



Grade	Applications	Features	Benefits
<p><b>Floreon Dura -Tech</b> Durable Grade</p>	Injection Moulding Extrusion 3D Printing  Toys, durable applications not requiring fire resistance.	High impact strength High HDT High renewable content	Suitable for demanding applications requiring the toughness and durability of ABS. Reduced carbon footprint over ABS and derived from renewable feedstock.

## General Information

Floreon Dura Tech Grade is a PLA based compound intended for durable applications requiring high impact resistance, whilst also retaining a high renewable content which can be certified to recognised criteria. The material is recyclable and is not intended for applications that are compostable.

## Product Description

- PLA based compound with high renewable content.
- High impact strength, superior to ABS.
- Nucleated to allow high crystallinity and heat deflection temperature.

## Predicted Physical Properties\*

Physical	Value	Unit	Test Method
Melt Flow Index (190 °C/ 2.16 kg)	10	g/ 10 min	Internal method based on ISO 1133 and ASTM D792
Specific Gravity (Higher melt flow grade available on request)	1.26	g/cm <sup>3</sup>	

  

Mechanical	Value	Unit	Test Method
Young's Modulus (23 °C)	1.5	GPa	ISO 527
Tensile Strength	35	MPa	
Young's Modulus (Crystalline)**	1.8	GPa	
Tensile Strength (Crystalline)**	45	MPa	

  

Impact	Value	Unit	Test Method
Notched Izod Impact Strength (23 °C)	37	kJ/ m <sup>2</sup>	ISO 180
Notched Izod Impact Strength (Crystalline)**	44	kJ/ m <sup>2</sup>	

  

Thermal	Value	Unit	Test Method
Heat Deflection Temperature	55	°C	Internal method based on ISO 75-2/B DSC
Heat Deflection Temperature	90	°C	
Melting Temperature (Crystalline)**	175	°C	

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Shrinkage	Value	Unit	Test Method
(25°C)	0.2 – 0.4	%	ASTM
Crystalline (95 °C)**	1.7 – 1.8	%	D638

\* Typical properties only, subject to change, not to be construed as specifications.

\*\* Sample moulded in hot (95 °C) mould.

## Processing Information

Floreon Dura Tech can be processed on general purpose injection moulding equipment and a screw designed to minimize shear and residence time will produce the best results. The material is typically injection moulded using a melt temperature of 200 °C with a mould temperature of 25 °C. This grade can be extruded from as low a temperature as 175 °C, but processing temperatures should not exceed 240 °C.

## Recommended Machine Settings Injection

### Processing Temperature Profile

Melt Temperature	200 °C
Feed Throat	20 °C
Feed Temperature	60 °C
Compression Section	165 °C
Metering Section	190°C
Nozzle	190 °C
Mould	25/95 °C

## Drying

Floreon resins must be dry before use in melt processing; a water content of less than 250 ppm is recommended, otherwise product performance may be affected. The solid resin will not be damaged by absorption of atmospheric moisture providing it is stored in a cool environment at temperatures not exceeding 25 °C. As with unmodified PLA, Floreon resins should not be left in the barrel at high temperatures for extended periods of time (10 minutes and above) as this will degrade the material resulting in a drop in viscosity and resin integrity.

Drying under vacuum at a maximum temperature of 90 °C for 2 hours is recommended to ensure best results. The material can be dried above this temperature but some ‘clumping’ may occur, with pellets sticking together. This is reversible and the pellets can be separated on cooling with mild agitation.