CALIBRE™ 201-15

Trinseo - Polycarbonate Resin

Tuesday, November 5, 2019

General Information

Product Description

CALIBRE™ 200-15 polycarbonate resins are produced in compliance with the US Food and Drug Administration (FDA) and EU food contact regulations. They provide excellent impact resistance, heat distortion resistance and optical clarity. The CALIBRE 200-15 series products are available in 4 additive packages: CALIBRE 200: No mold release or UV Stabilizer. CALIBRE 201: Mold release. CALIBRE 202: UV stabilizer. CALIBRE 203: Mold release and UV stabilizer. (Note that CALIBRE 202 and 203 grades are not available in Europe and do not comply with EU food contact regulations).

Govt. and Industry Standards

- U.S. FDA 21 CFR 177.1580
- CSA
- Underwriters Laboratory (UL)
- EU food contact 2011/10/EC

Applications:

- Food processors
- Beverages containers
- Food utensils
- Other packaging applications

General

Material Status	• Commercial: Active		
Availability	• Europe	• Latin America	• North America
Additive	• Mold Release		
Features	• Food Contact Acceptable	• High Clarity	• High Impact Resistance
Uses	• Appliances • Containers	• Kitchenware • Packaging	
Agency Ratings	• CSA Unspecified Rating	• EU 2002/72/EC	• FDA 21 CFR 177.1580
Automotive Specifications	• GM GMP.PC.015		
Forms	• Pellets		
Processing Method	• Injection Molding		

ASTM & ISO Properties [1]

Physical	Nominal Value	Unit	Test Method
Density / Specific Gravity	1.20		ASTM D792
Density	1.20	g/cm³	ISO 1183/A
Density	0.0434	lb/in³	ISO 1183 [2]
Melt Mass-Flow Rate (300°C/1.2 kg)	15	g/10 min	ASTM D1238
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	15	g/10 min	ISO 1133
Melt volume-flow rate (300°C/1.2 kg)	12	cm³/10min	ISO 1133 [2]
Molding Shrinkage - Flow	5.0E-3 to 7.0E-3	in/in	ASTM D955
Molding Shrinkage - Flow	0.50 to 0.70	%	ISO 294-4
Water Absorption (24 hr, 73°F)	0.15	%	ASTM D570
Water Absorption (24 hr, 73°F)	0.15	%	ISO 62
Water Absorption (Equilibrium, 73°F, 50% RH)	0.32	%	ASTM D570
Water Absorption (Equilibrium, 73°F, 50% RH)	0.32	%	ISO 62

CALIBRE™ 201-15
Trinseo - Polycarbonate Resin

Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus [3]	340000	psi	ASTM D638
Tensile Modulus	334000	psi	ISO 527-2/50
Tensile modulus	334000	psi	ISO 527-2 [2]
Tensile Strength [3] (Yield)	8700	psi	ASTM D638
Tensile Stress (Yield)	8700	psi	ISO 527-2/50
Tensile Stress (Yield)	8700	psi	ISO 527-2 [2]
Tensile Strength [3] (Break)	10300	psi	ASTM D638
Tensile Stress (Break)	10300	psi	ISO 527-2/50
Tensile Elongation [3] (Yield)	6.0	%	ASTM D638
Tensile Strain (Yield)	6.0	%	ISO 527-2/50
Tensile Strain (Yield)	6.0	%	ISO 527-2 [2]
Tensile Elongation [3] (Break)	150	%	ASTM D638
Tensile Strain (Break)	150	%	ISO 527-2/50
Nominal strain at break	> 50	%	ISO 527-2 [2]
Flexural Modulus [4]	350000	psi	ASTM D790
Flexural Modulus [5]	348000	psi	ISO 178
Flexural Strength [4]	14000	psi	ASTM D790
Flexural Stress [5]	14100	psi	ISO 178
Taber Abrasion Resistance	45	%	ASTM D1044

