



Bonding of Cured Millathane® CM to Liquid Urethane

An experiment was conducted to evaluate the adhesion of a cured Millathane CM compound to a cast urethane system. The Millathane CM stock was as follows:

Millathane CM	100
Zinc Stearate	0.25
HiSil 233 ¹	30
MBTS	4
MBT	2
Thanecure® ZM	1
Spider Sulfur	2

The compound was cured for 15'/160°C (320°F) against a rubber skim coated fabric. The urethane compound surface was then abraded with fresh 50-grit sandpaper, solvent washed with MEK, and allowed to dry for 30 minutes at room temperature. Three separate adhesion pads were then made, as follows:

A: No adhesive was used. The pad was placed into a mold and liquid urethane (Adiprene² L167 cured with MOCA) was cast over the pad. The sample was pressed/cured for one hour at 100°C (212°F) followed by an oven post cure of 16 hours at 70°C.

B: The sample was prepared in exactly the same way as sample A except that one coat of Chemlok³ 213 was applied after the solvent wash, and allowed to dry for 30 minutes.

C: This sample was prepared exactly the same way as sample B except that the Chemlok 213 was dried for 30 minutes at 121°C (250°F).

Peel adhesion was tested on the pads by pulling a 1" (2.5 cm) strip at 2" (5 cm)/minute. Values are as follows:

	A	B	C
Adhesive	None	Chemlok 213	Chemlok 213
Adhesive dry time	---	30'/Room Temp.	30'/121C
Adhesion, lb/in	74	67	69
kg/cm	13	12	12

Failure of all samples was within the Millathane CM compound.

Conclusion: Liquid urethane (Adiprene L167/MOCA) bonds very well to a cured Millathane CM compound, with or without adhesive.

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¹ Precipitated silica, PPG Industries, ² Crompton Corporation ³ Lord Corporation