

## Technical Data Sheet Instantbond™ 123

January 2009

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### Product Description

**Hernon® Instantbond™ 123** is a medium viscosity, state-of-the-art, single component, solventless, room temperature curing cyanoacrylate adhesive that polymerizes rapidly when pressed into a thin film between parts. The presence of surface moisture commences the cure of the adhesive. **Instantbond™ 123** develops handling strength within seconds and full functional strength in a few hours. **Instantbond™ 123** can bond a wide variety of surfaces including metals, thermoplastics, elastomers, ceramics, leather, cork, and paper. Notwithstanding the superior bonding capability of **Instantbond™ 123**, it is NOT recommended for long-term glass to glass bonding applications.

### Typical Applications

#### **Bonding**

Rubber bumpers  
Permanent locking of plastic  
Fasteners  
Speaker components  
Shock mounts  
Gears to shaft  
Wiper blades  
Acrylic windows  
Name plates  
Catheters  
Honing stones  
Security collars  
O-rings  
insulation pads

#### **Fixturing**

Filter caps  
Jumper wires  
Heat sinks  
Gaskets  
Golf club parts  
Tennis racquet parts  
P.C. boards  
Wire tacking

#### **Potting**

Transistors  
Tamper proofing  
Adjustable components  
Fiberglass molds

### Product Benefits

- Rapid Cure - forms a strong bond at room temperature in less than a minute with contact pressure.
- Surfaces - will bond almost any combination of similar or dissimilar materials.
- Easy Use - single component feature, eliminates any mixing.

### Conformance Requirements

**Instantbond™ 123** meets the requirements specified in MIL-A-46050C Type II Class 2, and CID A-A-3097 Type II Class 2.

### Typical Properties (Uncured)

Property	Value
Chemical Type	Ethyl Cyanoacrylate
Appearance	Clear liquid
Viscosity @ 77°F (25°C), cP	110
Specific gravity	1.10
Flash point	See MSDS

### Typical Properties (Cured)

Cured 24 Hours @ 22°C

#### **Physical Properties**

Property	Value
Coefficient of thermal expansion, K <sup>-1</sup> , ASTM D696	80 × 10 <sup>-6</sup>
Coefficient of thermal conductivity, W/(m·K), ASTM C177	0.1
Temperature range, °C, (°F)	-55 to 82 (-65 to 180)
Gap Fill, mm (in.)	0.15 (0.006)

#### **Electrical Properties**

Property	Value
Dielectric Strength, kV/mm ASTM D149	25
Dielectric Constant @ 0.10 kHz ASTM D150	2.3 2.3 2.3
Dissipation Factor @ 0.10 kHz ASTM D150	< 0.02 < 0.02 < 0.02
Volume Resistivity, Ω·cm ASTM D257	10 × 10 <sup>15</sup>
Surface Resistivity, Ω ASTM D257	10 × 10 <sup>15</sup>

### Typical Curing Performance

#### **Cure Speed vs. Substrate**

The rate of cure will depend on the substrate used. The table below shows the fixture time achieved on different materials at 22°C / 50% relative humidity. Fixture time is defined as the time to develop a shear strength of 0.1 N/mm<sup>2</sup>.

Substrate	Fixture Time (seconds)
Steel	15 to 30
Aluminum	2 to 10
Neoprene	< 5
Nitrile Rubber	< 5
ABS	2 to 10
PVC	2 to 10
Polycarbonate	15 to 50
Phenolic	5 to 15

#### Cure Speed vs. Bond Gap

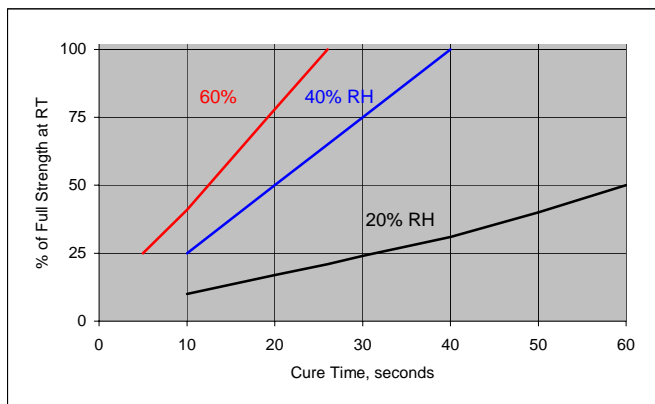
The rate of cure will depend on the bondline gap. Thin bond lines result in high cure speeds, increasing the bond gap will decrease the rate of cure.

