



SC 300 GY

EPOXY MODELLING PASTE

HARDNESS 87 SHORE D – CTE 43.10^{-6} mm/mm.°C

APPLICATIONS

Production of tools for stamping, drawing, RIM and RTM, polyurethane foam and thermoforming

PROPERTIES

- Application with an extruder
- Application of 50 mm in one pass
- Low exothermy
- Low CTE
- Good surface aspect

PHYSICAL PROPERTIES				
		RESIN	HARDENER	MIXING
Mixing ratio by volume at 25°C		100	60	
Mixing ratio by weight		100	70 to 75	
Aspect		thick paste	thick paste	thick paste
Color		dark grey	off-white	grey
Density of parts before mixing	ISO 1675-85	1.38 – 1.42	1.58 – 1.62	-
Density of the cured product	ISO 2781-88	-	-	1.58
Viscosity at 25°C (Pa.s)	Rheometer CVO 100 Bohlin Instruments	1,000	800	900
Bulk exotherm ⁽¹⁾ (thickness : 30 mm) - Maximal temperature (°C) - Time to reach exotherm (hr)	-			see graph 1 3 - 5
Bulk exotherm ⁽¹⁾ (thickness : 50 mm) - Maximal temperature (°C) - Time to reach exotherm (hr)	-			see graph 1 - 5

(1) Support : polystyrene / 30 kg/m³ – Superficial destruction at 95°C

During pressing the dispensing nozzle must be maintained perpendicular to the surface on which the product is applied. Ensure overlap of ribbon.

CAUTION : Exotherm mostly depends on the type of machine and on the working parameters such as :

- Room temperature
- Insulating property of frame
- The mixture temperature (depending on the type of mixer : static or dynamic) and the speed of mixing and output.
- Applied thickness

The effect in change in temperature of the end of mixing and the applied thickness on exotherm is pointed out on graph 1 and annex 1.

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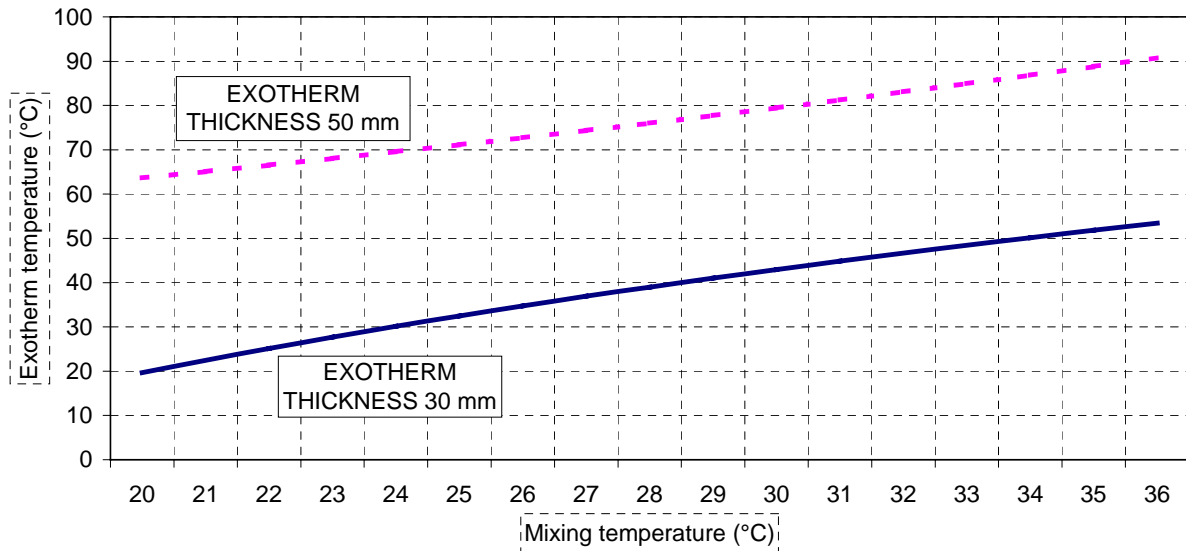
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GRAPH 1
BULK EXOTHERM TEMPERATURE
VERSUS TEMPERATURE OF THE END OF MIXING
 Room temperature : 21-25°C



