

HPE ELASTOMER SYSTEM

Definition

High performance elastomer system designed for the production of mechanically and/or thermally stressed technical parts, moulds and models.

This system, based on 2 polyols and 2 isocyanates, allows to answer the users' needs on a very wide range of hardnesses, while keeping the same high level of performance, be it in Shore A or in Shore D.

Product in accordance with the European Directives: 2002/96/EC, 2000/53/EC, 2000/11/EC, 2011/65/EC and 2017/2102/EC (RoHS)

Properties

- Curing at room temperature (18 – 20°C).
- Good elongation resistance.
- Very good tear resistance, even on notched parts.
- Good chemical and thermal resistance.
- Good abrasion resistance.

Average physical properties of the components

Product references	Aspect – Colour	BROOKFIELD LVT viscosity at 25°C in mPa.s According to MO-051	Density at 25°C According to MO-032
SL240000	Opaque liquid Light to dark amber	550	1.04
SL285000	Transparent liquid Light to dark amber	650	1.09
SL000105	Transparent liquid Light amber	3300	1.08
SL000502	Transparent liquid Light amber	2500	1.05

Application properties depending on the requested properties

HARDNESS	40A	50A	60A	70A	85A	90A 35-40D	50-55D
SL240000 HPE 40 A Polyol (g)	100	75	50	25			
SL285000 HPE 85 A Polyol (g)		8	16	24	32	50	75
SL000105 HPE 40-85 Iso (g)	100	100	100	100	100	50	
SL000502* HPE 55 D Iso (g)						50	100
BROOKFIELD LVT viscosity at 25°C in mPa.s According to MO-051	2000	2400	2700	3000	3200	1800	1300
Potlife on 300g at 25°C (min.)	60	55	50	45	40	25	18
Demoulding time at 25°C (h)	24	24	24	24	24	12	10
Demoulding time At 70°C (after gellation) (h)	3	3	3	3	3	2	2

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Average mechanical and thermal properties of the cured material

- **Average values measured on specimens after post-curing 24h at room temperature + 16h 70°C + 48h room temperature**

Shore A hardness ISO 868	40	50	60	70	85	95	
Shore D hardness ISO 868						40	50-55
Working temperature	-40/+90	-40/+90	-40/+90	-40/+90	-40/+90	-40/+90	-40/+90
Maximum casting thickness (mm)	100	80	80	60	50	30	20
Elongation at break at 23°C (%) ISO 37	270	400	500	800	900	460	325
Tensile strength at break at 23°C (MPa) ISO 37	2.7	3.6	6	7.2	13	14	16
Tear resistance at 23°C (kN.m ⁻¹) ISO 34	11.5	18	27	40	54	58	70
Abrasion resistance (TABER 1000 Tr/H22) ISO 5470 (mg/100U)					18		35

Hygiene and safety instructions for using

Wearing appropriate safety clothes and accessories (gloves, glasses) is advised.
Work in a ventilated room.

For more information, please read the Medical and Safety Data Sheet of the material.

Application process with mixing machine

All parts have to be homogeneous before pumping or filling tanks.

Depending on the storage conditions, a crystallization can appear into the polyol components. In this case, put at the oven at 40 – 50°C until the product is homogeneous again.

In case of application with a vacuum casting machine in moulds with intricated shapes, we recommend to use a differential pressure system to cast low (40-60 Shore A) and high (50-55 D) hardnesses.

For an optimal use of the system:

- *In Shore A hardnesses, the two polyol components have to be mixed in the chosen ratio before filling the tanks.*
- *In Shore D hardnesses, the two isocyanate components have to be mixed in the chosen ratio before filling the tanks.*

Check the mixing ratio at the entrance of the mixing head before starting to cast, according to the selected hardness.

In order to get an optimal result, the support (part or mould) must be totally dry, without any trace of moisture.

Make sure that a proper release agent is used.

Once the casting is done, let the polymerization happen at room temperature to help the self-degasification of the product.

In case of post-curing, it is recommended to wait until the gellation of the product.

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Process with hand mixing:

All parts have to be homogenous before weighing.

Depending on the storage conditions, a crystallization can appear into the polyol components. In this case, put at the oven at 40 – 50°C until the product is homogeneous again.

Depending on the selected hardness:

- In **Shore A** hardnesses, the two polyol components should be properly mixed before adding the isocyanate component.
- In **Shore D** hardnesses, the two isocyanate components should be properly mixed before adding the polyol component.

In order to obtain the best possible result, the support (part or mould) must be completely free of any trace of moisture.

Make sure that a proper release agent is used.

After weighing both components, mix with a spatula or with a motorized mixer at low rotational speed.

Even though the product shows good self-degassing properties, it may be necessary to put it under vacuum before casting, depending on the complexity of the part, and the shape details that are likely to retain air bubbles.

Once the casting is done, let the polymerization happen at room temperature to help the self-degasification of the product.

In case of post-curing, it is recommended to wait until the gellation of the product.

Packaging:

SL240000 - HPE 40 A polyol :	Parcel of 6 x 1 kg or 4 x 5 kg
SL285000 - HPE 85 A polyol :	Parcel of 6 x 1 kg or 4 x 5 kg
SL000105 - HPE 40 – 85 A Iso :	Parcel of 6 x 1 kg or 4 x 5 kg
SL000502 - HPE 55 D Iso :	Parcel of 6 x 1 kg or 4 x 5 kg

HPE 40 – 85 A system kit :

2 x 5 kg HPE 40-85 A iso
+ 4 x 1 kg HPE 40 A polyol
+ 2 x 1 kg HPE 85 A polyol

Storage:

18 months in original unopened containers and stored between 15 and 25 °C.

Once the packaging is opened, it must be closed back tightly, on a hermetic, moisture free way, after each use, if possible under an inert atmosphere.