PU Solutions
Elastogran

Flexible Cellasto® Components

From semi-finished goods to finished parts

BASF
The Chemical Company

BASF Polyurethanes GmbH, European Business Management Microcellular Elastomers (Cellasto)

BASF Polyurethanes GmbH, European Business Management Microcellular Elastomers (Cellasto) develops, manufactures and offers components and semi-finished goods made from cellular polyurethane elastomers at its plant in Lemförde (GER). These materials have been introduced to the market under the name of Cellasto. At present, our scope of supply only compromises semifinished goods made from Cellasto.

For product development BASF's know-how and research potential may be employed.

Cellasto
Cellasto is a microcellular polyurethane elastomer. No foaming agent is used to generate the cellular structure. Thus free of pollutants, recycling of products is faciliated.

Cellasto components are used as flexible and damping elements of high load bearing capacity with the following characteristics:

- high volume compressibility
- low compression set
- very good static and dynamic long-term behaviour
- application range for ambient temperatures between -30 °C and +80 °C
- high resistance to many chemicals.

Identification
Hardness, a usual identification for solid elastomers, cannot be utilized for cellular elastomers. BASF Polyurethanes GmbH, European Business Management Microcellular Elastomers (Cellasto) therefore, uses the materials densities for designation purposes. Possible densities range from 270 kg/m^3 to 650 kg/m^3 with designations MH24-27 to MH24-65. The table »Material Data« below shows the influence of the density on different material characteristics.

We offer moulded parts. In addition, a vast variety of taylored products are manufactured via different mechanical processing techniques from our wide range of semi-finished goods.

Range of Products
The semi-finished Cellasto goods are manufactured in all densities specified:

- blocks and sheets split from them
- various shapes cut out of them
- cylindres and foils sliced from them (starting with 350 kg/m^3)
- tubes and rings cut from them (starting with 350 kg/m^3)
- bars and slabs cut from them (starting with 350 kg/m^3)

Products offered
BASF Polyurethanes GmbH, European Business Management Microcellular Elastomers (Cellasto) manufactures and supplies semi-finished products for direct application on further processing by the customer. On request, finished moulded Cellasto components are manufactured ready for assembly.

The table on page 3 shows possible processing methods.

			Material data Cellasto MH 24								
Material property	**Test method**	**Dim.**	**Requirement**								
Density	DIN EN ISO 845 ASTM D 3574, A/ ISO 1855	kg/m^3	270$^{\pm 25}$	300$^{\pm 25}$	350$^{\pm 25}$	400$^{\pm 25}$	450$^{\pm 25}$	500$^{\pm 25}$	550$^{\pm 25}$	600$^{\pm 25}$	650$^{\pm 25}$
Tensile strength	DIN EN ISO 1798 ASTM D 3574, E/ ISO 1798	N/mm^2	≥ 2,0	≥ 2,8	≥ 3,0	≥ 3,5	≥ 4,0	≥ 5,0	≥ 5,8	≥ 6,3	≥ 6,5
Elongation at break	DIN EN ISO 1798 ASTM D 3574, E/ ISO 1798	%	≥ 300	≥ 310	≥ 330	≥ 330	≥ 380	≥ 380	≥ 380	≥ 380	≥ 380
Tear resistance	DIN 53515 ASTM D 624, C/ ISO 34, B (b)	N/mm	≥ 5	≥ 7	≥ 8,0	≥ 11,5	≥ 12,0	≥ 16,0	≥ 18,0	≥ 19,0	≥ 20,0
Compression set (50 x 50 x 25 mm) 50 % compression (22 h/70 °C)	DIN EN ISO 1856 ASTM D 3574 ISO 1856	%	≤ 3,0	≤ 2,4	≤ 5,0	≤ 5,0	≤ 6,0	≤ 6,0	≤ 7,0	≤ 7,0	≤ 8,0
Compression set (40 x 40 x 30 mm) 40 % compression (22 h/80 °C/2 h/23 °C)	In according to DIN EN ISO 1856	%	≤ 3,5	≤ 3,4	≤ 20,0	≤ 20,0	≤ 20,0	≤ 20,0	≤ 20,0	≤ 22,0	≤ 22,0

Processing Methods

The following methods are applied to process semi-finished Cellasto products:

- **splitting**
- **slicing**
- **cutting**
- **punching**
- **drilling**
- **milling**
- **turning**
- **grinding**
- **water jet cutting**
- **laminating**
- **lubricating**

Adapted tool geometries and machine settings are required.

