TECHNICAL DATA SHEET

GRIVORY G 21 NATURAL 6506

General product description

Grivory G 21 natural 6506 is a high viscosity, partially aromatic, amorphous copolyamide with processing aid.

- Improved gas and aroma barrier at elevated relative humidity
- Excellent flavour and aroma barrier
- Good Barrier against UV-radiation
- Highly transparent
- High surface gloss
- Good chemical resistance
- Very good abrasion resistance

Application examples

Grivory G 21 natural 6506 is suitable as well for the manufacture of coextruded blown film, mono or coex cast film and coextruded tubes as the production of mono and multilayer containers. Grivory G 21 natural 6506 is also used as an additive for polyamide 6 and different copolyamides to improve film properties.

Barrier layer for mono- or co-extruded rigid packaging (EBM or ISBM bottles)..

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PROPERTIES

Thermal Properties

		Standard	Unit	Grivory G 21 natural 6506
Glass transition temperature	DSC	ISO 11357	°C	125
Melt volume rate (MVR)	275°C / 5 kg	ISO 1133	cm^3/10 min	25

General Properties

Density		ISO 1183	g/cm³	1.18
Water absorption	23°C/sat.	ISO 62	%	7
Moisture absorption	23°C/50 % RH	ISO 62	%	2
Shrink[1)]		EMS	%	--
Gloss	60°	ISO 2813	-	160
Haze		ISO 14782	%	--

Barrier Properties (50 µm films)

O_2-Transmission rate	23°C/ 0 % RH	DIS/ISO 15105-1	cm³/m² 24h bar	30
	23°C/85 % RH		cm³/m² 24h bar	10
CO_2-Transmission rate	23°C/ 0 % RH	DIS/ISO 15105-2	cm³/m² 24h bar	90
	23°C/85 % RH		cm³/m² 24h bar	40
Moisture vapour transmission rate	23°C/85 % RH	DIS/ISO 15106-1	g/m² 24h	7

