# Adiprene® L 83

### Polyurethane (Polyether, TDI)

#### Chemtura

#### Message:

ADIPRENE L 83 urethane rubber is one of a series of polyether-based liquid urethane prepolymers which can be cured to a strong, rubbery solid by the reaction of the isocyanate groups with polyamine compounds. When cured with MBCA 1 urethane curative, ADIPRENE L 83 yields vulcanizates in the 80-85 durometer A hardness range. ADIPRENE L 83 can be cast, compression molded, sprayed or spread to produce a wide variety of mechanical goods and protective and decorative coatings.

Vulcanizates of ADIPRENE L 83 provide a unique combination of properties including excellent abrasion resistance, resilience, hydrolytic stability and overall mechanical properties-which make it especially suitable for handling abrasive slurries from mine and mill operations. Vulcanizates of ADIPRENE L 83 cured with MBCA have been used successfuly in the mining industry to line slurry pumps, agitators, flotation rotors and stators, cyclone separator systems, piping, valves and screens, and in the recreational market for roller skate and skateboard wheels.

| Features   | Good Abrasion Resistance  |  |   |
|--|---|--|---|
|  | Good Processability   |  |   |
|  | Hydrolytically Stable   |  |   |
|  | Resilient   |  |   |
|  |   |  |   |
| Uses   | Coating Applications  |  |   |
|  | Mining Applications   |  |   |
|  | Sporting Goods  |  |   |
|  | Wheels  |  |   |
|  |   |  |   |
| Forms  | Liquid  |  |   |
| Processing Method  | Casting   |  |   |
|  | Compression Molding   |  |   |
|  | Spraying  |  |   |
|  |   |  |   |
| Physical   | Neminal Value   |  |   |
|  | Nominal value   | Unit   | Test Method   |
| Specific Gravity   | 1.08  | g/cm <sup>3</sup>  | Test Method ASTM D792   |
| Specific Gravity<br>Molding Shrinkage - Flow   | 1.08           1.5  | g/cm <sup>3</sup><br>%                                       | Test Method       ASTM D792       ASTM D955   |
| Specific Gravity<br>Molding Shrinkage - Flow<br>Hardness   | 1.08       1.5       Nominal Value  | Unit<br>g/cm <sup>3</sup><br>%<br>Unit                       | Test Method       ASTM D792       ASTM D955       Test Method   |
| Specific Gravity<br>Molding Shrinkage - Flow<br>Hardness<br>Durometer Hardness (Shore A)   | 1.08       1.5       Nominal Value       83   | Unit<br>g/cm <sup>3</sup><br>%<br>Unit                       | Test Method<br>ASTM D792<br>ASTM D955<br>Test Method<br>ASTM D2240  |
| Specific Gravity<br>Molding Shrinkage - Flow<br>Hardness<br>Durometer Hardness (Shore A)<br>Mechanical   | 1.08       1.5       Nominal Value       83       Nominal Value   | Unit<br>g/cm <sup>3</sup><br>%<br>Unit<br>Unit               | Test Method<br>ASTM D792<br>ASTM D955<br>Test Method<br>ASTM D2240<br>Test Method                           |
| Specific Gravity<br>Molding Shrinkage - Flow<br>Hardness<br>Durometer Hardness (Shore A)<br>Mechanical<br>Tensile Modulus  | 1.08       1.5       Nominal Value       83       Nominal Value   | Unit<br>g/cm <sup>3</sup><br>%<br>Unit<br>Unit               | Test Method<br>ASTM D792<br>ASTM D955<br>Test Method<br>ASTM D2240<br>Test Method<br>ASTM D797              |
| Specific Gravity<br>Molding Shrinkage - Flow<br>Hardness<br>Durometer Hardness (Shore A)<br>Mechanical<br>Tensile Modulus<br>-46°C   | 1.08       1.5       Nominal Value       83       Nominal Value       72.4                                  | Unit<br>g/cm <sup>3</sup><br>%<br>Unit<br>Unit<br>MPa        | Test Method<br>ASTM D792<br>ASTM D955<br>Test Method<br>ASTM D2240<br>Test Method<br>ASTM D797              |
| Specific Gravity<br>Molding Shrinkage - Flow<br>Hardness<br>Durometer Hardness (Shore A)<br>Mechanical<br>Tensile Modulus<br>-46°C<br>-40°C  | Nominal Value       1.08       1.5       Nominal Value       83       Nominal Value       72.4       44.8   | Unit<br>g/cm <sup>3</sup><br>%<br>Unit<br>Unit<br>MPa<br>MPa | Test Method<br>ASTM D792<br>ASTM D955<br>Test Method<br>ASTM D2240<br>Test Method<br>ASTM D797              |
| Specific Gravity<br>Molding Shrinkage - Flow<br>Hardness<br>Durometer Hardness (Shore A)<br>Mechanical<br>Tensile Modulus<br>-46°C<br>-40°C<br>24°C                                      | Nominal Value   1.08   1.5   Nominal Value   83   Nominal Value   72.4   44.8   33.8                        | Unit g/cm <sup>3</sup> % Unit Unit Unit MPa MPa MPa MPa      | Test Method<br>ASTM D792<br>ASTM D955<br>Test Method<br>ASTM D2240<br>Test Method<br>ASTM D797              |
| Specific Gravity<br>Molding Shrinkage - Flow<br>Hardness<br>Durometer Hardness (Shore A)<br>Mechanical<br>Tensile Modulus<br>-46°C<br>-40°C<br>24°C<br>Compressive Strength              | Nominal Value   1.08   1.5   Nominal Value   83   Nominal Value   72.4   44.8   33.8                        | Unit g/cm <sup>3</sup> % Unit Unit Unit MPa MPa MPa          | Test Method<br>ASTM D792<br>ASTM D955<br>Test Method<br>ASTM D2240<br>Test Method<br>ASTM D797<br>ASTM D695 |
| Specific Gravity<br>Molding Shrinkage - Flow<br>Hardness<br>Durometer Hardness (Shore A)<br>Mechanical<br>Tensile Modulus<br>-46°C<br>-40°C<br>24°C<br>Compressive Strength<br>5% Strain | 1.08       1.5       Nominal Value       83       Nominal Value       72.4       44.8       33.8       1.38 | Unit g/cm <sup>3</sup> % Unit Unit Unit MPa MPa MPa MPa      | Test Method<br>ASTM D792<br>ASTM D955<br>Test Method<br>ASTM D2240<br>Test Method<br>ASTM D797<br>ASTM D695 |

