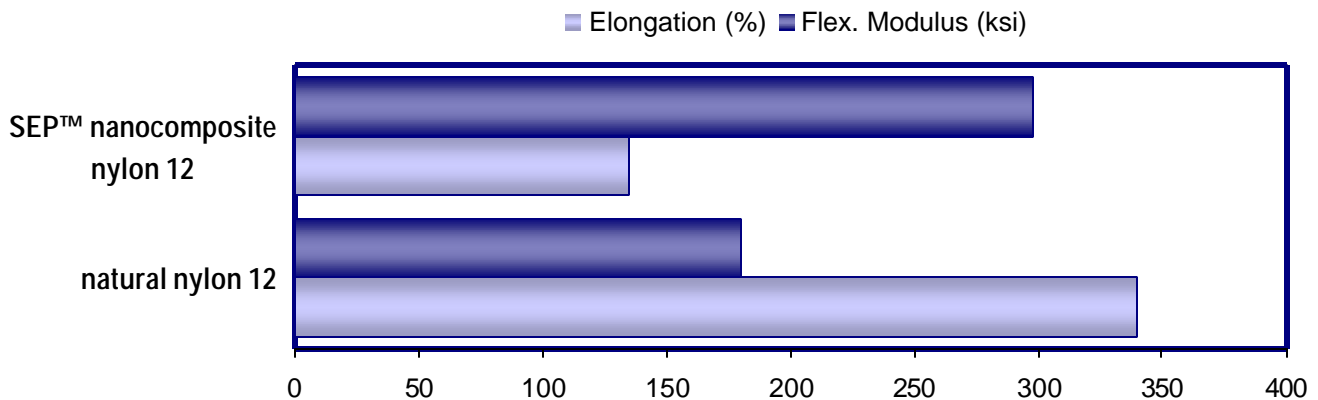




### SEP™ NANOCOMPOSITE NYLONS

Selectively enhanced polymers represent the latest in materials technology whereby selected properties are improved without detrimental trade-offs in other key properties. Foster's new SEP™ nanocomposite nylons offer a substantial increase in rigidity and stiffness while maintaining a high degree of the elongation inherent in the base polymer. Increased stiffness without brittleness is often required for to enhance the mechanical performance of thin wall tubing, film and similar products.

Traditionally, increase in stiffness has been achieved with fibers or particles made from glass, carbon or minerals, such as mica or talc. SEP™ nanocomposites incorporate <10% of nanometer sized clay particles in the base polymer. While one dimension of the particle additive is less than a nanometer, the other is 300 to 1,500 times this length. This extremely high 'aspect ratio' (length/thickness) is unmatched by traditional reinforcements and thus provides substantial property improvement in low loadings. With reduced loadings, attrition to other properties, such as elongation, is minimized. Additionally, low loadings of these extremely small reinforcements allow for excellent dispersion to the extent that transparent materials remain such in thin sections. There are also reports of increased barrier and flame retardancy properties.



#### FEATURES

- Improved stiffness
- Maintains elongation
- Retains transparency
- May enhance barrier properties
- May enhance flame retardancy

#### BENEFITS

- Improve mechanical performance of flexible products
- Reduces need for multi-component assemblies
- Increases design flexibility with thin section parts
- Allows for transparency with increased stiffness

#### **APPLICATIONS: TUBING, FILM, FLEXIBLE DEVICES, BARRIERS, AND MORE.**

For more information on these and other advanced polymer compounds, please contact Foster Corporation, a leader in specialty materials for leading edge industries.

#### **FOSTER CORPORATION**

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# TYPICAL PROPERTIES

## FOSTER'S SEP™ NANOCOMPOSITE NYLON 12 ( for Injection Molding, Extrusion and Film)

PROPERTIES	TEST METHOD	FOSTER SEP™ NYLON 12	NATURAL NYLON 12
Hardness, Durometer, D Scale	ASTM D 2240-91	<b>D78</b>	D73
Specific Gravity	ASTM D 792-91	<b>1.32</b>	1.02
Melt Index, gm/10 min (275°C, 5000 g)	ASTM D 1238-91	<b>4</b>	37
Heat Deflection Temperature, 264 psi/1.28 Mpa	ASTM D 648	<b>161 °F</b>	122 °F
Notched Izod, ft-lb/in (1/8" thick)	ASTM D256	<b>3.89</b>	2.60
Tensile Stress, psi @ 50% Elongation 100% Elongation	ASTM D 638-91	<b>7,700</b> <b>9,200</b>	6,200 8,300
Ultimate Tensile Stress, psi	ASTM D 638-91	<b>10,400</b>	9,800
Ultimate Elongation, %	ASTM D 638-91	<b>135</b>	340
Tensile Yield Stress, psi	ASTM D 638-91	<b>9,000</b>	6,600
Tensile Modulus, psi	ASTM D 638-91	<b>182,300</b>	159,400
Flexural Modulus, psi	ASTM D 970-91	<b>298,000</b>	180,000

(Note: The above listed properties are typical values and should not be used as specification values)

## GENERAL PROCESSING INFORMATION

Injection Molding Temperature, °F	390 - 430
Extrusion Temperature, °F	390 - 430

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