

## Product Description

POLYCOAT PRE-POL® PC 51-60 is a TDI terminated polyester prepolymer that provides high performance in a variety of roll applications. It yields elastomers in the 57 – 60 Shore A range when cured with triols and triol blends. Some of its unique properties include:

- Elastomers that machine easily
- Excellent solvent resistance
- Low compression set
- Stable durometer from 20-60 Shore A

Lower durometers and special formulations can be achieved with additives such as plasticizers and fillers. Contact your Polycoat representative for a list of these modifiers.

Physical properties with two separate curatives are shown in Tables I & II.

## PREPOLYMER SPECIFICATIONS

<b>NCO%</b>	4.0 – 4.4
<b>Viscosity, poise @ 212°F (100°C)</b>	10-12
<b>Specific Gravity @ 212°F (100°C)</b>	1.20
<b>Appearance @ 77°F (25°C)</b>	Solid
<b>Color, Gardner</b>	0-2
<b>Flash Point, Cleveland Open Cup</b>	>380°F (193°C)
<b>Solubility</b>	Soluble in aromatic or chlorinated hydrocarbons, ketones and esters
<b>Storage Stability</b>	Excellent in the absence of moisture and heat
<b>Amine Equivalent</b>	955 - 1050

## PROCESSING CONDITIONS - TABLE 1

<b>Pre-Pol® PC 51-60 (4.2% NCO)</b>	100 pts
<b>Curative Blend – TMP/TIPA (3:1 by weight)</b>	4.59 pts (EW = 48.3)

## MIXING AND CURING - TABLE 1

<b>Prepolymer temperature</b>	176–200°F (80–93 °C)
<b>TMP/TIPA temperature</b>	130–212 °F (55–100 °C)
<b>Mold temperature</b>	250°F (121°C)
<b>Cure, hours</b>	1 at 212°F (100°C)
<b>Working Life, minutes</b>	45

## VULCANIZATE PROPERTIES - TABLE 1

Test specimens conditioned one week at 75°F ( 24°C) and 50% RH before testing.

<b>Hardness, durometer A</b>	59A
<b>100% Modulus, psi</b>	480 ± 50 (3.31 ± 0.35 mPa)
<b>300% Modulus, psi</b>	1450 ± 200 (9.9 ± 1.37 mPa)
<b>Tensile Strength, psi</b>	4290 ± 300 (29.58 ± 2.1 mPa)
<b>Elongation at Break, %</b>	360 ± 50
<b>Tear Strength (ASTM D-470) psi</b>	19 ± 5 (0.13 ± 0.03 mPa)
<b>Tear Strength (Die C) psi</b>	210 ±20 (1.45 ± 0.14 mPa)
<b>Resilience (Rebound), %</b>	10

## PROCESSING CONDITIONS - TABLE 2

**Pre-Pol® PC 51-60 (4.2% NCO)** 100 pts

**Curative PC 90-92** 8.73 (95% theory)

## MIXING AND CURING - TABLE 2

**Prepolymer temperature** 176–200°F (80–93 °C)

**TMP/TIPA temperature** 130–212 °F (55–100 °C)

**Mold temperature** 250°F (121°C)

**Cure, hours** 16 at 250°F (121°C)

**Working Life, minutes** 60

## VULCANIZATE PROPERTIES - TABLE 2

Test specimens conditioned one week at 75°F ( 24°C) and 50% RH before testing.

**Hardness, durometer A** 59A

**100% Modulus, psi** 480 ± 50 (3.31 ± 0.35 mPa)

**300% Modulus, psi** 1180 ± 200 (8.1 ± 1.37 mPa)

**Tensile Strength, psi** 3625 ± 300 (24.99 ± 2.1 mPa)

**Elongation at Break, %** 360 ± 50

**Tear Strength (ASTM D-470) psi** 14 ± 5 (0.09 ± 0.03 mPa)

**Tear Strength (Die C) psi** 270 ± 20 (1.86 ± 0.14 mPa)

**Resilience (Rebound), %** 10

## Storage and Handling

Containers should be kept tightly closed to prevent moisture contamination. TDI will react with water to liberate CO<sub>2</sub> gas potentially causing containers to expand and rupture. Do not reseal if contamination is suspected.

Use of a dry nitrogen blanket for partial drums is recommended. Storage for PRE-POL® PC 51-60 should be maintained in a cool, dry place at ambient temperatures.

Exposure to temperatures over 350°F (177°C) can create excessive pressure potentially causing containers to rupture. Do not breathe aerosol or vapors and avoid contact with skin and eyes. Always use protective equipment including a respirator when handling heated prepolymers as exposure to vapors can be dangerous.

Devices such as melting ovens, thermostatically controlled warming blankets, or drum heaters can be used for pre-heating PRE-POL® PC 51-60.

Approximate preheat times at 158°F (70°C) are:

- 5 gallon pail (18.9 liters) 16 - 24 hours
- 55 gallon drum (208 liters) 36 - 48 hours

Containers should be rolled to ensure homogeneity prior to use.

## Health and Safety Information

Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling any of the products listed above. Before working with these products, it is your responsibility to read and become familiar with the available information on its hazards, proper use and handling. This is extremely important and cannot be overemphasized. Information is available in several forms, e.g. material safety data sheets and product labels. To obtain this information, contact your Polycoat Products representative

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