Loctite® Instant Adhesives
Instant Solutions in Every Drop
Loctite® Instant Adhesives are the most diverse line of cyanoacrylates adhesives (CAs) available, providing you with fast assembly solutions for a variety of materials, including plastics, elastomers and metals. Our history of high quality innovation and commitment to technical support means you can rely on Henkel to be your total solutions provider from start to finish.

In this brochure, the terms instant adhesives, cyanoacrylate and CA are used interchangeably.

Why Loctite® Instant Adhesives?  
Loctite® Instant Adhesives are extremely versatile and easy to use. They are one-component products (eliminating mixing issues), they cure at room temperature without the need for heat or light energy, and they yield very high bond strengths to plastics, metals, rubbers, wood and many other substrates.

Why Loctite®? Innovation  
Henkel’s commitment to provide instant solutions in every drop of instant adhesive has led us to develop faster fixture times, greater surface versatility, toughened performance, improved shelf life, and dispensing equipment that is more efficient and easier to use. Our unparalleled investment in research and development has made us the technology leader and allows us to provide our customers with the highest level of performance available in an instant adhesive.

Why Loctite®? Support  
From design and product development to the final manufacturing process, Henkel adhesive specialists provide you with a wealth of expertise to meet your instant bonding challenges. Our approach is one of flexibility, allowing us to draw on our global technical expertise to provide a solution to support your specific goals. When you choose Loctite® Instant Adhesives, you get a partner in Henkel who will provide you with the technical support and instant solutions you need.

Loctite® 3092™  
Loctite® 3092™ is a two-component, rapid cure cyanoacrylate adhesive for bonding a variety of plastics. Its unique properties offer the speed and strength of a traditional cyanoacrylate with the value of added gap filling up to 0.200” (5mm). See page 9 to learn more.

CA Volumetric Hand Pump  
The new Loctite® CA Volumetric Hand Pump is available for dispensing instant adhesives from 20 g and 1 oz. bottles. The completely sealed system extends the life of Loctite® instant adhesive by preventing curing in the bottle, while the easy to use design provides six pre-set shot size settings for precision repeatable dispensing of instant adhesives. See Page 12 to learn more. Product #1506577.

www.instantsolutions.loctite.com
### Instant Solutions

#### Product Selector Guide

**Application**

- **Low Surface Energy**
  - Low Viscosity
  - Non-Sag Gel
  - Medium Viscosity
  - Low Viscosity
  - Non-Sag Gel

- **Premium Surface Inhibitive**
  - Wicking Viscosity
  - Low Viscosity
  - Non-Sag Gel

- **Low Odor/Low Bloom**
  - Low Viscosity
  - Non-Sag Gel

- **Light Cure CAs – Rapid Cure**
  - Light Cure CAs – Rapid Cure (For aesthetic & color sensitive applications)

- **Toughened/Impact Resistant**
  - Light Cure CAs – Rapid Cure (For aesthetic & color sensitive applications)

- **Two-Part CA**
  - Low Viscosity
  - Non-Sag Gel
  - Low Viscosity

- **CA Accelerators**
  - Use Accelerator with Premium CAs

**Solution**

<table>
<thead>
<tr>
<th>Color</th>
<th>Gap Fill (in.)</th>
<th>Viscosity (cp)</th>
<th>Shear Strength* (gls)</th>
<th>Temperature Range</th>
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<tr>
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<td>0.006</td>
<td>3.200</td>
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<tr>
<td>Clear/Pale</td>
<td>N/A</td>
<td>0.006</td>
<td>3.200</td>
<td>-65°F to 150°F</td>
<td>15 sec.* 3.5 min.</td>
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<tr>
<td>Clear/Pale</td>
<td>N/A</td>
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<td>Clear/Pale</td>
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<td>0.006</td>
<td>3.200</td>
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<tr>
<td>Clear/Pale</td>
<td>N/A</td>
<td>0.006</td>
<td>3.200</td>
<td>-65°F to 150°F</td>
<td>15 sec.* 3.5 min.</td>
</tr>
</tbody>
</table>

**Solution Properties**

- **Loctite® 747™**
  - Primer
  - Wicking viscosity CA for light bond lines. Surface invertebrate grade providing excellent bond strength to most materials including plastics, elastomers and rubbers. Excellent for dry or acidic conditions.
- **Loctite® 401™**
  - Instant Adhesive
  - Low viscosity
  - Surface invertebrate grade providing excellent bond strength to most materials including plastics, elastomers and rubbers. Excellent for dry or acidic conditions.
- **Loctite® 414™**
  - Instant Adhesive
  - Low viscosity
  - Surface invertebrate grade providing excellent bond strength to most materials including plastics, elastomers and rubbers. Excellent for dry or acidic conditions.

