



Millathane® 26 – Isocyanate Cured

Millathane 26 is a polyether millable polyurethane that is typically peroxide cured, but it was found that it gives excellent properties in high hardness compounds cured with the 'isocyanate' cure system, composed of Thanecure® T9SF (Dimerized TDI), HQEE and an accelerator.

Millathane® 26	100	100	100	100	100	100
Stearic acid	0.3	0.3	0.3	0.3	0.3	0.3
Thanecure® T9SF	8.0	20.0	25.0	30.0	30.0	40.0
Alcan HQEE96 ¹	—	6.8	9.7	12.5	12.5	18.2
Bismate (BiDMC) ²	0.3	0.3	0.3	0.3	—	0.3
Methazate (ZDMC) ³	—	—	—	—	0.3	—

MDR at 130°C

ML, lb-in	1.1	1.1	1.2	1.3	1.0	1.4
<i>dNm</i>	1.3	1.3	1.4	1.5	1.1	1.6
MH, lb-in	37.1	83.7	101.1	114.6	91.7	140.5
<i>dNm</i>	41.9	94.6	114.2	129.5	103.6	158.8
ts1, minutes	1.4	0.5	0.5	0.5	0.7	0.3
t90, minutes	21.9	8.7	4.9	3.7	6.5	2.5

Press Cure, 20 min./130°C

Hardness, Shore A/Shore D	75/25	92/37	95/50	97/48	97/50	98/55
TSE-100*, psi	410	865	1100	1350	1560	1760
<i>MPa</i>	2.8	6.0	7.6	9.3	10.8	12.1
TSE-300, psi	655	1570	1835	2450	2570	3140
<i>MPa</i>	4.5	10.8	12.7	16.9	17.7	21.7
Tensile Strength, psi	4120	5750	7500	5830	5210	6130
<i>MPa</i>	28.4	39.7	51.7	40.2	35.9	42.3
Elongation, %	535	490	530	450	430	445
Tear, Die C, lb/in	214	333	403	411	404	551
<i>kN/m</i>	37.5	58.3	70.5	71.9	70.7	96.4
Tear, Die B, lb/in	249	385	539	547	567	699
<i>kN/m</i>	43.6	67.4	94.3	95.7	99.2	122.3
* TSE-XXX is Tensile Stress at XXX Elongation						
Bashore Resilience, %	70	58	55	59	57	41
Compression Set, 22 hr/70°C, %	18	35	47	66	70	90
DIN Abrasion, mm ³ loss	33	29	36	46	49	56

Observations:

1. Isocyanate-cured Millathane 26 compounds have EXCELLENT physical properties and abrasion resistance in high hardness compounds.
2. BiDMC gives comparable properties to ZDMC (and to PbDMC), and is less hazardous to use, although BiDMC imparts a yellowish color to compounds.

¹ HQEE (Hydroquinone bis(2-hydroxyethyl)ether) from Satic-Alcan, ² BiDMC = Bismuth dimethyldithiocarbamate from R.T. Vanderbilt Co., ³ZDMC = zinc dimethyldithiocarbamate from R.T. Vanderbilt Co.