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Technical Information

Effective: 29 Sept 2011

ADIPRENE® LF 1900A

A TDI-terminated polyester prepolymer

ADIPRENE LF 1900A is a TDI-terminated polyester prepolymer having very low free TDI content. This prepolymer also has low viscosity, which allows it to be processed at reduced temperature for better heat stability and longer pot life. It yields a high performance, 90 Shore A hardness elastomer when cured with 4,4'-methylene-bis-(o-chloroaniline), commonly called MBCA.

Features of ADIPRENE LF 1900A include:

- Low Free TDI Content
- Low Viscosity
- Long Pot Life
- High Tear and Tensile Strength

ADIPRENE LF prepolymers, including ADIPRENE LF 1900A, offer cast polyurethane processors important advantages:

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 1900A 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 1900A 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

ADIPRENE LF 1900A has excellent dynamic properties when compared to conventional ester-TDI elastomers. This material has low heat build-up due to hysteresis in high speed, high load bearing applications such as rolls and wheels. Elastomers produced from this high performance material also exhibit high tear resistance and excellent abrasion resistance.

LIQUID PREPOLYMER SPECIFICATIONS

% NCO	4.05 - 4.35
AE	966 – 1038
Color, Gardner	0-2
Appearance @ 25°C	Solid, free from contamination
Brookfield Viscosity, poise	
@ 100°C	0.00-7.00

Typical Properties

Viscosity, Centipoise (Pa·s)

@ 30°C (86°F)	(Solidifies)
@ 55°C (131°F)	6500 (6.5)
@ 70°C (158°F)	2500 (2.5)
@ 85°C (185°F)	1000 (1.0)
@ 100°C (212°F)	500 (0.5)

Specific Gravity

@ 70°C (158°F)	1.191
@ 100°C (212°F)	1.168

PROCESSING CONDITIONS

ADIPRENE LF 1900A Temperature, °C (°F)	85-100 (185-212)
MBCA, °C (°F)	116 (240)
pph MBCA, 95% Theory, AE = 1000	12.7
Mold Temperature, °C (°F)	100 (212)
Pot Life, Minutes	6 - 8
Demold Time, Minutes	30 - 45
Recommended Cure Cycle: Hrs/°C (°F)	16/100-110 (212-230)

PHYSICAL PROPERTIES

Hardness, Shore A	90 - 93
100% Modulus, psi (MPa)	1200 (8.3)
200% Modulus, psi (MPa)	1500 (10.3)
300% Modulus, psi (MPa)	2200 (15.2)
Tensile, psi (MPa)	7200 (49.6)
Elongation, %	525
Tear Strength, pli [kN/m)	
Die C (D-624)	600 (105)
Split (D-470)	135 (23.7)
Trouser (D-1938)	270 (47.3)
Bashore Rebound	27
Compression Set, Method B	
22 Hrs. @ 158°F (70°C)	32
Specific Gravity	1.27
Compressive Modulus, psi (MPa)	
5%	240 (1.7)
10%	380 (2.6)
15%	525 (3.6)
20%	720 (5.0)
25%	970 (6.7)

