LOCTITE®

# Loctite® Instant Adhesives

## Instant Solutions in Every Drop

Henkel Excellence is our Passion

# Instant Solutions
## Innovation Portfolio

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.**

### Contents



## 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.

Instant Solutions

Instant Solutions in Every Drop





# Innovative Solutions
## New & Improved Products

Performance


New & Improved

### Premium Upgrades

The industry's strongest and fastest instant adhesives have set a new standard for performance. With temperature resistance up to 250°F (121°C), you can keep the strength and fixture time you need in higher heat applications. See page 6 to learn more about the new and improved Loctite® 401™, 406™ and 454™.


New & Improved

### Low Odor, Low Bloom Superior Upgrades

Our superior solutions continue to outperform expectations with the addition of added temperature and humidity resistance. Rely on our innovative low odor, low bloom products to solve even the toughest assembly challenges. See page 8 to learn about the new and improved Loctite® 455™, 403™, 408™ and 460™.


New

### 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.

New

### 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.

# Instant Solutions
## Product Selector Guide


- 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.

Selection

**Your Application**

**WHAT TYPE OF MATERIAL ARE YOU BONDING?**

- **Low Surface Energy Plastics (PP, PE, Acetal, PTFE, etc.)** → Use Primer with Premium CAs → **Solution:** 770™
- **All Other Materials (Except Glass)**
  - **Premium Surface Insensitive CAs (Bond very well to most materials)**
    - Wicking Viscosity → 406™
    - Low Viscosity → 401™
    - Non-Sag Gel → 454™
  - **Low Odor/Low Bloom CAs (For aesthetic & odor sensitive applications)**
    - Medium Viscosity → 403™
    - Non-Sag Gel → 455™
  - **Light Cure CAs – Rapid Cure (Provide extremely fast cure speeds)**
    - Low Viscosity → 4310™
    - Medium Viscosity → 4311™
  - **Toughened/Impact Resistant CAs (For applications with vibration & shock)**
    - Low Viscosity → 435™
    - High Viscosity → 411™
  - **Two-Part CA (For high gap applications)** → Non-Sag Gel → 3092™
  - **Rubber Bonding CA** → Low Viscosity → 404® Quick Set™
  - **CA Accelerators (Speeds cure of exposed CAs)** → Use Accelerator with Premium CAs → 7452™

| | 770™ | 406™ | 401™ | 454™ | 403™ | 455™ | 4310™ | 4311™ | 435™ | 411™ | 3092™ | 404® Quick Set™ | 7452™ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Color** | Clear | Clear | Clear | Clear | Clear | Clear | Clear/Pale Green | Clear/Pale Green | Clear | Clear | Clear | Clear | Clear/Amber |
| **Gap Fill (in.)** | N/A | 0.004 | 0.005 | 0.010 | 0.008 | 0.010 | 0.004 | 0.008 | 0.006 | 0.008 | 0.200 | 0.005 | N/A |
| **Viscosity (cP)** | 1.25 | 20 | 90 | Gel | 1,200 | Gel | 175 | 1,050 | 175 | 5,000 | Gel | 80 | 0.4 |
| **Shear Strength* (psi)** | N/A | 3,200 | 3,200 | 3,200 | 2,600 | 2,600 | 3,190** | 3,760** | 2,700 | 3,200 | 3,200 | 3,500 | N/A |
| **Temperature Range** | N/A | -65°F (-54°C) to 250°F (121°C) | -65°F (-54°C) to 250°F (121°C) | -65°F (-54°C) to 250°F (121°C) | -65°F (-54°C) to 200°F (93°C) | -65°F (-54°C) to 200°F (93°C) | -65°F (-54°C) to 240°F (116°C) | -65°F (-54°C) to 240°F (116°C) | -65°F (-54°C) to 225°F (107°C) | -65°F (-54°C) to 210°F (99°C) | -4°F (-20°C) to 176°F (80°C) | -65°F (-54°C) to 180°F (82°C) | N/A |
| **Fix Time (sec.)** | N/A | 15 | 15 | 15 | 50 | 40 | <5μ | <5μ | 30 | 30 | 15 sec.¥ 3.5 min.§ | 30 | N/A |