APPLICATION ON POLYSTYRENE 30 kg/m³

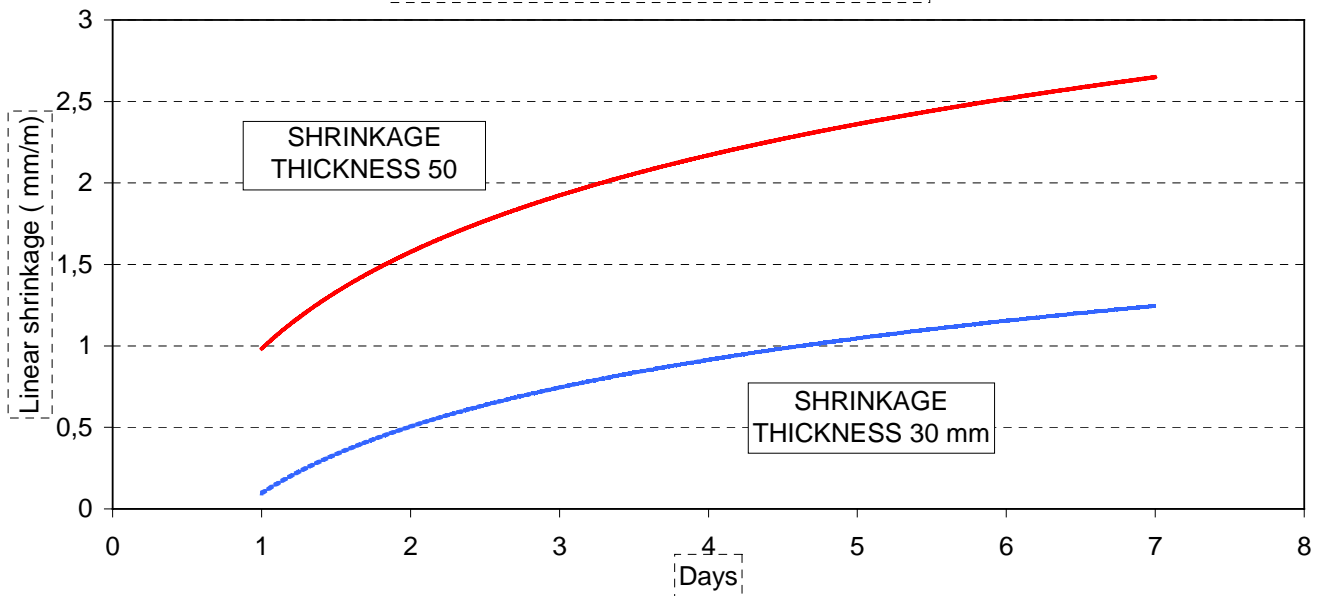
MECHANICAL AND THERMAL PROPERTIES AT 23°C ⁽²⁾

Property	Standard	Unit	Value
Hardness	ISO 868-85	Shore D1 / D15	87 / 86
Glass transition temperature	T.M.A. - Mettler	°C	52
• After 7 days at 23°C			88
• After curing 16 hours at 80°C	T.M.A. - Mettler	$10^{-6} K^{-1}$	43
Coefficient of linear expansion			43
• After 7 days at 23°C [-5, +40]°C	ISO 604-97	MPa	80
• After 16 hours at 80°C [+5, +80]°C			98
Compressive yield strength	ISO 178-93	MPa	82
Flexural strength			5.600
• After 16 hours at 80°C	ISO 178-93	MPa	51
Flexural modulus of elasticity			1.5
• After 16 hours à 80°C	ISO 527-96	%	
Tensile strength			
Elongation at break	ISO 527-96	%	1.5

