

CNSL-BASED PU FOAMS GUIDE FORMULATIONS

SPRAY FOAM INSULATION WITH CNSL MANNICH POLYOLS

BENEFITS

- Excellent replacement for petro-based Mannich polyols
- Excellent fire resistance properties
- Higher compression strength
- Made from renewable, non-food chain CNSL
- Slightly faster reactivity

Guide Formulation

Ingredients (Parts by wt)	PU-Ref	PU1-CNSL	PU2-CNSL	PU3-CNSL
Sucrose/glycerine based polyether polyol (360OH)		65		
Aromatic polyester polyol (315OH)		25		
petro-Mannich (425OH)	10			
petro-Mannich (470OH)		10		
GX-9101 ¹ CNSL Mannich (425OH)			10	
GX-9102 ¹ CNSL Mannich (470OH)				10
TCPP		20		
Water		1.5		
Polycat 5 ²		1.2		
Dabco 33LV ²		1.2		
Tegostab B8461 ²		1.4		
Solkane 365/227 ³		14		
pMDI index		120		
Mix Time (sec)		8		
String Time (sec)	29	32	28	26
Tack Free Time (sec)	47	49	45	43
Density (kg/m ³)	33	44.2	33.4	44.8
Compression (kPa)	101	178	109	182
Limiting Oxygen Index (%)	23.8	24.2	24.8	24.7

¹Cardolite ²Evonik ³Solvay

PROCESSING

On lab scale, polyurethane formulations are prepared by properly weighing all the Part B components (polyols, catalysts, silicone, flame retardant additives, water) in a paper cup or in a plastic container. The mixture is then stirred for 600 rpm for 1.5 minutes. pMDI (Part A) is weighed in a different container (typically a paper cup). The correct amount of the blowing agent is then added to Part B, mixed for 10-15 seconds till a homogenous mixture is obtained. Part B's weight is then controlled to check whether any blowing agent loss has occurred during mixing. If so, the necessary amount of blowing agent is added. Part A is then poured onto Part B and the resulting mixture stirred at 2000-3000 rpm (depending on mechanical stirrer type) for the proper amount of time (some seconds, depending on systems reactivity). The resulting mixture is then poured in a mold (wood or metal one) to record the reactivity or left freely rising (e.g. for spray systems).

Please refer to each supplier's material safety data sheet (MSDS) for the most current safety and handling information.

DISCLAIMER

All statements, technical information and recommendations contained herein are based on tests Cardolite believes to be reliable, but the accuracy or completeness thereof is not guaranteed or warranted either express or implied including but not limited as to merchantability or fitness for a particular purpose. The formulations contained herein are not optimized for any particular use and are therefore, only to be considered as references. It is the responsibility of the user to fully test their formulations for the intended use. Use of the product is at the user's risk.



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