**Product Description**

**Loctite® 770™ Primer**
A heptane based adhesion promoter formulated for use with polyolefins and other low surface energy plastics. Use with Loctite® Premium Surface Insensitive CAs. Fast dry time and good on part life.
**See page 11.**

**Loctite® 406™ Instant Adhesive**
Wicking viscosity CA for tight bond lines. Surface insensitive grade providing excellent bond strengths to many materials including plastics, elastomers metals and platings. Excellent for dry or acidic conditions.
**See page 6.**

**Loctite® 401™ Instant Adhesive**
Low viscosity surface insensitive CA provides excellent bond strengths to most materials including plastics, elastomers metals and platings. Excellent for dry or acidic conditions.
**See page 6.**

**Loctite® 454™ Instant Adhesive**
Surface insensitive CA providing excellent bond strengths to many materials including plastics, elastomers, metals and platings. Excellent for dry or acidic conditions. Non-sag gel prevents drips.
**See page 6.**

**Loctite® 403™ Instant Adhesive**
Low odor, low blooming CA well suited for cosmetic applications or where vapor ventilation is difficult. Surface insensitive providing excellent bond strengths to most materials.
**See page 8.**

**Loctite® 455™ Instant Adhesive**
Low odor, low blooming CA well suited for cosmetic applications or where vapor ventilation is difficult. Surface insensitive providing excellent bond strengths to most materials. Non-sag gel prevents drips.
**See page 8.**

**Loctite® 4310™ Flashcure® Light Cure Adhesives**
Light cure CA cures where light reaches and also in shadowed areas via surface moisture. Toughened, fluorescent adhesive that cures tack free in 2-5 seconds. Lower viscosity for tighter bond lines.
**See page 7.**

**Loctite® 4311™ Flashcure® Light Cure Adhesives**
Light cure CA cures where light reaches and also in shadowed areas via surface moisture. Toughened, fluorescent adhesive that cures tack free in 2-5 seconds. Higher viscosity to minimize dripping.
**See page 7.**

**Loctite® 435™ Instant Adhesive**
Low viscosity toughened CA with increased flexibility, peel strength and resistance to shock. Surface insensitive providing excellent bond strengths to most materials.
**See page 10.**

**Loctite® 411™ Instant Adhesive**
High viscosity toughened CA with increased flexibility, peel strength and resistance to shock. Surface insensitive providing excellent bond strengths to most materials.
**See page 10.**

**Loctite® 3092™ Instant Adhesive**
Fast two-part CA bonds gaps up to 0.200" (5 mm). Particularly suited for bonding plastics, rubbers, wood, paper and metals. High precision dispensing tips.
**See page 9.**

**Loctite® 404® Quick Set™ Instant Adhesive**
Excellent for bonding rubbers where very fast fixturing is required. For general maintenance and repair.
**See page 11.**

**Loctite® 7452™ Tak Pak® Accelerator**
Used where increased cure speed of Loctite® CAs is required. Can either be pre or post applied.
**See page 7.**

¥ At 0.002" gap.
§ At 0.200" gap.
* Grit-blasted steel.
** Polycarbonate.
μ Full cure = 24 hours 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 many 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).

