

**Alathon M6138**

High Density Polyethylene

**Product Description**

Alathon M6138 is high density polyethylene resin for use in injection molding applications. This resin exhibits good impact resistance and high stiffness. Typical applications include agricultural bins, crates, open head pails, trays and consumer durable goods.

**Regulatory Status**

For regulatory compliance information, see Alathon M6138 [Product Stewardship Bulletin \(PSB\) and Safety Data Sheet \(SDS\)](#).

|                          |                                                |
|--------------------------|------------------------------------------------|
| <b>Status</b>            | Commercial: Active                             |
| <b>Availability</b>      | North America                                  |
| <b>Application</b>       | Crates; Pallets/Trays/Tote Bins                |
| <b>Market</b>            | Rigid Packaging                                |
| <b>Processing Method</b> | Injection Molding; Sheet and Profile Extrusion |

| Typical Properties                                      | Nominal Value | English Units      | Nominal Value | SI Units          | Test Method |
|---------------------------------------------------------|---------------|--------------------|---------------|-------------------|-------------|
| <b>Physical</b>                                         |               |                    |               |                   |             |
| Melt Flow Rate, (190 °C/2.16 kg)                        | 3.8           | g/10 min           | 3.8           | g/10 min          | ASTM D1238  |
| Density, (23 °C)                                        | 0.961         | g/cm <sup>3</sup>  | 0.961         | g/cm <sup>3</sup> | ASTM D1505  |
| Bulk Density                                            | 33-37         | lb/ft <sup>3</sup> | 529-593       | kg/m <sup>3</sup> | ASTM D1895  |
| Spiral Flow                                             | 8.0           | in                 | 20.3          | cm                | LYB Method  |
| <b>Mechanical</b>                                       |               |                    |               |                   |             |
| Flexural Modulus                                        |               |                    |               |                   |             |
| (1% Secant)                                             | 238000        | psi                | 1640          | MPa               | ASTM D790   |
| (2% Secant)                                             | 199000        | psi                | 1370          | MPa               | ASTM D790   |
| Flexural Young's Modulus                                | 253000        | psi                | 1740          | MPa               | ASTM D790   |
| Tensile Modulus, (1% Secant)                            | 136000        | psi                | 938           | MPa               | ASTM D638   |
| Tensile Young's Modulus                                 | 177000        | psi                | 1220          | MPa               | ASTM D638   |
| Tensile Stress at Break, (23 °C)                        | 3150          | psi                | 21.7          | MPa               | ASTM D638   |
| Tensile Stress at Yield, (23 °C)                        | 4620          | psi                | 31.9          | MPa               | ASTM D638   |
| Tensile Elongation at Break, (23 °C)                    | 810           | %                  | 810           | %                 | ASTM D638   |
| Tensile Elongation at Yield, (23 °C)                    | 7             | %                  | 7             | %                 | ASTM D638   |
| <b>Impact</b>                                           |               |                    |               |                   |             |
| Notched Izod Impact Strength, (23 °C)                   | 1.1           | ft-lb/in           | 59            | J/m               | ASTM D256   |
| Unnotched Impact Strength, (-18 °C)                     | No Break      |                    | No Break      |                   | ASTM D4812  |
| <b>Hardness</b>                                         |               |                    |               |                   |             |
| Shore Hardness, (Shore D, max)                          | 72            |                    | 72            |                   | ASTM D2240  |
| <b>Thermal</b>                                          |               |                    |               |                   |             |
| Vicat Softening Temperature                             | 267           | °F                 | 131           | °C                | ASTM D1525  |
| Low Temperature Brittleness, F <sub>50</sub>            | <-105         | °F                 | <-76          | °C                | ASTM D746   |
| Deflection Temperature Under Load, (66 psi, Unannealed) | 179.1         | °F                 | 81.7          | °C                | ASTM D648   |
| Melting Temperature                                     | 273.0         | °F                 | 133.9         | °C                | ASTM D3418  |

|                             |          |          |            |
|-----------------------------|----------|----------|------------|
| Crystallization Temperature | 244.4 °F | 118.0 °C | ASTM D3418 |
|-----------------------------|----------|----------|------------|

## Notes

Conditions of Tensile Stress and Elongation values are: 50 mm/min, Type IV specimen.

Conditions of Flexural Modulus values are: 0.5 inches/min or 12.5 mm/min.

Conditions of Tensile Modulus values are: 50 mm/min, Type I Specimen.

Spiral Flow 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.

Deflection Temperature Under Load and Low Temperature Brittleness data are for control and development work and are not intended for use in design or predicting performance at elevated or sub-ambient temperatures.

These are typical property values not to be construed as specification limits.

## Processing Techniques

Specific recommendations for resin type and processing conditions can only be made when the end use, required properties and fabrication equipment are known.

## Company Information

© LyondellBasell Industries Holdings, B.V. 2018

## Disclaimer

Information in this document is accurate to the best of our knowledge at the date of publication. The document is designed to provide users general information for safe handling, use, processing, storage, transportation, disposal and release and does not constitute any warranty or quality specification, either express or implied, including any warranty of merchantability or fitness for any particular purpose. Users shall determine whether the product is suitable for their use and can be used safely and legally.

In addition to any prohibitions of use specifically noted in this document, LyondellBasell may further prohibit or restrict the sale of its products into certain applications. For further information, please contact a LyondellBasell representative.

## Trademarks

The Trademark referenced within the product name is owned or used by the LyondellBasell family of companies.