

HPE ELASTOMER SYSTEM XS17013-1

Definition :

High performance elastomer system in experimental version 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.

Mercury free product in accordance with the European Directives : 2011/65/UE (RoHS), 2002/96/EC, 2000/53/EC, 2000/11/EC.

Properties :

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

Average physical properties of the components

Product references	Aspect – Color	BROOKFIELD viscosity LVT at 25°C in mPa.s According to MO-051	Density at 25°C According to MO-032
XSA 17010-1	Transparent liquid Light to dark amber	550	1.04
XSA 16004-1	Transparent liquid Light to dark amber	650	1.09
XSB16004-1	Transparent liquid Light amber	3300	1.08
XSB17011-1	Transparent liquid Light amber	3000	1.08

Application properties

HARDNESS	40A	50A	60A	70A	85A	90A 35-40D	50-55D
XSA 17010-1 (g)	100	75	50	25	0		
XSA 16004-1 (g)		8	16	24	32	40	50
XSB 16004-1 (g)	100	100	100	100	100	50	
XSB 17011-1 (g)						50	100
BROOKFIELD viscosity LVT at 25°C (mPa.s) According to MO-051	2000	2400	2700	3000	3200	2500	1600
Potlife on 300g at 25°C (min.) According to MO-062	60	55	50	45	40	15	8
Demoulding time at 25°C (h)	24	24	24	24	24	12	8
Demoulding time at 70°C (h) curing after gelation	3	3	3	3	3	2	2

The XS 17013/1 is an experimental product. The values mentioned on this document are based on tests and researches carried on in our laboratories in precise conditions. This document cannot be, in any case, considered as a specification datasheet.

It is the responsibility of the user to check the suitability of the XS 17013/1 for his own application, according to his proper conditions. SYNTHENE company disclaims all responsibility for any consequence occurred by the use of this product.

Average mechanical and thermal properties of the cured material :

Shore A hardness (1) ISO 868	40	50	60	70	85	90	
Shore D hardness (1) ISO 868						35-40	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 (1) (%) ISO 37	270	400	500	800	900	820	750
Tensile strength at break at 23 °C (1) (MPa) ISO 37	2.7	3,6	6	7.2	13	14	15
Tear resistance at 23 °C (1) (kN.m ⁻¹) ISO 34	11.5	18	27	40	54	64	74
Abrasion resistance (1) (TABER 1000 Rv/H22) ISO 5470 (mg/100U)	In progress	In progress	In progress	In progress	18	17	15

(1) Average values measures on specimens after post-curing 24h at room temp + 16h at 70 °C + 48h at room temp

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 refer to the Medical and Safety Data Sheet of the material.

Application process with mixing machine :

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

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

For optimal use of the system :

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

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 gelation of the product.

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Process with hand mixing :

All parts have to be homogenous before weighting.

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

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 air quantity incorporated during the mixing phase, 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 gelation of the product.

Packaging :

Consult us.

Storage :

3 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.