### Top Features

- Very fast fixture speed
- Particularly suited 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/low humidity environments

| | LOCTITE® PRODUCT | ITEM NUMBER | PACKAGE TYPE/SIZE | TYPICAL USE | COLOR | GAP FILL (INCHES) | CATEGORY | VISCOSITY (cP) | SHEAR STRENGTH* (psi) | TEMPERATURE RANGE | CURE SPEED** | SPECIFIC GRAVITY | AGENCY APPROVALS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GENERAL-PURPOSE SURFACE INSENSITIVE | 401™ PRISM® (New & Improved) | 40104<br>40140<br>40161 | 3 g tube<br>20 g bottle<br>1 lb. bottle | General-purpose | Clear | 0.005 | Ethyl | 90 | 3,200 | -65°F (-54°C) to 250°F (121°C) | Fixture – 15 sec.<br>Full – 24 hrs. | 1.05 | CFIA |
| | 406™ PRISM® (New & Improved) | 40604<br>40640<br>40661 | 3 g tube<br>20 g bottle<br>1 lb. bottle | Wicking grade | Clear | 0.004 | Ethyl | 20 | 3,200 | -65°F (-54°C) to 250°F (121°C) | Fixture – 15 sec.<br>Full – 24 hrs. | 1.05 | N/A |
| | 431™ PRISM® | 41254<br>41255<br>41256 | 3 g tube<br>20 g bottle<br>1 lb. bottle | Gap filling | Clear | 0.008 | Ethyl | 900 | 2,300 | -65°F (-54°C) to 180°F (82°C) | Fixture – 15 sec.<br>Full – 24 hrs. | 1.10 | ISO 10993 |
| | 454™ PRISM® (New & Improved) | 45404<br>45440<br>1337712<br>45474<br>45478 | 3 g tube<br>20 g tube<br>30 g syringe<br>200 g tube<br>300 g cartridge | Porous surfaces | Clear | 0.010 | Ethyl | Gel | 3,200 | -65°F (-54°C) to 250°F (121°C) | Fixture – 15 sec.<br>Full – 24 hrs. | 1.05 | CFIA, ABS |

* Grit-blasted steel substrate.
** Varies with substrate material.

## 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 tacked 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 cyanoacrylate moisture-curing mechanism, reaching fixture strengths in 5 to 25 seconds, and full bond strengths in 24 hours.

### 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
- Toughened formulas improve shock and impact resistance
- ISO 10993 biocompatible


| | LOCTITE® PRODUCT | ITEM NUMBER | PACKAGE TYPE/SIZE | TYPICAL USE | COLOR | GAP FILL (INCHES) | CATEGORY | VISCOSITY (cP) | SHEAR STRENGTH* (psi) | TEMPERATURE RANGE | CURE SPEED** | SPECIFIC GRAVITY | AGENCY APPROVALS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LIGHT CURE | 4306™ FLASHCURE® | 37439<br>37442* | 1 oz. bottle<br>1 lb. bottle | Close fitting parts | Clear/Pale Green | 0.004 | Ethyl | 20 | 2,000 | -65°F (-54°C) to 180°F (82°C) | Fixture <5 sec. | 1.10 | ISO® 10993 |
| TOUGHENED | 4310™ FLASHCURE® | 1401792<br>1401790 | 1 oz. bottle<br>1 lb. bottle | Close fitting parts | Clear/Pale Green | 0.005 | Ethyl | 175 | 3,190 | -65°F (-54°C) to 240°F (116°C) | Fixture <5 sec. | 1.05 | ISO® 10993 |
| TOUGHENED | 4311™ FLASHCURE® | 1401791<br>1401789 | 1 oz. bottle<br>1 lb. bottle | Gap filling | Clear/Pale Green | 0.008 | Ethyl | 1,050 | 3,760 | -65°F (-54°C) to 240°F (116°C) | Fixture <5 sec. | 1.15 | ISO® 10993 |

* Polycarbonate substrate.
** Fixture speeds shown for UV/visible light cure; full cure in 24 hours without light exposure.

## Accelerators

Accelerators speed the cure of cyanoacrylate adhesives and are primarily used to reduce cure/fixture times and to cure 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.

