

## Data Sheet

# Endura® PE-203

## Endura® Flame Retardant Concentrate for Low and Linear Low Density Polyethylene

Endura® PE-203 is a highly-loaded polyethylene concentrate which can be let down with low density or linear low density polyethylene to make a flame-retardant compound suitable for compounding, film and sheet, blow molding, injection molding, or extrusion. Because of its high loading, Endura® PE-203 achieves physical properties comparable to the base resin and modified flammability characteristics with a low letdown ratio and a high level of thermal stability. Endura® PE-203 provides excellent non-blooming and UV resistant properties. Endura® PE-203 contains active brominated flame-retardants with antimony oxide synergist and stabilizers.

### Applications

#### Processes

Compounding  
Injection Molding  
Film and Sheet  
Blow Molding

#### End-use Markets

Construction and Agriculture Films  
Specialty Film and Sheet  
Housings  
Consumer Products

### Typical Properties\*

Property	Test Method	Result
Specific Gravity	ASTM D-792	1.7
Bulk Density, lb/ft <sup>3</sup>	ASTM D-1895	60
Recommended Processing Temperature		380 – 450 °F

### CONCENTRATES OFFER MANY ADVANTAGES

**Improved Properties** - Good dispersion is the key to maximum performance from flame-retardant additives. The flame retardant ingredients in our concentrates are predispersed and thoroughly wetted by the carrier resin. This results in improved flame retardancy and physical properties and in many cases lower loadings when compared to free powders.

**Cleaner, Improved Material Handling** - Plastics processors who use concentrates rather than dry powders benefit from a cleaner plant with minimal housekeeping effort. Employee dust exposure is greatly reduced and there are fewer materials to inventory. Material handling is simplified with free-flowing, non-bridging concentrates that can be transferred easily with pneumatic conveyors.

**More Efficient Production** - Concentrates increase compounding efficiency through higher production rates, less power consumption, higher yields and less abrasion and equipment wear.

### Handling and Use

Endura® flame-retardant concentrates are considered to be non-hazardous under normal conditions. Material Safety Data Sheets are available. You are encouraged to read and understand these documents before using the product. Since these products are used at elevated temperatures, fumes may be generated under some use conditions. Ventilation is necessary to minimize employee exposure to these fumes.

### Packaging and Samples

Standard packaging for concentrates is in 1,000-lb boxes, lined and on pallets. Optional are 250-lb fiber drums and 50-lb bags. To meet particular needs, boxes up to 1,400 lb can be supplied. Samples are available on request by calling Polymer Products' toll-free order number: 1-800-836-8589.

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## Data Sheet

### Flammability Data for Endura® PE-203 in Polyethylene Resins

#### Properties of Letdown Resin

Resin	Type	Melt Flow	Resin	Type	Melt Flow
A	UHDPE	<1.0	D	LDPE	<1.0
B	HDPE	8.0	E	LDPE	8.0
C	HDPE	14.0	F	LDPE	22.0

#### A. Oxygen index results using Endura® PE-203 in various polyethylenes

Use Level, %	Resin A	Resin B	Resin C	Resin D	Resin E	Resin F
25.0	24.5	25.0	26.5	26.0		
16.7	24.0	25.0	25.0	25.5	26.0	27.0
12.5	23.0	26.0	25.0	25.0	26.0	26.5
10.0		24.5	24.5		25.5	26.5
9.4		24.0	24.0		25.5	26.0
7.1					24.5	25.5

#### B. UL-94 results using Endura® PE-203 in various polyethylenes (0.125 in.)

Use Level, %	Resin A	Resin B	Resin C	Resin D	Resin E	Resin F
25.0	V-2	V-2	V-2	V-2		
16.7	Fail	V-2	V-2	Fail	V-2	V-2
12.5		V-2	V-2		V-2	V-2
10.0		Fail	Fail		Fail	Fail

#### C. UL-94 results using Endura® PE-203 in various polyethylenes (0.058 in.)

Use Level, %	Resin A	Resin B	Resin C	Resin D	Resin E	Resin F
25	Fail	V-2	V-2	Fail		
17	V-2	V-2	V-2		V-2	V-2
13	V-2	V-2	V-2		V-2	V-2
10	Fail	Fail	Fail		V-2	V-2
8					Fail	V-2
7						Fail

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