**Product Description**

- **Loctite® 747™**
  - **Instant Adhesive**
  - A high-performance adhesive promoter formulated for use with Loctite 747CA. Can be added to any Loctite 747CA to promote bond strength.
- **Loctite® 401™**
  - **Instant Adhesive**
  - Wicking viscosity CA for light bond lines. Surface invertebrate grade providing excellent bond strength to most materials including plastics, elastomers and rubbers. Excellent for dry or acidic conditions.
- **Loctite® 414™**
  - **Instant Adhesive**
  - Low viscosity
  - Surface invertebrate grade providing excellent bond strength to most materials including plastics, elastomers and rubbers. Excellent for dry or acidic conditions.
- **Loctite® 415™**
  - **Instant Adhesive**
  - Wicking viscosity CA for light bond lines. Surface invertebrate grade providing excellent bond strength to most materials including plastics, elastomers and rubbers. Excellent for dry or acidic conditions.
- **Loctite® 416™**
  - **Instant Adhesive**
  - Low viscosity
  - Surface invertebrate grade providing excellent bond strength to most materials including plastics, elastomers and rubbers. Excellent for dry or acidic conditions.
- **Loctite® 417™**
  - **Instant Adhesive**
  - Wicking viscosity CA for light bond lines. Surface invertebrate grade providing excellent bond strength to most materials including plastics, elastomers and rubbers. Excellent for dry or acidic conditions.
- **Loctite® 418™**
  - **Instant Adhesive**
  - Low viscosity
  - Surface invertebrate grade providing excellent bond strength to most materials including plastics, elastomers and rubbers. Excellent for dry or acidic conditions.
- **Loctite® 419™**
  - **Instant Adhesive**
  - Wicking viscosity CA for light bond lines. Surface invertebrate grade providing excellent bond strength to most materials including plastics, elastomers and rubbers. Excellent for dry or acidic conditions.
- **Loctite® 420™**
  - **Instant Adhesive**
  - Wicking viscosity CA for light bond lines. Surface invertebrate grade providing excellent bond strength to most materials including plastics, elastomers and rubbers. Excellent for dry or acidic conditions.
- **Loctite® 421™**
  - **Instant Adhesive**
  - Wicking viscosity CA for light bond lines. Surface invertebrate grade providing excellent bond strength to most materials including plastics, elastomers and rubbers. Excellent for dry or acidic conditions.
- **Loctite® 422™**
  - **Instant Adhesive**
  - Wicking viscosity CA for light bond lines. Surface invertebrate grade providing excellent bond strength to most materials including plastics, elastomers and rubbers. Excellent for dry or acidic conditions.
- **Loctite® 423™**
  - **Instant Adhesive**
  - Wicking viscosity CA for light bond lines. Surface invertebrate grade providing excellent bond strength to most materials including plastics, elastomers and rubbers. Excellent for dry or acidic conditions.
- **Loctite® 424™**
  - **Quick Set™**
  - A high-performance adhesive promoter formulated for use with Loctite 424CA. Can be added to any Loctite 424CA to promote bond strength.

**Application Tips**

- **Loctite® 747™**
  - **Instant Adhesive**
  - A high-performance adhesive promoter formulated for use with Loctite 747CA. Can be added to any Loctite 747CA to promote bond strength.
- **Loctite® 401™**
  - **Instant Adhesive**
  - Wicking viscosity CA for light bond lines. Surface invertebrate grade providing excellent bond strength to most materials including plastics, elastomers and rubbers. Excellent for dry or acidic conditions.
- **Loctite® 414™**
  - **Instant Adhesive**
  - Low viscosity
  - Surface invertebrate grade providing excellent bond strength to most materials including plastics, elastomers and rubbers. Excellent for dry or acidic conditions.

