

LOCTITE®
BONDERITE®
TECHNOMELT®
TEROSON®

Product Selector

Industrial Adhesive, Sealant and
Functional Coating Solutions



Henkel Excellence is our Passion

Introduction

Henkel – your expert for industrial adhesive, sealant and functional coating solutions

Nowadays, if you want to create added value, an excellent product portfolio simply is not good enough. You need a partner who understands your business and your products, who develops new production techniques, optimises your processes together with you and designs tailor-made system solutions.

A partner who can make a real contribution to long-lasting value creation for you

Henkel – the worldwide market leader in adhesives, sealants and functional coatings. Get access to our unique and comprehensive product portfolio, benefit from our expertise and guarantee your highest process reliability. The General Industry Business fulfils specific industry and maintenance needs from one source.

LOCTITE Henkel's LOCTITE is the trusted choice for engineering, high-performance adhesive, sealant and coating solutions.

TECHNOMELT Henkel's TECHNOMELT is the leading choice for hot melt adhesives designed for optimum results in our customers' production processes and finished products.

BONDERITE Henkel's BONDERITE is the premier brand for surface technology and process solutions that creates competitive advantage across the industrial manufacturing marketplace.

TEROSON Henkel's TEROSON is the driving brand for bonding, sealing, coating and reinforcing in automotive body, vehicle repair and maintenance (VRM) applications and industrial assemblies.

Partner

- Experienced sales and technical engineers available around the clock
- Extensive technical support and certified testing methods to provide the most effective and reliable solutions
- Advanced training programmes tailored to your specific needs to help you become the expert
- Strong distribution network ensuring a high level of worldwide product availability
- Cost savings and process improvements for your operations

Innovation

- Advanced solutions to increase your innovation power, reduce your costs and improve your processes
- New industry standards in sustainability and health and safety in your processes
- Constant flow of new product design opportunities
- Ongoing optimisation of development and production processes

Henkel's product portfolio across the entire value chain

Henkel offers you more than state-of-the-art adhesive, sealant and functional coating products. We give you access to our unique expertise covering the entire value chain. So whatever you build, assemble, repair and maintain, you can count on our engineering solutions, complemented by expert technical advice and training, to deliver the best results for your industry needs:

- Improve overall manufacturing processes
- Reduce costs
- Enhance product performance
- Increase reliability



Technology

- Access to a complete product portfolio delivering superior performance across a wide range of applications
- Products designed and tested to meet the specific challenges of your industry
- State-of-the-art technologies and sustainable products delivering more value at a reduced ecological footprint
- Everything from standard to customised equipment offering fast, precise and cost-effective system solutions

Brands

- The preferred global brands for high-performance adhesive, sealant and functional coating solutions in industrial manufacturing and maintenance
- Trusted Henkel brands are known all over the world for proven high reliability and performance

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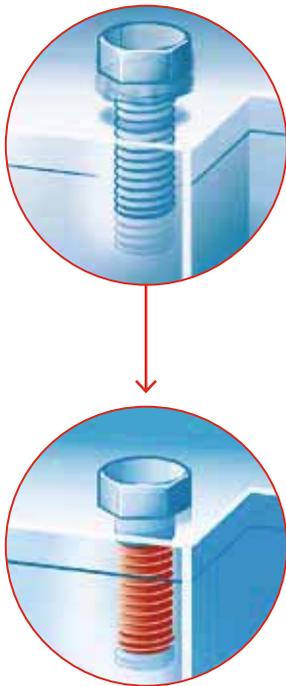
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Threadlocking Adhesives

Locking of Threaded Fasteners



Why use a LOCTITE threadlocker?

LOCTITE threadlocking products prevent self-loosening and secure any threaded fastener against vibration and shock loads. They are easy-flowing liquids which completely fill the gaps between mating threads. When used to assemble threaded fasteners, LOCTITE threadlockers permanently secure threaded assemblies and eliminate fretting corrosion.

LOCTITE Threadlockers are superior to traditional mechanical locking methods

- Mechanical devices, e.g. split pins and tab washers; Only used to prevent the loss of nuts and bolts from loosening.
- Friction devices: Add to absolute elasticity and/or increase friction; but will not ensure permanent threadlocking under dynamic loads
- Locking devices, like tooth flanged and ribbed flanged bolts, nuts and washers: prevent self-loosening, but are expensive and need larger flange-bearing surfaces which may lead to surface damage.

LOCTITE threadlockers are single-component liquid and semi-solid adhesives. They cure at room temperature to a hard solid thermoset plastic when applied between steel, aluminium, brass and most other metal surfaces. They cure in the absence of air. The adhesive completely fills the gaps between mating threads to lock threads and joints.

Advantages of LOCTITE threadlockers as compared to traditional mechanical locking devices

- Prevent unwanted movement, loosening, leaks and corrosion
- Resist vibration
- Single-component – clean and easy to apply
- Can be used on all sizes of fasteners – reduce inventory costs
- Seal threads – allow through-hole tapping

Choose the right LOCTITE threadlocker for your application

LOCTITE threadlockers are available in varying viscosities and strengths and can be used for a wide range of applications.

Low Strength



Removable with standard hand tools, good for adjustment screws, calibration screws, meters and gauges, for thread size up to M80.

Medium Strength



Removable with hand tools, but more difficult to disassemble; good for machine tools and presses, pumps and compressors, mounting bolts, gear boxes, for thread size up to M80.

Surface Preparation

Correct surface preparation is the most important factor to ensure the total success of any adhesive performance.

- Degrease, clean and dry threads prior to applying the adhesive – use LOCTITE SF 7063 (see Cleaning on page 110)
- If the parts were in contact with aqueous washing solutions or cutting fluids which leave a protective layer on the surface, wash with hot water
- If the adhesive is applied below 5°C, pre-treatment with LOCTITE SF 7240 or LOCTITE SF 7649 is advised (see Surface Preparation on page 133)
- For locking of plastic fasteners: see Instant Adhesives on pages 30 – 37



Dispensing Equipment

Semi-Automatic Dispensing Equipment LOCTITE 97009 / 97121 / 97201

LOCTITE Semi-Automatic Dispensing Equipment combines a controller and reservoir into a single unit for valve dispensing of many LOCTITE Threadlockers it provides digital timing control and is equipped with low level sensing. Pinch Valve is suitable for stationary or hand-held mode. The reservoirs are large enough to accept up to 250ml bottles.



97009 / 97121 / 97201

Hand-Held Applicator

LOCTITE 98414 Peristaltic Hand Pump, 50ml bottle

LOCTITE 97001 Peristaltic Hand Pump, 250ml bottle

These hand-held applicators mount easily on any anaerobic LOCTITE 50ml or 250ml bottle converting the bottle into a portable dispenser. They are designed to dispense at any angle in drop sizes from 0.01 to 0.04ml, without leaks or product waste (suitable for viscosities up to 2,500 mPa·s).



97001 / 98414

For information on semi or fully automatic dispensing equipment, available valves, spare parts, accessories and dispensing tips, please refer to pages 152 – 163 or the LOCTITE Equipment Sourcebook.

High Strength



Very difficult to disassemble with standard hand tools; may require localised heat for removal. Good for permanent assemblies on heavy equipment, studs, motor and pump mounts, for thread size up to M80.

Wicking



Very difficult to disassemble with standard hand tools; may require localised heat for removal. For preassembled fasteners, instrumentation or carburettor screws.

Non-Liquids (Semi Solid)



Medium and high strength semi-solid Threadlocker Sticks that can be used on thread size up to M50. Removable with standard hand tools.

Threadlocking Adhesives

Product Table

Are the metal parts already assembled?

Yes

Wicking grade

Medium / High

Low

Liquid

Liquid

Solution

**LOCTITE
290**



**LOCTITE
222**



Functional strength after¹

3 hr

6 hr

Breakaway torque M10 bolts

10 Nm

6 Nm

Service temperature range

-55°C to +150°C

-55°C to +150°C

Pack sizes

10ml, 50ml, 250ml, 2 ltr

10ml, 50ml, 250ml

Equipment²

97001, 98414

97001, 98414

Handy Hints

- Degrease, clean and dry surfaces prior to applying the adhesive – use LOCTITE SF 7063 (see Cleaning on page 110)
- If the adhesive is applied below 5°C, pre-treatment with LOCTITE SF 7240 or LOCTITE SF 7649 is advised (see Surface Preparation on page 133)
- For plastic part(s) please refer to Instant Adhesives on pages 30 – 37

LOCTITE 290

- Ideal for locking preassembled fasteners, e.g. instrumentation screws, electrical connectors and set screws

LOCTITE 222

- Ideal for low-strength threadlocking of adjusting screws, countersunk head screws and set screws
- Good on low-strength metals which could break during disassembly, e.g. aluminium or brass

P1 NSF Reg. No.: 123002

¹ Typical value at 22°C

No

What strength do you require?

Medium		High	
Liquid	Liquid	Liquid	Liquid
<p>LOCTITE 243</p> 	<p>LOCTITE 2400</p> 	<p>LOCTITE 270</p> 	<p>LOCTITE 2700</p> 
2 hr	2 hr	3 hr	3 hr
26 Nm	20 Nm	33 Nm	20 Nm
-55°C to +180°C	-55°C to +150°C	-55°C to +180°C	-55°C to +150°C
10ml, 50ml, 250ml, 2 ltr	5ml, 50ml, 250ml	10ml, 50ml, 250ml	5ml, 50ml, 250ml
97001, 98414	97001, 98414	97001, 98414	97001, 98414
<p>LOCTITE 243</p> <ul style="list-style-type: none"> • Works on all metals, including passive substrates (e.g. stainless steel, aluminium, plated surfaces) • Tolerates slight contamination of industrial oils, e.g. engine oils, corrosion prevention oils and cutting fluids • Prevents loosening on vibrating parts, e.g. pumps, gear boxes or presses • Permits disassembly with hand tools for servicing <p>P1 NSF Reg. No.: 123000</p>	<p>LOCTITE 2400</p> <ul style="list-style-type: none"> • Leading in health and safety • No hazard symbols, risk or safety phrases • “White” Material Safety Data Sheet – no entries in sections 2, 3, 15 and 16 of MSDS acc. to (EC) No. 1907/2006 – ISO 11014-1 • Excellent chemical and thermal resistance of cured product • To be used where regular disassembly with hand tools for servicing is required <p>WRAS Approval (BS 6920): 1104507</p>	<p>LOCTITE 270</p> <ul style="list-style-type: none"> • Suitable for all metal fasteners, including stainless steel, aluminium, plated surfaces and chrome-free coatings • Tolerates slight contaminations of industrial oils, e.g. engine oils, corrosion prevention oils, cutting fluids • Ideal for permanently locking studs on engine blocks and pump housings • To be used if regular removal for maintenance is not required <p>P1 NSF Reg. No.: 123006</p>	<p>LOCTITE 2700</p> <ul style="list-style-type: none"> • Leading in health and safety • No hazard symbols, risk or safety phrases. • “White” Material Safety Data Sheet – no entries in sections 2, 3, 15 and 16 of MSDS acc. to (EC) No. 1907/2006 – ISO 11014-1 • Excellent chemical and thermal resistance of cured product • For applications where disassembly is not required <p>WRAS Approval (BS 6920): 1104508</p>