For further information see our technical brochures »Mechanical Processing of Polyurethane Elastomers« and »Bonding of Polyurethane Elastomers«.

BASF Quality

Quality Assurance
Our distinct quality assurance is the prerequisite for constantly high product quality and guarantees that our customers' requirements are met.

All departments of our company – development, purchasing, planing, production and dispatch – are obliged to fulfill this task.

All products are subjected to intense inspections and documentation.

Quality assurance is understood to be a permanent process comprising and involving all departements.

Processing Methods

Process	Tools	Remarks
Cutting	Circular cutter, Belt and circular saw, Cutting edge, Shears	Water used as lubricant improves the cut
Punching	Steel hoop cut, Full width cut, Progressive die, Gate shears, Hollow punch	Cut edges not angular, processing difficult in case of soft grades, however good in case of increasing densities
Turning, Cutting off, Drilling, Milling	Cutting tool, Spoon steel, Knife steel, Twist drill, Special hollow drill, Cutter head and special milling cutter (cutting tool)	Use cooling agent
Splitting, slicing	Hoop knife	
Grinding	Hand grinder, Grinders (grinding, adapter) Belt grinder, Circular grinder	Use special grinding discs and belts; cooling, if required
Water jet cutting	Water jet	Limited thickness for processing with high densities up to 30 mm with low densities up to 50 mm
Laminating		With self-adhesive foils and textiles
Oiling/lubricating		According to the specifications of BASF