**Product Information**

- **Loctite® 747™**
  - **Instant Adhesive**
  - A high-performance adhesive promoter formulated for use with Loctite 747CA. Can be added to any Loctite 747CA to promote bond strength.
- **Loctite® 401™**
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  - Wicking viscosity CA for light bond lines. Surface invertebrate grade providing excellent bond strength to most materials including plastics, elastomers and rubbers. Excellent for dry or acidic conditions.
- **Loctite® 414™**
  - **Instant Adhesive**
  - Low viscosity
  - Surface invertebrate grade providing excellent bond strength to most materials including plastics, elastomers and rubbers. Excellent for dry or acidic conditions.

**Conclusion**

- One-component, no-mix products that cure rapidly at room temperature without heat or light, make cyanoacrylates exceptionally easy to use.
- Excellent bond strength to the widest range of plastics, rubbers and metals.
- Widest selection of products, including specialty grades suitable for applications where impact resistance, flexibility, gap filling, low odor or extremely fast curing is required.

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* N/A = Not available.
* °C = Degrees Celsius.
* ** = Polymerized.
* ¥ = Full cure = 1 hour without UV exposure.
Faster Solutions
For High Speed Assembly

For manufacturing operations where rapid assembly speeds are critical, two categories of instant adhesives are available. Loctite® Premium Surface Insensitive Instant Adhesives provide fixture speeds less than 15 seconds on most substrate materials while Loctite® Light Curing Instant Adhesives provide fixture speeds less than 5 seconds on most substrate materials. Apply Loctite® Accelerators to reduce fixture/cure times and to cure exposed adhesive.

Premium, Surface Insensitive

This line of instant adhesives provides the best combination of speed, strength and high temperature performance. They are uniquely formulated to attain high bond strengths on the widest range of materials, including dry or acidic surfaces. Although fixture speeds will range by substrate material, many yield speeds of 15 seconds or less, such as steel, aluminum, ABS, PVC, polycarbonate, nitrile rubber, paper, balsa wood and phenolic to name a few. These Premium Instant Adhesives are available in a wide range of viscosities and most offer temperature resistance up to 250°F (121°C).

<table>
<thead>
<tr>
<th>LOCTITE® PRODUCT</th>
<th>CODE NUMBER</th>
<th>PACKAGE TYPE/SIZE</th>
<th>TYPICAL USE</th>
<th>COLOR</th>
<th>VISCOSITY (cP)</th>
<th>TEMPERATURE RANGE</th>
<th>SHEAR STRENGTH*</th>
<th>SPEED**</th>
<th>APPLICATION</th>
<th>AGENT APPROVALS</th>
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<tbody>
<tr>
<td>40706 40707**</td>
<td>40706 40707**</td>
<td>3 g tube 20 g bottle 1 lb. box*</td>
<td>General purpose</td>
<td>Clear</td>
<td>6,005 Ethyl</td>
<td>80°F - 140°F (27°C)</td>
<td>Fixture - 15 sec.</td>
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<td>1.05 CPAA</td>
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<td>40406 40407</td>
<td>40406 40407</td>
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<td>6,066 Ethyl</td>
<td>80°F - 140°F (27°C)</td>
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<td>Fixture - 15 sec.</td>
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<td>40410 40411</td>
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<td>Porous surfaces</td>
<td>Clear</td>
<td>6,010 Ethyl</td>
<td>80°F - 140°F (27°C)</td>
<td>Fixture - 15 sec.</td>
<td>Fixture - 15 sec.</td>
<td>1.05 CPAA AB5</td>
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</table>

Top Features

- Very fast fixture speed
- Suitable for bonding a wide variety of materials, including metals, plastics and elastomers
- Loctite® 454™ non-drip gel is excellent for porous substrates such as paper, leather, cork and fabric
- For acidic surfaces such as wood and chromate plated parts

Surface insensitive for faster cure in dry/wet/humidity environments.