Threadlocking Adhesives

Product List

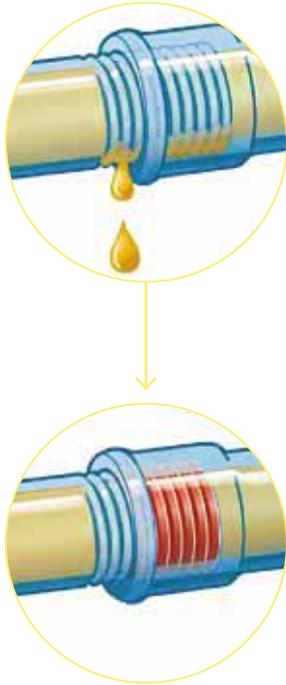
Product	Chemical basis	Colour	Fluorescence	Max. thread size	Service temperature range	Strength	Breakaway torque	Thixotropy
LOCTITE 221	Methacrylate	Purple	Yes	M12	-55°C to +150°C	Low	8.5 Nm	No
LOCTITE 222		Purple	Yes	M36	-55°C to +150°C	Low	6 Nm	Yes
LOCTITE 241		Blue opaque	Yes	M12	-55°C to +150°C	Medium	11.5 Nm	No
LOCTITE 242		Blue	Yes	M36	-55°C to +150°C	Medium	11.5 Nm	Yes
LOCTITE 243		Blue	Yes	M36	-55°C to +180°C	Medium	26 Nm	Yes
LOCTITE 245		Blue	Yes	M80	-55°C to +150°C	Medium	13 Nm	Yes
LOCTITE 248 Stick		Blue	Yes	M50	-55°C to +150°C	Medium	17 Nm	–
LOCTITE 262		Red	Yes	M36	-55°C to +150°C	Medium/high	22 Nm	Yes
LOCTITE 268 Stick		Red	Yes	M50	-55°C to +150°C	High	17 Nm	–
LOCTITE 270		Green	Yes	M20	-55°C to +180°C	High	33 Nm	No
LOCTITE 271		Red	Yes	M20	-55°C to +150°C	High	26 Nm	No
LOCTITE 272		Red-orange	No	M36	-55°C to +200°C	High	23 Nm	Yes
LOCTITE 275		Green	Yes	M80	-55°C to +150°C	High	25 Nm	Yes
LOCTITE 276		Green	Yes	M20	-55°C to +150°C	High	60 Nm	No
LOCTITE 277		Red	Yes	M36	-55°C to +150°C	High	32 Nm	Yes
LOCTITE 278		Green	No	M36	-55°C to +200°C	High	42 Nm	No
LOCTITE 290		Green	Yes	M6	-55°C to +150°C	Medium/high	10 Nm	No
LOCTITE 2400		Blue	Yes	M36	-55°C to +150°C	Medium	20 Nm	Yes
LOCTITE 2700		Green	Yes	M20	-55°C to +150°C	High	20 Nm	No
LOCTITE 2701		Green	Yes	M20	-55°C to +150°C	High	38 Nm	No

Viscosity	Fixture time steel	Fixture time brass	Fixture time stainless steel	Pack sizes	Comments
100 – 150 mPa·s	25 min.	20 min.	210 min.	250ml	Low strength, low viscosity, small threads
900 – 1,500 mPa·s	15 min.	8 min.	360 min.	10ml, 50ml, 250ml	Low strength, general purpose
100 – 150 mPa·s	35 min.	12 min.	240 min.	250ml	Medium strength, low viscosity, small threads
800 – 1,600 mPa·s	5 min.	15 min.	20 min.	250ml	Medium strength, medium viscosity, general purpose
1,300 – 3,000 mPa·s	10 min.	5 min.	10 min.	10ml, 50ml, 250ml, 2 ltr	Medium strength, general purpose
5,600 – 10,000 mPa·s	20 min.	12 min.	240 min.	50ml, 250ml	Medium strength, medium viscosity, large threads
Semi-solid	5 min.	–	20 min.	19g	Medium strength, positioning; maintenance, repair and overhaul
1,200 – 2,400 mPa·s	15 min.	8 min.	180 min.	250ml	Medium/high strength, general purpose
Semi-solid	5 min.	–	5 min.	9g, 19g	High strength, positioning; maintenance, repair and overhaul
400 – 600 mPa·s	10 min.	10 min.	150 min.	10ml, 50ml, 250ml	High strength, general purpose
400 – 600 mPa·s	10 min.	5 min.	15 min.	Not available in the U.K.	High strength, low viscosity
4,000 – 15,000 mPa·s	40 min.	–	–	50ml, 250ml	High strength, high temperature resistant
5,000 – 10,000 mPa·s	15 min.	7 min.	180 min.	50ml, 250ml, 2 ltr	High viscosity, high strength, large threads
380 – 620 mPa·s	3 min.	3 min.	5 min.	50ml	High strength, especially for nickel surfaces
6,000 – 8,000 mPa·s	30 min.	25 min.	270 min.	50ml	High viscosity, high strength, large threads
2,400 – 3,600 mPa·s	20 min.	20 min.	60 min.	50ml, 250ml	High strength, high temperature resistant
20 – 55 mPa·s	20 min.	20 min.	60 min.	10ml, 50ml, 250ml, 2 ltr	Medium/high strength, wicking grade
225 – 475 mPa·s	10 min.	8 min.	10 min.	5ml, 50ml, 250ml	Medium strength, no labelling, white MSDS
350 – 550 mPa·s	5 min.	4 min.	5 min.	5ml, 50ml, 250ml	High strength, no labelling, white MSDS
500 – 900 mPa·s	10 min.	4 min.	25 min.	10ml, 50ml, 250ml, 1 ltr, 2 ltr	High strength, especially for chromated surfaces



Thread Sealants

Sealing of Threaded Components



Why use a LOCTITE thread sealant?

LOCTITE thread sealants, available in liquid form or as sealing cord, prevent leakage of gases and liquids. Designed for low and high pressure applications, they fill the space between threaded parts and provide an instant, low pressure seal. When fully cured, they seal to the burst strength of most pipe systems.

LOCTITE sealants are much superior to traditional sealant types

- Solvent-based sealing compounds: Shrink during cure as solvents evaporate. Fittings must be re-torqued to minimise voids. They lock the assembly by a combination of friction and deformation.
- PTFE tape: Lubricates, allowing fittings to loosen under dynamic loads and resulting in loss of clamping force and leakage. Dynamic loads may accelerate creep, causing leakage over time. The lubricating effect of PTFE frequently results in over-tightening of fasteners, adding stress or causing breakage of parts. Application requires good professional skills to avoid stressing fittings or castings.
- Hemp & Paste: Slow to apply and require a lot of expertise, messy to use, and interfere with the torque needed to obtain the correct pre-stress. Frequently require re-work to achieve a 100% seal of the assembly.

Advantages of LOCTITE thread sealants as compared to traditional sealant types

- Single component – clean and easy to apply
- Do not creep, shrink or block systems
- Can be used on any size of pipe fitting
- Replace all types of tape and hemp/paste sealants
- The seal resists vibration and shock loads
- Grades with several approvals, e.g. LOCTITE 55 Sealing Cord: Potable water (KTW) and Gas (DVGW) approvals
- Protect mated threaded areas against corrosion

Choose the right LOCTITE thread sealants for your application

Sealants must be chosen for reliable long term sealing performance. Pipes must remain leak free under the severest vibration, chemical attack, heat or pressure surges. When choosing a thread sealant, the substrates to be sealed are a key criterion. Are we dealing with plastic threads, metal threads or a combination of both? Plastic threads usually require a different sealant than metal threads. The following explanations should help you identify which technology should be selected for each type of pipe fitting material:

Anaerobic

Technology

LOCTITE anaerobic thread sealants cure in the absence of air and by contact with metals when confined within the threads of pipe connections.

Application area

Any type of metal fittings.



Surface Preparation

Correct surface preparation is the most important factor to assure the total success of any sealant performance. Without suitable surface preparation, LOCTITE thread sealing applications can fail.

- Degrease, clean and dry surfaces prior to applying the sealant – use LOCTITE SF 7063 (See Cleaning – page 110)
- If anaerobic sealants are applied below 5°C, pre-treatment with Activator LOCTITE SF 7240, LOCTITE SF 7471 or LOCTITE SF 7649 is required
- For Sealing Cord LOCTITE 55: Clean parts with LOCTITE SF 7063 and roughen smooth threads



Dispensing Equipment

Anaerobic Sealants

LOCTITE anaerobic sealants can be applied by hand or with automatic or semi-automatic equipment. Excess material can be wiped away.

Hand-Held Applicator

LOCTITE 98414 Peristaltic Hand Pump with stand for the LOCTITE 50ml bottle, and LOCTITE 97001 Peristaltic Hand Pump for the LOCTITE 250ml bottle. They are designed to dispense at any angle in drop sizes from 0.01 to 0.04 ml with viscosities up to 2,500 mPa-s, without dripping or product waste.



97001 / 98414

LOCTITE 97002 Pneumatic Cartridge Dispenser

Hand-held unit for 300ml cartridges and 250ml squeeze tubes. With integrated pressure regulator and quick pressure relief valve. No run-on.



97002

For information on semi- or fully automatic dispensing equipment, available valves, spare parts, accessories and dispensing tips, please refer to pages 152 – 163 or the LOCTITE Equipment Sourcebook.

Silicone

Technology

LOCTITE silicone thread sealant polymerises at room temperature, reacting with ambient moisture (RTV = Room Temperature Vulcanising).

Application area

Ideal for use on threaded plastic or plastic/metal substrate combinations.



Sealing Cord – LOCTITE 55

Technology

LOCTITE 55 sealing cord is a non-curing, coated multifilament cord that seals out water, gas and most industrial oils. (Potable water (KTW) and gas (DVGW) approvals).

Application area

Recommended for sealing metal and plastic tapered threads. LOCTITE 55 allows for post assembly adjustments.



Thread Sealants

Product Table

Are the parts metal or plastic?

	Metal, plastic or a combination of both		
	Do you need to make post assembly adjustments?		
	Yes	No	Fine
	Cord	Gel	Liquid
Solution	LOCTITE 55	LOCTITE SI 5331	LOCTITE 542
			
Substrate to be sealed	Metal, plastic or both	Metal, plastic or both	Metal
Maximum pipe size	Tested to 4"	3"	3/4"
Disassembly strength	Low	Low	Medium
Instant low pressure seal	Yes (full pressure)	Yes	No
Service temperature range	-55°C to +130°C	-50°C to +150°C	-55°C to +150°C
Pack sizes	50m, 150m cord	100ml	10ml, 50ml, 250ml
Equipment¹	–	–	97001, 98414
Handy Hints	<p>LOCTITE 55</p> <ul style="list-style-type: none"> • General purpose, threaded pipe and fitting sealant • Non-curing, immediate, full pressure seal • For a quick, easy and reliable seal <p>WRAS listed, meets BS 6920 for potable water: 0808533 DVGW/KTW approval for gas and potable water Tested in accordance with EN 751-2 Class ARp and DIN 30660 Certified to NSF/ANSI, Standard 61</p> <p>LOCTITE SI 5331</p> <ul style="list-style-type: none"> • Ideal for use on threaded plastic or plastic/metal fittings carrying hot or cold water e.g. industrial and agricultural plastic water pipe systems or drainage systems <p>WRAS listed, meets BS 6920 for potable water: 0706521 DVGW approval, tested in accordance with EN 751-1 P1 NSF Reg. No.: 123620</p> <p>LOCTITE 542</p> <ul style="list-style-type: none"> • Ideal for fine threads as used in hydraulic, pneumatic & general fittings <p>DVGW approval (EN 751-1): NG-5146AR0855</p>		

¹ For detailed information see pages 152 – 163

Metal

Are the threads fine or coarse?

