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VACUUM CASTING POLYURETHANE FOR TECHNICAL PARTS AND PROTOTYPES

FLEXURAL MODULUS 72,500 psi/(500 MPa) – TG 212°F/(100°C)

APPLICATIONS

Casting for production of translucent prototype parts and mock-ups having mechanical properties close to those of thermoplastics such as polypropylene or HDPE.

PROPERTIES

- *Very good impact resistance*
- *Quick hardening*
- *Thermoplastic aspect*
- *Easy processing*

PHYSICAL PROPERTIES				
		PART A	**PART B**	**MIXING**
Composition		**ISOCYANATE**	**POLYOL**	
Mixing ratio by weight		100	50	
Aspect		liquid	liquid	liquid
Color		white	amber to dark amber	beige to dark beige
Brookfield LVT viscosity at 25°C (mPa.s)	-	2,000 – 4,000	100 - 200	1,200 – 2,000
Density of parts before mixing Density of the cured product	ISO 1675-85 ISO 2781-88	1.08 -	1.08 -	- 1.08
Pot life at 25°C on 150 g	-			12 -15

PROCESSING CONDITIONS

For crystallized isocyanate *(non homogeneous product) it should be placed in an oven at 140°F/(60°C) until the product becomes homogeneous ; mix again. Isocyanate must be at room temperature before using.*

- *Use in a vacuum casting machine.*
- *Heat the mold at 158°F/(70°C).*
- *Heat both parts at 68°F/(20°C) in case of storage at a lower temperature.*
- *Weigh part A in the upper cup (do not forget to allow for residual cup waste).*
- *Weigh part B in the lower cup (mixing cup).*
- *After degassing for 10 minutes under vacuum, pour part A in part B and mix for **2 minutes**.*
- *Cast in the silicone mold, previously heated at 158°F/(70°C).*
- *Put in an oven at 158°F/(70°C) minimum.*
- *Demold after 1 hour.*

HANDLING PRECAUTIONS

Normal health and safety precautions should be observed when handling these products:

- *Ensure good ventilation*
- *Wear gloves, safety glasses.*

For further information, please consult the material safety data sheet.

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MECHANICAL PROPERTIES AT 23°C			
Hardness	ISO 868-85	Shore D1	70
Flexural modulus of elasticity	ISO 178-93	psi/(MPa)	72,500/(500)
Flexural strength	ISO 178-93	psi/(MPa)	4,400/(30)
Tensile modulus of elasticity	ISO 527-96	psi/(MPa)	76,900/(530)
Tensile strength	ISO 527-96	psi/(MPa)	3,600/(25)
Elongation at break in tension	ISO 527-96	%	100
Charpy impact strength	ISO 179/2D-94	$ft.Lbf/in^2/(kJ/m^2)$	-
Izod impact strength - notched	ASTM D256-05	$ft.Lbf/in^2/(kJ/m^2)$	>10/(>20)[1]
Izod impact strength - unnotched	ASTM D256-05	$ft.Lbf/in^2/(kJ/m^2)$	>8/(>16)[1]

[1]*Samples tested did not break. This value represents impact energy with no fracture.*

THERMAL AND SPECIFIC PROPERTIES (1)			
Glass transition temperature (Tg)	TMA METTLER	°F/(°C)	194 – 212/(90 – 100)
Heat deflection temperature (HDT) (266 psi/1.834 MPa)	ISO 75 Ae-93	°F/(°C)	131/(55)
Maximal casting thickness		In/(mm)	0.2/(5)
Linear shrinkage (thickness 0.12 in(3 mm)/ length 9.8 in/(250 mm))	-	%	0.7
Time before demolding at 158°F/(70°C)		min.	60
Working Temperature		°F/(°C)	-40 – 176/(-40 – 80)

(1) Average values obtained on standardized specimens/Hardening 1 hr at 158°F/(70°C) + 16 hrs at 176°F/(80°C)

STORAGE CONDITIONS

Shelf life of both parts is 12 months in a dry place and in their original unopened containers at a temperature between 59°F/(15°C) and 77°F/(25°C).

Any open can must be tightly closed under dry nitrogen.

GUARANTEE

The information contained in this technical data sheet result from research and tests conducted in our Laboratories under precise conditions. It is the responsibility of the user to determine the suitability of AXSON products, under their own conditions before commencing with the proposed application. AXSON guarantee the conformity of their products with their specifications but cannot guarantee the compatibility of a product with any particular application. AXSON disclaim all responsibility for damage from any incident which results from the use of these products. The responsibility of AXSON is strictly limited to reimbursement or replacement of products which do not comply with the published specifications.

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