Light-Curing

These patented products provide two curing mechanisms, the first initiated by the introduction of light energy and second by surface moisture present on the almost all substrate materials. Applying the proper light energy to adhesive exposed in open air, or through a transparent substrate, allows components to be tack together in as little as 2 to 5 seconds. Shadowed areas of the bond line where light cannot reach will also cure via the standard cyanacrylate moisture-curing mechanism, reaching fixture strengths in 5 to 25 seconds, and full bond strengths in 24 hours.

<table>
<thead>
<tr>
<th>LOCTITE® PRODUCT</th>
<th>ITEM NUMBER</th>
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<th>COLOR</th>
<th>VISCOSITY (cP)</th>
<th>TEMPERATURE RANGE</th>
<th>SHEAR STRENGTH*</th>
<th>SPEED**</th>
<th>APPEARANCE</th>
<th>AGENT APPROVALS</th>
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<tbody>
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<td>4306™ FLASHCURE®</td>
<td>430671 120571</td>
<td>1 oz. tube 4 fl. oz. bottle</td>
<td>Clear filling paste</td>
<td>Clear</td>
<td>6,004 Ethyl</td>
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<td>Fixture - 5 sec.</td>
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<td></td>
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<td>431171 120171</td>
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<td>Fixture - 5 sec.</td>
<td>Fixture - 5 sec.</td>
<td>1.10 CPAA</td>
<td></td>
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Top Features

- Extremely fast tack-free curing in 2 - 5 seconds
- Cure with UV/Visible light
- Good cosmetic appearance
- Fluorescent for inspection purposes
- Cures in shadowed areas
- Eliminates need for accelerators
- Tack Free in dry/wet/humidity environments

Accelerators

Accelerators speed the cure of cyanoacrylate adhesives and are primarily used to reduce cure/fixture times and to cure expose exposed adhesive or bond line fillets. Accelerators can be applied to a substrate surface prior to the application of the adhesive, or sprayed over exposed adhesive for securing wires or coils, tamper proofing adjustable components, or mounting stand-offs, edge guides and board stiffeners.

<table>
<thead>
<tr>
<th>LOCTITE® PRODUCT</th>
<th>ITEM NUMBER</th>
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<td>40604 40605**</td>
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<td>1.05 CPAA AB5</td>
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<td>40606 40607</td>
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<td>6,066 Ethyl</td>
<td>80°F - 140°F (27°C)</td>
<td>Fixture - 15 sec.</td>
<td>Fixture - 15 sec.</td>
<td>1.10 ISO 10993</td>
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<td>40608 40609</td>
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<td>Porous surfaces</td>
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<td>6,010 Ethyl</td>
<td>80°F - 140°F (27°C)</td>
<td>Fixture - 15 sec.</td>
<td>Fixture - 15 sec.</td>
<td>1.05 CPAA</td>
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</tr>
</tbody>
</table>

Top Features

- Provide fast cure when post-applied
- Cure exposed CA bond lines or fillets
- Excellent for cosmetic applications, and clear and transparent adhesive beads or fillets

www.instantsoolutions.loctite.com
Superior Solutions
For Demanding Applications

Specialty grades of Loctite® Instant Adhesives have been developed to provide superior performance in highly demanding applications. Our Low Odor/Low Bloom, Flexible and Gap-filling products go beyond conventional solutions to provide the superior performance versatility you need to meet your assembly challenges.

Low Odor, Low Bloom
Loctite® Low Odor, Low Bloom Instant Adhesives are chemically engineered to minimize blooming, the frosty white film that can occasionally be seen outside of the adhesive bond line of a traditional cyanoacrylate adhesive. In addition, these formulas will reduce the odor operators may experience in confined spaces or areas with low air-flow. These grades provide good temperature and humidity resistance and are surface insensitive to attain high bond strengths on a wide range of substrate materials, including dry or acidic surfaces. See page 15 for a technical description of blooming.

Top Features
- Excellent for cosmetic applications
- Low odor
- Reduced white residue “blooming” or “frosting”
- Surface insensitive for faster cure in dry/low humidity environments

Flexible
Loctite® Flexible Instant Adhesives have been specially designed for bonding flexible materials, such as the rubber and urethane often used in flexible joints and weather stripping. These solutions provide flexibility at the bond line and ensure continued performance. They are surface insensitive to allow for use across a wide variety of substrates and environments.

