

GUR® 4120 ECO-B

GUR®

UHMW-PE powder grade

GUR® 4120 ECO-B incorporates >99% of bio-circular ethylene by weight in the finished product through mass balance allocation. The product is a drop-in replacement to the standard grade with the same performance and processing properties and contributes to the displacement of virgin fossil fuel resources. The biobased source and allocated content in the product are certified according to ISCC PLUS mass balance approach.

Product information

Resin Identification	(PE-UHMW)	ISO 1043
Part Marking Code	>(PE-UHMW)<	ISO 11469
Average molecular weight	5E6 g/mol	Margolies' equation
Average particle size, d50	120 µm	laser scattering

Rheological properties

Viscosity number	2400 cm ³ /g	ISO 307, 1628
Intrinsic viscosity	2100	ISO 307, 1628

Typical mechanical properties

Tensile modulus	660 MPa	ISO 527-1/-2
Tensile stress at yield, 50mm/min	20 MPa	ISO 527-1/-2
Tensile strain at yield, 50mm/min	14 %	ISO 527-1/-2
Tensile stress at 50% strain	19 MPa	ISO 527-1/-2
Tensile stress at break, 50mm/min	43 MPa	ISO 527-1/-2
Nominal strain at break	470 %	ISO 527-1/-2
Elongational stress F, 150/10	0.26 MPa	ISO 21304-2
Charpy double notched impact strength, 23°C	240 kJ/m ²	ISO 21304-2
Poisson's ratio	0.46 ^[C]	
Shore D hardness, 15s	60	ISO 48-4 / ISO 868

[C]: Calculated

Tribological properties

Wear by sandslurry method (based on GUR 4120=100)	100
--	-----

Thermal properties

Temperature of deflection under load, 1.8 MPa	38 °C	ISO 75-1/-2
Vicat softening temperature, 50 °C/h 50N	80 °C	ISO 306

Electrical properties

Volume resistivity	1E12 Ohm.m	IEC 62631-3-1
Surface resistivity	1E12 Ohm	IEC 62631-3-2

