HERNON®
High Performance Adhesives and Sealants
ISO 9001:2000

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Technical Data Sheet
Quantum® 149

Product Description

Hernon® Quantum® 149 is a high 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. **Quantum® 149** develops handling strength within seconds and full functional strength in a few hours. **Quantum® 149** can bond a wide variety of surfaces including metals, thermoplastics, elastomers, ceramics, leather, cork, and paper. Notwithstanding the superior bonding capability of **Quantum® 149**, 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.

Typical Properties (Uncured)

Property	Value
Chemical Type	Ethyl Cyanoacrylate
Appearance	Clear liquid
Viscosity @ 77ºF (25ºC), cP	2000 to 2800
Specific gravity	1.10
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)	-54 to 121 (-65 to 250)
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}

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	20 to 50
Aluminum	10 to 30
Zinc Dichromate	40 to 100
Neoprene	< 5
Nitrile Rubber	< 5
ABS	15 to 40
PVC	20 to 50
Polycarbonate	30 to 70
Phenolic	10 to 40

Cure Speed vs. Bond Gap

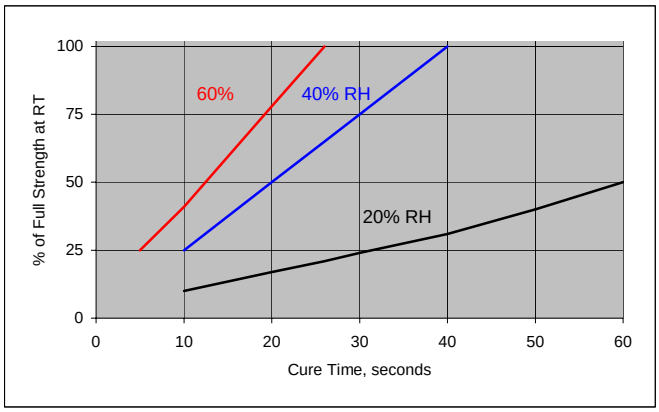
The rate of cure will depend on the bondline gap. Thin bond lines result in high cure speeds, increasing the bond gap will decrease the rate of cure.

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)	18 to 26 (2610 to 3770)
Aluminum (grit blasted)	12 to 19 (1,740 to 2,755
Zinc Dichromate	6 to 13 (870 to 1,885)
ABS	6 to 20 (870 to 2900)
PVC	6 to 20 (870 to 2900)
Polycarbonate	5 to 20 (725 to 2900)
Phenolic	5 to 15 (725 to 2175)
Neoprene	5 to 15 (725 to 2175)
Nitrile	5 to 15 (725 to 2175)

Tensile Strength

Tested according to ISO 6922

Substrate	Cure Time at 22ºC	N/mm² (psi)
Steel	24 hours	12 to 25 (1740 to 3650)
Buna-N	10 seconds	≥ 6 (≥ 870)
	24 hours	5 to 15 (725 to 2175)

Typical Environmental Resistance

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

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	95
Gasoline	22	100	100	100
Ethanol	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 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.