

Technical Data Sheet Quantum[®] 143

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Product Description

Hernon[®] Quantum[®] 143 is a single component, fast curing cyanoacrylate adhesive specially formulated for difficult to bond substrates.

Typical Applications

- On porous substrates such as wood, leather and foamed plastic or rubber
- Rapid bonding of a wide range of metal, plastic or elastomeric materials
- Acidic surfaces such as on dichromate or freshly plated parts

Performance Requirements

Typical Properties (Uncured)

Property	Value
Chemical Type	Ethyl Cyanoacrylate
Appearance	Clear liquid
Viscosity @ 77°F (25°C), cP	5 - 15
Specific gravity	1.05
Full cure	24 hrs
Flash point	See MSDS

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/mm².

Substrate	Fixture Time (seconds)
Steel (Degreased)	≤ 20
Aluminum	≤ 20
Balsa Wood	≤ 7
EPDM	≤ 7
Nitrile Rubber	≤ 7

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.

Typical Cured Performance

Shear Strength

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

Substrate	Shear Strength N/mm ² (psi)
Steel (grit blasted)	≥ 15 (≥ 2000)
Aluminum (grit blasted)	≥ 10 (≥ 1200)
Polycarbonate	≥ 6 (≥ 500)
Nitrile Rubber	≥ 6 (≥ 500)

Tensile Strength

Cured 24 hrs @ 22°C - tested according to ASTM D897

Substrate	Shear Strength N/mm ² (psi)
Steel (grit blasted)	≥ 15 (≥ 2000)
Aluminum (grit blasted)	≥ 10 (≥ 1200)
Polycarbonate	≥ 6 (≥ 500)
Nitrile Rubber	≥ 6 (≥ 500)

General Information

**Shelf life, (stored at 10 – 20°C) 12 months.
Product should be refrigerated**

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).

Surface Preparation

For best results the surface must be clean and free of rust inhibitors, dust, grease, oil and other contaminants. Use of an Alcohol wipe is suitable for most surfaces. Bond strength on painted parts may be determined by how well the paint adheres to the substrates.

Adhesive Application

Best results with **Quantum**® adhesives are obtained with using a minimum quantity of adhesive needed to fill the joint. In general, one free-falling drop spreads over one square inch. Apply firm pressure to mated surfaces to spread adhesive into a thin film. Do not move parts until adhesive sets.

Bond Durability

Bond durability is affected by surface conditions, bond areas, service temperature, environment and stress. Each application must be evaluated individually. Moisture and temperature resistance are dependent on the surfaces bonded.

Polyolefin Bonding

Hernon® Primers are recommended for bonding to polyethylene, polypropylene, PFTE or silicone with **Quantum**® adhesives. Primer may be applied by spraying, brushing or dipping. Excess primer should be avoided. When polyolefin substrates are bonded to other substrates, only the polyolefin should be primed.

Clean-Up/Debonding

Equipment may be cleaned by flushing with **Hernon**® **Equipment Flushing Solvent 11**. Excess adhesive can be dissolved with **Hernon**® **CA Remover 14**, nitromethane or acetone.

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 MANUFACTURING®, INC. shall not be liable for any damage, loss or injury, direct or consequential arising out of the use or the inability to use the product. In every case, we urge and recommend that purchasers, before using any product in full scale production, make their own tests to determine whether the product is of satisfactory quality and suitability for their operations, and the user assumes all risk and liability whatsoever, in connection therewith. Hernon's Quality Management System for the design and manufacture of high performance adhesives and sealants is registered to the ISO 9001:2008 Quality Standard.