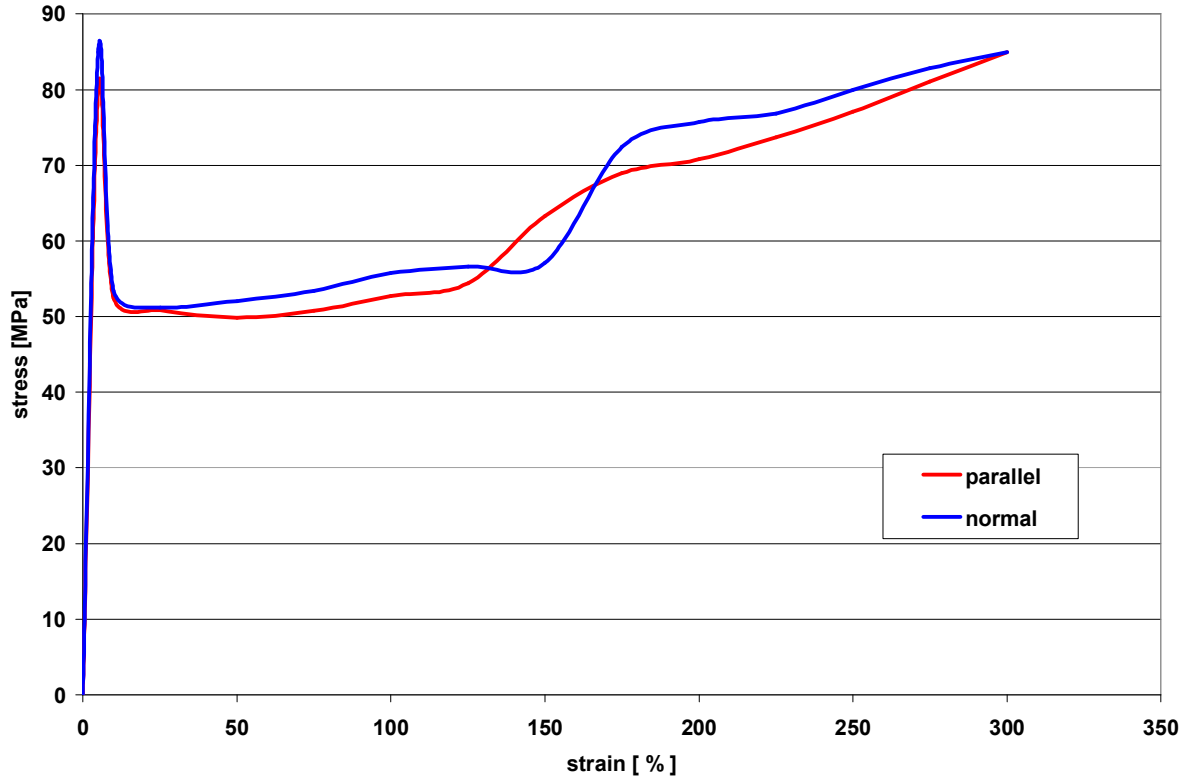
Mechanical Properties

Tensile E-Modulus		ISO 527-2	MPa		3000
Stress at yield	parallel normal	ISO 527-3	MPa		85 85
Strain at yield	parallel normal	ISO 527-3	%		5 5
Stress at break	parallel normal	ISO 527-3	MPa		85 85
Strain at break	parallel normal	ISO 527-3	%		300 300
Tear resistance	parallel normal	ISO 6383-1	N/mm		5 5
Elmendorf tear resistance	parallel normal	ISO 6383-2	N		10 10
Dart drop impact	A B	ISO 7765-1	g		-- --
Notched impact strength	Charpy, 23°C	ISO 179 /2-1eA	kJ/m²	dry cond.	8 8
Notched impact strength	Charpy, -30°C	ISO 179 /2-1eA	kJ/m²	dry cond.	8 2
Gelboflextest	900 cycles	EMS	holes/ m²		--

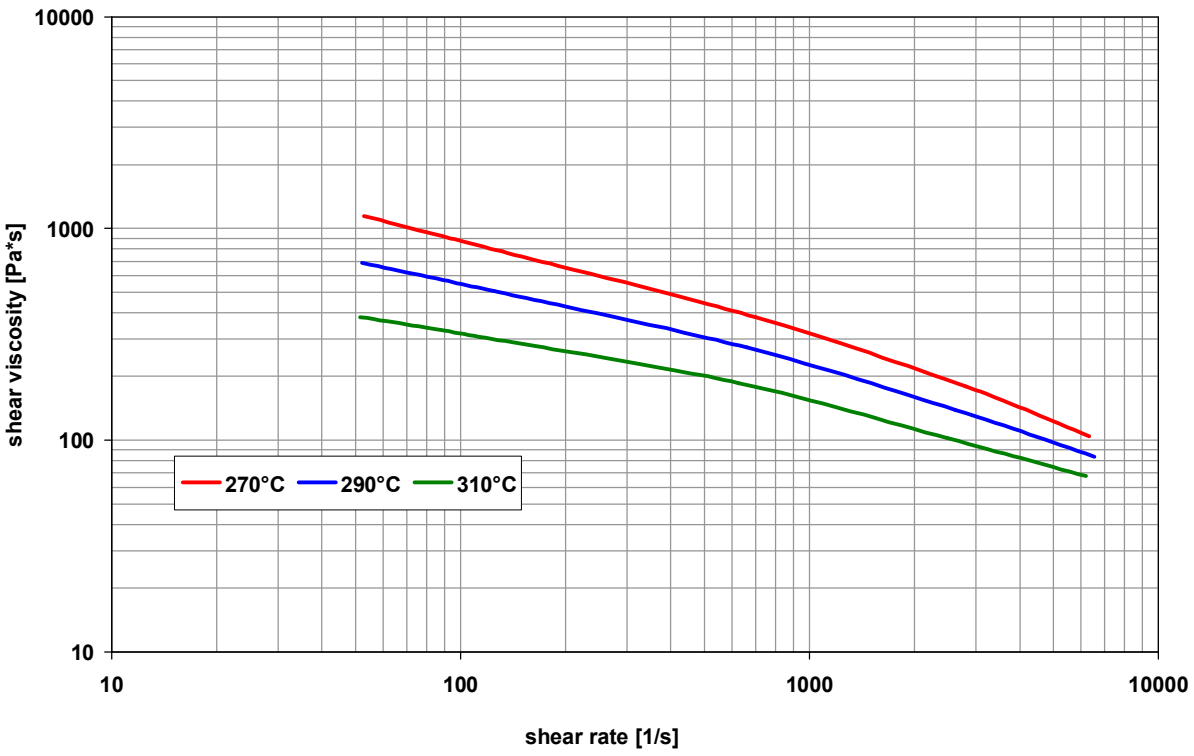
Product nomenclature acc. ISO 1874: PA 6I/6T, FT, 11-030