Top Features
- Specifically designed for bonding delicate, soft or flexible substrates
- Ensures flexibility even through the bond line
- Suitable for porous and absorbent substrates
- ISO 10993 biocompatible
- Surface insensitive for dry/low humidity environments

Gap Filling
Loctite® 3092™ is an ultra-fast, gel adhesive, which can bond gaps up to 0.200” (5mm) in depth. This two-component, auto-mix technology ensures consistent, fast curing regardless of ambient temperature and moisture conditions. Loctite® 3092™ can be used for bonding a variety of plastics, rubbers, metals and porous materials, including wood, paper and leather.

Top Features
- Ultra-fast cure time
- High-gap-filling capability
- Non-drip formula
- Convenient and precise dispensing syringe
- Excellent for aesthetic applications
- Excellent bond strengths on many materials
- Cures tack-free in open air

Top Features
- Excellent bond strengths on many materials
- Cures tack-free in open air
Loctite® Toughened Instant Adhesives and Surface Primers provide excellent performance in the most challenging environments. These specialty cyanoacrylate formulations provide superior resistance to impact, vibration and peel forces while the surface priming liquids significantly increase adhesion strengths to many low surface energy plastics commonly used in manufactured devices.

Toughened

Loctite® Toughened Instant Adhesives are uniquely formulated for applications where impact, vibration and peel forces are experienced. These cyanoacrylates provide side impact resistance up to 4 N/mm, far exceeding the performance of common instant adhesives.

** Varies with substrate material.

* Grit-blasted steel substrate.

Loctite® Toughened Instant Adhesive

<table>
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<th>LOCTITE® PRODUCT</th>
<th>ITEM NUMBER</th>
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<th>SPECIFIC GRAVITY</th>
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<tr>
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<td>438104</td>
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<td>280</td>
<td>2,080</td>
<td>220°F (105°C)</td>
<td>1.20</td>
<td>A-A-3097</td>
</tr>
<tr>
<td>1040</td>
<td>438105</td>
<td>3 g tube</td>
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<td>Black</td>
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<td>280</td>
<td>2,080</td>
<td>220°F (105°C)</td>
<td>1.20</td>
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</table>

These cyanoacrylates are formulated for use with any Loctite® Instant Adhesive to increase adhesion strengths for elastomers and plastics by 50% to 100%. This increases the ultimate rubber bonding performance of the rubber material to the bonding surface.

**Variable substrate material.

** *Grit-blasted steel substrate.

Top Features

- Excellent shear strength
- Very good fracture toughness
- Very good resistance to impact and peel loads
- Excellent chemical, humidity and thermal resistance
- Bond strengths in excess of material strengths for elastomers and plastics

Loctite® Surface Primers are specially formulated for use with any Loctite® Instant Adhesive to increase adhesion strengths to difficult to bond substrates which include Polyethylene, Polypropylene, PTFE and thermoplastic rubber materials.

To obtain the highest performance, assemblies should be bonded shortly after surface primer base flashes off.

<table>
<thead>
<tr>
<th>LOCTITE® PRODUCT</th>
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<td>4 oz. bottle</td>
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<td>Nonflammable and noncombustible</td>
<td>8 hrs.</td>
</tr>
<tr>
<td>410061</td>
<td>41105</td>
<td>4 oz. bottle</td>
<td>Fluorescent under UV light / black light</td>
<td>Nonflammable and noncombustible</td>
<td>8 hrs.</td>
</tr>
<tr>
<td>410061</td>
<td>41106</td>
<td>4 oz. bottle</td>
<td>Replaces</td>
<td>Nonflammable and noncombustible</td>
<td>8 hrs.</td>
</tr>
</tbody>
</table>

Rubber Bonding

Cyanacrylate adhesives typically bond to elastomers such as neoprene and nitrile rubber extremely well with fast fixture speeds and high bond strengths. Loctite® 404® is uniquely formulated to provide the ultimate rubber bonding performance with fixture speeds of less than 5 seconds and strengths that reach well beyond the strength of the rubber itself.