Physical/Other properties

Density	930 kg/m ³	ISO 1183
Bulk density	450 kg/m ³	ISO 60

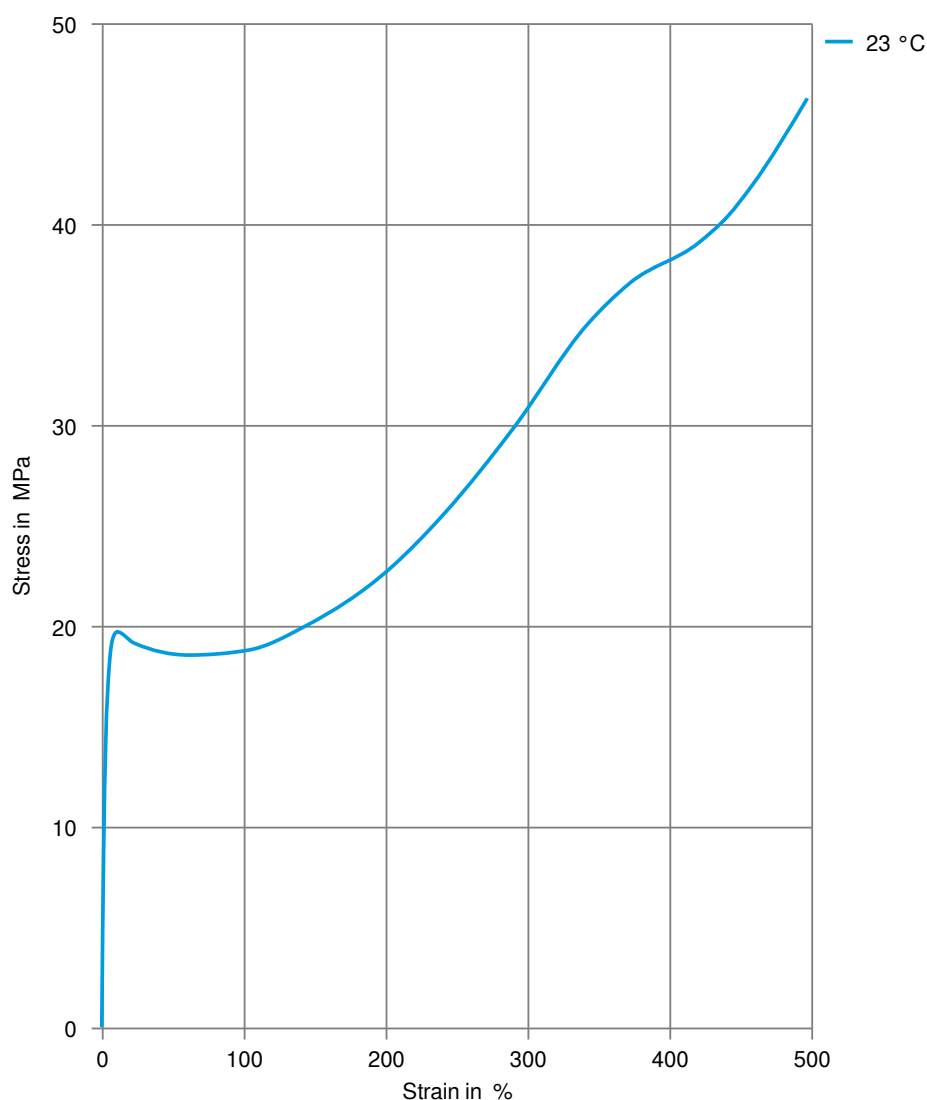
GUR® 4120 ECO-B

GUR®

Characteristics

Processing	Ram Extrusion, Compression moulding, Porous Sintering
Delivery form	Powder
Special characteristics	High impact or impact modified, Hydrolysis resistant, Low wear / Low friction, Chemical resistant
Sustainability	Bio-Content

