

Date: March 13, 2015

PRODUCT X3000

Version: 6

PRODUCT DESCRIPTION

X3000 is a heat activated thermosetting adhesive film that bonds at lower temperatures than any of our variety of thermoplastic adhesives and has the unique benefit of superior heat resistance at elevated temperatures in excess of 220°C and the soft hand with low modulus of 70A durometer adhesives such as Bemis 3415.

PRODUCT BENEFITS

- Low temperature activation, soft hand and low modulus to preserve natural look and feel of heat sensitive textile such as leather and delicate stretchy materials
- Crosslinking initiates during heat seal processing at GLT of 75°C or higher, no post-bonding bake step required
- Superior high-temperature creep resistance
- Can be activated as low as 50°C GLT and cross linked in secondary bake process at 100°C
- Excellent adhesion to most polar plastics including Nylons, PVC, Polycarbonate, ABS, Polyurethane and various fabrics, leather, glass fiber and PU coated fabrics
- Superior heat resistance to thermoplastics due to cross linking after bonding
- No surface tack at room temperature
- Can be die cut to different shapes or slit to required width

COMPOSITION

- Thermosetting polyurethane

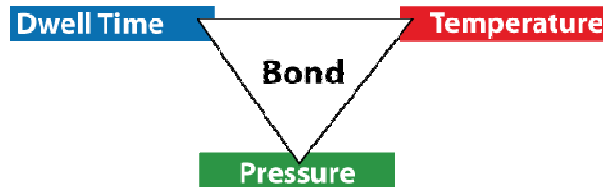
THERMAL & PHYSICAL PROPERTIES

- Color: Translucent
- Density: 29 g/m² per 1 mil of thickness
- Nominal Thickness: 1mil, 2mils, 3mils, 4mils (custom gauges available)
- Substrate: Release liner
- Softening Range: 45°C to 60°C TMA Onset

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RECOMMENDED BONDING CONDITIONS

X3000 requires heat to bond. Heated press, heated roll or heated belt laminator can be used to activate the adhesive. There are three critical factors in achieving good bond strength between substrates, these are:



The ideal adhesive bonding condition (temperature, dwell time and pressure combination) depends on the substrates and type of equipment used. The degree of thermoset cure will vary with bonding temperature and time. A post-bonding bake step at 100°C for no more than 15 minutes may be employed to further crosslink the adhesive. Bemis recommends the following conditions as a general guideline to evaluate X3000 for an application.

- Pre-lamination Settings:
 - Heat Seal Press Temperature: 50 - 60°C
 - Dwell Time: 5 - 15 seconds
 - Pressure: 2.0 - 4.0 Bar
- Final Bonding:
 - Glue Line Temperature¹: 75°C minimum
 - Dwell Time: 30 - 120 seconds
 - Pressure: 2.8 - 5.0 Bar

¹ Glue Line Temperature (GLT) refers to the temperature of the adhesive in the bonding process. Glue line temperature must be measured to receive accurate machine settings

Recommended bonding conditions will vary between different machinery and fabrics. The recommended conditions stated are a starting point only. Optimal bonding conditions should be established by the factory for the specific application

OTHER PROCESSING TECHNIQUES

X3000 has a polar chemistry; it can be activated using High Frequency – HF (Also known as Radio Frequency-RF) and Ultrasonic energy. Processing parameter for HF or Ultrasonic depend on equipment and substrates.

BOND STRENGTH AFTER HEAT SEALING

X3000 is a crystalline polyurethane adhesive that undergoes a heat-activated thermosetting reaction during bonding; its crystallization rate is moderate at room temperature. This product needs some aging at room temperature to achieve full crystallization and full cure. Our testing indicates the adhesive achieves its effective peel strength in less than 20 minutes after bonding when stored at room temperature.

STORAGE CONDITIONS

Rotate stock, using the oldest material first. X3000 has an expected shelf life of no less than twelve months when stored at temperatures below 35°C and normal humidity of 50% to 80%. Product should not be stored in direct sunlight.

NOTES

See X3000 Technical Bulletin for additional product benefits.

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