Top Features

- Very fast fixtureing of elastomers and plastics
- Bond strengths in excess of material strengths for elastomers and plastics
- Multiple agency approvals

Surface Primers

Loctite® Surface Primers are specially formulated for use with any Loctite® Instant Adhesive to increase adhesion strengths for elastomers and plastics by 50% to 100%. This increases the ultimate rubber bonding performance of the rubber material to the bonding surface.

Top Features

- Nonflammable and noncombustible formulas
- Brush and wipe application options

www.instantsolutions.loctite.com
Dispensing & Curing Equipment

From manually operated devices to fully automated systems, Henkel offers a comprehensive line of Loctite® brand dispense systems and light-curing equipment which can be easily integrated into your manufacturing process. Selection of a Loctite® brand system is based on the product being used, viscosity, package size and process requirements. For more information on our complete equipment offering, visit our equipment website at www.equipment.loctite.com or call 1.800.LOCTITE (562.8483) in the U.S. or 1.800.263.5043 in Canada to speak with a technical representative.

Modular Dispense Systems

Henkel offers a complete line of Loctite® controllers, reservoirs and dispense valves, allowing you to create a custom dispensing system to meet your specific needs and manufacturing goals.

Reservoir Controllers

<table>
<thead>
<tr>
<th>Loctite® Product</th>
<th>Item Number</th>
<th>Type</th>
<th>Viscosity Range</th>
<th>Dispense Patterns</th>
<th>Stroke Adjustment</th>
<th>Actuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>LV Statinary Applicator Valve</td>
<td>77112 (1/4” OD Valve)</td>
<td>High precision</td>
<td>Low to medium</td>
<td>Performance diaphragm</td>
<td>Drop, dot</td>
<td>Gel/Instant Adhesives, Retaining Compounds, Threadlockers</td>
</tr>
<tr>
<td>HV Valve Micro Diaphragm Valve</td>
<td>101440</td>
<td>High precision</td>
<td>Low to medium</td>
<td>Performance diaphragm</td>
<td>Drop, dot</td>
<td>Gel/Instant Adhesives, Retaining Compounds, Threadlockers</td>
</tr>
<tr>
<td>HV Micro Needle Valve</td>
<td>99904</td>
<td>High precision</td>
<td>Low to medium</td>
<td>Light Cure/Acrylics</td>
<td>Drop, dot</td>
<td>Light Cure/Acrylics, Retaining Compounds, Threadlockers</td>
</tr>
<tr>
<td>HV High Performance Diaphragm Valve</td>
<td>99902</td>
<td>High performance</td>
<td>Low to medium</td>
<td>Light Cure/Acrylics</td>
<td>Drop, dot</td>
<td>Light Cure/Acrylics, Retaining Compounds, Threadlockers</td>
</tr>
<tr>
<td>HV High Performance Diaphragm Valve</td>
<td>99903</td>
<td>High performance</td>
<td>Low to medium</td>
<td>Light Cure/Acrylics</td>
<td>Drop, dot</td>
<td>Light Cure/Acrylics, Retaining Compounds, Threadlockers</td>
</tr>
</tbody>
</table>

Handheld Valves

<table>
<thead>
<tr>
<th>Loctite® Product</th>
<th>Item Number</th>
<th>Type</th>
<th>Viscosity Range</th>
<th>Dispense Patterns</th>
<th>Stroke Adjustment</th>
<th>Actuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>LV Hand Held Applicator</td>
<td>37135</td>
<td>Pneumatic</td>
<td>0-10,000 cP</td>
<td>Drop, dot</td>
<td>Yes</td>
<td>Feed</td>
</tr>
</tbody>
</table>

Mounted Valves

<table>
<thead>
<tr>
<th>Loctite® Product</th>
<th>Item Number</th>
<th>Type</th>
<th>Viscosity Range</th>
<th>Dispense Patterns</th>
<th>Stroke Adjustment</th>
<th>Actuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>HV High Precision Valve</td>
<td>99901</td>
<td>High performance</td>
<td>Low to medium</td>
<td>Performanc</td>
<td>Drop, dot</td>
<td>Light Cure/Acrylics, Retaining Compounds, Threadlockers</td>
</tr>
</tbody>
</table>

Complete Dispense Systems

These Loctite® brand dispense systems are ready for immediate operation and offer the manufacturing flexibility and reliability you’re looking for.