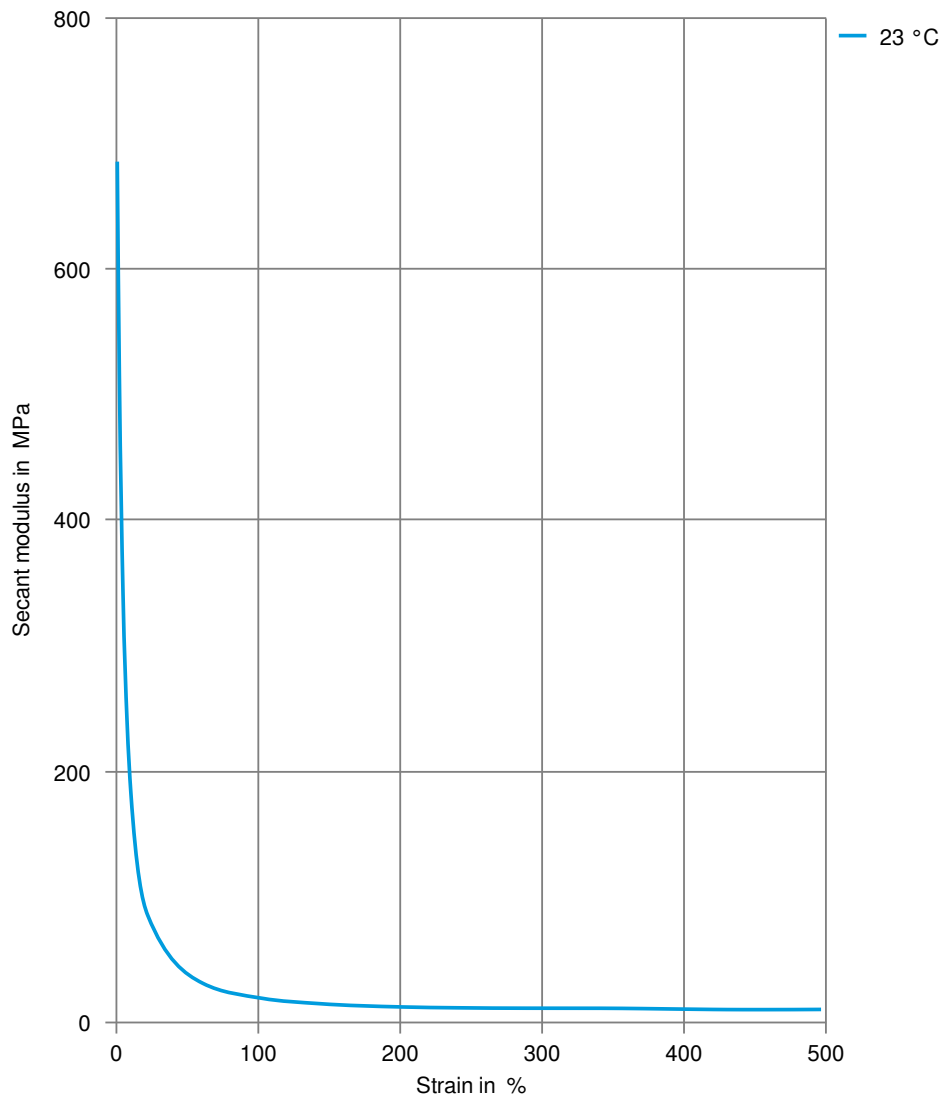
Stress-strain



GUR® 4120 ECO-B

GUR®

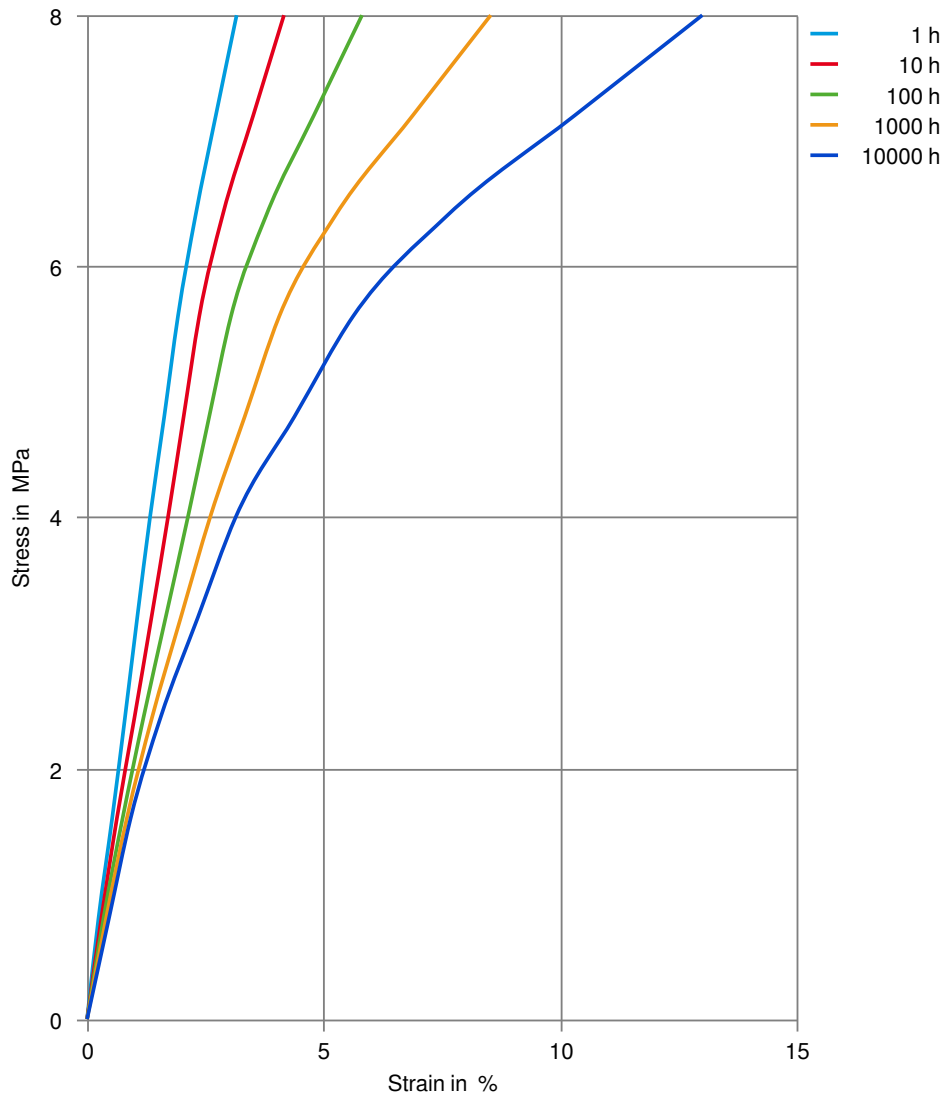
Secant modulus-strain



GUR® 4120 ECO-B

GUR®

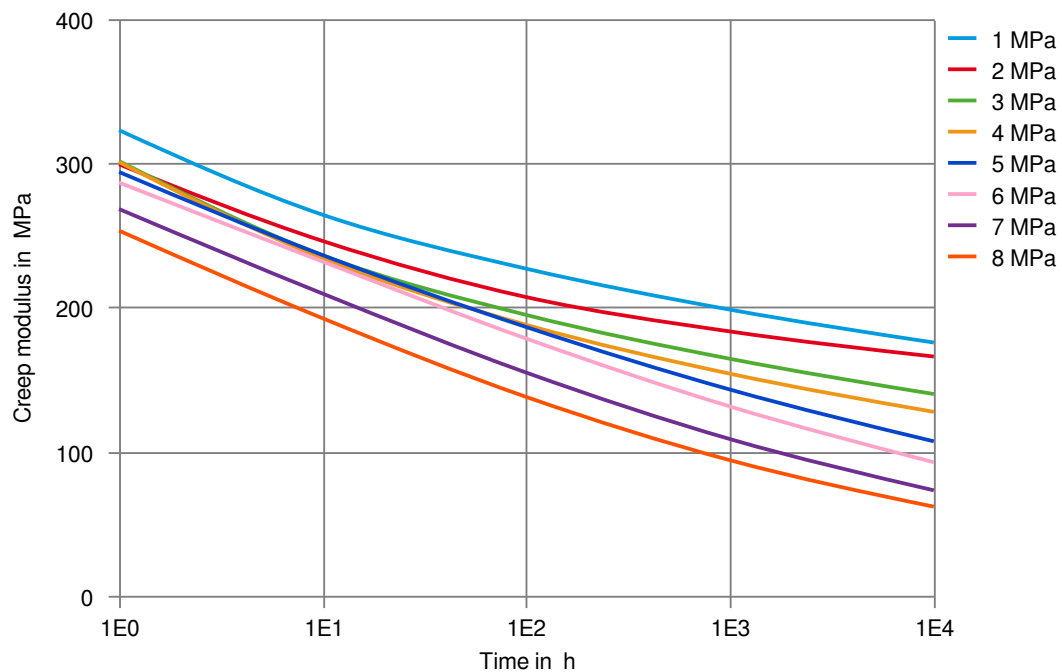
Stress-strain (isochronous) 23°C



GUR® 4120 ECO-B

GUR®

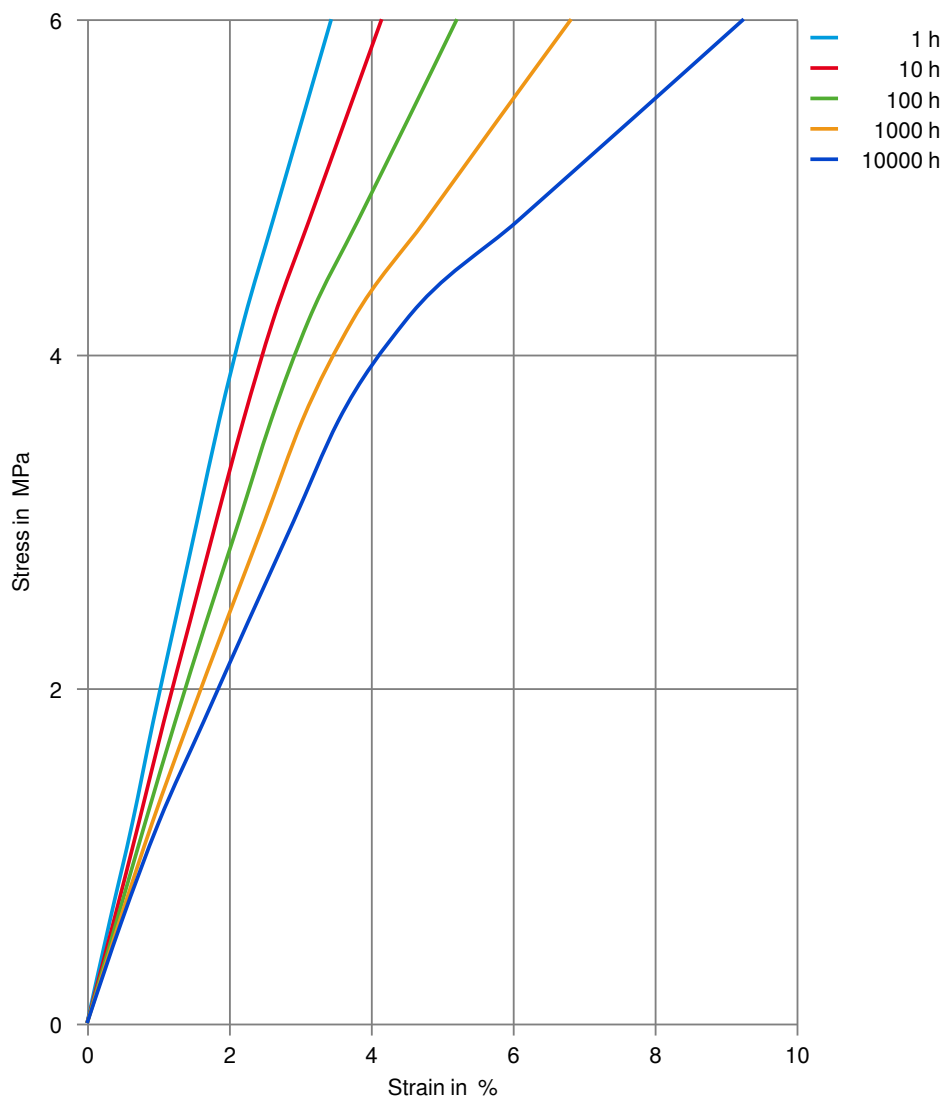
Creep modulus-time 23°C



GUR® 4120 ECO-B

GUR®

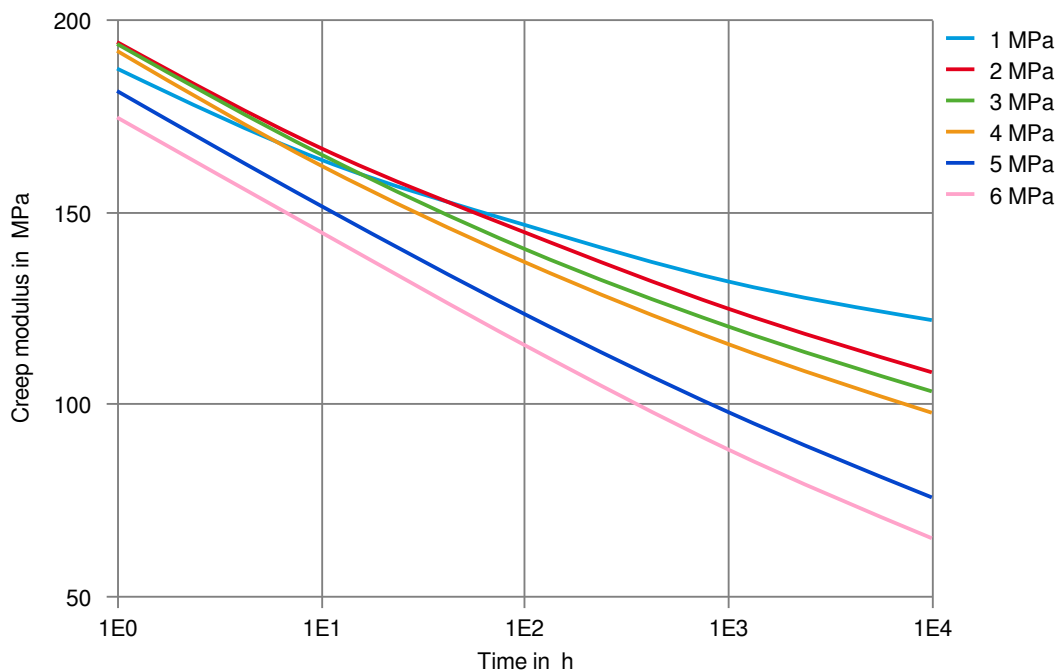
Stress-strain (isochronous) 40°C



GUR® 4120 ECO-B

GUR®

Creep modulus-time 40°C



Printed: 2025-05-30

Page: 7 of 7

Revised: 2024-09-12 Source: Celanese Materials Database

NOTICE TO USERS: Values shown are based on testing of laboratory test specimens and represent data that fall within the standard range of properties for natural material. These values alone do not represent a sufficient basis for any part design and are not intended for