Celanese
The chemistry inside innovation™

GUR® 4012 ECO-B

UHMW-PE powder grade
HMW-PE powder grade for filtration, carbon block

ECO-B: GUR ECO-B is a is a (U)HMW-PE with the same properties and performance as standard grades but produced with sustainability in mind. Using a mass-balance approach, biogenic feedstocks are used to offset the use of fossil-based raw materials and decrease greenhouse gas emissions. The process is audited and certified according to the ISCC Plus mass balance approach.

Product information

Average molecular weight	1.7E6	g/mol	Margolies' equation
Average particle size, D50	135	µm	laser scattering

Rheological properties

Melt mass-flow rate, Temperature	190	°C	
Melt mass-flow rate, Load	21.6	kg	
Viscosity number	1100	cm^3/g	ISO 307, 1157, 1628
Intrinsic viscosity	1000		ISO 307, 1157, 1628

Typical mechanical properties

Tensile Modulus	900	MPa	ISO 527-1/-2
Yield stress, 50mm/min	22	MPa	ISO 527-1/-2
Yield strain, 50mm/min	9	%	ISO 527-1/-2
Stress at 50% strain	19	MPa	ISO 527-1/-2
Stress at break, 50mm/min	42	MPa	ISO 527-1/-2
Nominal strain at break	550	%	ISO 527-1/-2
Elongational stress, 150/10	0.04	MPa	ISO 21304-2
Charpy double notched impact strength, 23°C	190	kJ/m^2	ISO 21304-2
Shore D hardness, 15s	60		ISO 48-4 / ISO 868

Tribological properties

Relative Wear (based on GUR 4120=100), sandslurry method	140		Internal

Thermal properties

Temp. of deflection under load, 1.8 MPa	41	°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

Celanese
The chemistry inside innovation™

GUR® 4012 ECO-B

Other properties

Density	940	kg/m³	ISO 1183
Bulk density	450	kg/m³	ISO 60

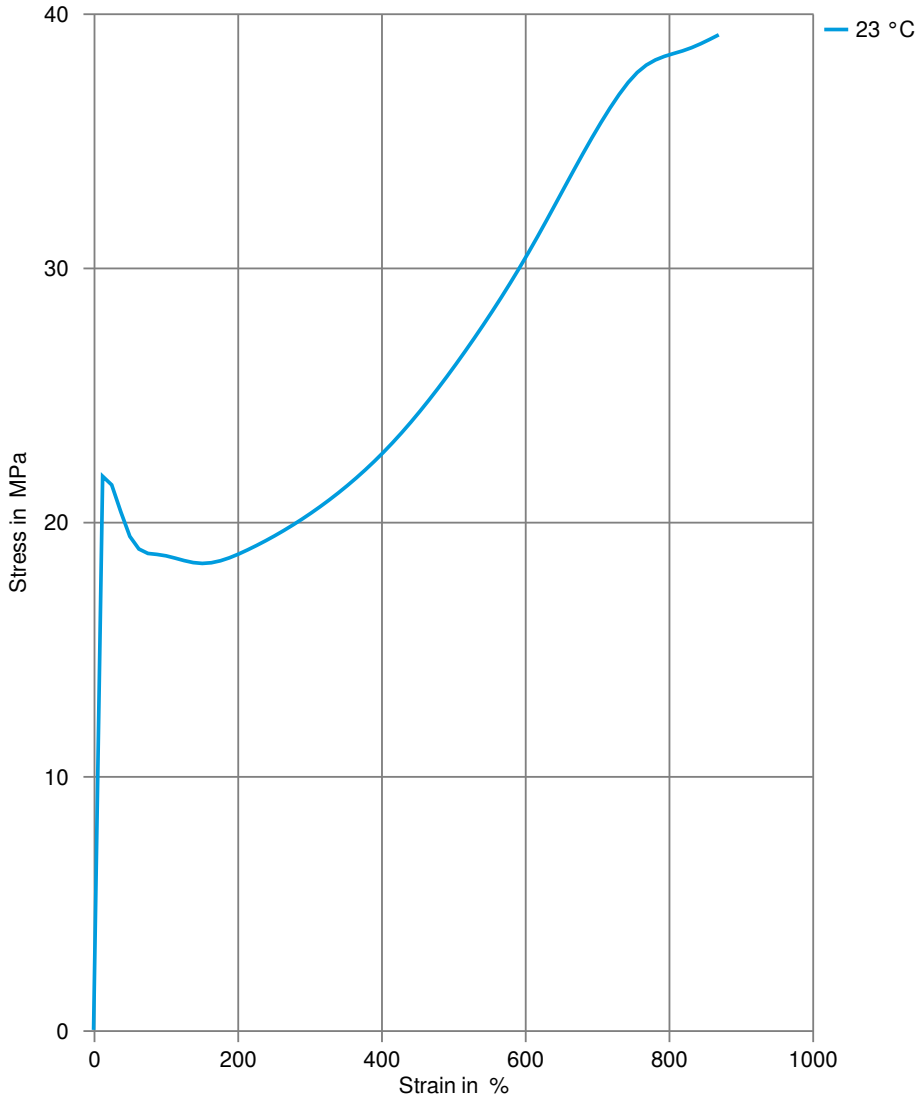
Characteristics

Additives	Biobased
Food contact	FDA 21 CFR

Stress-strain

Celanese
The chemistry inside innovation™

GUR® 4012 ECO-B



Celanese
The chemistry inside innovation™

GUR® 4012 ECO-B

Secant modulus-strain