

Technical Information



CALIBRE™ 621-2

Polycarbonate Resin

Overview

CALIBRE™ 621-2 branched polycarbonate resin is specifically designed for large extrusion blow molded or injection-stretch blow molded water bottles. Specific rheological behaviour has been engineered into CALIBRE™ 621-2 to provide excellent processability during blow molding operations. The excellent processability, practical toughness, exceptional optics, and food compliance properties of CALIBRE™ 621-2 enable a host of successful applications. CALIBRE™ 621-2 is blue tinted.

Govt. and Industry Standards:

- Europe Commission Regulation (EU) No 10/2011
- U.S. FDA 21 CFR 177.1580 (with Restrictions)

Applications:

- Blow Molded Water Bottles
- Appliance industry

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density	1.20 g/cm³	1.20 g/cm³	ASTM D792 ISO 1183
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	2.5 g/10 min	2.5 g/10 min	ASTM D1238 ISO 1133
Molding Shrinkage - Flow	5.0E-3 to 7.0E-3 in/in	0.50 to 0.70 %	ISO 294-4
Water Absorption			ISO 62
Saturation, 73°F (23°C)	0.32 %	0.32 %	
Equilibrium, 73°F (23°C), 50% RH	0.12 %	0.12 %	
Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Modulus			
-- ¹	334000 psi	2300 MPa	ASTM D638
--	334000 psi	2300 MPa	ISO 527-1/1
Tensile Strength			
Yield ²	9140 psi	63.0 MPa	ASTM D638
Yield	9140 psi	63.0 MPa	ISO 527-2/50
Break ²	9430 psi	65.0 MPa	ASTM D638
Break	9430 psi	65.0 MPa	ISO 527-2/50
Tensile Elongation			
Yield ²	6.0 %	6.0 %	ASTM D638
Yield	6.0 %	6.0 %	ISO 527-2/50
Break ²	120 %	120 %	ASTM D638
Break	120 %	120 %	ISO 527-2/50
Flexural Modulus			
--	350000 psi	2410 MPa	ASTM D790
-- ³	348000 psi	2400 MPa	ISO 178
Flexural Strength			
--	14000 psi	96.5 MPa	ASTM D790
-- ³	14100 psi	97.0 MPa	ISO 178

Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Charpy Notched Impact Strength			ISO 179/1eA
-22°F (-30°C)	6.7 ft-lb/in ²	14 kJ/m ²	
73°F (23°C)	36 ft-lb/in ²	75 kJ/m ²	
Notched Izod Impact			
73°F (23°C)	16 ft-lb/in	850 J/m	ASTM D256
73°F (23°C)	33 ft-lb/in ²	70 kJ/m ²	ISO 180/1A
Hardness	Nominal Value (English)	Nominal Value (SI)	Test Method
Rockwell Hardness			ASTM D785
M-Scale	73	73	
R-Scale	118	118	
Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Deflection Temperature Under Load			
66 psi (0.45 MPa), Annealed	295 °F	146 °C	ASTM D648 ISO 75-2/B
264 psi (1.8 MPa), Unannealed	262 °F	128 °C	ASTM D648
264 psi (1.8 MPa), Unannealed	261 °F	127 °C	ISO 75-2/A
264 psi (1.8 MPa), Annealed	289 °F	143 °C	ASTM D648 ISO 75-2/A
Vicat Softening Temperature	309 °F	154 °C	ISO 306/B50 ASTM D1525 ⁴
CLTE - Flow (-40 to 176°F (-40 to 80°C))	3.8E-5 in/in/°F	6.8E-5 cm/cm/°C	ISO 11359-2
Electrical	Nominal Value (English)	Nominal Value (SI)	Test Method
Dielectric Strength	430 V/mil	17 kV/mm	ASTM D149
Dissipation Factor			ASTM D150
50 Hz	1.0E-3	1.0E-3	
1 MHz	2.0E-3	2.0E-3	
Flammability	Nominal Value (English)	Nominal Value (SI)	Test Method
Oxygen Index ⁵	26 %	26 %	ISO 4589-2
Optical	Nominal Value (English)	Nominal Value (SI)	Test Method
Refractive Index	1.586	1.586	ISO 489
Light Transmittance	87.0 to 91.0 %	87.0 to 91.0 %	ASTM D1003
Haze	< 1.00 %	< 1.00 %	ASTM D1003
Injection	Nominal Value (English)	Nominal Value (SI)	
Drying Temperature	248 °F	120 °C	
Drying Time	4.0 hr	4.0 hr	

Extrusion Notes

Screw Diameter: 70 to 100 mm
 Die Diameter: 90 to 100 mm
 Extruder Temperature: 250 to 270°C
 Accumulator Temperature: 245 to 255°C
 Die Temperature: 245 to 255°C
 Mould Temperature, Bottom: 65 to 80°C
 Mould Temperature, Body: 65 to 80°C
 Mould Temperature, Neck: 55 to 65°C
 Screw Speed: 10 to 60 rpm
 Parison Length: 600 to 700 mm
 Gross Weight: 940 to 1400 g
 Pressure of Support Air: 0.5 to 1 bar
 Blowing Pressure: 6 to 10 bar
 Blowing Time: 25 to 35 sec
 Cycle Time: 40 to 60 sec
 Production Capacity: 60 to 80 parts/h

The above figures are intended for guidance. The optimum conditions need to be determined experimentally on the particular machine.