use in establishing maximum, minimum, or ranges of values for specification purposes. Colourants or other additives may cause significant variations in data values. Properties of moulded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design, processing conditions and environmental exposure. Other than those products expressly identified as medical grade (including by MT® product designation or otherwise), Celanese's products are not intended for use in medical or dental implants. Regardless of any such product designation, any determination of the suitability of a particular material and part design for any use contemplated by the users and the manner of such use is the sole responsibility of the users, who must assure themselves that the material as subsequently processed meets the needs of their particular product or use. To the best of our knowledge, the information contained in this publication is accurate; however, we do not assume any liability whatsoever for the accuracy and completeness of such information. The information contained in this publication should not be construed as a promise or guarantee of specific properties of our products. It is the sole responsibility of the users to investigate whether any existing patents are infringed by the use of the materials mentioned in this publication. Moreover, there is a need to reduce human exposure to many materials to the lowest practical limits in view of possible adverse effects. To the extent that any hazards may have been mentioned in this publication, we neither suggest nor guarantee that such hazards are the only ones that exist. We recommend that persons intending to rely on any recommendation or to use any equipment, processing technique or material mentioned in this publication should satisfy themselves that they can meet all applicable safety and health standards. We strongly recommend that users seek and adhere to the manufacturer's current instructions for handling each material they use, and entrust the handling of such material to adequately trained personnel only. Please call the telephone numbers listed for additional technical information. Call Customer Services for the appropriate Materials Safety Data Sheets (MSDS) before attempting to process our products.

© 2025 Celanese or its affiliates. All rights reserved. Celanese®, registered C-ball design and all other trademarks identified herein with ®, TM, SM, unless otherwise noted, are trademarks of Celanese or its affiliates. Fortron is a registered trademark of Fortron Industries LLC.