



**BIOGRADE LIMITED** ACN 102 302 134  
Suite 510 Level 5 Pacific Tower,  
737-741 Burwood Road,  
Hawthorn, Victoria 3122 Australia  
P. +61 3 9813 3228 F. +61 3 9813 2668

## Rigid Moulding Grade Resin - Degradable

# Biograde D-M

- A degradable resin for rigid moulding applications where Biodegradability is not required.
- For use in applications where the use of renewable resources are desired.
- Can be used for injection moulding and profile extrusion

### Description

BIOGRADE D-M is based on a blend of thermoplastic starch (TPS) and polyolefin's. This grade of resin is compatibilised to offer a high level of mechanical strength, good elongation properties and toughness. The resin is based on corn starch which is a renewable material.

### Applications

- Injection moulded products such as cutlery, toothbrushes, combs, shavers, golf-tees, plant markers, etc.
- Extruded tubes and rods
- Stakes and pegs
- Extruded pipes
- Injection moulded caps and closures

### Properties

<i>Properties</i>	<i>Test Method</i>	<i>Typical Value/ Unit</i>
Melt flow index	ASTM D-1238	3-5 g/10 min (2.16 kg/190°C)
Density	ASTM D-4883	0.98 – 1.10 g/cm <sup>3</sup>
Melting Temperature Range	ASTM D-3418	90 deg.C
Tensile strength at yield	ASTM D-883	> 13 MPa
Tensile strength at break	ASTM D-883	> 13 MPa
% Elongation at break	ASTM D-883	> 200 %



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**Processing Conditions**

BIOGRADE D-M resin can be processed on standard injection moulding machines or profile extruders

Suggested Max Moisture (%)	0.025
Middle Temperature (°C)	150 to 160 deg.C
Front Temperature (°F)	130 to 140 deg.C
Nozzle Temperature (°C)	140 to 160 deg.C
Processing (Melt) Temp (°C)	160 to 165 deg.C
Mold Temperature (°C)	24 to 30 deg.C

Specific Instructions for Moulding of BIOGRADE D-M Resin:

Before moulding the resin, the extruder needs to be purged and cleaned of residual polyethylene or other polymers and then the BIOGRADE D-M resin can be used as the last cleaning step, after which the temperature can be adjusted to the correct settings.

**Other Comments**

1. The mouldings need to condition for 1-2 days after processing to develop their full strength. During the conditioning the starch component reabsorbs its moisture content making it more ductile.
2. Wet resin should be dried before processing to limit degradation induced by water (hydrolysis).

**Biodegradability**

BIOGRADE D-F is not a Biodegradable Polymer. While it is suitable for the manufacture of injection moulded or extruded products, it is not intended for ultimate disposal in commercial composting facilities. If Biodegradability is required, use of Biograde B-M resin is recommended.