

FASTELAST SYSTEM

Definition :

Three-component PU elastomer system designed for the production of soft prototypes and technical parts. This system is based on 2 polyols and 1 isocyanate. It offers a large variety of hardnesses, ranging from an elastomer of 35 Shore A to a semi-rigid material of 93 Shore A, and keeping a high level of properties through the different possible hardnesses.

This material complies with the requirements of the European Directives : 2002/96/EU, 2000/53/EU, 2000/11/EU, 2011/65/EU and 2017/2102/EU (RoHS).

Properties :

- Short demoulding time
- Low viscosity
- Colorable material
- Good elongation at break
- Very good tear resistance, even on notched parts

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
SL035000	Transparent colourless liquid	350	1.04
SL093000	Transparent colourless liquid	300	1.04
SL000935	Transparent colourless to light yellow liquid	940	1.03

Processing properties :

Hardness	35A	45A	50A	60A	65A	75A	80A	86A	93A
SL035000 FastElast 35 A Polyol (g)	100	90	85	75	60	45	30	10	
SL093000 FastElast 93 A Polyol (g)		10	15	25	40	55	70	90	100
SL000935 FastElast 35-93 A Isocyanate (g)	30	37	41	48	58	69	79	93	100
BROOKFIELD LVT viscosity at 25°C (mPa.s) According to MO-051	350	310	310	300	300	300	300	300	300
Potlife on 200g at 25°C (min.) According to MO-062	12	10	8'30	12'30	10'30	6	7	5	6
Demoulding time at 70°C (h) Curing in a 70°C mould	2	1	1	1	1	1	1	1	1

The polyols and the isocyanate components crystallize under 15°C. Place them in an oven at 70°C during approximately 1 hour and shake them, then check that the products are completely homogeneous. Let cool down to 25°C before use.

The values displayed on this document are based on tests and researches carried out in our laboratories, under precisely defined conditions. This document cannot be, in any case, considered as a specification data sheet.

It is the responsibility of the user to check the suitability of the material for his own application, according to his proper conditions. SYNTHENE company disclaims any responsibility for any consequence occurred by the use of this system.

Average thermal and mechanical properties of the cured material :

- Average values measured on specimens after 1 hour at 70°C + 7 days at room temperature
- *Average values measured on specimens after 2 hours at 70°C + 7 days at room temperature

Shore A Hardness ISO 868	35*	45	50	60	65	75	80	86	93
Shore D Hardness ISO 868									50-55
Working temperature (°C)	-20/+80	-20/+80	-20/+80	-20/+80	-20/+80	-20/+80	-20/+80	-20/+80	-20/+80
Maximum casting thickness (mm)	30	30	30	30	30	30	20	20	20
Elongation at break at 23°C (%) ISO 37	385	1110	732	765	770	830	630	680	616
Tensile strength at break at 23 °C (MPa) ISO 37	1.4	2.7	4.7	5.8	8.3	12.5	13	26	22
Tear resistance at 23°C (kN.m ⁻¹) ISO 34	7.8	7	15.1	25	29.4	41.2	45	74	60

Hygiene and safety for using :

Wearing safety clothes and accessories (gloves, glasses) is recommended.
Work in a ventilated room.
For more information, please read the Medical and Safety Data Sheet of the material.

Application process with a vacuum casting machine :

Make sure that all the components are homogeneous before using.
Depending on the transport and storage conditions, crystallization can happen in both the polyol and the isocyanate components. In this case, place the material in the oven at 70°C until the products are completely homogeneous and clear again.

Depending on the selected hardness, the 2 polyols have to be premixed together before further be mixed with the isocyanate.

Pre-heat the polyaddition silicone mould at 70°C prior to use.
Make sure that the polyol and the isocyanate components are completely homogeneous.
Weigh the isocyanate component in the upper cup (without forgetting to calculate the required extra quantity to compensate for the lost casting residues of this upper cup).
Weigh the polyol component(s) in the lower cup (mixing cup).
Start the vacuum pump of the machine and set the mixer at low rotational speed, let the material degas during 10 minutes.
Stop the mixer's rotation, and pour the isocyanate from the upper cup down to the mixing cup.
Switch on the mixer again and duly mix for at least 1 minute (when the product temperature is 25°C).
Slightly cut the vacuum level and cast the resin into the silicone mould.
Place the mould in an oven at 70°C.

Demoulding is possible after 1 or 2 hours at 70°C (depending on the selected hardness).
The final hardness of the product is reached after 7 days at room temperature.

Application process for manual casting :

Make sure that all the components are homogeneous before using.
Depending on the transport and storage conditions, crystallization can happen in both the polyol and the isocyanate components. In this case, place the material in the oven at 70°C until the products are completely homogeneous and clear again.

Depending on the selected hardness, the 2 polyols have to be premixed together before further be mixed with the isocyanate.

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Pre-heat the polyaddition silicone moulds at 70°C prior use.
Make sure that the polyol and the isocyanate components are completely homogeneous.
Weigh the components and mix with a clean spatula or a motorized mixer set at low rotational speed.
Even though the product has good self-degassing properties, it can be necessary to put it under vacuum before casting, depending on the complexity of the part and the details that could entail air bubble entrapment inside the mould.
Once the casting is done, let the product polymerize at room temperature in order to help the release of possible air bubbles inside the mould.
Wait until the product is gelled before placing it in an oven at 70°C.

Packaging :

SL035000 FastElast 35A Polyol : parcel of 6 x 1 kg
SL093000 FastElast 93A Polyol : parcel of 6 x 1 kg
SL000935 FastElast Iso : parcel of 6 x 1 kg
Système FastElast : parcel of 4 x (1 kg SL035000 + 1 kg SL093000 + 1 kg SL000935)

Storage :

6 months in the original and unopened containers, 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.

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