SPECIFIC PROPERTIES

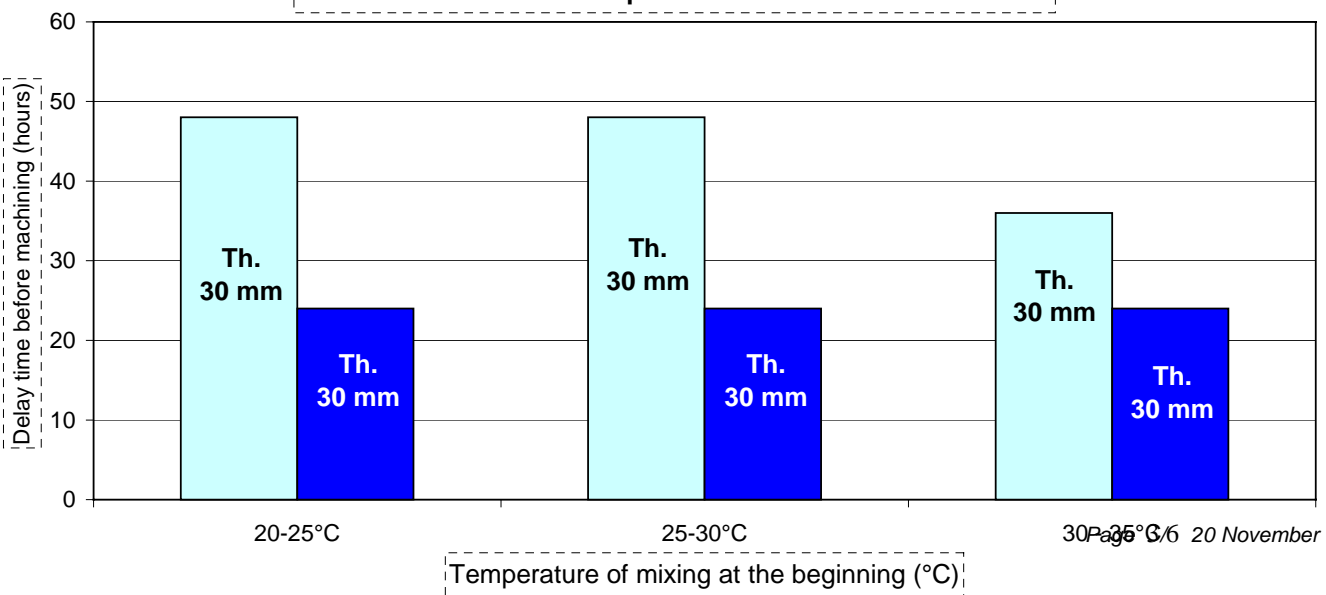
Property	Value	Unit	Reference
Linear shrinkage (thickness 30 mm)	-	%	see graph 2
Linear shrinkage (thickness 50 mm)	-	%	see graph 2
Hardening time before machining (thickness 30 mm)	-	hours	see graph 3
Hardening time before machining ⁽¹⁾ (thickness 50 mm)	-	hours	see graph 3

GRAPH 2
SHRINKAGE DURING TIME
 Room temperature : 21-25°C
 Temperature of the end of mixing : 25-30°C