Medium		Coarse	
Gel	Gel	Gel	Gel
<p>LOCTITE 586</p> 	<p>LOCTITE 577</p> 	<p>LOCTITE 5776</p> 	<p>LOCTITE 5400</p> 
Metal	Metal	Metal	Metal
2"	3"	3"	3"
High	Medium	Medium	Medium
No	Yes	Yes	Yes
-55°C to +150°C	-55°C to +150°C	-55°C to +150°C	-55°C to +150°C
Not available in the U.K.	50ml, 250ml, 2 ltr	50ml, 250ml	50ml, 250ml
97001, 98414	97002	97002	97002
<p>LOCTITE 586</p> <ul style="list-style-type: none"> • Slow curing, high strength sealant • Especially suitable for copper and brass fittings 	<p>LOCTITE 577</p> <ul style="list-style-type: none"> • General purpose sealant for all coarse metal threads • Suitable where a fast cure is required or at low temperatures, e.g. outdoor plant maintenance. <p>P1 NSF Reg. No.: 123001 DVGW Approval (EN 751-1): NG-5146AR0621 WRAS Approval (BS 6920): 0711506</p>	<p>LOCTITE 5776</p> <ul style="list-style-type: none"> • General purpose sealant for all coarse metal threads • Suitable where a fast cure is required or at low temperatures, e.g. outdoor plant maintenance. • Ideal for drinking water applications up to 60 °C <p>DVGW Approval (EN 751-1): NG-5146BU0527 WRAS Approval (BS 6920-1-2000) Reg. No.: 1208532 NSF/ANSI Standard 61</p>	<p>LOCTITE 5400</p> <ul style="list-style-type: none"> • Leading in health and safety • No hazard symbols, risk or safety phrases. • “White” Material Safety Data Sheet – no entries in sections 2, 3, 15 and 16 of MSDS acc. to (EC) No. 1907/2006 – ISO 11014-1 • Slow curing, medium strength thread sealant • Excellent chemical and thermal resistance of cured product

Thread Sealants

Product List

Product	Chemical basis	Colour	Fluorescence	Max. thread size	Service temperature range	Disassembly strength	Breakaway torque
LOCTITE 55	PA Multifilament	White	No	R4"	-55°C to +130°C	–	–
LOCTITE 511	Methacrylate	White to off-white	No	M80/R3"	-55°C to +150°C	Low	6 Nm
LOCTITE 542	Methacrylate	Brown	No	M26/R3/4"	-55°C to +150°C	Medium	15 Nm
LOCTITE 549	Methacrylate	Orange	No	M80/R3"	-55°C to +150°C	High	20 Nm
LOCTITE 561 Stick	Methacrylate	Orange	No	M80/R3"	-55°C to +150°C	Low	2 Nm
LOCTITE 567	Methacrylate	Off-white	No	M80/R3"	-55°C to +150°C	Low	1.7 Nm
LOCTITE 570	Methacrylate	Opaque silver brown	No	M80/R3"	-55°C to +150°C	Low	5.5 Nm
LOCTITE 572	Methacrylate	White to off-white	No	M80/R3"	-55°C to +150°C	Medium	7 Nm
LOCTITE 577	Methacrylate	Yellow	Yes	M80/R3"	-55°C to +150°C	Medium	11 Nm
LOCTITE 582	Methacrylate	Blue	Yes	M56/R2"	-55°C to +150°C	Medium	8.5 Nm
LOCTITE 586	Methacrylate	Red	Yes	M56/R2"	-55°C to +150°C	High	15 Nm
LOCTITE 5400	Methacrylate	Yellow	Yes	M80/R3"	-55°C to +150°C	Medium	19 Nm
LOCTITE 5772	Methacrylate	Yellow	Yes	M80/R3"	-55°C to +150°C	Medium	11 Nm
LOCTITE 5776	Methacrylate	Yellow	Yes	M80/R3"	-55°C to +150°C	Medium	9 Nm
LOCTITE SI 5331	Silicone	White	No	M80/R3"	-55°C to +150°C	Low	1.5 Nm

* For detailed information see www.loctite.co.uk

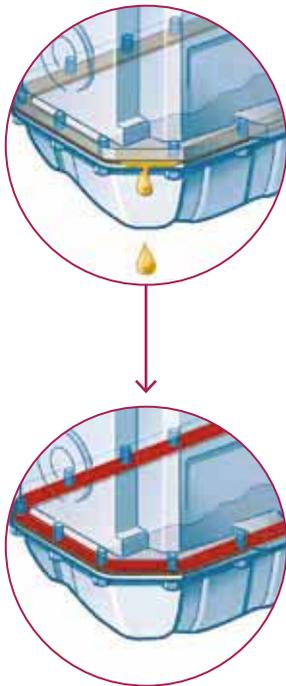
** Measured with cone and plate equipment – corresponds with viscosity of LOCTITE 577 (based on Brookfield)

Viscosity	Thixotropy	Approval*	Pack sizes	Comments
Cord	–	DVGW, KTW, NSF	50m, 150m cord	For plastic and metal, especially, gas and water pipes, non-curing
9,000 – 22,000 mPa·s	Yes	DVGW	50ml, 250ml	For metal, low strength, general purpose
400 – 800 mPa·s	No	DVGW, WRAS	10ml, 50ml, 250ml	For metal, especially hydraulic pipes
20,000 mPa·s	Yes	–	250ml	For metal, high strength, slow curing
Semi-solid	–	NSF	19g	Stick, for metal threads; maintenance, repair and overhaul
280,000 – 800,000 mPa·s	Yes	UL	50ml, 250ml, 2 ltr	For metal, low strength, coarse threads
16,000 – 24,000 mPa·s	Yes	–	Not available in the U.K.	For metal, low strength, very slow curing
14,400 – 28,600 mPa·s	Yes	–	50ml, 250ml	For metal, slow curing
16,000 – 33,000 mPa·s	Yes	DVGW, NSF, BAM	50ml, 250ml, 2 ltr	For metal, general purpose
4,500 – 5,500 mPa·s	No	–	Not available in the U.K.	For metal, medium strength, fast curing
4,000 – 6,000 mPa·s	Yes	BAM	Not available in the U.K.	For metal, high strength, excellent on brass
5,000 – 20,000 mPa·s	Yes	–	50ml, 250ml	For metal, no labelling, white MSDS
16,000 – 33,000 mPa·s	Yes	PMUC	50ml	For metal, especially for nuclear power plants
1,000 – 6,000 mPa·s**	Yes	DVGW	50ml, 250ml	For metal, especially gas and water pipes, fast curing
50,000 mPa·s	Yes	DVGW, WRAS, NSF	100ml	For plastic and metal



Gasketing Products

Sealing of Flanges



Why use a LOCTITE gasketing product?

Gaskets are used to prevent leakage of fluids or gases by forming impervious barriers. For successful gasketing, the seal must remain intact and leak-free over a long period of time. The gasket must be resistant to fluids and/or gases, and withstand the operating temperatures and pressures to which it is subjected. LOCTITE gasketing products are self-forming gaskets that provide a perfect seal between components, with maximum face-to-face contact, eliminating flange face corrosion. A low-pressure seal is formed immediately on assembly, with full cure in 24 hours giving a joint that will not shrink, crack or relax.

LOCTITE Gasketing products offer a much higher performance and provide numerous benefits over traditional sealing systems such as pre-cut gaskets

The major causes of failure and leakage of compression gaskets are:

- Surface contact: Compression gaskets do not provide total contact between the gasket and the flange surfaces. Therefore minor leakages may always occur (weeping rate)
- Compression set: Compression gaskets relax under dynamic loads and decrease in thickness, with subsequent loss of bolt tension in the flange joint resulting in leakage
- Extrusion: Gaskets can be squeezed out between flanges
- Bolt hole distortion: High stresses are transferred to the gasket material under the bolt head, causing the gasket to crack, tear, rupture or extrude

Advantages of LOCTITE gasketing products as compared to conventional pre-cut compression gaskets

- Single component – easy and clean to apply
- Replace conventional gaskets – reduce inventory
- Fill all voids
- No need for retorquing
- Excellent instant seal
- High resistance to solvents
- Resist high pressure when fully cured

Choose the right LOCTITE gasket for your application

Many factors influence gasket choice. Henkel offers a variety of gasketing materials:

Anaerobic Products for Rigid Flanges

They remain liquid when exposed to air, but cure when confined between mating flanges. LOCTITE anaerobic gasketing products are best suited for rigid metal-to-metal assemblies where the sealing gap is zero or small.



Surface Preparation

Components should be clean and free from contamination such as grease, oil, gasket and sealant residues, etc.

- Degrease, clean and dry surfaces prior to applying the sealant – use LOCTITE SF 7063 (See Cleaning on page 110)
- For maintenance and repair, remove residues of old gaskets with LOCTITE SF 7200 Gasket Remover and clean surfaces with LOCTITE SF 7063 (see Cleaning on page 110)
- If the anaerobic sealant is applied below 5°C, pre-treatment with LOCTITE SF 7240, LOCTITE SF 7471 or LOCTITE SF 7649 is advised (see Surface Preparation on page 133)



Dispensing Equipment

LOCTITE Cartridge Dispensers are ergonomically designed for the hand delivery of LOCTITE sealants. Whether manual or pneumatic, each item is designed for simple, clean, hand-held dispensing of LOCTITE Gasketing Products:

Cartridge Gun Staku 142240

- Hand-held, manually operated dispenser for all standard 300ml cartridges
- Rapid loading system to make cartridge changes clean and easy



142240

Cartridge Gun LOCTITE 97002 Pneumatic Cartridge Dispenser

- Hand held unit for 300ml cartridges and 250ml squeeze tubes
- Integrated pressure regulator
- Quick pressure relief to minimise run-on effect



97002

For information on semi- or fully automated dispensing equipment, available valves, spare parts, accessories and dispensing tips, please refer to pages 152 – 163 or the LOCTITE Equipment Sourcebook.

Silicone Products for Flexible Flanges

LOCTITE silicone gasketing materials include products with specific properties including excellent fluid resistance and formulations for high operating temperatures. They are best suited for large gap applications and assemblies where flange movement occurs.



LOCTITE Gasketing Products

LOCTITE gasketing products can be used on almost every flange type. They are applied as a liquid sealant to one of the flange surfaces before the parts are assembled. After the assembly the gasketing products spreads and cure between the flange, filling gaps, scratches, and surface irregularities to provide a durable seal.



Gasketing Products

Product Table

Which gap must the sealant fill?

Solution

Up to 0.25 mm

Metals

Paste

Gel

Paste

**LOCTITE
574**

**LOCTITE
518**

**LOCTITE
5188**



Flange type

Rigid

Rigid

Rigid

Cure method

Anaerobic

Anaerobic

Anaerobic

Oil resistance

Excellent

Excellent

Excellent

Water/Glycol resistance

Excellent

Excellent

Excellent

Service temperature range

-55°C to +150°C

-55°C to +150°C

-55°C to +150°C

Pack size

50ml, 160ml cartridge,
250ml, 2 ltr

50ml, 65ml, 300ml,
850ml, 2 ltr

50ml, 300ml cartridge,
850ml, 2 ltr

Equipment¹

97002, 91124

142240, 97002

142240, 97002

Handy Hints

- Remove residues of old gaskets with LOCTITE SF 7200 gasket remover
- Degrease, clean and dry surfaces prior to applying the adhesive – use LOCTITE SF 7063 (See Cleaning on page 110)
- If the anaerobic sealant is applied below 5°C, pre-treatment with LOCTITE SF 7240 or LOCTITE SF 7649 is advised (See Surface Preparation on page 133)

LOCTITE 574

- Ideal for use on rigid metal parts, e.g. cast iron components and pump housings

LOCTITE 518

- Ideal for use on rigid iron, steel and aluminium flanges
- P1 NSF Reg. No.:
123758**

LOCTITE 5188

- Ideal for sealing all kinds of rigid metal flanges, especially aluminium flanges
- Excellent in demanding applications
- Excellent chemical resistance, highly flexible
- Superior adhesion, can tolerate slight oil contamination on the flange surface

		Greater than 0.25 mm		
		Plastic, metals or combination of both		
Gel	Paste	Paste	Paste	Paste
LOCTITE 5800	LOCTITE 510	LOCTITE SI 5926	LOCTITE SI 5699	LOCTITE SI 5970
				
Rigid	Rigid	Flexible	Flexible	Flexible
Anaerobic	Anaerobic	Moisture	Moisture	Moisture
Excellent	Excellent	Good	Good	Excellent
Excellent	Excellent	Good	Excellent	Good
-55°C to +180°C	-55°C to +200°C	-55°C to +200°C	-55°C to +200°C	-50°C to +200°C
50ml, 300ml cartridge	50ml, 160ml, 250ml	40ml tube, 310ml	300ml cartridge, 20 ltr	300ml cartridge, 20 ltr
142240, 97002	142240, 97002	–	142240, 97002	142240, 97002
<p>LOCTITE 5800</p> <ul style="list-style-type: none"> • Leading in health and safety: No hazard symbols, risk or safety phrases • “White” Material Safety Data Sheet – no entries in sections 2, 3, 15 and 16 of MSDS • Excellent chemical and thermal resistance of cured product 	<p>LOCTITE 510</p> <ul style="list-style-type: none"> • Ideal for use on rigid flanges where high temperature and chemical resistance are necessary <p>P1 NSF Reg. No.: 123007</p>	<p>LOCTITE SI 5926</p> <ul style="list-style-type: none"> • Multi-purpose flexible silicone sealant. Can be used on metal, plastic and painted parts • Resists vibration, thermal expansion and contraction 	<p>LOCTITE SI 5699</p> <ul style="list-style-type: none"> • Ideal for sealing all types of flanges including stamped sheet metal where water glycol resistance is required • Tack-free after 10 min. <p>P1 NSF Reg. No.: 122998</p>	<p>LOCTITE SI 5970</p> <ul style="list-style-type: none"> • Replacement for cork and paper cut gaskets on flanges and stamped sheet metal covers • Ideal for use where high vibration or flexing occurs • Can be used with plastic and painted parts • Tack-free after 25 min.

