

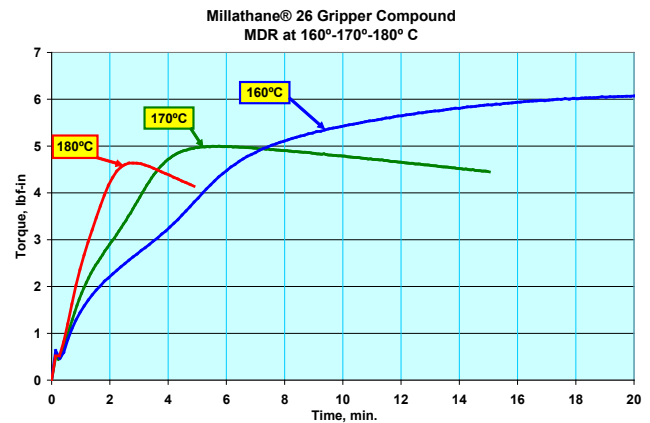
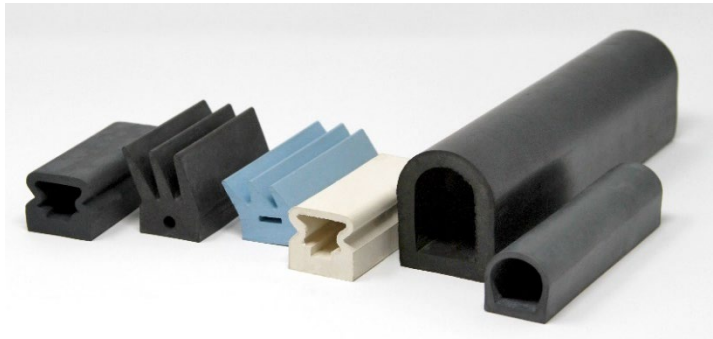


### Millathane® 26 Millable Urethane for Food Contact Applications\*

TSE has developed a polyether millable urethane that complies with the United States Code of Federal Regulations, Title 21 parts 177.1680 and 177.2600. This polyurethane rubber is designed for food contact applications such as belting, seals, gaskets, linings, socks, boots, lagging, curtains, and hoses. Being a polyether urethane, Millathane® 26 is good for water resistance so it can be used safely for aqueous food applications.

#### RUBBER GRIPPERS

The below Millathane® 26 compound is undergoing trials in a rubber gripper in a bottling conveyor system. It is of interest because of its potential to offer significantly longer life than currently used materials due to its outstanding abrasion resistance. This compound mixed well and injection molded nicely at 4"/170°C. The grippers are in their second round of field trials and are, thus far, performing well.



*\*To be compliant with 21CFR 177.2600, articles made must be made from the lists of ingredients shown in that section of the Federal Register. Additionally, if the article will come in contact with aqueous or oily foods, water or hexane extractions (respectively) need to be done on the finished article. TSE Industries, Inc. makes no guarantees that the end article complies with any part of the United States Code of Federal Regulations. All testing, registrations, and final approvals must be made by the article's manufacturer.*

Millathane® 26	100.00
Stearic acid	0.30
Hi-Sil 233	10.00
TP-95 (DBEEA)	10.00
Struktol WB222	1.00
SR 350 (TMPTMA)	2.00
SR 231 (DEGDMA)	3.00
DiCup 40C	4.50
N550	0.25
Titanium dioxide	0.50
Mooney Viscosity, ML(1+4)/100°C	27
<b>Total</b>	<b>131.55</b>

Press Cure 11 minutes at 160°C	
Hardness, Shore A	50
TSE100*, psi / MPa	115 / 0.8
TSE200*, psi / MPa	165 / 1.1
TSE300*, psi / MPa	255 / 1.8
Tensile Strength, psi / MPa	2020 / 13.9
Elongation, %	660
Tear, Die C, lb/in / kN/m	93 / 16.3
Bashore Resilience, %	48
DIN Abrasion, mm³ loss	87
Compression Set, 22 hr/70°C, %	26

\* Tensile Stress at xxx% Elongation



### Millathane® 26 Millable Urethane for Food Contact Applications (cont.)

#### BELTING

Polymers with acceptance for wet food applications have great utility in the handling of foods such as grains, meats, and other items. Important properties for these applications are tear resistance, flex resistance, and resistance to any fluids, fats and oils which may come in contact with the belt. Millathane® 26, being an ether urethane, is inherently good for resistance to water, and urethanes are generally very good for resistance to fats and oils that are in foods.

Millathane® 26 Belting Compound	
Millathane® 26	100.00
Stearic acid	0.30
Hi-Sil 233	30.00
Struktol WB222	1.00
SR 350 (TMPTMA)	5.00
SR 231 (DEGDMA)	3.00
DiCup 40C	4.00
Mooney Viscosity, ML(1+4)/100°C	66
<b>Total</b>	<b>143.30</b>

Press Cure 9 minutes at 160°C		
Hardness, Shore A	71	
TSE100*, psi (MPa)	265	(1.8)
TSE200*, psi (MPa)	440	(3.0)
TSE300*, psi (MPa)	735	(5.1)
Tensile Strength, psi (MPa)	3540	(24.4)
Elongation, %	590	
Tear, Die C, lb/in (kN/m)	194	(34.0)
Bashore Resilience, %	51	
DIN Abrasion, mm <sup>3</sup> loss	96	
Compression Set, 22 hr/70°C, %	13	

\* Tensile Stress at xxx% Elongation

#### MILKING INFLATIONS

Rubber milking inflations or milking liners for milking cows and other mammals are commonly made from nitrile or silicone rubber, although liners made of natural rubber and blends of natural rubber with SBR or NBR are also used. Important properties for this application are good flex life, good aging resistance, good resistance to milk products, and good abrasion resistance. Silicone rubber gives longer life in use than NBR, NR and blends primarily because of its better resistance to milk fats and aging. Urethane rubber, because of its outstanding abrasion resistance, may lead to longer life products for this application. A compound developed and being evaluated for milking inflations is shown in below. All ingredients are in-compliance with 21CFR177.2600.

Millathane® 26 Compound for Milking Inflations	
Millathane® 26	100.00
Stearic Acid	0.30
N774	10.00
Polyfil HG 90	5.00
Akrofax 11LG	5.00
Struktol WB222	1.00
Poly Ac 617A	1.00
SR 350	3.00
DiCup 40C	4.80
<b>Total</b>	<b>130.10</b>

Press cure 11'/160°C		
Hardness, Shore A	55	
TSE25*, psi (MPa)	95	(0.7)
TSE100*, psi (MPa)	184	(1.3)
TSE200*, psi (MPa)	282	(1.9)
TSE300*, psi (MPa)	483	(3.3)
Tensile Strength, psi (MPa)	2880	(19.9)
Elongation, %	643	
Tear, Die C, lb/in (kN/m)	138	(24.2)
Bashore Resilience, %	58	
Compression Set, 22 hr/70°C, %	23	

\* Tensile Stress at xxx% Elongation