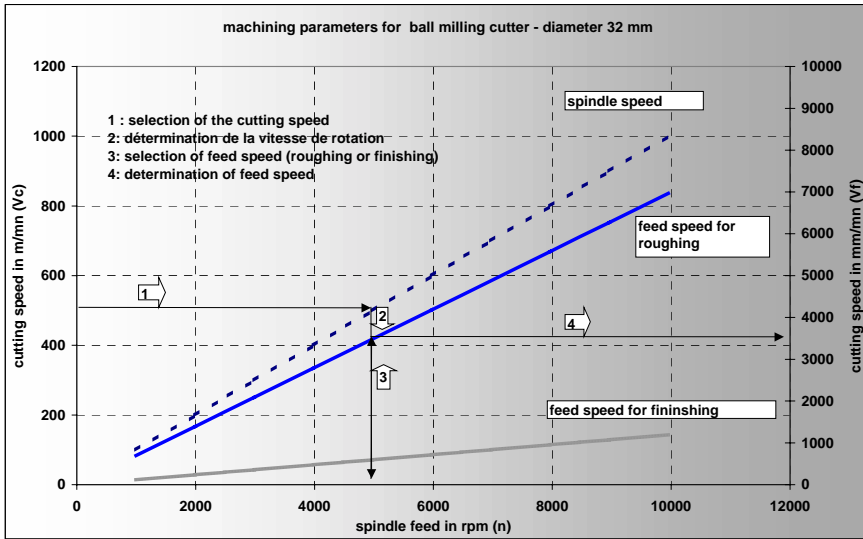
APPLICATION ON POLYSTYRENE 30 kg/m³

GRAPH 3
DELAY TIME BEFORE MACHINING VERSUS TEMPERATURE
 TEMPERATURE OF THE END OF MIXING
 Room temperature : 21-25°C



APPLICATION ON POLYSTYRENE (30 kg/m³)

Machining parameters determined with ball milling cutter like GRT 32, GRT 25 and GRT 16

