HERNON®
High Performance Adhesives and Sealants
ISO 9001 Registered

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Technical Data Sheet
Quantum® 133

Product Description

Hernon® Quantum® 133 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

Typical Properties (Uncured)

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

Typical Properties (Cured)

Cured 24 Hours @ 22ºC

Physical Properties

Property	Value
Temperature range, ºC (ºF)	-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 (Tg) ºC	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 22ºC. 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
Steel (With EF Accelerator 72)	35 to 45
Polycarbonate (With EF Accelerator 72)	10 to 20

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.

Typical Cured Performance

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

Substrate	Shear Strength N/mm² (psi)
Steel, grit-blasted	≥17.2 (≥2500)
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

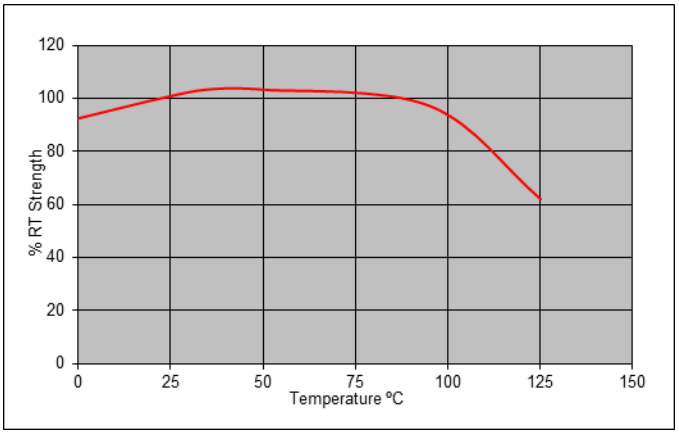
Substrate	Cure Time @ 22ºC	Tensile Strength N/mm² (psi)
Buna-N	30 seconds	≥2.75 (≥400)
	24 hours	≥7 (≥1000)

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	≥ 5.5 (800)

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	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).

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.

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 Quality Standard.