Gasketing Products

Product List

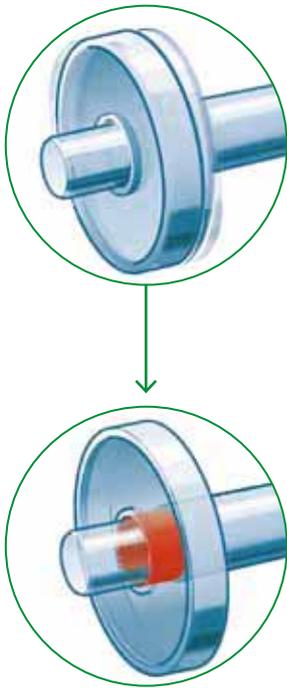
Product	Chemical basis	Colour	Fluorescence	Service temperature range	Strength	Viscosity	Tensile shear strength
LOCTITE 510	Methacrylate	Pink	No	-55°C to +200°C	Medium	40,000 – 140,000 mPa·s	5 N/mm ²
LOCTITE 515		Dark purple	Yes	-55°C to +150°C	Medium	150,000 – 375,000 mPa·s	6 N/mm ²
LOCTITE 518		Red	Yes	-55°C to +150°C	Medium	500,000 - 1,000,000 mPa·s	7.5 N/mm ²
LOCTITE 573		Green	Yes	-55°C to +150°C	Low	13,500 – 33,000 mPa·s	1.3 N/mm ²
LOCTITE 574		Orange	Yes	-55°C to +150°C	Medium	23,000 – 35,000 mPa·s	8.5 N/mm ²
LOCTITE 5188		Red	Yes	-55°C to +150°C	Medium	11,000 – 32,000 mPa·s	7 N/mm ²
LOCTITE 5203		Red	Yes	-55°C to +150°C	Very low	50,000 - 100,000 mPa·s	1 N/mm ²
LOCTITE 5205		Red	Yes	-55°C to +150°C	Medium	30,000 – 75,000 mPa·s	3 N/mm ²
LOCTITE 5208		Red	Yes	-55°C to +150°C	Medium	12,000 – 27,000 mPa·s	6 N/mm ²
LOCTITE 5800		Red	Yes	-55°C to +180°C	Medium	11,000 – 32,000 mPa·s	5 N/mm ²
LOCTITE 128068		Dark purple	Yes	-55°C to +150°C	Medium	300,000 - 1,000,000 mPa·s	6 N/mm ²
						Extrusion rate	
LOCTITE SI 5699	Silicone	Grey	No	-55°C to +200°C	Low	200 g/min	1.7 N/mm ²
LOCTITE SI 5900		Black	No	-55°C to +200°C	Low	20 – 50 g/min	1.2 N/mm ²
LOCTITE SI 5910		Black	No	-55°C to +200°C	Low	300 g/min	1.2 N/mm ²
LOCTITE SI 5920		Copper	No	-55°C to +350°C	Low	275 g/min	1.4 N/mm ²
LOCTITE SI 5926		Blue	No	-55°C to +200°C	Low	550 g/min	–
LOCTITE SI 5970		Black	No	-50°C to +200°C	Low	40 – 80 g/min	1.5 N/mm ²
LOCTITE SI 5980		Black	No	-55°C to +200°C	Low	120 – 325 g/min	1.5 N/mm ²

Max. gap	Fixture time steel	Fixture time aluminium	Pack sizes	Comments
0.25 mm	25 min.	45 min.	50ml, 160ml, 250ml	For machined, rigid metal flanges – high temperature resistance
0.25 mm	30 min.	30 min.	50ml, 300ml	For machined, rigid metal flanges – medium cure speed
0.3 mm	25 min.	20 min.	50ml, 65ml, 300ml cartridge, 850ml, 2 ltr	For machined, rigid metal flanges – semi-flexible
0.1 mm	9 hr	12 hr	250ml	For machined, rigid metal flanges – slow curing
0.25 mm	15 min.	45 min.	50ml, 160ml cartridge, 250ml, 2 ltr	For machined, rigid metal flanges – general purpose
0.25 mm	25 min.	10 min.	50ml, 300ml, 850ml, 2 ltr	For machined, rigid metal flanges – highly flexible
0.125 mm	10 min.	20 min.	300ml	For machined, rigid metal flanges – easy disassembly
0.25 mm	25 min.	25 min.	50ml, 300ml, 850ml	For machined, rigid metal flanges – semi-flexible
0.125 mm	12 min.	30 min.	250ml	For machined, rigid metal flanges – semi-flexible
0.25 mm	25 min.	20 min.	50ml, 300ml cartridge	For machined, rigid metal flanges – no labelling, white MSDS
0.1 mm	1 hr	3 hr	300ml, 850ml, 2kg	For machined, rigid metal flanges – semi-flexible, very slow curing
	Skin-over time	Cure through volume in 24 hr		
1 mm	30 min.	2.5 mm	300ml, 20 ltr	For flexible flanges, machined or cast surfaces, metal or plastic, excellent in water/glycol
1 mm	15 min.	2.5 mm	50ml, 300ml, 20 ltr	Thixotropic paste, black, excellent in engine oils
1 mm	40 min.	2.75 mm	300ml cartridge, 20 ltr, 200 ltr	For flexible flanges, machined or cast surfaces, metal or plastic
1 mm	40 min.	2.5 mm	80ml tube, 300ml cartridge	For flexible flanges, machined or cast surfaces, high temperature resistant
1 mm	60 min.	2.5 mm	40ml tube, 310ml	For flexible flanges, machined or cast surfaces, metal or plastic
1 mm	25 min.	2.5 mm	300ml cartridge, 20 ltr	For flexible flanges, machined or cast surfaces, metal or plastic
1 mm	30 min.	1 mm	40ml, 100ml, 300ml 200ml rocep can	Flange sealant, black, big gaps, label-free



Retaining Compounds

Cylindrical Assemblies



Why use a LOCTITE retaining compound?

LOCTITE retaining compounds secure bearings, bushes and cylindrical parts into housings or onto shafts. They achieve maximum load transmission capability and uniform stress distribution and eliminate fretting corrosion. Applied as a liquid, they form a 100% contact between mating metal surfaces, eliminating the need for expensive replacement parts, time consuming machining or the use of mechanical methods. LOCTITE retaining compounds fill the inner space between components and cure to form a strong precision assembly.

LOCTITE retaining compounds are much superior to conventional assembly methods

- Pins, key/keyway assemblies: Have an uneven distribution of mass and an imbalance that can lead to vibration at high speeds.
- Splines and serrations: They cause high stresses due to the “notch effect” that occurs in the area of a key. High machining costs.
- Clamp rings, press fits, shrink fits, and taper fits: They rely on friction alone to transmit torque, therefore they are limited by material, surfaces and design. Close tolerances are needed to obtain specific load capacities, leading to high production costs. Interference fitting creates stresses in the components that can lead to failure, particularly when combined with operational stresses.
- Welding and soldering: Only compatible metals can be joined, the parts can be distorted by the high temperatures required. Heating of the material can lead to residual stresses and structural degradation. Disassembly can also be difficult or impossible.

Advantages of LOCTITE retaining compounds as compared to conventional assembly methods

- High-strength products can carry high loads
- Fill all voids to prevent corrosion and fretting
- 100% contact – load and stress is distributed evenly over the joint

Advantages of LOCTITE retaining compounds in combination with shrink fits or press fits

- Higher load transmission and performance with existing design and geometry solutions
- Equal performance with lower interference/lighter construction

Advantages of LOCTITE retaining compounds in combination with shrink fits or press fits

1. Gap Size Between Parts

Typically, low viscosity retaining compounds (125 to 2,000 mPa-s) are used for gaps up to 0.15 mm. For gaps greater than 0.15 mm, retaining compounds with higher viscosities (>2,000 mPa-s) should be used.

2. Temperature Resistance

Most LOCTITE retaining compounds are capable of withstanding temperatures up to 150°C. For applications that require resistance to higher temperatures, Henkel has developed a special range of retaining products that can withstand up to 230°C.



Surface Preparation

Components should be clean and free from contamination such as grease, oil, cutting fluids, protective coatings, etc.

- Degrease, clean and dry surfaces prior to applying the retaining compound – use LOCTITE SF 7063 (See Cleaning on page 110)
- If the retaining compound is applied below 5°C, pre-treatment with Activator LOCTITE SF 7240 or LOCTITE SF 7649 is advised (see Surface Preparation on page 133)
- The cure speed of the retaining compound can be increased by use of Activator LOCTITE SF 7649 or LOCTITE SF 7240 (see Surface Preparation on page 133).



Dispensing Equipment

Semi-Automatic Dispensing Equipment

LOCTITE 97009 / 97121 / 97201

LOCTITE Semi-Automatic Dispensing Equipment combines a controller and reservoir into a single unit for valve dispensing of many LOCTITE products. It provides digital timing control and an empty and end-of-cycle signal. Pinch Valve are suitable for stationary or hand-held setup mode. The reservoirs are large enough to accept 2kg bottles and units can be equipped with low level sensing.



97009 / 97121 / 97201

Hand-Held Applicator

LOCTITE 98414 Peristaltic Hand Pump, 50ml bottle

LOCTITE 97001 Peristaltic Hand Pump, 250ml bottle

These hand-held applicators mount easily on any anaerobic LOCTITE 50ml or 250ml bottle, converting the bottle into a portable dispenser. They are designed to dispense at any angle in drop sizes from 0.01 to 0.04 ml, without leaks or product waste (suitable for viscosities up to 2,500 mPa·s).



97001 / 98414

For information on semi- or fully automatic dispensing equipment, available valves, spare parts, accessories and dispensing tips, please refer to pages 152 – 163 or the LOCTITE Equipment Sourcebook.

3. Bond Strength

A high strength retaining compound is recommended for applications that require a permanent bond. If parts will need to be taken apart for maintenance, it is better to use a medium strength product because shear strength is lower.

4. Cure Speed

Many production applications require retaining compounds with fast cure speed to optimise production rates. On the other hand, some applications call for a slower cure so that adjustments can be made after the parts have been assembled. Our range of LOCTITE retaining compounds offers a wide choice of cure speed options.



Retaining Compounds

Product Table

Is assembly badly worn?

Yes

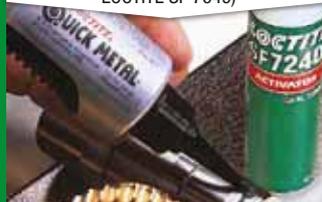
Gaps < 0.5 mm

Yes

Solution

LOCTITE 660

(with activator LOCTITE SF 7240 or LOCTITE SF 7649)



LOCTITE 641



Diametrical clearance

Up to 0.5 mm

Up to 0.1 mm

Strength required

High

Medium

Handling strength after¹

15 min.

25 min.

Service temperature range

-55°C to +150°C

-55°C to +150°C

Pack size

50ml

10ml, 50ml, 250ml

Equipment²

142240

97001, 98414

Handy Hints

- Degrease, clean and dry surfaces prior to applying the retaining compound – use LOCTITE SF 7063 (See Cleaning on page 110)
- If the retaining compound is applied below +5°C, pre-treatment with LOCTITE SF 7240 or LOCTITE SF 7649 is advised (See Surface Preparation on page 133)
- Use in conjunction with existing designs to increase their strength

LOCTITE 660

- Ideal for repairing worn coaxial parts without remachining
- Enables re-use of worn bearing seats, keys, splines or tapers
- Suitable for retaining shims

P1 NSF Reg. No.: 123704

LOCTITE 641

- Ideal for parts that need subsequent dismantling, e.g. retention of bearings onto shafts and into housings

No

Gaps < 0.25 mm

Is disassembly required?

No

What service temperature is required?

Up to 230°C

Up to 180°C

Gap < 0.25 mm

Gap < 0.15 mm

**LOCTITE
620**



Up to 0.2 mm

High

80 min.

