

Mobius Sustainable™ Resins LDPE Pellet Specification Data Sheet

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Resin Grade Mobius Sustainable™ LDPE Pellets

Resin Origin Pellets are processed from certified recycled, post-consumer clear films and plastic bags.

Melt Flow Index Testing is conducted per ASTM D1238 Standard Test Method for Flow Rates of Thermoplastics by Extrusion Plastometer. The pellets were tested as received. A 7 minute preheat cycle is utilized. Melt flow index testing is conducted on a Ceast Melt Indexer, Model #6842.000 and Serial #10379. Die diameter is 9.5320 mm, Die length is 8.015 mm, Orifice diameter is 2.09 mm.

Melt Flow Index Results

Test Conditions (Temp. °C / Load,kg.)	Melt Flow Rate (grams / 10 min.)
190°C / 2.16 kg.	1.31 Standard deviation @ 0.021

Specific Gravity Specific gravity testing was conducted on an Ohaus Analytical Plus Electronic Balance with an Ohaus Density Determination Kit P/N 77402-00. The immersion liquid used was 2-Propanol.

Specific Gravity Results

Specific Gravity (grams/cm³)
0.923 Standard deviation @ 0.0004

Melt Point Determination using DSC

Testing is performed per ASTM D3418-03 Standard test Method for Transition Temperatures of Polymers by Thermal Analysis. Differential scanning Calorimetry is performed on a Perkin Elmer Pyris 1, with DSC samples cut from pellets using a razor blade.

Heat Cycle: Initial heat cycle from 50°C to 300°C at heat rate increase of 20°C per minute.
 Cool cycle from 300°C to 50°C at cool cycle rate of 20°C per minute.
 Final heat cycle from 50°C to 300°C at heat rate increase of 20°C per minute.

DSC Results

The DSC chart results are available on request. In summary, the final heat cycle shows two peak temperatures, 108°C and 123°C. Both peak temperatures are in the normal melting range for Low Density Polyethylene and are consistent with the Density of 0.923 grams/cm³.

Moisture Content

Moisture content analysis is performed with an Optimark Instrument Corporation Mark 2 High Performance Analyzer. Three LDPE samples were tested for consistency in an LDPE program which heated the samples to 100°C.

Sample	Moisture %
1	0.015
2	0.017
3	0.014
Average	0.0155

Notched Izod Impact

Testing was performed per ASTM D256 with Pendulum Capacity of 4 Joules. Six specimens were tested and specific test charts are available on request.

Impact Resistance ft-lb/in.
10.11 Standard deviation @ 1.81

Tensile Test

Testing was performed on an MTS Sintech 2/S unit with TestWorks software applying principles from ASTM D638-03 Tensile Properties of Plastics. A 10kN load cell was used and a DXL extensometer was used for measuring elongation. Five injection molded ASTM Type I Dog Bones with 2.0 inch lengths were used for samples with a Crosshead speed of 2.0 inches/minute. The test specimens have been retained and are available for inspection on request.

Specimen #	Modulus - psi	Yield Stress - psi	Elongation @ Yield - %	Break Stress - psi	Elongation @ Break - %
1	26966	1756	16.8	1861	491.6
2	29067	1720	18.6	1742	491.7
3	24442	1735	16.7	1823	490.1
4	24399	1688	19	1776	490.8
5	26266	1760	22.1	1770	490.5
Average	26228	1732	18.6	1794	491