[1)] 80 µm film applicated on 160 µm Iononmer, biaxially oriented at 70°C (draw ratio 2:1), afterwards shrinkage in water at 85°C

Stress & Strain Grivory G 21 natural 6506



Viscosity function Grivory G 21 natural 6506



Processing information for the extrusion of Grivory G 21 natural 6506

This technical data sheet for Grivory G 21 6506 provides you with useful information on material preparation, machine requirements, tooling and processing.

MATERIAL PREPARATION

Grivory G 21 natural 6506 is delivered dry and ready for processing in sealed, air tight packaging. Pre-drying is not necessary provided the packaging is undamaged.

Storage
Sealed, undamaged bags can be kept over a long period of time in storage facilities which are dry, protected from the influence of weather and where the bags can be protected from damage.

Handling and safety
Detailed information can be obtained from the "Material Safety Data Sheet" (MSDS) which can be requested with every material order.

Drying
Grivory G 21 natural 6506 is dried and packed with a moisture content of ≤ 0.10 %. Should the packaging become damaged or be left open too long, then the material must be dried. A too high moisture content can be shown by a foaming melt, excessive nozzle drool and silver streaks on the moulded part.

Drying can be done as follows:

Desiccant dryer

Temperature:	max. 80°C
Time:	4 - 12 hours
Dew point of the dryer:	-30°C

Vacuum oven

Temperature:	max. 100°C
Time:	4 - 12 hours

Drying temperature
Polyamides are subject to the affects of oxidation at temperatures above 80°C in the presence of oxygen. Visible yellowing of the material is an indication of oxidation hence temperatures above 80°C for desiccant dryers and temperatures above 100°C for vacuum ovens should be avoided$

With longer residence times (over 1 hour) hopper heating or a hopper dryer (80°C) is useful.

MACHINE REQUIREMENTS

Grivory G 21 natural 6506 can be processed economically and without problems on all machines suitable for polyamides.

Screw
Wear protected, universal screws are recommended (3 zones).

Screw

Length:	24 D - 30 D
Compression ratio:	2.5 - 3.5

Grooved Feeding Zone
A grooved bush is usually not recommended for the extrusion of polyamides grades. Anyhow, in order to obtain a higher through-put by using a grooved bush it's depth should not exceed 0.5 mm.

PROCESSING

Basic machine settings
In order to start up the machine for processing Grivory G 21 natural 6506, the following basic settings are recommended:

Temperatures

Hopper zone	25 - 60°C
Feeding zone	245 - 255°C
Compression zone	255 - 265°C
Metering zone	255 - 265°C
Head	255 - 265°C
Nozzle	255 - 265°C
Melt	255 - 270°C

In cases where grooved feed zones are employed it is recommended to temper this zone between 80°C and 180°C depending on the geometry of the grooves.

CUSTOMER SERVICES

EMS-GRIVORY is a specialist in polyamide synthesis and the processing of these materials. Our customer services are not only concerned with the manufacturing and supply of engineering thermoplastics but also provide full technical support including:

- Rheological design calculation / FEA
- Prototype tooling
- Material selection
- Processing support
- Mould and component design

We are happy to advise you. Simply call one of our sales offices.

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