### Top Features

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


| LOCTITE® PRODUCT | ITEM NUMBER | PACKAGE TYPE/SIZE | BASE | FEATURES | ON-PART LIFE |
|---|---|---|---|---|---|
| 7452™ TAK PAK® ACCELERATOR | 18490<br>18580<br>18637<br>18575<br>18576 | 1.75 fl. oz. brush cap bottle<br>1.75 fl. oz. spray cap bottle<br>0.7 fl. oz. metered mist<br>1 quart can<br>1 gallon can | Acetone | • Suitable for securing wires or coils to PCBs | 1 min. |
| 7109™ TAK PAK® II ACCELERATOR | 22440<br>23034 | 1.75 fl. oz. bottle<br>1 quart can | Perfluorocarbon | • Nonflammable and noncombustible | 1 min. |
| 712™ TAK PAK® ACCELERATOR | 20352<br>18636<br>18390 | 1.75 fl. oz. bottle<br>0.7 fl. oz. metered mist<br>1 gallon can | Isopropanol | • Suitable for securing wires or coils to PCBs | 1 min. |
| 7113™ ACCELERATOR | 19605<br>19606 | 1.75 fl. oz. bottle<br>1 gallon can | Heptane | • Suitable for loudspeaker assembly bonding and coil to ferrite magnet bonding<br>• Long on-part life | ≤24 hrs. |

# 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

| | LOCTITE® PRODUCT | ITEM NUMBER | PACKAGE TYPE/SIZE | TYPICAL USE | COLOR | GAP FILL (INCHES) | CATEGORY | VISCOSITY (cP) | SHEAR STRENGTH* (psi) | TEMPERATURE RANGE | CURE SPEED** | SPECIFIC GRAVITY | AGENCY APPROVALS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LOW ODOR / LOW BLOOM SURFACE INSENSITIVE | 455™ PRISM® New & Improved | 22309<br>17421 | 10 g syringe<br>200 g tube | Porous surfaces | Clear | 0.010 | Alkoxy | Gel | 2,600 | -65°F (-54°C) to 200°F (93°C) | Fixture – 40 sec.<br>Full – 24 hrs. | 1.10 | N/A |
| | 403™ PRISM® New & Improved | 40304<br>40340<br>40361 | 3 g tube<br>20 g bottle<br>1 lb. bottle | Gap filling | Clear | 0.008 | Alkoxy | 1,200 | 2,600 | -65°F (-54°C) to 200°F (93°C) | Fixture – 50 sec.<br>Full – 24 hrs. | 1.10 | N/A |
| | 408™ PRISM® New & Improved | 40840<br>40861 | 20 g bottle<br>1 lb. bottle | Wicking grade | Clear | 0.002 | Alkoxy | 5 | 2,600 | -65°F (-54°C) to 200°F (93°C) | Fixture – 50 sec.<br>Full – 24 hrs. | 1.05 | N/A |
| | 460™ PRISM® New & Improved | 46004<br>46040<br>46061 | 3 g tube<br>20 g bottle<br>1 lb. bottle | Close-fitting parts | Clear | 0.004 | Alkoxy | 45 | 2,600 | -65°F (-54°C) to 200°F (93°C) | Fixture – 50 sec.<br>Full – 24 hrs. | 1.10 | N/A |







## 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


| | LOCTITE® PRODUCT | ITEM NUMBER | PACKAGE TYPE/SIZE | TYPICAL USE | COLOR | GAP FILL (INCHES) | CATEGORY | VISCOSITY (cP) | SHEAR STRENGTH* (psi) | TEMPERATURE RANGE | CURE SPEED** | SPECIFIC GRAVITY | AGENCY APPROVALS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLEXIBLE | 4851™ PRISM® | 37732<br>37733 | 20 g bottle<br>1 lb. bottle | Flexible | Clear | 0.006 | Alkyl | 400 | 2,175 | -65°F (-54°C) to 125°F (52°C) | Fixture – 20 sec.<br>Full – 24 hrs. | 1.10 | ISO® 10993 |
| | 4861™ PRISM® | 37708<br>37711 | 20 g bottle<br>1 lb. bottle | Flexible | Clear | 0.008 | Alkyl | 4,000 | 2,465 | -65°F (-54°C) to 125°F (52°C) | Fixture – 20 sec.<br>Full – 24 hrs. | 1.10 | ISO® 10993 |