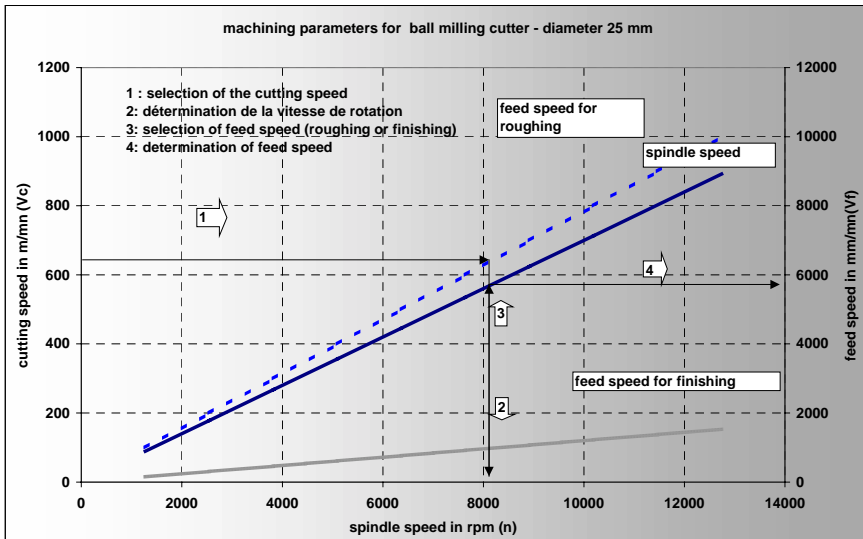


$$V_c = \frac{\pi \cdot D \cdot n}{1000} \quad \text{m/min}$$

$$n = \frac{V_c \cdot 1000}{D \cdot \pi} \quad \text{tr/min}^{-1}$$

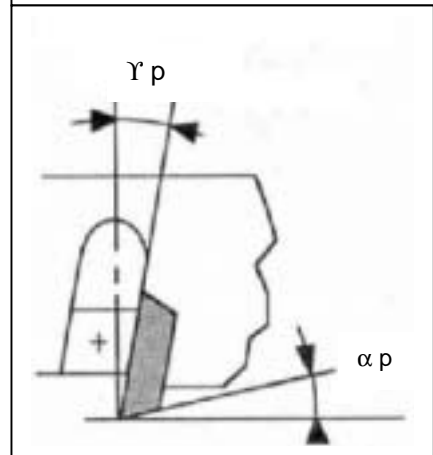
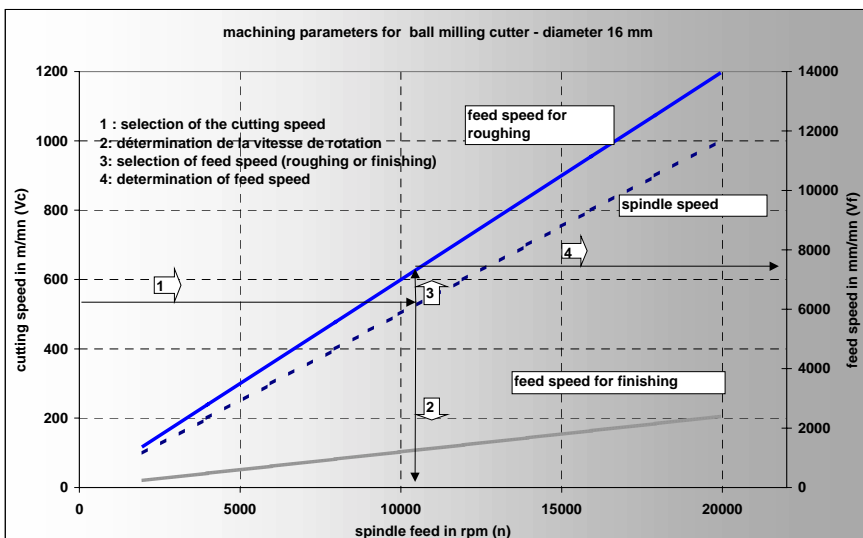
$$f_z = \frac{V_f}{Z \cdot n} \quad \text{mm}$$

$$V_f = f_z \cdot z \cdot n \quad \text{mm/min}$$



- V_c** : Cutting speed (m/min)
- f_z** : Feed rate per tooth (mm/rpm)
- Z** : Number of teeth
- D** : Tool diameter (mm)
- n** : R.P.M.
- V_f** : Feed speed (mm/min)

It is recommended to use always a tool with positive angle of cutting, clearance angle and angle of taper.



γ_p : cutting angle 6 to 30°
 α_p : Clearance angle 14°



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SAFETY PRECAUTIONS

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

- ensure good ventilation
- wear gloves and safety glasses.

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

STORAGE CONDITIONS

Use within **12 months** of the manufacturing date. Expiry date indicated on the packaging.

PACKAGING

Resin	Hardener	Inner diameter of drums
1 x 60 kg	1 x 42 kg	360 mm
1 x 200 kg	1 x 140 kg	570 mm

GUARANTEE



The information of our technical data sheet are based on our present knowledge and the result of tests conducted 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 refuse any guarantee about 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 guarantee conditions are regulated by our general sale conditions.




Influence of parameters on the quality of the mixed paste (trial with dynamic mixer machine)

NB 1 : on cells, the temperatures we obtain versus flow parameters and speed per rotation of mixer

Débit(V. rotation)	3000 tr/m	3500 tr/m	4000 tr/m	4500 tr/m	5000 tr/m	5500 tr/m	6000 tr/m	6500 tr/m	7000 tr/m	7500 tr/m	8000 tr/m(max)
1l/m	32		34		37		40		42	Parameters zone with very high exotherm risk	
1,25 l/m											
1,5 l/m	29		31		34		36		37		39
1,75 l/m											
2 l/m	28		29		31		33		36		37
2,25 l/m											
2,5 l/m	27		29		31		32		35		36
2,75 l/m											
3 l/m			28		29		31		33		34
3,25 l/m	Bad mixing zone										
3,4 l/m(max)			28		29		31		33		34

Initial temperature product : 21°C

 Optimum parameters zone
 Risk of bad mixing zone

 Parameters zone with exotherm risk
 Possible parameters zone (if low room temperature)
 Optimum parameters zone