is dependent upon moisture level, and resin should be dried to less than 0.15% moisture. Further information concerning safe handling procedures can be obtained from the Product Material Safety Data Sheet.

Temperature Considerations

N605HSL.BK05 exhibits a crystalline melting point of 400°F, and a stock temperature range of 430-530°F is recommended for most tubing applications. A typical barrel profile is as follows (°F):

Rear:	430-460	Flange:	440-480
Middle:	430-460	Head:	440-480
Front:	440-480	Die:	440-480

Screw Recommendations

Length to Diameter Ratio:	20:1 to 24:1
Compression Ratio:	3.5:1 to 4.0:1
Metering Section:	40% of Screw
Transition Section:	3-4 Flights
Feed Section:	Balance of Screw Flights

Tooling/Sizing

Selection of pin and die size will be dependent on the material viscosity. In general, the ratio of die size to finished tube diameter is about 1.5-2.0:1. The mandrel (pin) size is determined the same way in relation to the inner tube diameter.

Free (open tank) extrusion is recommended when producing tube diameters 0.375" and below. For larger diameters, a differential pressure vacuum tank is recommended. Tooling draw ratio is generally higher with free extrusion versus vacuum sizing, but will depend on melt viscosity. The vacuum sizer entrance should be about 3-9% larger than the finished tube outer diameter. Again, selection will depend on melt viscosity and die swell of the extrudate.

Quenching

For diameters of 3/8" O.D. and smaller, open tank quenching with normal tap water is suggested. Depending upon line speed, quenching distance can vary from 25 to 40 feet. A short air gap (die to quench water) is recommended for both tubing and cable jacketing for best flexibility.