## 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 fixture 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


| | LOCTITE® PRODUCT | ITEM NUMBER | PACKAGE TYPE/SIZE | TYPICAL USE | COLOR | GAP FILL (INCHES) | CATEGORY | VISCOSITY (cP) | SHEAR STRENGTH* (psi) | TEMPERATURE RANGE | CURE SPEED** | SPECIFIC GRAVITY | AGENCY APPROVALS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GAP FILL | 3092™ | 1321706<br><br>1434516 | 10 g syringe with 3 mix nozzle<br><br>5 packs of mix nozzles | High gap filling plastic bonder | Clear | 0.200 | Ethyl | Gel | 3,200 | -4°F (-20°C) to 176°F (80°C) | Fixture 0.002" gap – 15 sec.<br>0.200" gap – 3.5 min.<br>Full cure – 24 hrs. | 1.05 | N/A |

# Toughened Solutions
## For Challenging Environments


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 ≥4 joules and 180° peel strengths up to 4 N/mm, far exceeding the performance of common instant adhesives.

### Top Features

- Very good resistance to impact and peel loads
- Very good fracture toughness
- Surface insensitive grades for faster cure in dry/low humidity environments
- Good chemical, humidity and thermal resistance
- Excellent shear strength

| | LOCTITE® PRODUCT | ITEM NUMBER | PACKAGE TYPE/SIZE | TYPICAL USE | COLOR | GAP FILL (INCHES) | CATEGORY | VISCOSITY (cP) | SHEAR STRENGTH* (psi) | TEMPERATURE RANGE | CURE SPEED** | SPECIFIC GRAVITY | AGENCY APPROVALS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOUGHENED | 380™ BLACK MAX® | 38004<br>38050<br>38061 | 3 g tube<br>1 oz. bottle<br>1 lb. bottle | Close-fitting parts | Black | 0.006 | Ethyl | 300 | 3,750 | -65°F (-54°C) to 225°F (107°C) | Fixture – 90 sec.<br>Full – 24 hrs. | 1.10 | CFIA |
| | 410™ PRISM® | 41004<br>41045<br>41061 | 3 g tube<br>20 g bottle<br>1 lb. bottle | Gap filling | Black | 0.008 | Ethyl | 3,500 | 3,200 | -65°F (-54°C) to 225°F (107°C) | Fixture – 90 sec.<br>Full – 24 hrs. | 1.07 | CFIA |
| | 426™ PRISM® | 21921<br>18398<br>17451<br>17529 | 10 g syringe<br>20 g tube<br>200 g tube<br>300 g cartridge | Porous surfaces | Black | 0.010 | Ethyl | Gel | 3,000 | -65°F (-54°C) to 210°F (99°C) | Fixture – 20 sec.<br>Full – 24 hrs. | 1.10 | N/A |
| | 480™ PRISM® | 48040<br>48061 | 20 g bottle<br>1 lb. bottle | General filling | Black | 0.006 | Ethyl | 200 | 3,800 | -65°F (-54°C) to 180°F (82°C) | Fixture – 90 sec.<br>Full – 24 hrs. | 1.10 | NSF/ANSI 61 |
| | 411™ PRISM® | 41104<br>41145<br>41161 | 3 g tube<br>20 g bottle<br>1 lb. bottle | Gap filling | Clear | 0.008 | Ethyl | 5,000 | 3,200 | -65°F (-54°C) to 210°F (99°C) | Fixture – 30 sec.<br>Full – 24 hrs. | 1.07 | N/A |
| SURFACE INSENSITIVE | 435™ PRISM® | 41005<br>40994<br>40995 | 3 g tube<br>20 g bottle<br>1 lb. bottle | General-purpose | Clear | 0.006 | Ethyl | 175 | 2,700 | -65°F (-54°C) to 225°F (107°C) | Fixture – 30 sec.<br>Full – 24 hrs. | 1.10 | ISO 10993 |
| | 438™ PRISM® | 41006<br>40997<br>40996 | 3 g tube<br>20 g bottle<br>1 lb. bottle | General-purpose | Black | 0.006 | Ethyl | 200 | 2,800 | -65°F (-54°C) to 225°F (107°C) | Fixture – 30 sec.<br>Full – 24 hrs. | 1.10 | N/A |

* Grit-blasted steel substrate.
** Varies with substrate material.