-55°C to +230°C *

250ml

97001, 98414

LOCTITE 620

- High temperature resistance
- Ideal for retaining pins in high temperature assemblies, sleeves in pump housings and bearings in auto transmissions

**DVGW approval (EN 751-1):
NG-5146AR0622**

**LOCTITE
638**



Up to 0.25 mm

High

4 min.

-55°C to +180°C

10ml, 50ml, 250ml, 1 ltr, 2 ltr

97001, 97121, 97201, 98414

LOCTITE 638

- High temperature resistance
- Bonds through contamination including industrial oils
- High strength on all metals, including passive substrates (e.g. stainless steel)
- Ideal for shafts, gears, pulleys and similar cylindrical parts

**Approvals: P1 NSF Reg. No. 123010, DVGW (EN 751-1):
NG 5146AR0619, WRAS
(BS 6920): 0511518**

**LOCTITE
6300**



Up to 0.15 mm

High

10 min.

-55°C to +180°C

50ml, 250ml

97001, 98414

LOCTITE 6300

- Leading in health and safety
- No hazard symbols, risk or safety phrases
- "White" Material Safety Data Sheet (no entries in sections 2, 3, 15 and 16 of MSDS)
- Good thermal resistance

**LOCTITE
648**



Up to 0.15 mm

High

3 min.

-55°C to +200°C

10ml, 50ml, 250ml, 1 ltr, 2 ltr

97001, 97009, 97121, 97201, 98414

LOCTITE 648

- High temperature resistance
- Bonds through contamination including industrial oils
- High strength on all metals, including passive substrates (e.g. stainless steel)
- Ideal for retaining of parts with a clearance or interference fit

**Approvals: P1 NSF Reg. No.: 148350, DVGW (EN 751-1):
NG 5146C00236, WRAS
(BS 6920): 0808532**

Retaining Compounds

Product List

Product	Chemical basis	Colour	Fluorescence	Service temperature range	Tensile shear strength	Thixotropy	Viscosity
LOCTITE 601	Methacrylate	Green	Yes	-55°C to +150°C	> 15 N/mm ²	No	100 – 150 mPa·s
LOCTITE 603		Green	Yes	-55°C to +150°C	> 22.5 N/mm ²	No	100 – 150 mPa·s
LOCTITE 620		Green	No	-55°C to +230°C**	> 24.1 N/mm ²	Yes	5,000 – 12,000 mPa·s
 LOCTITE 638		Green	Yes	-55°C to +180°C	> 25 N/mm ²	No	2,000 – 3,000 mPa·s
LOCTITE 640		Green	Yes	-55°C to +175°C	22 N/mm ²	No	450 – 750 mPa·s
LOCTITE 641		Yellow	No	-55°C to +150°C	> 6.5 N/mm ²	No	400 – 800 mPa·s
 LOCTITE 648		Green	Yes	-55°C to +180°C	> 25 N/mm ²	No	400 – 600 mPa·s
LOCTITE 649		Green	Yes	-55°C to +175°C	> 15 N/mm ²	No	550 – 950 mPa·s
LOCTITE 660		Silver	No	-55°C to +150°C	> 17.2 N/mm ²	Yes	150,000 – 350,000 mPa·s
LOCTITE 661		Amber	No	-55°C to +175°C	> 15 N/mm ²	No	400 – 600 mPa·s
LOCTITE 662		Amber	No	-55°C to +150°C	> 25 N/mm ²	No	1,750 – 3,250 mPa·s
LOCTITE 675		Green	No	-55°C to +150°C	20 N/mm ²	No	100 – 150 mPa·s
LOCTITE 6300		Green	Yes	-55°C to +180°C	> 15 N/mm ²	No	250 – 550 mPa·s
LOCTITE 121078		Green	Yes	-55°C to +175°C	> 20 N/mm ²	Yes	3,000 – 5,000 mPa·s

* In combination with activator

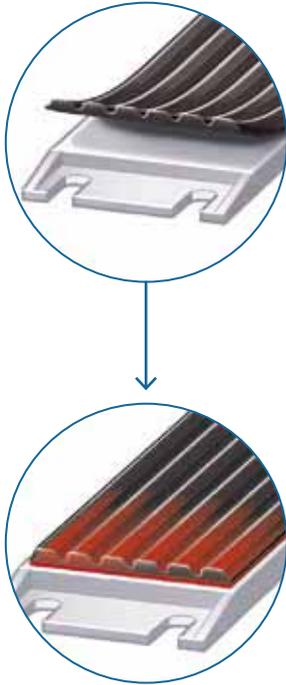
** After heat cure +180 °C for 30 min.

Fixture time on steel	Maximum diametrical clearance	Pack sizes	Comments
25 min.	0.1 mm	250ml	High strength, low viscosity, small gaps
8 min.	0.1 mm	10ml, 50ml, 250ml, 1 ltr	High strength, oil tolerant
80 min.	0.2 mm	250ml	High strength, high temperature resistance
4 min.	0.25 mm	10ml, 50ml, 250ml, 1 ltr, 2 ltr	High strength, high temperature resistance, oil tolerant
2 hr	0.1 mm	250ml	High strength, good temperature resistance, slow curing
25 min.	0.1 mm	10ml, 50ml, 250ml	Medium strength, if disassembly is required
3 min.	0.15 mm	10ml, 50ml, 250ml, 1 ltr, 2 ltr	High strength, high temperature resistance, oil tolerant
10 min.	0.1 mm	250ml	High strength, no acrylic acid
15 min.	0.5 mm*	50ml	High strength, gap fill for repair
4 min.	0.15 mm	250ml	High strength, low viscosity, also UV-curing
7 min.	0.25 mm	Not available in the U.K.	High strength, medium viscosity, also UV-curing
45 min.	0.1 mm	250ml	High strength, slow curing
10 min.	0.15 mm	50ml, 250ml	High strength, white MSDS, good temperature resistance
3 min.	0.25 mm	250ml, 1 ltr, 2 ltr	High strength, good temperature resistance, high viscosity



Instant Adhesives

From Small Size Parts to Structural Applications



Why Use a LOCTITE Instant Adhesive?

Instant adhesives, or cyanoacrylates, cure very quickly when confined between surfaces. Surface humidity on the substrates triggers the cure reaction, which moves from the substrate surfaces towards the middle of the adhesive joint. Cyanoacrylates are typically chosen for bonding small to medium-size parts to achieve extremely fast curing. Due to their limited gap-filling capacity they require close-fitting surfaces. Their adhesion to most substrates is excellent and the bonding strength in shear and tensile mode is very good. They should not be used on float glass or glazed ceramics, but can be used on GRP. Bonds continuously exposed to water need proper adhesive selection and ageing evaluation.

Advantages of LOCTITE Instant Adhesives

- Clean and easy to apply
- Very fast positioning and fixturing of parts
- Join a wide variety of dissimilar materials
- Excellent adhesion on a wide range of substrates, especially plastics and rubbers. Special formulations are available for bonding metals or porous substrates. Primer LOCTITE SF 770 is offered to improve adhesion on difficult-to-bond materials such as PP, PE, POM, PTFE or silicone
- High strength on very small bond faces
- Free of solvents
- Do not require complex part geometries, e.g. for snap-fits

Choosing the right LOCTITE Instant Adhesive

LOCTITE instant adhesives come in a variety of types optimised for specific application requirements, e.g. the parts to be bonded, the loads to be resisted, the joint geometry, the process parameters etc.

The following explanations should help you identify which technology is best suited for any particular application.

Bonding Porous or Acidic Substrates

These formulations are specially tailored for porous and acidic substrates, e.g. paper or galvanised metals, to achieve fast cure and fixturing.



Shock and Impact Resistant

Elastomer-modified instant adhesives achieve very good shock and impact resistance. In addition, they offer improved thermal performance and resistance on metal bonds in humid environments.



Flexible Instant Adhesives

Where bonded components are subjected to bending loads, flexible instant adhesives will reduce localised stress concentrations or encourage a more homogeneous deformation.



NEW - LOCTITE 4090 - A New Generation of Hybrid Instant Adhesives for Structural Bonding

The new hybrid technology of LOCTITE 4090 opens completely new application areas for cyanoacrylates in structural bonding – for the very first time combining instant adhesive properties with more striking benefits. For optimal processing of structural parts, the fast fixture time and excellent adhesion on various substrates have been enriched by:

- High moisture resistance
- Impact resistance
- Temperature resistance up to 150°C
- Gap filling up to 5mm
- UV resistance, allowing outdoor applications

Surface Preparation

Correct surface preparation is a key factor in assuring the total success of any adhesive performance.

- The surfaces to be bonded should be clean, dry and free of grease. If necessary, clean the parts with LOCTITE SF 7063 or LOCTITE SF 7070 and allow to dry (see Cleaning on page 110)
- For faster fixture time, apply LOCTITE activator to one of the mating surfaces (see Surface Preparation on page 128)
- To improve adhesion to difficult-to-bond materials (PP, PE, PTFE etc.), coat these bond faces completely with primer LOCTITE SF 770 (see Surface Preparation on page 132)



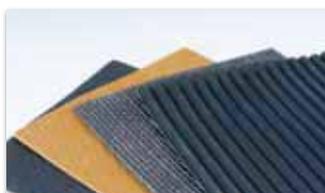
Low Bloom, Low Odour, Health and Safety

Specially formulated low-bloom low odour instant adhesives are recommended for cosmetically sensitive applications. Additionally, these products do not carry any hazard symbol or Health & Safety related risk phrases.



Gap Filling

Innovative, 2K technology provides fast cure independent of gap. This applies especially for assemblies which are not a perfect fit, or where excess adhesive may be present.



Structural

Innovative, hybrid technology allows the combination of classic cyanoacrylate benefits with high temperature and moisture resistance, impact resistance and gap filling, allowing optimal processing of structural parts, even in outdoor environments.



Light Curing

Light curing formulations are recommended for bonding clear and transparent substrates with a good aesthetic finish, or for curing of excess fillets (see Light Cure Adhesives on page 38).



Instant Adhesives

Product Table

What type of materials are you bonding?

“Difficult-to-bond” rubbers or plastics, e.g. PE, PP, PTFE, silicones?

Defined small gaps < 0.15mm

Universal

Impact resistant

Solution

LOCTITE 406
(with primer SF 770)



LOCTITE 401



LOCTITE 435



LOCTITE 480



Fixture time	2 – 10 sec.	3 – 10 sec.	10 – 20 sec.	20 – 50 sec.
Viscosity	20 mPa·s	100 mPa·s	200 mPa·s	150 mPa·s
Colour	Colourless	Colourless	Colourless	Black
Service temperature range	-40°C to +120°C	-40°C to +120°C	-40°C to +100°C	-40°C to +100°C
Pack sizes	20g, 50g, 500g, 2kg	3g, 20g, 50g, 500g	20g, 500g	20g, 500g

Handy Hints

- In combination with LOCTITE instant adhesives: a) to improve adhesion of difficult-to-bond materials, use primer LOCTITE SF 770 b) to increase cure speed, use activator LOCTITE SF 7458, SF 7452 or SF 7457 (see Surface Preparation on page 132)
- For difficult-to-bond plastics (PE and PP) see also LOCTITE AA 3038 on page 61

LOCTITE 406

- Rapid bonding of plastics, rubbers, including EPDM, and elastomers
- LOCTITE SF 770 Polyolefin primer improves bonding on difficult-to-bond substrates

LOCTITE 401

- General purpose
- For acidic surfaces such as chromated or galvanised surfaces
- For porous substrates such as wood, paper, leather, cork and fabric

P1 NSF Reg. No.: 123011

LOCTITE 435

- High resistance to impact and shock loads, high peel strength
- Bonding of plastics, rubbers, metals, porous and absorbent substrates and acidic surfaces
- Good resistance in humid environments

LOCTITE 480

- For applications where shock resistance is required or shock or peel loads are present
- Ideal for bonding metal to metal, rubber or magnets
- Good resistance in humid environments

All other materials (except glass)

Defined small gaps < 0.15mm

Gaps up to 5mm

Bendable joints	Gel / Non-drip	Low bloom, low odour	Gap filling	Structural applications / Impact resistant
<p>LOCTITE 4850</p>	<p>LOCTITE 454</p>	<p>LOCTITE 460</p>	<p>LOCTITE 3090</p>	<p>LOCTITE 4090</p>
				