Loctite® CA Volumetric Hand Pump

Extend the bottle life of your Loctite® Instant Adhesives by using the completely sealed Loctite® CA Volumetric Hand Pump. Save yourself time and money by eliminating breakdown and setup steps. Reduce waste and ensure bond strength with exact dispensing volumes.

- Easy manual operation
- Light-weight ergonomic design
- Works with Loctite® Dispense Tips
- Works with 20 g and 1 oz. bottles
- Adjustable dispense volumes

Item #1506577

Light Cure Solutions

Henkel offers the widest selection of light-curing equipment available from any one company in the market today. Our Loctite® brand ensures you have the most innovative and dependable systems for all your light-curing applications.

www.equipment.loctite.com
Henkel is in the business of solving customers’ problems. When customers buy Loctite® brand instant adhesives, they get more than a product—they get a partner who will work side by side with them to find innovative solutions to their manufacturing problems.

Rapidly emerging, innovative processes and materials mandate an unprecedented breadth and depth of engineering savvy. Not every company can provide the equipment and engineering staff necessary to compete in today’s marketplace the way Henkel can. Henkel’s Engineering Services Group understands the necessity of partnering with manufacturers and sharing this expertise with the industry.

From design and product development to simulated testing of the manufacturing process and dispensing trials, Henkel brings a wealth of expertise and experience to its customers. In a design-through-assembly partnership, no one adds value like Henkel.

**Instant Adhesives FAQ**

**How do conventional CAs cure?** Cyanoacrylate adhesives are acrylic resins that polymerize or cure rapidly when exposed to alkaline surfaces. Water, which is found in trace amounts on virtually all surfaces, contains hydroxyl ions which are alkaline and thus trigger rapid polymerization, whereby CA molecules link up to form a very strong and durable thermoplastic material. CAs reach fixture strength, or the strength where assemblies can be handled without falling apart, very quickly—typically in 5 to 20 seconds depending on the assembly. CAs reach their full strength in 24 hours, often attaining levels of 2,000 to 3,500 psi depending on the materials bonded. Very dry or acidic surfaces can also be bonded using Loctite® “Surface Insensitive” cyanoacrylate products. Cyanoacrylate adhesives that do not contact a surface, but are left in open air, will cure due to atmospheric moisture, but very slowly. To quickly cure CA exposed to open air, either spray on an accelerator, or use a two-part CA.

**How do light cure CAs cure?** Light-curing cyanoacrylates are uniquely versatile as they offer the benefits of a conventional cyanoacrylate as well as the benefits of a light cure adhesive. These products will cure as described above, typically reaching fixture strengths in 5-20 seconds. They can also reach fixture strengths in 2-5 seconds with the introduction of the proper light source. Light cure CAs contain additives called photoinitiators which react when exposed to light of the proper wavelength and intensity to initiate the polymerization process extremely rapidly. Light that reaches the adhesive, either through a transparent substrate or an exposed bond line, allows components to be tacked together literally in a few seconds, followed by the continued curing of the CA in the shadowed area of the bond line in 5 to 20 seconds via the conventional surface moisture curing mechanism. Light curing cyanoacrylate adhesives offer unique performance benefits for high-speed assembly processes. By rapidly curing exposed and confined adhesive without requiring the use of heat or racking of parts, light cure cyanoacrylates process quickly, are easy to use and are reliable.

**What is blooming?** Blooming is a phenomenon unique to cyanoacrylates that manifests itself as a rainbow haze or whitish haze surrounding a bond line. Un-reacted cyanoacrylate molecules can leave the surface of the dispensed adhesive and become airborne, only to later fall back onto the surface of the substrate. When they land, the molecules react with surface moisture and adhere themselves to the substrate. This small concentration of cyanoacrylate particles on the surface can be deflected by light causing the rainbow effect, while higher concentrations can result in a whitish haze on the substrate. A number of options exist to minimize or eliminate blooming as listed:

- Use low odor/low bloom products
- Avoid large fillets
- Increase air flow
- Avoid acidic surfaces
- Avoid extremes in relative humidity
- Avoid extremes in temperature
- Avoid vacuum environments
- Avoid the use of old material