## Rubber Bonding

Cyanoacrylate 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 fixturing of elastomers and plastics
- Bond strengths in excess of material strengths for elastomers and plastics
- Multiple agency approvals


| | LOCTITE® PRODUCT | ITEM NUMBER | PACKAGE TYPE/SIZE | TYPICAL USE | COLOR | GAP FILL (INCHES) | CATEGORY | VISCOSITY (cP) | SHEAR STRENGTH* (psi) | TEMPERATURE RANGE | CURE SPEED** | SPECIFIC GRAVITY | AGENCY APPROVALS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GENERAL-PURPOSE | 404™ QUICK SET™ | 46551<br>46548<br>46561 | 1/3 oz. bottle<br>4 oz. bottle<br>1 lb. bottle | Rubber O-ring bonder | Clear | 0.005 | Ethyl | 80 | 3,500 | -65°F (-54°C) to 180°F (82°C) | Fixture – 30 sec.<br>Full – 24 hrs. | 1.09 | ABS, CFIA, Commercial item std. A-A-3097 |

* Grit-blasted steel substrate.
** Varies with substrate material, elastomers less than 5 seconds.

## Surface Primers

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.

### Top Features

- Adhesion promoter
- Nonflammable and noncombustable formulas
- Brush and wipe application options


| LOCTITE® PRODUCT | ITEM NUMBER | PACKAGE SIZE | BASE | FEATURES | ON-PART LIFE |
|---|---|---|---|---|---|
| 770™ PRISM® PRIMER | 18396<br>18397 | 1.75 fl. oz. bottle<br>16 oz. can | Heptane | • Long on-part life<br>• Fluorescent under UV light / black light | ≤8 hrs. |
| 7951™ PRISM® PRIMER | 27858 | 1.75 fl. oz. bottle | Perfluorocarbon and Chlorobenzotrifluoride | • Nonflammable and noncombustible | ≤8 hrs. |


# Equipment Solutions
For Assembly

## Dispensing & Curing Equipment
From manually operated devices to fully automated systems, Henkel offers a complete line of Loctite® brand dispensing 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

| LOCTITE® PRODUCT | ITEM NUMBER | PRESSURE REGULATION | PACKAGE TYPE/SIZE | VISCOSITY RANGE | LOW LEVEL SENSING |
|---|---|---|---|---|---|
| **INTEGRATED RESERVOIR CONTROLLERS** – *Space saving and economical, combined controller and reservoir for valve dispensing.* | | | | | |
|  Loctite® Dual Channel Integrated Semi Automatic Dispenser | 1390322 | 0 to 15 psi | 1 lb. bottle 2 kg bottle 200 g squeeze tube | 0-3,000 cP | No |
| | | | | | Yes |
| | 1390321 | 0 to 100 psi | | >3,000 cP | No |
| | | | | | Yes |

### Handheld Valves

| LOCTITE® PRODUCT | ITEM NUMBER | TYPE | VISCOSITY RANGE | DISPENSE PATTERNS | STROKE ADJUSTMENT | ACTUATION |
|---|---|---|---|---|---|---|
| **LOW VISCOSITY CYANOACRYLATE APPLICATOR** | | | | | | |
|  Loctite® LV Hand-Held Applicator | 97130 | Pneumatic | 0-10,000 cP | Drop, dot, bead | Yes | Foot |