<p>3 – 10 sec.</p>	<p>5 – 10 sec.</p>	<p>5 – 20 sec.</p>	<p>90 – 120 sec.</p>	<p>90 – 150 sec.</p>
<p>400 mPa·s</p>	<p>Gel</p>	<p>40 mPa·s</p>	<p>Gel</p>	<p>High-viscosity/Non-drip</p>
<p>Colourless</p>	<p>Colourless</p>	<p>Colourless</p>	<p>Colourless</p>	<p>Off-white to light yellow</p>
<p>-40°C to +80°C</p>	<p>-40°C to +120°C</p>	<p>-40°C to +80°C</p>	<p>-40°C to +80°C</p>	<p>-40°C to +150°C</p>
<p>20g, 500g</p>	<p>10g, 20g, 300g</p>	<p>20g, 50g, 500g</p>	<p>10g</p>	<p>50g</p>
<p>LOCTITE 4850</p> <ul style="list-style-type: none"> • For bonding materials subjected to bending or distortion, as well as flexible components • For porous and absorbent substrates and acidic surfaces 	<p>LOCTITE 454</p> <ul style="list-style-type: none"> • General-purpose gel • Ideal use on vertical or overhead surfaces • Bonding paper, wood, cork, foam, leather, card, metals and plastics <p>P1 NSF Reg. No.: 123009</p>	<p>LOCTITE 460</p> <ul style="list-style-type: none"> • For applications where cosmetic appearance and low bloom are required • For low odour during use • For porous substrates such as wood, paper, leather, cork and fabric 	<p>LOCTITE 3090</p> <ul style="list-style-type: none"> • For applications with gaps up to 5mm • For applications where cosmetic appearance and low bloom are required • For porous substrates such as wood, paper, leather, cork and fabric 	<p>LOCTITE 4090</p> <ul style="list-style-type: none"> • For structural applications where speed, gap filling and high temperature resistance are required • For outdoor applications and environments where excellent humidity resistance is required • For bonding materials subjected to impact, vibrations and shock loads

Instant Adhesives

Product List

Product	Chemical basis	Viscosity	Colour	Fixture time	Substrates		
					Plastics / Polyolefins	Rubbers	Metals
LOCTITE 382	Ethyl	5,000 mPa·s	Colourless transparent	20 – 40 sec.	● / ●*	●	●
LOCTITE 401	Ethyl	100 mPa·s	Colourless transparent	3 – 10 sec.	● / ●*	●	●
LOCTITE 403	Alkoxy ethyl	1,200 mPa·s	Colourless transparent	5 – 20 sec.	● / ●*	●	●
LOCTITE 406	Ethyl	20 mPa·s	Colourless transparent	2 – 10 sec.	●● / ●●*	●●	●
LOCTITE 407	Ethyl	30 mPa·s	Colourless transparent	5 – 20 sec.	● / ●*	●	●●
LOCTITE 408	Alkoxy ethyl	5 mPa·s	Colourless transparent	5 – 10 sec.	● / ●*	●	●
LOCTITE 409	Ethyl	Gel	Colourless transparent	20 – 60 sec.	● / ●*	●	●
LOCTITE 410	Ethyl	3,000 mPa·s	Black	30 – 60 sec.	● / ●*	●	●
LOCTITE 414	Ethyl	90 mPa·s	Colourless transparent	2 – 10 sec.	● / ●*	●	●
LOCTITE 415	Methyl	1,200 mPa·s	Colourless transparent	20 – 40 sec.	● / ●*	●	●●
LOCTITE 416	Ethyl	1,200 mPa·s	Colourless transparent	20 – 40 sec.	● / ●*	●	●
LOCTITE 420	Ethyl	2 mPa·s	Colourless transparent	5 – 20 sec.	●● / ●*	●	●
LOCTITE 422	Ethyl	2,300 mPa·s	Colourless transparent	20 – 40 sec.	● / ●*	●	●
LOCTITE 424	Ethyl	100 mPa·s	Colourless transparent	2 – 10 sec.	●● / ●●*	●●	●
LOCTITE 431	Ethyl	1,000 mPa·s	Colourless transparent	5 – 10 sec.	● / ●*	●	●
LOCTITE 435	Ethyl	200 mPa·s	Colourless transparent	10 – 20 sec.	●● / ●*	●●	●●
LOCTITE 438	Ethyl	200 mPa·s	Black	10 – 20 sec.	● / ●*	●	●●
LOCTITE 454	Ethyl	Gel	Colourless transparent	5 – 10 sec.	● / ●*	●	●
LOCTITE 460	Alkoxy ethyl	40 mPa·s	Colourless transparent	5 – 20 sec.	● / ●*	●	●
LOCTITE 480	Ethyl	200 mPa·s	Black	20 – 50 sec.	● / ●*	●●	●●
LOCTITE 493	Methyl	3 mPa·s	Colourless transparent	10 – 30 sec.	● / ●*	●	●●
LOCTITE 495	Ethyl	30 mPa·s	Colourless transparent	5 – 20 sec.	● / ●*	●	●
LOCTITE 496	Methyl	125 mPa·s	Colourless transparent	10 – 30 sec.	● / ●*	●	●●
LOCTITE 3090	Ethyl	Gel	Colourless transparent	90 – 150 sec.	● / ●*	●●	●
LOCTITE 4090	Cyanoacrylate-epoxy hybrid	High	Off-white to light yellow	180 sec.	●● / —	●	●●

	Porous and / or acidic surfaces	Service temperature range	Properties		Pack sizes	Comments
			Low odour / cosmetic appearance	Flexible / impact resistance		
		-40°C to +80°C		— / ●	20g, 500g	General purpose, gel
	● ●	-40°C to +120°C			3g, 20g, 50g, 500g	Universal, low viscosity
	● ●	-40°C to +80°C	● ● / ● ●		50g, 500g	Low bloom, low odour, medium viscosity, Health and Safety labelling free
		-40°C to +120°C			20g, 50g, 500g, 2kg	Plastics and rubber, low viscosity
		-40°C to +100°C			50g	High temperature, low viscosity
	● ●	-40°C to +80°C	● ● / ● ●		20g, 500g	Low bloom, low odour, capillary, Health and Safety labelling free
		-40°C to +80°C			20g	General purpose, gel
		-40°C to +80°C		● / ● ●	20g	Toughened, black, high viscosity
		-40°C to +80°C			20g	General purpose, high viscosity
		-40°C to +80°C			20g, 50g, 500g	Metals, high viscosity
		-40°C to +80°C			20g, 50g, 500g	General purpose, high viscosity
		-40°C to +80°C			20g, 50g, 2kg	General purpose, capillary
		-40°C to +80°C			20g, 50g	General purpose, high viscosity
		-40°C to +80°C			20g, 500g	Plastics and rubber, low viscosity
	● ●	-40°C to +80°C			20g, 500g	Universal, medium viscosity
	● ●	-40°C to +100°C		● / ● ●	20g, 500g	Toughened, clear
	● ●	-40°C to +100°C		● / ● ●	20g	Toughened, black, fast
	● ●	-40°C to +120°C			10g, 20g, 300g	Universal, gel
	● ●	-40°C to +80°C	● ● / ● ●		20g, 50g, 500g	Low bloom, low odour, low viscosity, Health and Safety labelling free
		-40°C to +100°C		● / ● ●	20g, 500g	Toughened, black, slow
		-40°C to +80°C			50g	Metals, capillary
		-40°C to +120°C			20g, 50g, 100g, 500g	General purpose, low viscosity
		-40°C to +80°C			20g, 50g, 500g	Metals, low viscosity
	● ●	-40°C to +80°C	● / ● ●		10g	Gap filling, 2K, low bloom
	—	-40°C to +150°C	● ● / ●	— / ● ●	50g	Structural applications, high temperature and moisture resistance, gap filling

Instant Adhesives

Product List

Product	Chemical basis	Viscosity	Colour	Fixture time	Substrates		
					Plastics / Polyolefins	Rubbers	Metals
LOCTITE 4011^{Med}	Ethyl	100 mPa-s	Colourless transparent	3 – 10 sec.	● / ●*	●	●
LOCTITE 4014^{Med}	Ethyl	2 mPa-s	Colourless transparent	10 – 30 sec.	● / ● ●*	●	●
LOCTITE 4031^{Med}	Alkoxy ethyl	1,200 mPa-s	Colourless transparent	20 – 60 sec.	● / ●*	●	●
LOCTITE 4061^{Med}	Ethyl	20 mPa-s	Colourless transparent	2 – 10 sec.	● ● / ● ●*	● ●	●
LOCTITE 4062	Ethyl	2 mPa-s	Colourless transparent	2 – 5 sec.	● ● / ● ●*	● ●	●
LOCTITE 4204	Ethyl	4,000 mPa-s	Colourless transparent	10 – 30 sec.	● / ●*	●	● ●
LOCTITE 4601^{Med}	Alkoxy ethyl	40 mPa-s	Colourless transparent	20 – 60 sec.	● / ●*	●	●
LOCTITE 4850	Ethyl	400 mPa-s	Colourless transparent	3 – 10 sec.	● ● / ●*	● ●	●
LOCTITE 4860	Ethyl	4,000 mPa-s	Colourless transparent	3 – 10 sec.	● / ●*	●	●

●● Well suited for

● Suited for

* In combination with primer LOCTITE SF 770

Dispensing Equipment

LOCTITE instant adhesives are used for a wide variety of bonding applications. For some jobs it is sufficient to dispense the product manually from bottles designed specifically for easy and accurate dispensing.

In other cases, however, more precise hand-held or stationary automated dispensing is required. LOCTITE dispensing equipment is designed to make application and use of our products fast, precise, clean and economical:

Manual Hand-Held Applicator LOCTITE 96001

This standard LOCTITE hand gun enables manual application of LOCTITE 4090, as well as other products provided in a 50ml syringe, with the mixing ratio of 1:1 or 2:1.



Volumetric Hand Pump LOCTITE 98810

This hand pump provides repeatable dispensing of cyanoacrylate adhesives. LOCTITE 20 gram bottles can be directly inserted. The sealed bottle design greatly increases the product life of the adhesive in the bottle and reduces waste. This volumetric hand pump has six pre-set shot size settings that can be changed by a simple stroke adjustment mechanism in the range of 0.009 – 0.02 grams.



	Porous and / or acidic surfaces	Service temperature range	Properties		Pack sizes	Comments
			Low odour / cosmetic appearance	Flexible / impact resistance		
	● ●	-40°C to +80°C			20g, 454g	Universal, low viscosity
		-40°C to +80°C			20g, 454g	Plastics and rubber, capillary
		-40°C to +80°C	● ● / ● ●		454g	Low bloom, low odour, medium viscosity
		-40°C to +80°C			20g, 454g	Plastics and rubber, low viscosity
		-40°C to +80°C			20g, 50g, 500g	Plastics and rubber, capillary
		-40°C to +120°C		● / ● ●	20g	High temperature, good impact resistance
		-40°C to +80°C	● ● / ● ●		454g	Low bloom, low odour, low viscosity
	● ●	-40°C to +80°C		● ● / -	20g, 500g	Flexible, bendable, low viscosity
	● ●	-40°C to +80°C		● ● / -	20g, 500g	Flexible, bendable, high viscosity

Med = Certified according to ISO 10993 for medical device manufacturing

Peristaltic Dispenser LOCTITE 98548

The peristaltic motion of the rotor assists volumetric dispensing of the adhesive directly from the bottle. The unit is designed mainly for manual workstations but can also be integrated into automatic production lines. A precise amount of product can be set and high repetition accuracy is ensured.



98548

Semi-Automatic Dispensing System LOCTITE 97152 / 97108 / 98013

This system is suitable for dispensing dots or beads of low to medium-viscosity LOCTITE instant adhesives. It is designed for integration into automated assembly lines. The diaphragm valve allows high-resolution stroke adjustment and promotes no-drip dispensing. The controller actuates the valve, reservoir and operation via footswitch, keyboard or higher-level PLC.