Impact	Nominal Value	Unit	Test Method
Charpy notched impact strength (73°F)	38.1	ft·lb/in²	ISO 179/1eA [2]
Charpy notched impact strength (-22°F)	5.71	ft·lb/in²	ISO 179/1eA [2]
Charpy impact strength (73°F)	No Break		ISO 179/1eU [2]
Charpy impact strength (-22°F)	No Break		ISO 179/1eU [2]
Notched Izod Impact (73°F)	16	ft·lb/in	ASTM D256
Notched Izod Impact Strength (73°F)	39	ft·lb/in²	ISO 180/A
Unnotched Izod Impact (73°F)	No Break		ASTM D256
Unnotched Izod Impact Strength (73°F)	No Break		ISO 180
Instrumented Dart Impact [6] (73°F, Total Energy)	770	in·lb	ASTM D3763
Tensile Impact Strength	220	ft·lb/in²	ASTM D1822

Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness			ASTM D785
M-Scale	72		
R-Scale	118		

Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load (66 psi, Annealed)	289	°F	ASTM D648
Heat Deflection Temperature (66 psi, Annealed)	289	°F	ISO 75-2/B
Deflection Temperature Under Load (66 psi)	291	°F	ISO 75-2 [2]
Deflection Temperature Under Load			ASTM D648
264 psi, Unannealed	260	°F	
Heat Deflection Temperature (264 psi, Unannealed)	261	°F	ISO 75-2/A
Deflection Temperature Under Load (264 psi, Annealed)	284	°F	ASTM D648
Heat Deflection Temperature (264 psi, Annealed)	284	°F	ISO 75-2/A
Deflection Temperature Under Load (264 psi)	266	°F	ISO 75-2 [2]
Vicat Softening Temperature	298	°F	ASTM D1525 [7]
Vicat Softening Temperature	298	°F	ISO 306/B50

CALIBRE™ 201-15
Trinseo - Polycarbonate Resin

Thermal	Nominal Value	Unit	Test Method
Vicat Softening Temperature (50°C/h, B (50N))	298	°F	ISO 306 [2]
Ball Indentation Temperature	257	°F	IEC 60335-1
CLTE - Flow (-40 to 180°F)	3.8E-5	in/in/°F	ASTM D696
CLTE - Flow	3.9E-5	in/in/°F	ISO 11359-2 [2]

Electrical	Nominal Value	Unit	Test Method
Volume Resistivity	2.0E+18	ohms·cm	ASTM D257
Volume resistivity	> 3.9E+14	ohms·in	IEC 60093 [2]
Dielectric Strength	420	V/mil	ASTM D149
Electric Strength	430	V/mil	IEC 60243-1
Electric strength	430	V/mil	IEC 60243-1 [2]
Dielectric Constant			ASTM D150
60 Hz	3.00		
1 MHz	3.00		
Relative Permittivity (100 Hz)	3.00		IEC 60250 [2]
Relative Permittivity (1 MHz)	3.00		IEC 60250 [2]
Dissipation Factor			ASTM D150
50 Hz	1.0E-3		
1 MHz	2.0E-3		
Dissipation Factor (100 Hz)	1.0E-3		IEC 60250 [2]
Dissipation Factor (1 MHz)	2.0E-3		IEC 60250 [2]
Comparative Tracking Index (0.0787 in, Solution A)	250	V	IEC 60112

Flammability	Nominal Value	Unit	Test Method
Flame Rating [8]			UL 94
0.06 in	HB		
0.13 in	HB		
Burning Behav. at 1.6mm nom. thickn. (0.06 in, UL)	HB		ISO 1210 [2]
Burning Behav. at thickness h (0.126 in, UL)	HB		ISO 1210 [2]
Glow Wire Ignition Temperature [8] (0.08 in, 5.0 sec)	1560	°F	IEC 60695-2-13
Oxygen Index [8]	26	%	ISO 4589-2
Oxygen index	26	%	ISO 4589-2 [2]
Average Extent of Burning	1	in	ASTM D635

Optical	Nominal Value	Unit	Test Method
Refractive Index	1.586		ASTM D542
Refractive Index	1.586		ISO 489
Transmittance	89.0	%	ASTM D1003
Haze	1.00	%	ASTM D1003

Notes

[1] Typical properties: these are not to be construed as specifications.

[2] Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.

[3] 2.0 in/min

[4] Method I (3 point load), 0.079 in/min

[5] 0.079 in/min

[6] 11.1 ft/sec

[7] Rate A (50°C/h), Loading 2 (50 N)

[8] This rating not intended to reflect hazards presented by this or any other material under actual fire conditions.