

Technical Data Sheet Ultrabond™ 748

May 2007

Page 1 of 3

Product Description

Hernon® Ultrabond™ 748 is a single component, dual cure, 100% solid adhesive/sealant formulated to bond and seal electronic assemblies. A combination of anaerobic and ultra violet cure allows deeper potting.

Product Benefits

- One component
- 100% solid (no solvent)
- Short cycle time

Properties Of Uncured Material

| Property | Value |
|-------------------------|------------------------|
| Resin | Modified acrylic ester |
| Appearance | Clear liquid |
| Specific Gravity @ 25°C | 1.08 |
| Viscosity @ 25°C, cP | 2,000 |
| Flash Point | See MSDS |

Typical Curing Performance

Ultrabond™ 748 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 5 to 10 seconds at 100mW/cm² using a medium pressure, quartz envelope, mercury vapor lamp.

Tack Free Time

Tack Free Time is the time required to achieve a tack free surface.

| Irradiance, mW/cm ² @ 365 nm | Tack Free Time, seconds |
|---|-------------------------|
| 100 | 25 |

Fixture Time

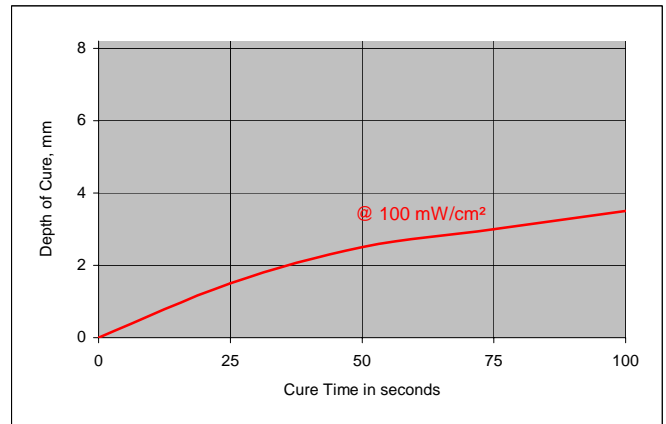
Fixture time is defined as the time to develop a shear strength of 0.1 N/mm².

UV Fixture Time, Glass microscope slides, seconds:

| Irradiance, mW/cm ² @ 365 nm | Fixture Time, seconds |
|---|-----------------------|
| 6 | ≤15 |
| 100 | 5 |

Depth of Cure

The graph below shows the increase in depth of cure with time at 100mW/cm² as measured from the thickness of the cured pellet formed in a 15mm diameter PTFE die.



Typical Properties Of Cured Material

Cured 30 seconds at 100mW/cm² @ 365nm per side plus 24 hours at 22 °C.

Physical Properties

| Property | Value |
|--|-------------------------|
| Coefficient of thermal expansion, ASTM D696 (K ⁻¹) | 0.1 |
| Coefficient of thermal conductivity, ASTM C 177, W/(m·K) | 0.1 |
| Shore Hardness, Shore D | 60 |
| Gap Fill, mm (in.) | 3.175 (0.125) |
| Temperature Range, °C (°F) | -55 to 177 (-65 to 350) |

Electrical Properties

| Property | Value |
|--|----------------------|
| Dielectric Strength, ASTM D149, kV/mm | 32 |
| Dielectric Constant, ASTM D150 @ 1 kHz | 4 |
| Dissipation Factor, ASTM D150 @ 1 kHz | 0.04 |
| Volume Resistivity, ASTM D257, Ω·cm | 2 × 10 ¹⁴ |

Typical Cured Performance

Tensile Strength, ISO 6922
 Cured 20 seconds at 100mW/cm² @ 365 nm

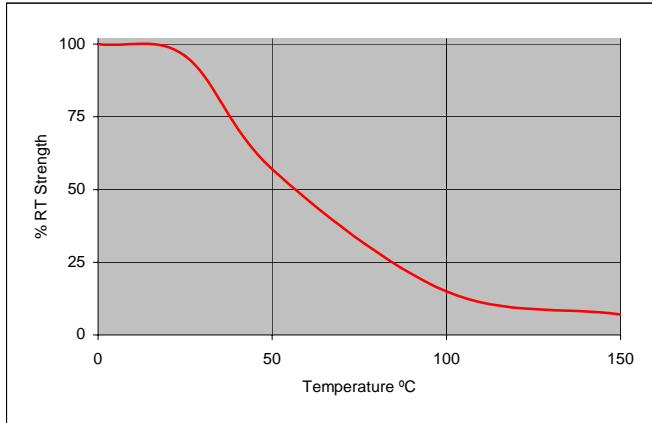
| Substrates | Tensile Strength, N/mm ² (psi) |
|--------------------|---|
| Steel pin to glass | 3 to12 (435 to 1740) |

Typical Environmental Resistance

Tensile Strength, ISO 6922
 Cured 20 seconds at 100mW/cm² @ 365 nm + 1 week at 22°C
 Steel pin (gritblasted) to glass

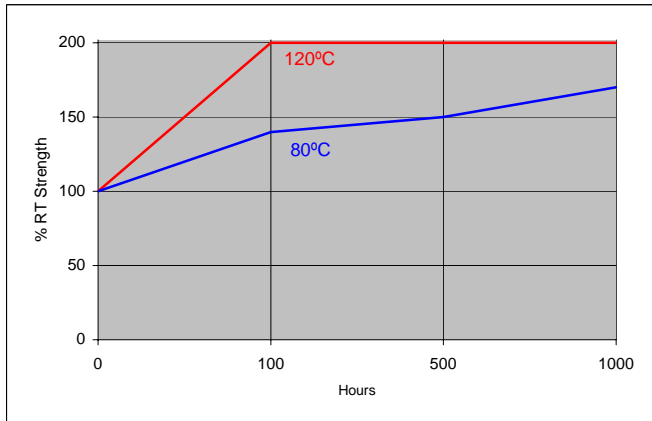
Hot Strength

Tested at temperature



Heat Aging

Aged at temperature indicated and tested at 22°C



Chemical/Solvent Resistance

Aged under conditions indicated and tested at 22°C.

| Environment | Temp °C | % Initial strength retained | | |
|-----------------------|---------|-----------------------------|-------|--------|
| | | 100 h | 500 h | 1000 h |
| Gasoline | 22 | 100 | 100 | 100 |
| 1,1,1 Trichloroethane | 22 | 90 | 90 | 45 |
| Freon TA | 22 | 80 | 80 | 0 |
| Heat/Humidity 90% RH | 40 | 75 | 20 | 15 |

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

- **Ultrabond™ 748** is light sensitive. Exposure to daylight, UV light and artificial lighting should be kept to a minimum during storage and handling.
- Product should be dispensed from applicators with black feed lines.
- For best performance bond surfaces should be clean and free from grease.
- 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.
- Recommended irradiance at the bondline for curing is 5mW/cm² minimum with an exposure time of 4-5 times the fixture time at this same irradiance.
- For dry curing of exposed surfaces higher UV irradiance is required (100 mW/cm² minimum).
- Cooling should be provided for temperature sensitive substrates such as thermoplastics.
- Crystalline and semicrystalline thermoplastics should be checked for risk of stress cracking when exposed to liquid adhesive.
- Excess adhesive can be wiped away with organic solvent.
- Bonds should be allowed to cool before subjecting to any service loads.

Storage

Ultrabond™ 748 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 ISO9001:2000 Quality Standard.