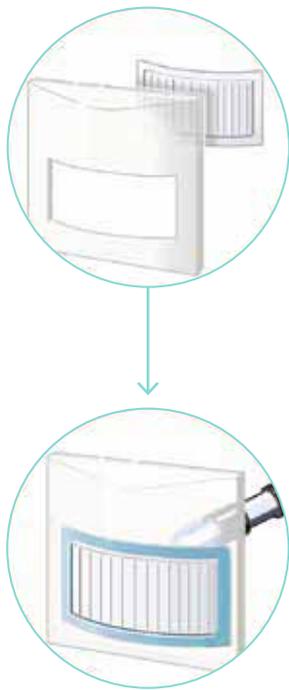


97152 / 97108 / 98013

For information on semi- or fully automatic dispensing equipment, available valves, spare parts, accessories and dispensing tips, please refer to pages 152 – 163 or the LOCTITE Equipment Sourcebook.

Light Cure Adhesives

For Fast Processing



Why use a LOCTITE Light Cure Adhesive?

In addition to their excellent bonding characteristics and transparency, light cure adhesives also provide unique processing advantages and process cost reduction benefits. When exposed to sufficient light of the appropriate wavelength, they cure very rapidly and allow fast production cycles, in-line quality control and fast cycling to subsequent process steps.

LOCTITE light cure equipment is engineered to match the adhesives with respect to intensity and radiation spectrum, and suits specific part size and manufacturing process requirements.

Advantages of LOCTITE Light Cure Adhesives

Cure on demand

- Material remains liquid until exposed to light systems, then cures in seconds
- Allows time to align parts precisely prior to cure
- Choice of cure system determines cure time

High speed of cure

- Achieves high process speeds for maximum throughput
- Fast cycling to subsequent process steps

Optical clarity

- Ideal for bonding clear and transparent substrates with perfect aesthetic finish
- Greatly expands the design options

Quality assurance

- Product presence monitoring by fluorescence
- Fast-snap cure allows 100% in-line inspection
- Monitoring functions for cure parameters

One part systems

- Automated accurate dispensing
- No need to measure or mix, no working life concerns
- Solvent-free

Choosing the Right LOCTITE Light Cure Adhesive

To ensure reliable curing, it is essential that the light reaches the adhesive. At least one of the bonded parts must be transparent to the curing wavelength of the adhesive selected. For UV-stabilised plastics, for example, visible light cure adhesives should be selected.

Dual cure capability, triggered by heat or activator, or as moisture or anaerobic cure, can also be provided to cure adhesives in shaded areas. Dual cure expands the benefits of light cure technology to non-transparent substrates and other application areas.

The targeted radiation wavelength is another key factor. Visible light offers a safer working environment. Light cure adhesives are designed to cure solely with low-energy light in the visible spectrum. This eliminates the need for ventilation, reduces energy usage, and saves money due to fewer replacement parts, as well as reduced maintenance and repair.

Last but not least, adhesive performance is an important factor to consider. LOCTITE light cure adhesives cover the broadest range of adhesive technologies:

LOCTITE Light Cure Adhesive Technologies

- Light cure acrylics offer the most extensive variety of properties of all light cure chemistries. A transparency equal to glass and clear plastics, as well as versatile adhesion characteristics are among their most notable properties
- Light cure silicones, which cure into soft, flexible thermoset elastomers, are excellent for elastic bonding, sealing and leak-proofing
- Light cure cyanoacrylates offer outstanding plastic bonding capabilities combined with rapid cure at low-intensity light irradiation
- Light cure anaerobics show excellent metal-bonding capabilities and offer outstanding chemical resistance combined with shadow cure



Surface Preparation

Correct surface preparation is a key factor in ensuring the total success of any adhesive performance.

- The surfaces to be bonded should be clean, dry and free of grease. If necessary, clean the parts with LOCTITE SF 7063 or LOCTITE SF 7070 and allow to dry (see Cleaning on page 110)

Dispensing Equipment and Light Cure Systems

For some jobs it is sufficient to dispense the product manually from the bottle onto the parts to be bonded. In other cases, however, more precise hand-held or stationary automated dispensing equipment is required. LOCTITE dispensing equipment is specially designed to make application and use of our products fast, precise, clean and economical:

Semi-Automatic Dispensing System LOCTITE 97152 / 97108 / 98009

The system is suitable for dispensing dots or beads of low to medium-viscosity LOCTITE light cure adhesives, and is designed for integration into automated assembly lines. The valve is of modular design to facilitate field repairs. The reservoir holds up to 1 litre LOCTITE bottles. The controller interfaces with a reservoir and dispense valve to provide all the controls required for accurate and repeatable dispensing.



97152 / 97108 / 98009

Light Cure Systems

LOCTITE light cure systems are available for manual workstations as well as for production line integration. Various bulb and LED technologies ensure the proper wavelength adapted to the adhesive selected and the transparency of the parts to be bonded (for more details, see Light Cure Equipment on page 160).



97055

For information on semi- or fully automatic dispensing equipment, available valves, spare parts, accessories and dispensing tips, please refer to pages 152 – 163 or the LOCTITE Equipment Sourcebook.

Light Cure Adhesives

Product Table

Is a shaded area created by a non-transparent substrate? Is a secondary cure needed for shaded areas?

No

Are you bonding glass?

Glass and other substrates

High strength &

Capillary

Ultra clear

Fast cure

Low viscosity

Solution

**LOCTITE
AA 3081**



**LOCTITE
AA 3491**



**LOCTITE
AA 3494**



**LOCTITE
AA 3922**



Chemistry

Acrylic

Acrylic

Acrylic

Acrylic

Viscosity

100 mPa·s

1,100 mPa·s

6,000 mPa·s

300 mPa·s

Colour

Clear

Clear

Clear

Transparent, colourless

Fluorescence

Yes

No

No

Yes

Service temperature range

-40°C to +120°C

-40°C to +130°C

-40°C to +120°C

-40°C to +130°C

Pack sizes

1 ltr

25ml, 1 ltr

25ml, 1 ltr

25ml, 1 ltr

LOCTITE AA 3081

- UV-light curing acrylic
- Low viscosity, wicking grade for post-assembly applications
- For bonding glass, plastics, metals, etc.

LOCTITE AA 3491

- UV-light curing acrylic
- Low yellowing in sunlight environment
- For bonding glass, plastics, metals etc.

LOCTITE AA 3494

- UV-light and/or visible light curing acrylic
- Low yellowing in sunlight environment
- For bonding glass, plastics, metals etc.

LOCTITE AA 3922

- UV-light and/or visible light curing acrylic
- Low yellowing in sunlight environment
- For bonding plastics, metals etc.

* For more products with a secondary cure mechanism, please see table on page 42

Yes*

No glass

bendable / deformable

High strength

High strength

Highly elastic

High viscosity

Toughened

Very fast

Instant adhesive

Silicone

**LOCTITE
AA 3926**

**LOCTITE
AA 3525**

**LOCTITE
AA 3556**

**LOCTITE
4304**

**LOCTITE
SI 5091**



Acrylic

Acrylic

Acrylic

Cyanoacrylate

Silicone

5,500 mPa·s

15,000 mPa·s

5,000 mPa·s

20 mPa·s

5,000 mPa·s

Transparent, colourless

Clear

Transparent, yellow

Transparent, pale green

Translucent, slightly milky

Yes

No

Yes

No

No

-40°C to +150°C

-40°C to +140°C

-40°C to +100°C

-40°C to +100°C

-60°C to +180°C

25ml, 1 ltr

25ml, 1 ltr

1 ltr

28g

300ml

LOCTITE AA 3926

- UV-light and/or visible light curing acrylic
- Low yellowing in sunlight environment
- For bonding plastics, metals etc.

LOCTITE AA 3525

- UV-light and/or visible light curing acrylic
- Low yellowing in sunlight environment
- For bonding plastics, metals etc.

LOCTITE AA 3556

- Very fast light cure acrylic
- Cures with UV-light and visible light
- For bonding plastics, metals etc.

LOCTITE 4304

- UV-light and/or visible light curing cyanoacrylate
- Cures in bond gaps by surface humidity
- For bonding plastics, metals, paper etc.

LOCTITE SI 5091

- UV-light curing silicone with secondary RTV cure
- For elastic sealing and bonding applications
- Good adhesion on metals, glass and most plastics

Light Cure Adhesives

Product List

Product / grade	Chemical basis	Suitable wavelengths for cure	Secondary cure system	Viscosity	Service temperature range	Depth of cure	Colour	Fluorescence
LOCTITE AA 322	Acrylic	UV	No	5,500 mPa·s	-40°C to +100°C	4 mm	Transparent, light amber	No
LOCTITE AA 350	Acrylic	UV	No	4,500 mPa·s	-40°C to +120°C	4 mm	Transparent, light amber	No
LOCTITE AA 352	Acrylic	UV	Activator 7075	15,000 mPa·s	-40°C to +150°C	4 mm	Transparent, amber	No
LOCTITE AA 3011^{Med}	Acrylic	UV	No	110 mPa·s	-40°C to +100°C	4 mm	Transparent, light amber	No
LOCTITE AA 3081^{Med}	Acrylic	UV	No	100 mPa·s	-40°C to +120°C	4 mm	Clear	Yes
LOCTITE AA 3211^{Med}	Acrylic	UV/VIS	No	10,000 mPa·s thixotropic	-40°C to +140°C	> 13 mm	Transparent, amber	No
LOCTITE AA 3301^{Med}	Acrylic	UV/VIS	No	160 mPa·s	-40°C to +130°C	> 13 mm	Transparent, colourless	No
LOCTITE AA 3311^{Med}	Acrylic	UV/VIS	No	300 mPa·s	-40°C to +130°C	> 13 mm	Transparent, colourless	No
LOCTITE AA 3321^{Med} LOCTITE AA 3106	Acrylic	UV/VIS	No	5,500 mPa·s	-40°C to +150°C	> 13 mm	Transparent, light yellow	No
LOCTITE AA 3341^{Med}	Acrylic	UV/VIS	No	500 mPa·s	-40°C to +100°C	> 13 mm	Transparent, light yellow	Yes
LOCTITE AA 3345^{Med}	Acrylic	UV	No	1,500 mPa·s	-40°C to +120°C	4 mm	Transparent, light amber	No
LOCTITE AA 3381^{Med}	Acrylic	UV	No	5,100 mPa·s	-40°C to +130°C	4 mm	Translucent, colourless	No
LOCTITE AA 3491	Acrylic	UV	No	1,100 mPa·s	-40°C to +130°C	4 mm	Clear	No
LOCTITE AA 3494	Acrylic	UV/VIS	No	6,000 mPa·s	-40°C to +120°C	> 13 mm	Clear	No
LOCTITE AA 3525	Acrylic	UV/VIS	No	15,000 mPa·s	-40°C to +140°C	> 13 mm	Clear	Yes

Med = Certified according to ISO 10993 for medical device manufacturing

* Cured with LOCTITE 97055, 100 mW/cm² at 365 nm

** Irradiated with 6 mW/cm² at 365 nm

Tack-free time*	Fixturing time**	Shore hardness	Substrates				Pack sizes	Comments
			Glass	Plastics	Metals	Ceramics		
4 sec.	10 sec.	D 68	●	● ●	●	●	250ml, 1 ltr	Fast surface cure
20 sec.	15 sec.	D 70	● ●	●	● ●	●	50ml, 250ml, 1 ltr	High humidity and chemical resistance
17 sec.	10 sec.	D 60	● ●		● ●	● ●	50ml, 250ml, 1 ltr	High humidity and chemical resistance, toughened
8 sec.	10 sec.	D 68		● ●	●	●	Not available in the U.K.	Fast surface cure
8 sec.	10 sec.	D 74	● ●	● ●	●	●	1 ltr	Fast surface cure
> 30 sec.	12 sec.	D 51	●	● ●	● ●	●	25ml, 1 ltr	For stress-sensitive plastics
> 30 sec.	12 sec.	D 69	●	● ●	● ●	●	25ml	For stress-sensitive plastics
> 30 sec.	12 sec.	D 64	●	● ●	● ●	●	25ml, 1 ltr	For stress-sensitive plastics
> 30 sec.	12 sec.	D 53	●	● ●	● ●	●	25ml, 1 ltr	For stress-sensitive plastics
15 sec.	8 sec.	D 27		● ●	●	●	25ml, 1 ltr	Highly flexible, for soft PVC
30 sec.	15 sec.	D 70	● ●	●	● ●	●	Not available in the U.K.	High humidity and chemical resistance
> 30 sec.	30 sec.	A 72	●	● ●	●	●	25ml, 1 ltr	Highly flexible, high thermal cycle resistance
15 sec.	12 sec.	D 75	● ●	● ●	● ●	●	25ml, 1 ltr	High transparency, low yellowing
> 30 sec.	8 sec.	D 65	● ●	● ●	● ●	●	25ml, 1 ltr	High transparency, low yellowing
10 sec.	5 sec.	D 60	●	● ●	● ●	●	25ml, 1 ltr	High strength, toughened

