HERNON®
Formulating Solutions

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Instantbond 109

Product Description

Hernon® Instantbond 109 is a low 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 109** develops handling strength within seconds and full functional strength in a few hours. **Instantbond 109** can bond a wide variety of surfaces including thermoplastics, elastomers, ceramics, leather, cork, and paper, but is particularly suited for bonding metal substrates. Notwithstanding the superior bonding capability of **Instantbond 109**, 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.

Performance Requirements

Instantbond 109 meets the requirements of MIL-A-46050C, Type II Class 1, and CID A-A-3097 Type II Class 1.

Typical Properties (Uncured)

Property	Value
Chemical Type	Modified ethyl cyanoacrylate
Appearance	Clear-Lt Yellow liquid
Viscosity @ 77ºF (25ºC), cP	2 - 12
Specific gravity	1.09
Flash point	See MSDS

Typical Properties (Cured)

Cured 24 Hours @ 22ºC

Physical Properties

Property	Value
Coefficient of thermal conductivity, W/(m·K), ASTM C177	0.4
Temperature range, ºC, (ºF)	-55 to 82 (-65 to 180)
Gap Fill, mm (in.)	0.05 (0.002)
Hardness (shore D)	70-85

Cure Speed vs. Bond Gap
The rate of cure will depend on the bond line 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.

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 (degreased)	25 to 40
Aluminum	10 to 25
Zinc Dichromate	< 240
Neoprene	5 to 10
Nitrile Rubber	4 to 7
ABS	15 to 25
PVC	< 60
Polycarbonate	20 to 40
Phenolic	< 60
Balsa Wood	5 to 10
EPDM	10 to 15

Typical Cured Performance

Shear Strength
Cured 24 Hours @ 22ºC - tested according to ASTM D1002

Substrate	Shear Strength, N/mm² (psi)
Steel (grit blasted)	15 to 25 (2175 to 3625)
Aluminum (grit blasted)	7 to 10 (600 to 1750)
Zinc Dichromate	≥ 2.7 (≥ 400)
ABS	6.0 to 10.0 (870 to 2900)
PVC*	≥ 4.1 (≥ 600)
Polycarbonate	5 to 10 (600 to 1750)
Nitrile Rubber	5 to 10 (600 to 1750)

*Substrate failure

Block- Shear Strength
Cured 24 Hours @ 22ºC - tested according to ASTM D4501

Substrate	Shear Strength (psi)
Phenolic	≥ 500

Tensile Strength
Tested according to ASTM D412

Substrate	Cure Time @ 22ºC	Tensile Strength N/mm² (psi)
Nitrile Rubber	24 hours	5.0 to 15.0 (725 to 2175)
Neoprene	24 hours	5.0 to 15.0 (725 to 2175)
EPDM	24 hours	2.0 to 6.0 (290 to 870)

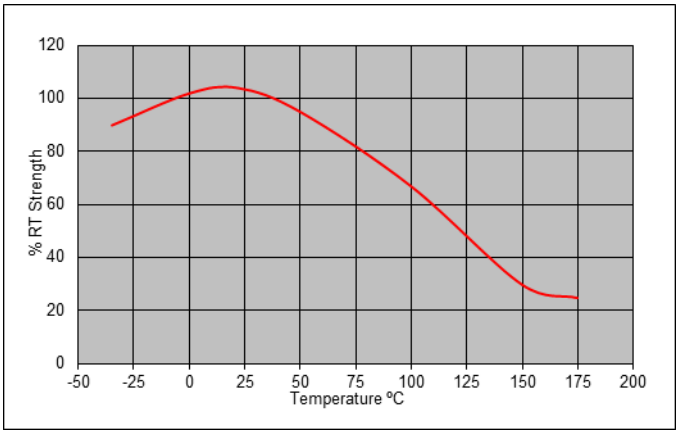
Tested according to ASTM 1414

Substrate	Cure Time @ 22ºC	Tensile Strength N/mm² (psi)
Buna-N	30 seconds	≥10.3 (≥1500)
	24 hours	≥6.8 (≥1000)

Typical Environmental Resistance

Cured for 1 week @ 22ºC
Shear Strength, ASTM D1002
Steel lap-shear specimens (grit blasted)

Hot Strength
Tested at temperature



Heat Aging
Aged at temperature indicated and tested at 22°C

Temperature	Exposure Time	Shear Strength N/mm² (psi)
100 ºC	1000 hours	≥4.1-8.9 (600-1300)

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

Chemical/Solvent	Temp (ºC)	% of Initial Strength		
		100h	500h	1000h
Gasoline	22	100	92	78
Ethanol	22	100	97	95
Isopropanol	22	95	92	90
Freon TA	22	100	100	100

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.