

# Mold Shrinkage of Millathane® 76 and Millathane E34 Compounds

	D	А	E	В	Н	E	С
Millathane® 76	100	100	100	100	100	100	
Millathane E-34							100
NUCAP 100G	0	10	30	50		30	30
N990					30		
TP-95	5	5	5	5	5	5	5

Other ingredients: MBTS-4, MBT-2, Thanecure®ZM-1, Sulfur-1.5, Struktol WB222-1, zinc stearate-0.5

## MOLD SHRINKAGE - 150°C Cures

Doughnut/washer-shaped (ID/OD) Mold\*

Dimensional Change (shrinkage),	, %						
OD	2.8	2.7	2.3	1.9	2.3	2.3	2.4
ID	2.9	2.7	2.3	1.9	no test	2.3	2.4
Depth	3.2	3.0	3.0	2.8	2.4	3.0	2.2
no test is bad sample							

Bar Mold\*\*

Dimensional Change (shrinkage),	%						
Length	2.6	2.4	2.4	1.8	2.3	2.4	2.5
Width	3.0	2.2	2.4	2.4	2.2	2.4	2.8

## MOLD SHRINKAGE - 160°C Cures

Doughnut/washer-shaped (ID/OD) Mold\* Dimensional Change (shrinkage) %

Dimensional Change (shrinkage),	70						
OD	2.7	2.7	2.2	1.9	2.1	2.2	2 2.5
ID	2.9	2.7	2.2	1.9	2.4	2.2	2 2.5
Depth	3.2	2.8	2.4	2.6	2.2	2.4	4 2.6

Bar Mold\*\*

Dimensional Change (shrinkage),	%						
Length	3.0	2.7	2.4	1.9	2.3	2.4	2.4
Width	3.2	3.0	3.2	2.8	2.6	3.2	3.4

## MOLD SHRINKAGE - 175°C Cures

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Doughnut/washer-shaped (ID/OD) Mold\*

OD	2.8	2.6	2.3	2.1	2.4	2.3	2.7
ID	2.9	3.1	2.3	2.0	2.5	2.3	2.4
Depth	3.6	3.2	3.4	2.8	3.2	3.4	3.2

Bar Mold\*\*

Dimensional Change (shrinkage),	%						
Length	2.9	2.4	2.5	2.1	2.0	2.5	2.5
Width	2.4	3.6	1.8	2.2	3.6	1.8	1.8

\*Outside Diameter = 2.998", Inside Diameter = 2.000", Depth = 0.503"

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\*\*Length = 4.000", Width = 0.752", Depth = 0.502"

#### Observations

- 1. The mold shrinkage of sulfur-cured Millathane® 76 compounds decreased as the filler loading increased.
- 2. Mold shrinkage is not significantly affected by molding temperature.
- 3. Millathane E34 gave similar mold shrinkage to Millathane 76 in the same formula.
- 4. There was no significant difference in mold shrinkage between N990 black and Nucap 100G.

#### Conclusions

Mold shrinkage for Millathane® compounds is approximately 2.5%.

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