### Mounted Valves

| LOCTITE® PRODUCT | ITEM NUMBER | TYPE | VISCOSITY RANGE | DISPENSE PATTERNS | USED TO DISPENSE | STROKE ADJUSTMENT | SUCK BACK |
|---|---|---|---|---|---|---|---|
| **HIGH PRECISION VALVES** | | | | | | | |
|  Loctite® Stationary Applicator Valve | 97113 (1/4" OD Tube) | High precision | Low to medium performance diaphram | Drop, dot, bead | Gel Instant Adhesives, Instant Adhesives, Retaining Compounds, Threadlockers | Yes | Yes |
| | 97114 (3/8" OD Tube) | | | | | | |
|  Loctite® VA10 Micro Diaphragm Valve | 1611449 | High precision | Low to medium | Drop, bead | Gel Instant Adhesives, Instant Adhesives, Retaining Compounds, Threadlockers | Yes | No |
|  Loctite® Micro Needle Valve | 98084 | High precision | Low to medium | Drop, dot, bead, microdots | Light Cure/Acrylics | Yes | No |
| **HIGH PERFORMANCE DIAPHRAGM VALVES** | | | | | | | |
|  Loctite® Light Cure Dispense Valve | 98009 | High performance diaphram | Low to medium | Drop, dot, bead | Light Cure/Acrylics, Retaining Compounds, Threadlockers | Yes | No |
|  Loctite® Cyanoacrylate Dispense Valve | 98013 | High performance diaphram | Low to medium | Drop, dot, bead, microdots | Instant Adhesives, Retaining Compounds, Threadlockers | Yes | No |

New

## 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.

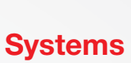
- Easy manual operation
- Light-weight ergonomic design
- Works with Loctite® Dispense Tips
- Works with 20 g and 1 oz. bottles
- Adjustable dispense volumes

**Item #1506577**

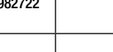
## Complete Dispense Systems
These Loctite® brand dispense systems are ready for immediate operation and offer the manufacturing flexibility and reliability you're looking for.

| LOCTITE® PRODUCT | ITEM NUMBER | DISPENSE PATTERNS | PACKAGE TYPE/SIZE | VISCOSITY RANGE |
|---|---|---|---|---|
| **VOLUMETRIC BOTTLE DISPENSERS** – *Dispense adhesive directly from product bottle with no reservoirs required.* | | | | |
|  Loctite® Benchtop Peristaltic Dispenser | 98548 | Dot, drop, bead | Any | 0 to 5,000 cP |
| **PRESSURE-TIME BOTTLE AND SYRINGE DISPENSE SYSTEMS** – *Equipped with all components needed to dispense a wide range of products in a variety of adhesive bottle sizes.* | | | | |
|  Loctite® Bond-A-Matic® 3000 Dispenser 0-15 psi | 982719 | Dot, drop, bead | 1 lb. bottle 2 kg bottle 200 g squeeze tube | 0-3,000 cP |
| Loctite® Bond-A-Matic® 3000 Dispenser 0-100 psi | 982722 | | | >3,000 cP |
|  Loctite® Digital Syringe Dispense System | 883976 | Drop, bead | 30 g syringe | Gel |

## 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 adhesive applications.

| LOCTITE® PRODUCT | ITEM NUMBER | WAVELENGTH |
|---|---|---|
| **LED SPOT CURING DEVICES** – *High-powered and portable for light cure adhesives, providing effective spot curing solutions for both manual or integrated automatic systems.* | | |
|  Loctite® CureJet™ 405 LED | 1369538 | 405 |
| Loctite® CureJet™ 375 LED | 1369539 | 405 |

| LOCTITE® PRODUCT | ITEM NUMBER | LAMP TYPE |
|---|---|---|
| **LED FLOOD SYSTEMS** – *This system is ideal for batch processing. UV and alternate visible light bulb options are available.* | | |
|  Loctite® Flood Array System 405 LED | 1167582 | 405 |
| Loctite® Flood Cure 375 | 1167593 | 405 |

| LOCTITE® PRODUCT | ITEM NUMBER | LAMP TYPE |
|---|---|---|
| **LED CURING DEVICES** – *High powered and portable for light cure adhesives, providing effective spot curing solutions for both manual or integrated automatic systems.* | | |
|  Loctite® 7700 Hand Held Light Source | 98591 | 405 |
| Loctite® 7700-HD Hand Held Light Source | 1427231 | 405 |

