

Quantum[®] 156

Product Description

Hernon[®] Quantum[®] 156 is a single-component cyanoacrylate adhesive formulated for impact, thermal shock, and peel resistance.

Product Benefits

- Single component: no mixing
- Good shock and impact resistance
- Cures at room temperature
- Easy to apply

Typical Applications

- For bonding parts that require a higher humidity resistance than regular cyanoacrylates
- For parts subjected to shock and vibration
- For parts subjected to thermal cycling
- For most rubber, plastic, or metal substrates

Performance Requirements

Quantum 156 meets the requirements of MIL-A-46050C, Type II Class 3, and CID A-A-3097 Type II Class 3.

Typical Properties (Uncured)

Property	Value
Chemical Type	Ethyl Cyanoacrylate
Appearance	Clear
Viscosity, cP	1600 to 3000
Specific gravity	1.06
Flash point	See SDS

Typical Properties (Cured)

Cured 24 Hours @ 22°C

Physical Properties

Property	Value
Temperature range, °C (°F)	-55 to 120 (-65 to 248)
Hardness (shore D)	70-85
Coefficient of thermal expansion, K ⁻¹ , ASTM D696	110 × 10 ⁻⁶
Glass Transition Temperature (T _g) °C	52

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

Substrate	Fixture Time (seconds)
Steel, degreased	35-45
Aluminum	20-40
ABS	10-30
Polycarbonate	30-50
Zinc dichromate	< 240
PVC	20-40
Nitrile Rubber	20-40
Phenolic	10-20

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.

Typical Cured Performance

Shear Strength

Cured 24 Hours @ 22°C - tested according to ASTM D1002.

Substrate	Shear Strength N/mm ² (psi)
Steel, grit-blasted	≥20.7 (≥3000)
Aluminum, etched	≥15.2 (≥2200)
Polycarbonate*	≥7 (≥1000)
Zinc Dichromate	≥5.5 (≥800)
Phenolic	≥7 (≥1000)
Nitrile Rubber*	≥0.5 (≥72.5)
ABS	≥5 (≥725)
PVC*	≥5 (≥725)
PMMA*	≥5 (≥725)

*Substrate failure

Tensile Strength

Tested according to ASTM D1414

Substrate	Cure Time @ 22°C	Tensile Strength N/mm ² (psi)
Buna-N	30 seconds	≥2.75 (≥400)
	24 hours	≥7 (≥1000)

Cured and tested at 22°C on 3/8 x 16 grade 5 bolts and type 2 nuts according to ASTM D5363.

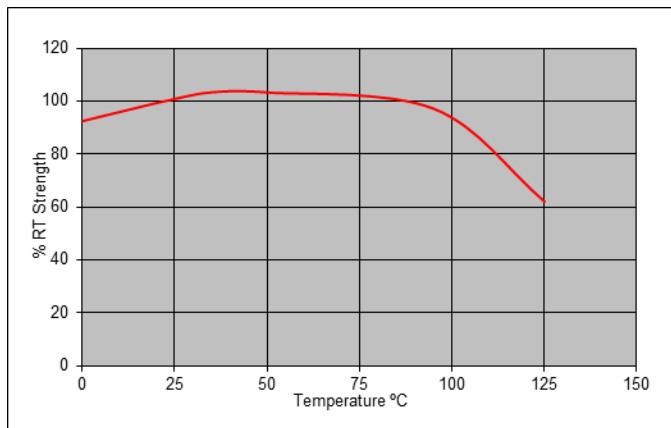
Cure	Substrate	Torque	N•m (in-lb)
60 Mins.	Steel	Breakaway	16.9 to 33.9 (150 to 300)
		Prevailing	22.6 to 39.5 (200 to 350)
24 Hours.	Steel	Breakaway	22.6 to 39.5 (200 to 350)
		Prevailing	28.2 to 39.5 (250 to 350)

Typical Environmental Resistance

Cured for 1 week @ 22°C
 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 °C	1000 hours	≥ 5.5 (800)

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	97
Gasoline	22	100	100	82
Ethanol	22	100	69	65
Isopropanol	22	100	100	100
Heat / 95% RH	40	58	33	29

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 Safety Data Sheet (SDS).

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).

Hernon® Adhesion Promoter 42 may be applied on one substrate surface to improve adhesion to low surface energy plastics such as polyethylene, polypropylene and Santoprene to similar substrates using Quantum® 156. Adhesion Promoter 42 may be applied to the surface by brush or spray. Materials may also be dipped in a container of product and allowed to drain after removal.

Shear Strength

Cured 24 hours @ 22°C - tested according to ASTM D1002. Adhesion Promoter 42 was applied at one substrate surface.

Substrate	Shear Strength (psi)
	Quantum 156
Polypropylene	≥100
HDPE to Steel ¹	≥100
Steel to Polypropylene	≥100

¹ Steel untreated

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.

These suggestions and data are based on information we believe to be reliable and accurate, but no guarantee of their accuracy is made. HERNON

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