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Technical Information

Effective: 29 Sept 2011

Adiprene® LF 751D

A TDI-terminated polyether prepolymer

ADIPRENE LF 751D is a TDI-terminated polyether prepolymer with extremely low free TDI content. Curing with 4,4'-methylene-bis-(o-chloroaniline), MBCA, yields a high performance 75 Shore D polyurethane elastomer suitable for many high-performance applications.

Features of Adiprene LF 751D include:

- Low free TDI content
- Low viscosity
- Moderate pot life
- Excellent high temperature dynamic properties

Adiprene LF prepolymers, including Adiprene LF 751D, offer cast polyurethane processors important advantages in three areas:

Hygiene

All TDI based prepolymers contain unreacted TDI monomer. The level of monomer can vary from 0.1% to 5.0% by weight, with high hardness materials generally having the highest level of free TDI. Adiprene LF 751D has less than 0.1% free TDI, which can be beneficial in the management and control of worker exposure to TDI.

Processing

Relative to conventional TDI based prepolymers of equal hardness, Adiprene LF 751D has the processing advantages of longer pot life and lower viscosity. These qualities can improve the performance of a casting operation by reducing scrap while increasing the variety of products that may be made via the casting process.

End-Use Performance

A third advantage of Adiprene LF 751D is excellent end-use dynamic performance. This material has low heat build-up due to hysteresis in high speed, high load-bearing applications such as rolls, tires and wheels. Therefore, it may be possible to expand the use of polyurethane into more dynamically demanding applications that require a 75 Shore D hardness elastomer.

Liquid Prepolymer Specifications:

% NCO	8.9 – 9.2
AE	457 – 472
Maximum Brookfield Viscosity, poise	
@30°C	230.0
@100°C	2.50
Color, Gardner	0-3
Appearance @ 25°C	Clear viscous liquid, free from contamination

Typical Properties

Viscosity, Centipoise (Pa·s)	
@ 30°C (86°F)	18800 (18.8)
@ 50°C (122°F)	2580 (2.58)
@ 66°C (150°F)	900 (0.90)
@ 70°C (158°F)	750 (0.75)

Specific Gravity	
@ 30°C (86°F)	1.12
@ 50°C (122°F)	1.11
@ 66°C (150°F)	1.10
@ 100°C (212°F)	1.08

Processing Conditions:

Adiprene LF 751D temp, °C (°F)	66 (150)
MBCA, °C (°F)	116 (240)
pph MBCA, 95% theory, AE= 462	27.5
Mold Temperature, °C (°F)	100 (212)
Pot Life (time to 200 poise), Mins.	1.8
Demold Time, Mins.	15
Recommended Cure Cycle: Hrs/°C	16/100-110
°F	(212-230)

*Room temperature molds may also be used. Longer demold times will be required.

Processing Conditions:

Hardness, Shore D	73 - 75
Tensile, psi (MPa)	7500 (51.7)
Elongation, %	230
100% Modulus, psi (MPa)	5500 (37.9)
200% Modulus, psi (MPa)	6500 (44.8)
D-470 Split Tear, pli (kN/m)	145 (25.4)
Die C Tear, pli (kN/m)	950 (166)
Compressive Modulus, psi (MPa)	
@ 5%	2300 (15.9)
@ 10%	3950 (27.2)
@ 15%	5100 (35.2)
@ 20%	6600 (45.5)
@ 25%	8000 (55.2)
Specific Gravity	1.20

