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Technical Data Sheet

LOCTITE® 444™

March 2010

PRODUCT DESCRIPTION

LOCTITE® 444™ provides the following product characteristics:

Technology	Cyanoacrylate
Chemical Type	Ethyl cyanoacrylate
Appearance	Colorless transparent liquid[LMS]
Components	One part - requires no mixing
Viscosity	Medium
Cure	Humidity
Application	Bonding
Key Substrates	Rubbers, Plastics and Metals

LOCTITE® 444™ is a single part, fast curing medium viscosity cyanoacrylate adhesive formulated for electronics applications. LOCTITE® 444™ is designed to use with TAK PAK® Accelerators to attain instant cures for tacking electronics components . Typical applications include wire tacking to coil forms; tamper proofing adjustable components; mounting standoffs, edge guides and stiffeners to circuit boards.

Commercial Item Description A-A-3097:

LOCTITE® 444™ has been qualified to Commercial Item Description A-A-3097. **Note:** This is a regional approval. Please contact your local Technical Service Center for more information and clarification.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.05
Viscosity, Brookfield - LVF, 25 °C, mPa·s (cP):	
Spindle 2, speed 30 rpm	550 to 850[LMS]
Flash Point - See MSDS	

TYPICAL CURING PERFORMANCE

Under normal conditions, the atmospheric moisture initiates the curing process. Although full functional strength is developed in a relatively short time, curing continues for at least 24 hours before full chemical/solvent resistance is developed.

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. Activator

Where cure speed is unacceptably long due to large gaps, applying activator 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 PROPERTIES OF CURED MATERIAL

After 24 hours @ 22 °C

Physical Properties:

Coefficient of Thermal Expansion, ISO 11359-2, K^{-1}	80×10^{-5}
Coefficient of Thermal Conductivity, ISO 8302, W/(m·K)	0.11
Glass Transition Temperature, ASTM E 228, °C	130

Electrical Properties:

Volume Resistivity, IEC 60093, Ω·cm	7.2×10^{15}
Surface Resistivity, IEC 60093, Ω	66×10^{15}
Dielectric Breakdown Strength, IEC 60243-1, kV/mm	36.6
Dielectric Constant / Dissipation Factor, IEC 60250:	
1 kHz	3.0 / 0.028

TYPICAL PERFORMANCE OF CURED MATERIAL

Cured for 2 minutes @ 22 °C

Lap Shear Strength, ISO 4587:

Steel (grit blasted)	N/mm²	≥5.4[LMS]
	(psi)	(≥780)

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:

1. Apply one coating of TAK PAK® accelerator to the area to be bonded, by spray, brush or dipping. Prior to application, contaminated surfaces may need special cleaning or degreasing to remove any dissolvable contamination.

   NOTE: Because the solvent base of TAK PAK® accelerators can affect certain plastics or coatings, checking all surfaces for compatibility is recommended.

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2. Allow the accelerator time to evaporate under good ventilation until the surfaces are completely dry (approx. 15 to 30 seconds)..

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3. Apply LOCTITE® 444™ cyanoacrylate product immediately after solvent has dried.

   NOTE: If cyanoacrylate is not applied to the accelerator within 45 seconds, accelerator should be reapplied

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4. Where possible, move surfaces in relation to each other for a few seconds on assembly to properly distribute the adhesive and for maximum activation..
5. Secure the assembly and await fixturing before any further handling..

Loctite Material Specification[LMS]
LMS dated December 28, 1999. Test reports for each batch are available for the indicated properties. LMS test reports include selected QC test parameters considered appropriate to specifications for customer use. Additionally, comprehensive controls are in place to assure product quality and consistency. Special customer specification requirements may be coordinated through Henkel Quality.

Storage
Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.
Optimal Storage: 2 °C to 8 °C. Storage below 2 °C or greater than 8 °C can adversely affect product properties. Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel Corporation cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Technical Service Center or Customer Service Representative.

Conversions
(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
µm / 25.4 = mil
N x 0.225 = lb
N/mm x 5.71 = lb/in
N/mm² x 145 = psi
MPa x 145 = psi
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

Note
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Reference 1.3