Semi-finished goods via mechanical proces

Cellasto blocks and sheets

- punching
- drilling
- cutting
- water jet cutting
- milling

Cellasto cylinders and sliced foils

- punching
- drilling
- cutting
- water jet cutting
- milling

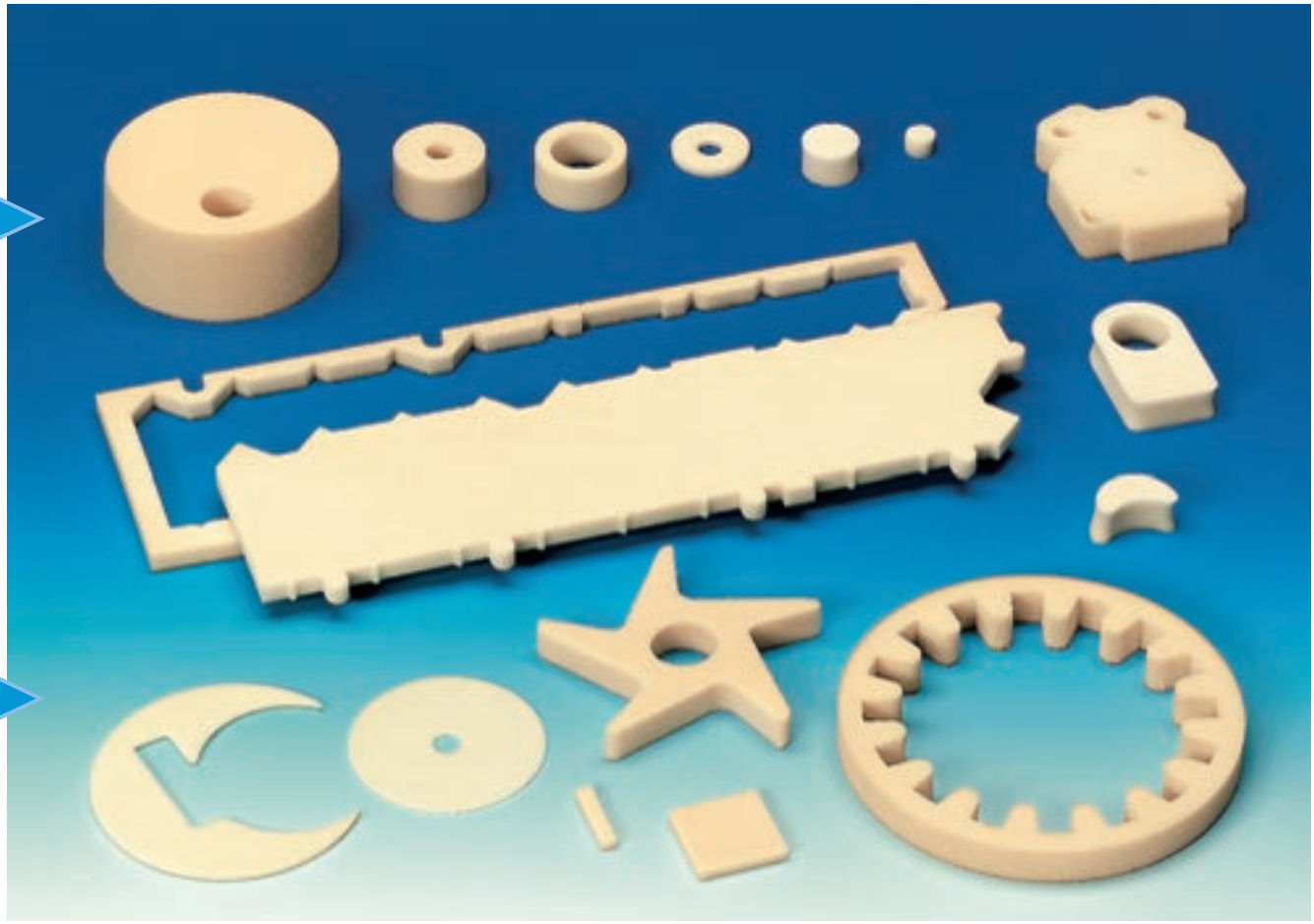
Cellasto bars

- cutting
- milling
- grinding
- turning

Cellasto tubes

- cutting
- milling
- grinding
- turning

sing **to finished products**



Applications

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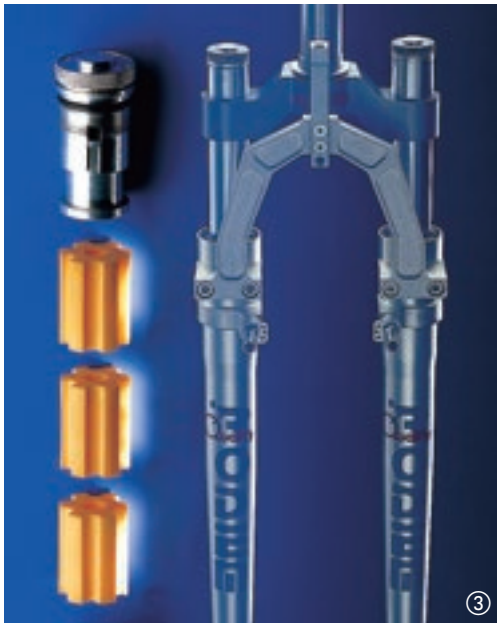
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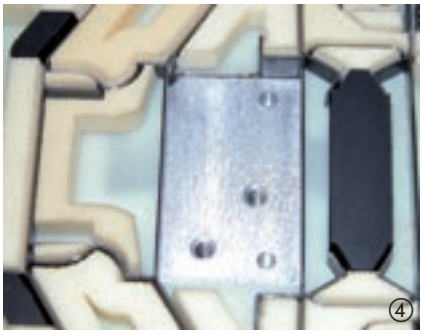
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① **Anti-vibration and end stop elements made of Cellasto are standing the test even under the most difficult operating conditions**

② **Printing rolls need compressible coatings out of Cellasto for a consistant and high reset force**

③ **This suspension fork dampens the effects of uneven road surfaces through Cellasto spring elements**

④ **Cellasto ejection material with long lifetime and high durability even at high frequencies**

⑤ **Friction damper with Cellasto rings used as vibration absorbers in washing machines**

⑥ **Cellasto offers new possibilities of design and construction in comparision to steel springs**

Special applications require individual solutions. We have become an internationally acknowledged partner for developments of semi-finished goods and moulded products made from polyurethane.

Assured production methods, many years of experience in the production of technical components and particularly the close cooperation with our customers made us the preferred partner for market oriented solutions to customers' problems.

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