## Dispense Tips

**Henkel offers a comprehensive line of Loctite® brand dispense tips, which include:**

- High precision stainless steel tips
- Tapered polyethylene tips
- Flexible polypropylene tips

All feature a positive locking helical thread design to ensure the tip will stay intact during the toughest applications. For your less critical applications, we offer more economical general-purpose tips that still provide reliable and consistent dispensing, shot after shot.

Ideal for use on:
- 20 g bottles
- 1 oz. bottles
- 30 g syringes

www.equipment.loctite.com

# Technical Solutions
## Service & Support

**ENGINEERING**
### Services

- Process Consultations
- Customer Teardowns
- Custom Equipment
- Customer Line Surveys
- Material Properties Testing
- Adhesive Performance
- Surface Analysis
- Process Optimization
- Equipment Support

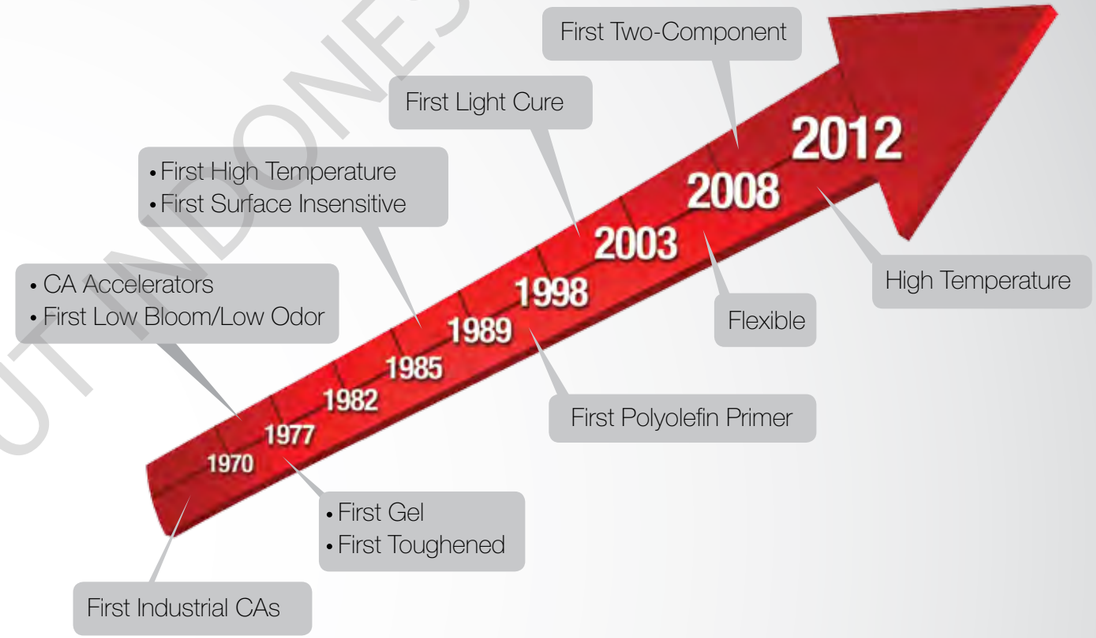
To access these and other Henkel Engineering Services, contact our Adhesive and Sealant Specialists by calling 1.800.LOCTITE (562.8483) in the U.S. and 1.800.263.5043 in Canada.

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.

# History of Henkel Innovation
## Cyanoacrylate Adhesives




# Instant Adhesives FAQ

**How do conventional CAs cure?** Cyanoacrylate adhesives are acrylic resins that polymerize or cure rapidly when exposed to alkali 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 diffracted 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