

Petrothene®

# LR590005

High Density Polyethylene

Wire and Cable Grade

Melt Index 0.80 Density 0.948

## Applications

PETROTHENE LR590005 is a high density, high molecular weight resin designed for primary insulation for electronic cables. This resin exhibits low shrinkback after extrusion, contains a lower level of antioxidant than the standard LR590000, and is not suitable for the telecommunications applications for which LR590000 was formulated. Antioxidant has been added to LR590005 along with a metal deactivator to ensure thermal stability during processing and to prevent degradation from copper while the cable is in service, respectively.

## Processing Techniques

LR590005, like other thermoplastic polyolefin resins, can be extruded as wire and cable insulation using a conventional extruder. Below are suggested extrusion conditions for LR590005. These conditions are intended as general guidelines only and are not optimum values, since manufacturing variables such as extruder type and size have an effect on the processing of thermoplastic resins.

## Suggested General Extrusion Conditions

Extruder Zone	Temperature Range	Extruder Zone	Temperature Range
Feed	300°-325°F (149°-163°C)	Adapter	475°-500°F (246°-260°C)
Zone 2	350°-400°F (177°-204°C)	Die	475°-500°F (246°-260°C)
Zone 3	400°-450°F (204°-232°C)	Melt Temperature	475°-500°F (246°-260°C)
Zone 4-X	460°-500°F (238°-260°C)		

## Industry Specifications

LR590005 meets the requirements of the following: ASTM D 1248-02, Type 111, Class A, Category 4, Grades E8 and E9; Federal LP 390C. Type 11. Class H. Category 4, Grade 1; and REA PE-22; REA 7CFR 1755.390.

## Typical Properties

Property	Nominal Value	Units	Test Method
Melt Index	0.80	g/10 min.	ASTM D 1238
Density	0.948	g/cc	ASTM D 1505
Low Temperature Brittleness, F <sub>50</sub>	<-76	°C	ASTM D 746
Thermal Stress Crack Resistance	0 Failures at 14 days in water at 100°C		Military Specification MS-17000
ESCR, 100% Igepal®	0 Failures in 7 days		ASTM D 1693
Tensile Strength @ Break	2,350 (16.2)	psi (MPa)	ASTM D 638
Tensile Stress @ Yield	3,150 (21.7)	psi (MPa)	ASTM D 638
Elongation @ Break	800	%	ASTM D 638
Dielectric Constant @ 1 MHz	2.33		ASTM D 1531
Dissipation Factor @ 1 MHz	0.00004		ASTM D 1531
Volume Resistivity, Original	1 x 10 <sup>18</sup>	ohm-cm	ASTM D 257

® Igepal is a registered trademark of the Rhône-Poulenc Co., Inc.

The information on this document is, to our knowledge, true and accurate. However, since the particular uses and the actual conditions of use of our products are beyond our control, establishing satisfactory performance of our products for the intended application is the customer's sole responsibility. All uses of Equistar products and any written or oral information, suggestions or technical advice from Equistar are without warranty, express or implied, and are not an inducement to use any process or product in conflict with any patent.

Equistar materials are not designed or manufactured for use in implantation in the human body or in contact with internal body fluids or tissues. Equistar makes no representation, promise, express warranty or implied warranty concerning the suitability of these materials for use in implantation in the human body or in contact with internal body tissues or fluids.

More detailed safety and disposal information on our products is contained in the Material Safety Data Sheet (MSDS). All users of our products are urged to retain and use the MSDS. A MSDS is automatically distributed upon purchase/order execution. You may request an advance or replacement copy by calling our MSDS Hotline at 800.700.0946.

®Petrothene is a registered trademark of Equistar Chemicals, LP.



Lyondell Chemical Company  
1221 McKinney, Suite 700  
P.O. Box 2583  
Houston, Texas 77252-2583  
800.615.8999  
<http://www.lyondell.com>