

## Technical Data Sheet Ultrabond<sup>®</sup> 740

December 2009

Page 1 of 3

### Product Description

Hernon<sup>®</sup> Ultrabond<sup>®</sup> 740 is formulated for bonding glass to glass or glass to metals. Ultrabond<sup>®</sup> 740 is excellent for bonding tacking and potting many parts.

Ultrabond<sup>®</sup> 740 provides an excellent bond, high light transmittance and a refractive index similar to glass. Exposure to a high intensity UV light will cure these adhesives to a dry, hard surface.

### Typical Applications

- Bonding glass to glass.
- Bonding glass to metals.
- Potting.
- Wire tacking.
- Coating.

### Typical Properties (Uncured)

Property	Value
Resin	Modified Acrylic
Appearance	Clear liquid
Viscosity @ 25°C, cP	6600 to 7300
Specific gravity	1.02
Flash point	See MSDS

### Typical Properties (Cured)

#### Physical Properties

Property	Value
Coefficient of thermal expansion, ASTM D696, K <sup>-1</sup>	80 x 10 <sup>-6</sup>
Coefficient of thermal conductivity, ASTM C 177, W/(m·K)	0.1
Specific Heat, kJ/(kg·K)	0.3
Shore Hardness, ASTM D2240, Shore D	70
Temperature Range, °C (°F)	-55 to 121 (-65 to 250)

### Electrical Properties

Property	Value
Dielectric Strength, kV/mm ASTM D149	90
Dielectric Constant at 1 kHz ASTM D150	3.55
Dissipation Factor at 1 kHz ASTM D150	0.025
Volume Resistivity, Ω·cm ASTM D257	5 × 10 <sup>15</sup>

### Typical Curing Performance

This product is cured when exposed to UV radiation of 365nm. To obtain a full cure on surfaces exposed to air radiation at 250nm is also required. The speed of cure will depend on the UV intensity as measured at the product surface. Typical cure condition is 20-30 seconds at 100mW/cm<sup>2</sup> using a medium pressure, quartz envelope, mercury vapor lamp.

#### Fixture Time

UV fixture time is defined as the light exposure time required to develop a shear strength of 0.1 N/mm<sup>2</sup>.

UV Fixture Time, Glass, seconds:

Medium pressure mercury arc light source:

Irradiance	Fixture, seconds
10 mW/cm <sup>2</sup> @365nm	3 to 8
100 mW/cm <sup>2</sup> @365nm	1 to 5

#### Tack Free Time

Tack Free Time is the time the product must be irradiated with light energy to form a tack free surface.

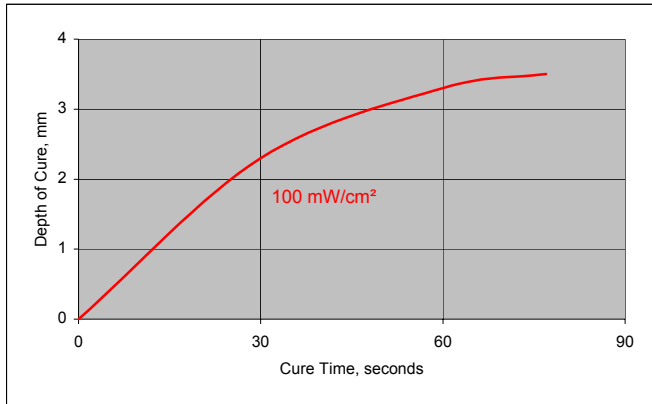
Tack Free Time, ASTM C679, seconds:

Medium pressure mercury arc light source:

Irradiance	Tack Free, seconds
100 mW/cm <sup>2</sup> @365nm	5 to 10

**Depth of Cure**

The graph below shows the increase in depth of cure with time at 100mW/cm<sup>2</sup> as measured from the thickness of the cured pellet formed in a 15mm diameter PTFE die.



