


Alathon® ETP

H4745

High Density Polyethylene
Injection Molding Grade
Melt Index 45 Density 0.946
Applications

ALATHON H4745 is a multi-purpose, high-flow resin featuring enhanced cold temperature impact performance, enhanced processing and thermal stability for fast cycling and exhibits good color and organoleptic properties. Typical applications are cultured dairy containers, margarine containers, butter tubs and promotional drink cups. Freezer applications include ice cream, sherbet and other frozen dessert containers.

Regulatory Status

H4745 meets the requirements of the Food and Drug Administration regulation 21 CFR 177.1520. This regulation allows the use of this olefin polymer in "...articles or components of articles intended for use in contact with food." Specific limitations or conditions of use may apply. Contact your Equistar sales representative for more information.

Processing Techniques

Specific recommendations for processing H4745 can only be made when the processing conditions, equipment and end use application are known. For further information please contact your Equistar Sales Representative or refer to the [Start-up Conditions for HDPE](#) on the Lyondell web site. Additional [Injection Molding Technical Topics](#) can also be found on the Lyondell web site.

Suggested Start-up Conditions

Extruder Zone	Rear	Center	Front	Nozzle
Cylinder Temperature, °F (°C)	450 (232)	470 (243)	475 (246)	475 (246)

Physical Properties

Resin Properties	Nominal Values				Test Method
	English Units	SI Units			
Melt Index, 190°C, 2.16 kg		45 g/10 min			ASTM D 1238
Spiral Flow ¹	19.2 in	48.8 (cm)			Equistar
Density		0.946 g/cc			ASTM D 1505
Bulk Density	37-39 lb/ft ³	593-625 kg/m ³			ASTM D 1895
Molded Properties					ASTM D 4796
Tensile Stress, Break	3,560 psi	25 MPa			ASTM D 638*
Elongation, Break		6.3 %			ASTM D 638*
Flexural Modulus, 1% Secant	142,000 psi	980 MPa			ASTM D 790**
Izod Impact, 23 °C	1.1 ft-lbs/in	59 J/m			ASTM D 256
Unnotched Impact, -18 °C	0.45 ft-lbs/in	24 J/m			ASTM D 256
Vicat Softening Point	250 °F	121 °C			ASTM D 1525
Hardness, Shore D		65			ASTM D 2240
Heat Deflection Temperature, 66 psi ²	147 °F	64 °C			ASTM D 648

See Page 2 for Other Properties

- ¹ Measures the number of inches of flow produced when molten resin is injected into a long, spiral channel (0.0625" insert), at a constant injection pressure of 1000 psi with a melt temperature of 440°F.
 - ² Data are for control and development work and not intended for use in design or predicting performance at elevated temperatures.
- * Conditions: 50 mm/min, Type IV
 ** Conditions: 12.5 mm/min


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**Other
 Properties**
Thermal Properties

 Melting Temperature
 Melting Temperature

Nominal Values
English Units

 259.5 °F
 234.1 °F

SI Units

 126.4 °C
 112.3 °C

Test Method

 ASTM D 3418
 ASTM D 3418

Molded Properties

 Flexural Modulus, 2% Secant
 Flexural Young's Modulus
 Tensile Modulus, 1% Secant
 Tensile Young's Modulus

English Units

 111,000 psi
 140,000 psi
 88,300 psi
 105,000 psi

SI Units

 765 MPa
 965 MPa
 609 MPa
 721 MPa

Test Method

 ASTM D 4976
 ASTM D 790**
 ASTM D 790**
 ASTM D 638***
 ASTM D 638***

** Conditions: 12.5 mm/min

*** Conditions: 50 mm/min, Type I

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