

# CELANEX® 2411MT

## CELANEX® PBT

Celanex 2411MT Natural is a medium viscosity unreinforced PBT with improved crystallization speed and demolding behaviour, allowing injection molding processing with shorter cycle times, especially for Medical applications requiring high precision and consistency.

Celanex 2411MT is a special grade developed for medical industry applications and complies with:

- CFR 21 (177.1660) of the Food and Drug Administration (FDA)
- the corresponding EU and national registry regulatory requirements
- biocompatibility in tests corresponding to USP 23 Class VI/ISO 10993
- low residual monomers
- no animal products

### Product information

Resin Identification	PBT	ISO 1043
Part Marking Code	>PBT<	ISO 11469

### Rheological properties

Melt volume-flow rate	19 cm <sup>3</sup> /10min	ISO 1133
Temperature	250 °C	
Load	2.16 kg	
Moulding shrinkage, parallel	2.0 %	ISO 294-4, 2577
Moulding shrinkage range, parallel	1.8 - 2.2 %	ISO 294-4, 2577
Moulding shrinkage, normal	2.0 %	ISO 294-4, 2577
Moulding shrinkage range, normal	1.8 - 2.2 %	ISO 294-4, 2577

### Typical mechanical properties

Tensile modulus	2700 MPa	ISO 527-1/-2
Tensile stress at yield, 50mm/min	60 MPa	ISO 527-1/-2
Tensile strain at yield, 50mm/min	4 %	ISO 527-1/-2
Tensile stress at break, 50mm/min	12 MPa	ISO 527-1/-2
Nominal strain at break	>50 %	ISO 527-1/-2
Flexural modulus	2700 MPa	ISO 178
Flexural strength	90 MPa	ISO 178
Charpy impact strength, 23°C	N kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength, 23°C	5 kJ/m <sup>2</sup>	ISO 179/1eA
Poisson's ratio	0.38 <sup>[C]</sup>	

[C]: Calculated

### Thermal properties

Melting temperature, 10°C/min	225 °C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	60 °C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	57 °C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	150 °C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	190 °C	ISO 306

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### Physical/Other properties

Humidity absorption, 2mm	0.2 %	Sim. to ISO 62
Water absorption, 2mm	0.4 %	Sim. to ISO 62
Density	1310 kg/m <sup>3</sup>	ISO 1183

### Injection

Drying Recommended	yes
Drying Temperature	140 °C
Drying Time, Dehumidified Dryer	4 - 6 h
Processing Moisture Content	≤0.01 %
Melt Temperature Optimum	250 °C
Min. melt temperature	240 °C
Max. melt temperature	260 °C
Screw tangential speed	0.1 - 0.3 m/s
Mold Temperature Optimum	80 °C
Min. mould temperature	60 °C
Max. mould temperature	130 °C
Ejection temperature	192 °C

### Characteristics

Processing	Injection Moulding
Delivery form	Pellets
Additives	Release agent
Special characteristics	Fast Production Cycle

### Additional information

Injection molding

To minimize the volatile content in the final product, dry the resin to ≤0.01% water content. In injection molding, use the lowest possible melt temperature (recommended 240 °C) and shortest feasible residence time (recommended 2-3 minutes). Store the parts in a ventilated, clean area before use. If assistance is needed please contact your Celanese account representative.

These recommendations are based on internal Celanese testing. For drying and injection molding conditions outside the above parameters, customer must test for and verify suitably low volatiles emissions on molded articles to confirm the final product is suitably pure for its intended use.

#### Processing Notes

#### Pre-Drying

To avoid hydrolytic degradation during processing, CELANEX resins have to be dried to a moisture level equal to or less than 0.01%. Drying should be done in a dehumidifying hopper dryer capable of dewpoints <-40 °C (-40 °F) at 140 °C (284 °F) for 4-6 hours.

#### Storage

For subsequent storage of the material in the dryer until processed (<= 60 h) it is necessary to lower the temperature to 100 °C.