**Typical Cured Performance**

**Adhesive Properties**

Cured @ 100 mW/cm<sup>2</sup> @ 365 nm

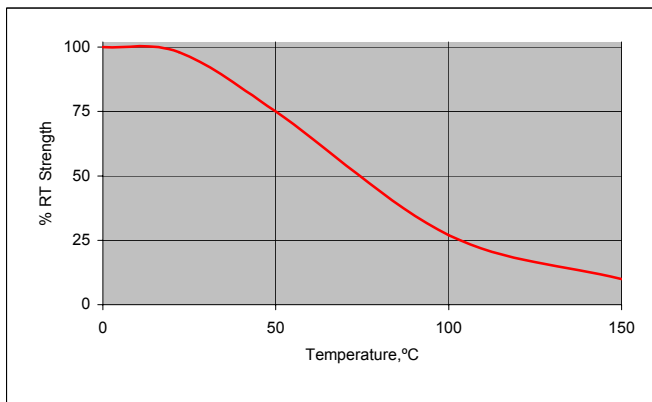
Test	Specimen	Cure Time	Value
Tensile strength, N/mm <sup>2</sup> (psi), ISO 6922	Gritblasted steel pin to glass	40 seconds	11 (1600)
Torsional Shear, N•m (in-lb) ASTM D3658	Aluminum hex button to glass	10 seconds + 24 hours at 22°C	≥ 70 (≥ 620)

**Typical Environmental Resistance**

Cured @ 100 mW/cm<sup>2</sup> @ 365 nm for 40 seconds + 1 week @ 22°C, Tensile Strength, ISO 6922  
 Gritblasted steel pin to glass

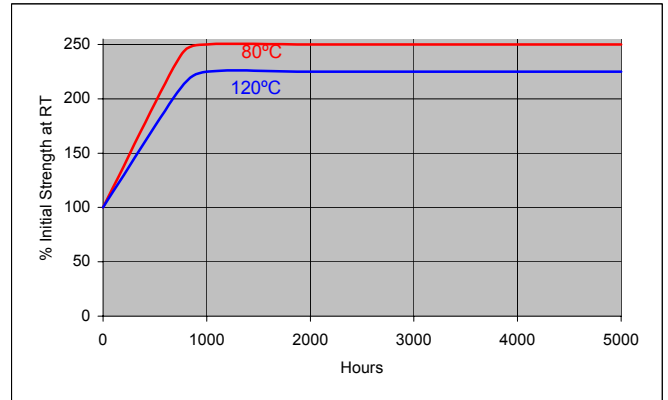
**Hot Strength**

Tested at temperature



**Heat Aging**

Aged at temperature indicated and tested @ 22°C



**Chemical/Solvent Resistance**

Aged under condition indicated - Tested at 72°F (22°C).

Chemical/Solvent	Temp (°C)	% of Initial Strength		
		100 h	500 h	1000 h
Gasoline	22	100	100	100
Freon TA	22	100	100	100
Ind. methylated spirits	22	100	100	100
Heat/Humidity 90%RH	40	100	100	70

**General Information**

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected as a sealant for chlorine or other strong oxidizing materials.

For safe handling information on this product, consult the Material Safety Data Sheet (MSDS).

**Directions for use**

1. This product is light sensitive; exposure to daylight, UV light and artificial lighting should be kept to a minimum during storage and handling.
2. The product should be dispensed from applicators with black feedlines.
3. For best performance bond surfaces should be clean and free from grease.
4. Cure rate is dependent on lamp intensity, distance from light source, depth of cure needed or bondline gap and light transmittance of the substrate through which the radiation must pass.
5. Recommended intensity for cure in bondline situation is 40mW/cm<sup>2</sup> minimum (measured at the bondline) with an exposure time of 4-5 times the fixture time at the same intensity.
6. For dry curing of exposed surfaces, higher intensity UV is required (100mW/cm<sup>2</sup>).

7. Cooling should be provided for temperature sensitive substrates such as thermoplastics.
8. Plastic grades should be checked for risk of stress cracking when exposed to liquid adhesive.
9. Excess adhesive can be wiped away with organic solvent.
10. Bonds should be allowed to cool before subjecting to any service loads.

**Storage**

**Ultrabond® 740** should be stored in a cool, dry location in unopened containers at a temperature between 46°F to 82°F (8°C to 28°C) unless otherwise labeled. Optimal storage is at the lower half of this temperature range. To prevent contamination of unused material, do not return any material to its original container.

**Dispensing Equipment**

**Hernon®** offers a complete line of semi and fully automated dispensing equipment. Contact **Hernon® Sales** for additional information.

These suggestions and data are based on information we believe to be reliable and accurate, but no guarantee of their accuracy is made. HERNON MANUFACTURING®, INC. shall not be liable for any damage, loss or injury, direct or consequential arising out of the use or the inability to use the product. In every case, we urge and recommend that purchasers, before using any product in full scale production, make their own tests to determine whether the product is of satisfactory quality and suitability for their operations, and the user assumes all risk and liability whatsoever, in connection therewith. Hernon's Quality Management System for the design and manufacture of high performance adhesives and sealants is registered to the ISO 9001 Quality Standard.