

Transparent Electrically Conductive Polyurethane

Traditional electrically conductive elastomer systems are generally reliant on fillers and additives of carbon black, metal salts or conductive polymers such as Polyaniline. The selection of a suitable additive or filler is critical, especially in reaction polymer forming systems. However, the introduction of conductive fillers into highly cross linked elastomer systems can result in a significant lowering of critical material properties such as chemical, temperature and abrasion resistance, whilst also adversely affecting clarity of the finished urethane.

BMP has recently developed a unique, innovative, transparent urethane elastomer system that contains relatively low levels of a bespoke conductive element which does not compromise critical to function properties such as resilience, thermal stability and abrasion resistance. **TransThane** 'CE' retains all the favourable properties of conventional urethane systems and can be custom formulated for conductivity/volume resistivity in a range of 1E5 ohm-m to 9E8 ohm-m, within a hardness range of 50 – 90 points Shore A.

TransThane 'CE' material properties;

<u>Property</u>	<u>Measurement</u>	<u>Value</u>
➤ Hardness	Shore A	50 – 90 points
➤ 100% Modulus	MPa	2 – 6
➤ 300% Modulus	MPa	6 – 12
➤ UTS	MPa	10 – 30
➤ Elongation At Break	%	200 – 500
➤ Tear Strength	N/mm	10 – 60
➤ Young's Modulus	MPa	2 – 5
➤ Compression set (72hrs@70oC)	%	25 +/- 10

TransThane 'CE' has many industrial applications from charge and transport rollers to oil metering blades in office equipment such as laser printers, fax machines and digital copiers. The electrostatic discharge properties of **TransThane** 'CE' can also provide protection in agricultural, mining and materials handling environments. Product advantages of **TransThane** 'CE' over established conductive EPDM and urethanes can therefore be summarised as follows;

- Outstanding urethane clarity
- Superior chemical, oxidation and abrasion resistance
- Highly stable at elevated temperature and humidity levels
- Accurate hardness within a range of +/- 3 points Shore A
- Exceptional dimensional accuracy of finished sheet or component