#### Cure Speed vs. Accelerator

Where cure speed is unacceptably long due to large gaps, applying accelerator to the surface will improve cure speed. However, this can reduce ultimate strength of the bond and therefore testing is recommended to confirm effect.

#### Cure Speed vs. Humidity

The rate of cure will depend on the ambient relative humidity. The following graph shows the tensile strength developed with time on Buna N rubber at different levels of humidity.



### Typical Cured Performance

#### Shear Strength

Cured 24 Hours @ 22°C - tested according to ISO 4587

Substrate	Shear Strength N/mm <sup>2</sup> (psi)
Steel (grit blasted)	17.9 to 26.2 (2600 to 3800)
Aluminum (etched)	11.0 to 19.3 (1,600 to 2,800)
ABS	> 6.0 (> 870)
PVC	> 4.0 (> 580)
Polycarbonate	> 5.0 (> 725)
Phenolic	> 5.0 (> 725)
Neoprene	> 10.0 (> 1450)
Nitrile	> 10.0 (> 1450)

#### Tensile Strength

Tested according to ISO 6922

Substrate	Cure Time at 22°C	N/mm <sup>2</sup> (psi)
Steel	24 hours	12.1 to 25.2 (1750 to 3650)
Buna-N	10 seconds	> 6.0 (> 870)

### Typical Environmental Resistance

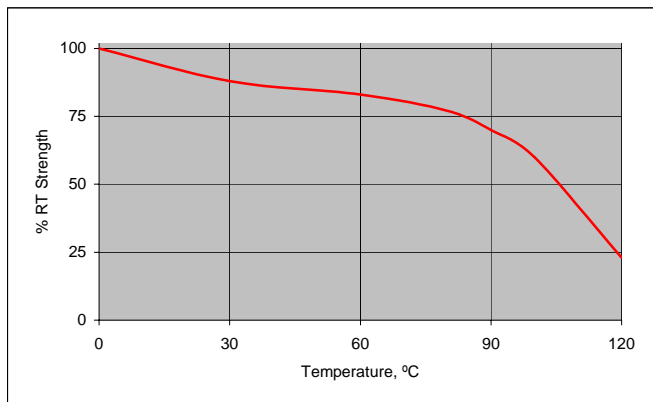
Cured for 1 week @ 22°C

Shear Strength, ISO 4587

Steel lap-shear specimens (grit blasted)

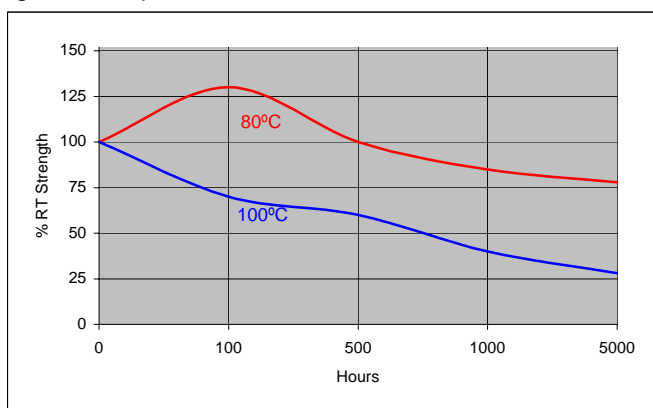
### Hot Strength

Tested at temperature



### Heat Aging

Aged at temperature indicated and tested at 22°C



### Chemical/Solvent Resistance

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

Chemical/Solvent	Temp (°C)	% of Initial Strength		
		100h	500h	1000h
Motor Oil	40	100	100	95
Gasoline	22	100	100	100
Industrial Methylated Spirit	22	100	100	100
Isopropanol	22	100	100	100
Freon TA	22	100	100	100
1,1,1 Trichloroethane	22	100	100	100
Heat / 95% RH	40	80	75	65

### 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

For best performance bond surfaces should be clean and free from grease. This product performs best in thin bond gaps (0.05 mm).

### Disassembly and Cleanup

Liquid Cyanoacrylate should not be wiped with rags or tissue. The fabric will cause polymerization and large quantities of adhesive will heat or cure causing smoke and strong irritating vapors. Always flood with excess water to clean up spill conditions.

### Storage

Cyanoacrylate adhesives must be stored under refrigeration at a temperature of 40°F ± 5°F for extended shelf life. Before opening, the containers must be warmed to room temperature, otherwise, water may condense into the bottle and cause hardening of the adhesive. To prevent contamination of unused adhesive, do not return product to its original container.

### Dispensing Equipment

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

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