

Mobius Sustainable Resins™ LLDPE Pellet Specification Data Sheet

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Resin Grade Mobius Sustainable Resins™ LLDPE Pellets
Resin Origin Pellets are processed from certified recycled, post-consumer stretch films.

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.	2.28 Standard deviation @ 0.031

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/cm ³)
0.867 Standard deviation @ 0.0083

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 Linear Low Density Polyethylene and are consistent with the Density of 0.88 grams/cm³.

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

Sample	Moisture %
1	0.020
2	0.057
3	0.051
Average	0.042

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

Impact Resistance ft-lb/in.
7.87 Standard deviation @ 0.96

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	33941	1578	23.8	2273	477.9
2	33480	1643	24.9	2286	475.1
3	37073	1654	21.6	2176	477.2
4	36324	1564	22.8	1613	477.2
5	37521	1708	21.1	2435	477.1
Average	35668	1629	22.8	2157	477

