

CNSL-BASED PU FOAMS GUIDE FORMULATIONS

PUR SPRAY FOAM WITH CNSL BASED POLYOLS

- CNSL-systems show faster reactivity than EDA and o-TDA based polyols
- CNSL-systems show in average better fire performances than EDA-polyol and comparable or slightly better than o-TDA-polyol
- CNSL-systems show mechanical properties comparable to EDA- and o-TDA- polyols

Guide Formulations

Ingredients (Parts by wt)	PU-EDA Ref	PU-TDA Ref	PU1-CNSL	PU2-CNSL	PU3-CNSL	PU4-CNSL	PU5-CNSL
Sucrose polyether polyol (OH 490)	30	30	30	30	30	30	30
Alkoxylated EDA polyol (OH 450)	20		20				
Alkoxylated-oTDA polyol (OH 400)		20		20		20	
GX-9102 ¹					20		20
NX-9001 ¹			10	10	10		
Glycerine polyether polyol (OH 156)	10	10					10
NX-5285 ¹						10	
TCPP	20						
Dabco DC193 ²	1.5						
Water	0.5						
DMCHA	1.4	1.4	1.4	1.4	0.8	1.4	0.8
Polycat 9 ²	1.4	1.4	1.4	1.4	0.8	1.4	0.8
Dabco T12 ²	0.2	0.2	0.2	0.2	0.1	0.2	0.05
Solkane 365/227 ³	15						
pMDI Index	150						
Mix Time (sec)	5	5	5	5	5	8	5
String Time (sec)	26	28	21	24	15	25	17
Tack Free Time (sec)	37	37	29	35	34	39	36
Density (kg/m ³)	44.4	44.1	43.4	46.2	48.4	41.2	46.1
Compression Parallel (kPa)	200	207	188	239	234	209	212
Vertical (kPa)	219	217	232	225	225	217	207
Vertical UL-94 (after-flame, sec)	2.8	1.8	1.8	2.1	1.1	1.4	2

¹ Cardolite ² Evonik ³ Solvay

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.



Cardolite Corporation
140 Wharton Rd
Bristol, PA 19007
United States of America
T: +1-800-322-7365
www.cardolite.com