| 15% Strain                    | 3.28                     | MPa  |             |
|-------------------------------|--------------------------|------|-------------|
| 20% Strain                    | 4.48                     | MPa  |             |
| 25% Strain                    | 6.21                     | MPa  |             |
| Elastomers                    | Nominal Value            | Unit | Test Method |
| Tensile Stress                |                          |      | ASTM D412   |
| 100% Strain                   | 4.83                     | MPa  |             |
| 300% Strain                   | 8.27                     | MPa  |             |
| Tensile Strength              | 30.3                     | MPa  | ASTM D412   |
| Tensile Elongation (Break)    | 580                      | %    | ASTM D412   |
| Tear Strength                 |                          |      |             |
| 1                             | 70.1                     | kN/m | ASTM D624   |
| Split                         | 15                       | kN/m | ASTM D470   |
| Compression Set (70°C, 22 hr) | 35                       | %    | ASTM D395B  |
| Bayshore Resilience           | 50                       | %    | ASTM D2632  |
| Clash-Berg Modulus            |                          |      | ASTM D1043  |
| -57°C                         | 96.5                     | MPa  |             |
| -40°C                         | 25.5                     | MPa  |             |
| -18°C                         | 13.8                     | MPa  |             |
| 24°C                          | 11.0                     | MPa  |             |
| Thermal                       | Nominal Value            | Unit | Test Method |
| Brittleness Temperature       | < -70.0                  | °C   | ASTM D746   |
| Thermoset                     | Nominal Value            | Unit |             |
| Thermoset Components          |                          |      |             |
| Hardener                      | Mix Ratio by Weight: 10  |      |             |
| Resin                         | Mix Ratio by Weight: 100 |      |             |
| Pot Life                      | 5.0                      | min  |             |
| Post Cure Time (70°C)         | 16                       | hr   |             |
| Additional Information        | Nominal Value            | Unit |             |
| Abrasion Index - NBS          | 200                      |      |             |
| Uncured Properties            | Nominal Value            | Unit |             |
| Curing Time (100°C)           | 1.0                      | hr   |             |
| NOTE                          |                          |      |             |
| 1.                            | Die C                    |      |             |

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