HERNON® ISO 9001:2000
High Performance Adhesives and Sealants

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Technical Data Sheet
Instantbond™ 114

Product Description

Hernon® Instantbond™ 114 is a single component, solventless, room temperature cyanoacrylate adhesive. **Instantbond™ 114** cures rapidly when confined between close-fitting surfaces. The speed of cure depends upon humidity, the nature and condition of surfaces and the gap between the parts.

Typical Applications

- Tacking metal parts for machining operations
- Strain gauge test equipment and assemblies
- Gauge pins and bars, tool post machinery
- Supplementing press fits
- Supplementing the fasteners of riveted or staked assemblies

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.
- Cost effective: one pound of adhesive contains approximately 30,000 one drop applications and because **Instantbond™ 114** spreads evenly and is applied only to one surface, much less is required to produce a strong bond.

Typical Properties (Uncured)

Property	Value
Chemical Type	Methyl cyanoacrylate
Appearance	Clear liquid
Viscosity @ 77ºF (25ºC), cP	1500
Specific gravity	1.09
Flash point	See MSDS

Typical Properties (Cured)

Cured 24 Hours @ 22ºC

Physical Properties

Property	Value
Coefficient of thermal expansion, K^{-1}, ASTM D696	100×10^{-6}
Coefficient of thermal conductivity, W/(m·K), ASTM C177	0.1
Temperature range, ºC, (ºF)	-55 to 82 (-65 to 180)
Gap Fill, mm (in.)	0.20 (0.008)

Electrical Properties

Property	Value
Dielectric Strength, kV/mm ASTM D149	25
Dielectric Constant @ 0.10 kHz ASTM D150 1 kHz 10 kHz	2 to 3.3 2 to 3.5 2 to 3.5
Dissipation Factor @ 0.10 kHz ASTM D150 1 kHz 10 kHz	< 0.02 < 0.02 < 0.02
Volume Resistivity, Ω·cm ASTM D257	2×10^{15} to 10×10^{15}
Surface Resistivity, Ω ASTM D257	10×10^{15} to 80×10^{15}

Performance Requirements

Instantbond™ 114 meets the requirements of MIL-A-40650C, Type I Class 3, and CID A-A-3097 Type I Class 3.

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 22ºC / 50% relative humidity. Fixture time is defined as the time to develop a shear strength of 0.1 N/mm².

Substrate	Fixture Time (seconds)
Steel	30 to 60
Aluminum	40 to 80
Zinc Dichromate	30 to 90
Neoprene	< 10
Nitrile Rubber	< 10
ABS	20 to 50
PVC	30 to 90
Polycarbonate	30 to 90
Phenolic	10 to 40

Cure Speed vs. Bond Gap

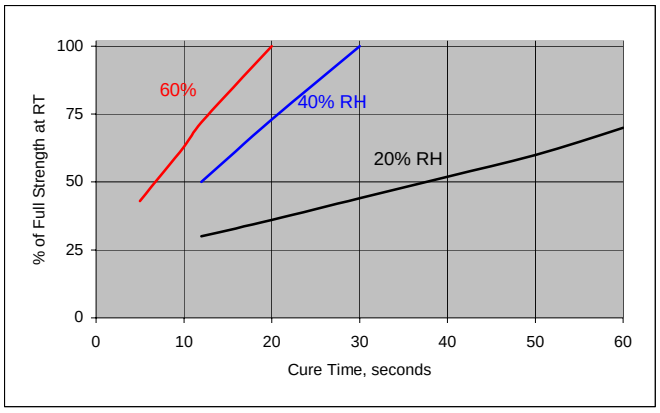
The rate of cure will depend on the bondline gap. Thin bond lines result in high cure speeds, increasing the bond gap will decrease the rate of cure.

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 @ 22ºC - tested according to ISO 4587

Substrate	Shear Strength N/mm² (psi)
Steel (grit blasted)	20.0 to 30.3 (2900 to 4400)
Aluminum (grit blasted)	15.2 to 22.1 (2200 to 3200)
Zinc Dichromate	4.1 to 12.1 (600 to 1750)
ABS	6.0 to 20.0 (870 to 2900)
PVC	6.0 to 20.0 (870 to 2900)
Polycarbonate	5.2 to 20.0 (750 to 2900)
Phenolic	5.2 to 15.2 (750 to 2200)
Neoprene	5.2 to 15.2 (750 to 2200)
Nitrile	5.2 to 15.2 (750 to 2200)

Tensile Strength

Tested according to ISO 6922

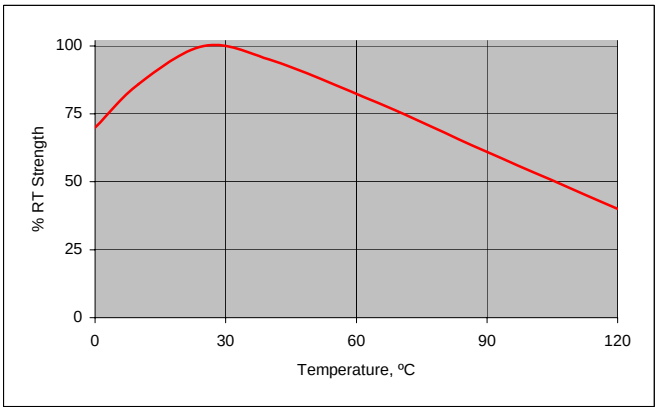
Substrate	Cure Time @ 22ºC	Tensile Strength N/mm² (psi)
Buna-N	30 seconds	≥ 6.0 (≥ 870)
	24 hours	5.2 to 15.2 (750 to 2200)
Steel	24 hours	12.1 to 25.5 (1750 to 3700)

Typical Environmental Resistance

Cured for 1 week @ 22ºC
Shear Strength, ISO 4587
Steel lap-shear specimens (grit blasted)

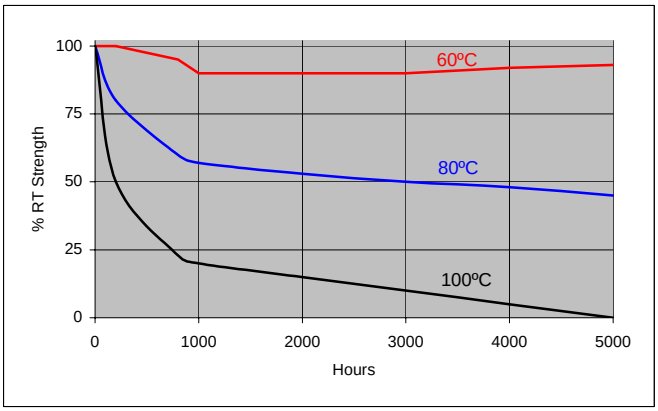
Hot Strength

Tested at temperature



Heat Aging

Aged at temperature indicated and tested at 22°C



Chemical/Solvent Resistance
Aged under condition indicated - Tested at 72ºF (22ºC).

Chemical/Solvent	Temp (ºC)	% of Initial Strength		
		100h	500h	1000h
Motor Oil	40	100	100	100
Gasoline	22	95	95	95
Ethanol	22	100	100	100
Isopropanol	22	95	95	95
Freon TA	22	95	95	95
1,1,1 Trichloroethane	22	95	95	95
Heat / 95% RH	40	70	50	40

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 40ºF ± 5ºF 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.