Notes

These are typical properties only and are not to be construed as specifications. Users should confirm results by their own tests.

¹ 0.039 in/min (1.0 mm/min)

² 2.0 in/min (50 mm/min)

³ 0.079 in/min (2.0 mm/min)

⁴ Rate A (50°C/h), Loading 2 (50 N)

⁵ This rating not intended to reflect hazards presented by this or any other material under actual fire conditions.

Technical Information



TRINSEO™

trinseo.com

The principles of Responsible Care® and sustainability influence the production of printed literature for Trinseo PLC and its affiliated companies. As a contribution towards the protection of our environments, Trinseo's printed literature is produced in small quantities and on paper containing recovered/post-consumer fiber and using 100 percent soy-based ink whenever possible.

Product Stewardship

Trinseo and its affiliated companies have a fundamental concern for all who make, distribute, and use their products and for the environment in which we live. This concern is the basis for our Product Stewardship philosophy by which we assess the safety, health, and environmental information on our products so that appropriate steps may be taken to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Trinseo products – from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Customers are responsible for reviewing their manufacturing processes and their applications of Trinseo products from the standpoint of human health and environmental quality to ensure that Trinseo products are not used in ways for which they are not suitable. Trinseo personnel are available to answer questions and to provide reasonable technical support. Trinseo product literature, including safety data sheets, should be consulted prior to the use of Trinseo products. Current safety data sheets are available from Trinseo.

No freedom from infringement of any patent owned by Trinseo or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, the customer is responsible for determining whether products and the information in this document are appropriate for the customer's use and for ensuring that the customer's workplace and disposal practices are in compliance with applicable legal requirements. Although the information herein is provided in good faith and was believed to be accurate when prepared, Trinseo assumes no obligation or liability for the information in this document.

NOTICE REGARDING MEDICAL APPLICATION RESTRICTIONS

TRINSEO REQUESTS THAT CUSTOMERS REFER TO TRINSEO'S MEDICAL APPLICATION POLICY [HTTP://WWW.TRINSEO.COM/MEDICAL.HTM](http://www.trinseo.com/medical.htm) BEFORE CONSIDERING THE USE OF TRINSEO PRODUCTS IN MEDICAL APPLICATIONS. THE RESTRICTIONS AND DISCLAIMERS SET FORTH IN THAT POLICY ARE INCORPORATED BY REFERENCE.

For more information on products, innovations, expertise, and other services available from Trinseo, visit www.trinseo.com, or in the U.S. contact us at +1-855-TRINSEO (+1-855-874-6736).

DISCLAIMER

TRINSEO MAKES NO WARRANTIES, EITHER EXPRESS OR IMPLIED, IN THIS DOCUMENT; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE (INCLUDING MEDICAL APPLICATIONS) ARE EXPRESSLY EXCLUDED. SINCE THE CONDITIONS AND METHODS OF USE OF THE INFORMATION AND PRODUCTS REFERRED TO ARE BEYOND TRINSEO'S KNOWLEDGE AND CONTROL, TRINSEO DISCLAIMS ANY AND ALL LIABILITY FOR LOSSES OR DAMAGES THAT MAY RESULT FROM RELIANCE ON THE INFORMATION OR USE OF THE PRODUCTS DESCRIBED HEREIN. TRINSEO MAKES NO WARRANTIES, EXPRESS OR IMPLIED, THAT THE USE OF ANY TRINSEO PRODUCT WILL BE FREE FROM ANY INFRINGEMENT CLAIMS.

GENERAL NOTICE

Any photographs of end-use applications in this document represent potential end-use applications but do not necessarily represent current commercial applications, nor do they represent an endorsement by Trinseo of the actual products. Further, these photographs are for illustration purposes only and do not reflect either an endorsement or sponsorship of any other manufacturer for a specific potential end-use product or application, or for Trinseo, or for specific products manufactured by Trinseo. If products are described as "experimental" or "developmental": (1) product specifications may not be fully determined; (2) analysis of hazards and caution in handling and use are required; (3) there is greater potential for Trinseo to change specifications and/or discontinue production, and (4) although Trinseo may from time to time provide samples of such products, Trinseo is not obligated to supply or otherwise commercialize such products for any use or application whatsoever.

For additional information not covered by the content of this document or to ensure you have the latest version of this document available, please refer to our website at www.trinseo.com/contact.

Follow us at:



Copyright ©Trinseo (2024) All rights reserved.
™ Trademark of Trinseo S.A. or its affiliates
®Responsible Care is a service mark of the American
Chemistry Council



TRINSEO™