●● Well suited for
● Suited for

Light Cure Adhesives

Product List

Product / grade	Chemical basis	Suitable wavelengths for cure	Secondary cure system	Viscosity	Service temperature range	Depth of cure	Colour	Fluorescence
LOCTITE 4304^{Med}	Cyano-acrylate	UV/VIS	Surface moisture	20 mPa·s	-40°C to +100°C	> 13 mm	Transparent, pale green	No
LOCTITE 4305^{Med}	Cyano-acrylate	UV/VIS	Surface moisture	900 mPa·s	-40°C to +100°C	> 13 mm	Transparent, pale green	No
LOCTITE AA 3556^{Med}	Acrylic	UV/VIS	No	5,000 mPa·s	-40°C to +100°C	> 13 mm	Transparent, yellow	Yes
LOCTITE AA 3921^{Med}	Acrylic	UV/VIS	No	150 mPa·s	-40°C to +130°C	> 13 mm	Transparent, colourless	Yes
LOCTITE AA 3922^{Med}	Acrylic	UV/VIS	No	300 mPa·s	-40°C to +130°C	> 13 mm	Transparent, colourless	Yes
LOCTITE AA 3926^{Med}	Acrylic	UV/VIS	No	5,500 mPa·s	-40°C to +150°C	> 13 mm	Transparent, colourless	Yes
LOCTITE AA 3936^{Med}	Acrylic	UV/VIS	No	11,000 mPa·s	-40°C to +140°C	> 13 mm	Transparent, colourless	Yes
LOCTITE AA 3972	Acrylic	UV/VIS	No	4,600 mPa·s	-40°C to +100°C	> 13 mm	Transparent, light amber	Yes
LOCTITE SI 5083	Silicone	UV	Atmospheric moisture	Thixotropic paste	-60°C to +200°C	5 mm	Translucent, slightly milky	No
LOCTITE SI 5088 / LOCTITE SI 5248^{Med}	Silicone	UV	Atmospheric moisture	65,000 mPa·s	-60°C to +200°C	1.5 mm	Translucent, straw coloured	No
LOCTITE SI 5091	Silicone	UV	Atmospheric moisture	5,000 mPa·s	-60°C to +180°C	4 mm	Translucent, slightly milky	No

Med = Certified according to ISO 10993 for medical device manufacturing

* Cured with LOCTITE 97055, 100 mW/cm² at 365 nm

** Irradiated with 6 mW/cm² at 365 nm

Tack-free time*	Fixturing time**	Shore hardness	Substrates				Pack sizes	Comments
			Glass	Plastics	Metals	Ceramics		
< 5 sec	2 sec	D 72		• •	•	•	28.3g	High plastic adhesion, low-intensity cure
< 5 sec	2 sec	D 77		• •	•	•	28g, 454g	High plastic adhesion, low-intensity cure
10 sec	5 sec	D 68		• •	•	•	1 ltr	Fast cure, for coloured transparent substrates
> 30 sec	3 sec	D 67	•	• •	•	•	25ml, 1 ltr	For stress-sensitive plastics
> 30 sec	5 sec	D 66	•	• •	•	•	25ml, 1 ltr	For stress-sensitive plastics
> 30 sec	3 sec	D 57	•	• •	•	•	25ml, 1 ltr	For stress-sensitive plastics
> 30 sec	12 sec	D 55	•	• •	•	•	25ml, 1 ltr	For stress-sensitive plastics
5 sec	5 sec	D 68		• •	• •		15 ltr	Fast cure, high adhesion to soft PVC
20 sec	> 30 sec	A 55	• •	•	• •	• •	300ml, 18kg	Highly flexible, acetoxy silicone
> 30 sec	> 30 sec	A 30	• •	•	• •	• •	Not available in the U.K.	Highly flexible, alkoxy silicone
30 sec	> 30 sec	A 34	• •	•	• •	• •	300ml	Highly flexible, acetoxy silicone

•• Well suited for
• Suited for

Hotmelt Adhesives

Solutions for Fast Processing Applications



Why use a Henkel Hotmelt Adhesive?

Hotmelt adhesives are available in solid form as granules, cubes or sticks. They are based on various raw material groups, such as ethylene vinyl acetate copolymer (EVA), polyamide (PA), polyolefin copolymer (PO).

Reactive hotmelt adhesives based on polyurethane (PU hotmelt) undergo an additional crosslinking reaction after cooling.

- Hotmelts achieve rapid initial strength
- They are applied by means of special equipment or hot melt guns

Hotmelt adhesives were developed to bond a variety of substrates, including difficult-to-bond plastics. These adhesives can handle today's toughest applications in a broad range of industries. Hotmelts are ideal for applications that require high-speed manufacturing, bonding versatility, very large gap filling, fast green strength, and minimal shrinkage.

Hotmelt adhesives offer many benefits – from open times ranging from seconds to minutes, eliminating the need for clamps or fixtures, to long-term durability and excellent resistance to moisture, chemicals, oils, and temperature extremes.

Hotmelt products are solvent-free.

Advantages: Hotmelts in General

- High manufacturing speed (short setting time)
- Process can be easily automated
- Combination of adhesives and sealants

Advantages: Polyamide Hotmelts (PA)

- Good resistance against oils
- High temperature resistance
- Good flexibility at lower temperatures

Advantages: Polyolefin Hotmelts (PO)

- Good adhesion to PP (without corona or similar pretreatment)
- Good chemical resistance against acids, alcohols
- Higher temperature resistance than EVA

Advantages: Polyurethane Hotmelts (PU)

- Low application temperature
- Long open time
- MicroEmission products available

Advantages: Pressure-Sensitive Hotmelts (PSA)

- Permanently tacky
- Self-adhesive coating
- Coating and assembly can be separated

Advantages: Ethylene Vinyl Acetate Hotmelts (EVA)

- Low viscosity
- Fast melting
- High application speed

Key factors to consider for choosing the right product

Temperature Resistance

Different hotmelt systems cover different service temperature ranges. Temperature resistance up to +150°C can be achieved.

Adhesion to Different Substrates

There are hotmelt systems providing adhesion to polar and/or non-polar substrates. They will bond different plastics, metals, wood and paper.

Chemical Resistance

Hotmelt systems also differ with respect to chemical resistance. Products are available for use in contact with oils, cleaners and even battery acid.

Strengths

Thermoplastic hotmelts reach their final strength immediately after cooling. At elevated temperatures they soften again. In addition, they can be used as resins in hotmelt moulding processes. Polyurethane hotmelts are crosslinked with moisture to form a thermoset plastic that cannot be melted and re-shaped after it is cured.

Product Safety of Reactive Hotmelts

TECHNOMELT PUR ME (MicroEmission) is a PU hotmelt adhesive innovation. These products do not need to be labelled as hazardous material.

They contain less than 0.1% of monomeric isocyanate. This is below the limit currently specified as harmful to human health under legislation of the EU member states.

TECHNOMELT PUR ME is a new PU hotmelt adhesive product line.



Surface Preparation

Surfaces should be clean and free from grease. Corona or plasma pre-treatment will improve adhesion to plastic substrates. Metal substrates can be preheated to improve adhesion.

Equipment

Glue guns for processing sticks, cartridges or granules offer simple hand-held application solutions. A wide range of different melting units are available for semi- or fully automated production environments. Drum unloaders and adhesive extruders are recommended for very high-volume applications. Roller coaters are suitable for applying hotmelt coatings.

Equipment cleaning

- PU and PO: TECHNOMELT PUR Cleaner (2, 3 or 4) for inside cleaning of equipment
- TECHNOMELT PA 62 for inside cleaning of equipment
- TECHNOMELT Cleaner Melt-O-Clean (PU, PO and PA) for cleaning machine surfaces, application units and general machinery



Hotmelt Adhesives

Product Table

Thermoplastic setting

Chemical base

Rubber

Polyamide

Polyolefin

Pressure-sensitive

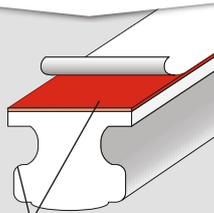
Wide range of
adhesion

Low-pressure
moulding

Primerless PP
adhesion

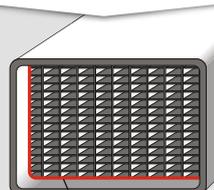
Solution

**TECHNOMELT
PS 8707**



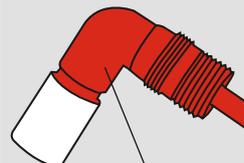
TECHNOMELT PS 8707

**TECHNOMELT
PA 6238**



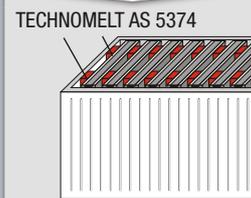
TECHNOMELT PA 6238

**TECHNOMELT
PA 657 BLACK**



TECHNOMELT PA 657 BLACK

**TECHNOMELT
AS 5374**



TECHNOMELT AS 5374

Density	1.0 g/cm ³	0.98 g/cm ³	0.98 g/cm ³	0.95 g/cm ³
Softening temperature	+105°C to +115°C	+133°C to +145°C	+150°C to +165°C	+92°C to +104°C
Application temperature range	+150°C to +180°C	+180°C to +220°C	+180°C to +230°C	+160°C to +200°C
Open time	Pressure-sensitive	Short	Short	Long
Melt viscosity at +130°C	–	–	–	–
Melt viscosity at +160°C	–	21,000 – 33,000 mPa·s	–	–
Melt viscosity at +180°C	3,200 – 4,800 mPa·s	10,000 – 16,000 mPa·s	8,600 mPa·s	2,250 – 2,950 mPa·s
Pack sizes	Approx. 15kg carton (cushions)	20kg bag (granules)	20kg bag (granules)	Approx. 13.5 kg carton (cushions)

Handy Hints

To improve adhesion on metal substrates we recommend to preheat surfaces. For further information please refer to the TDS.

TECHNOMELT PS 8707

- Solvent-free
- Permanently tacky
- Good adhesion to a variety of substrates
- Good temperature resistance

TECHNOMELT PA 6238

- Solvent-free
- Good adhesion to metals and plastics
- Suitable for plasticised PVC
- Oil resistance
- Based on renewable raw materials

TECHNOMELT PA 657 BLACK

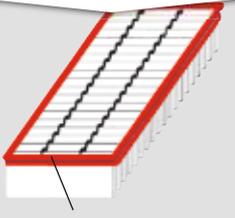
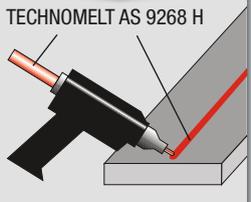
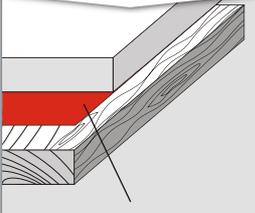
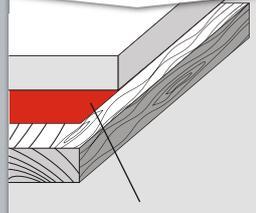
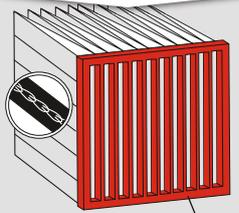
- Solvent-free
- Technomelt moulding
- Oil resistance
- High service temperature
- Based on renewable raw materials

TECHNOMELT AS 5374

- Solvent-free
- PP bonder
- Long open time

* MicroEmission (ME) contains less than 0.1% isocyanate monomer and reduces isocyanate vapours by up to 90%.

Thermoplastic setting + Chemical post cure

Ethylene vinyl acetate		Chemical base		
		Polyurethane		
		Long open time		Short open time
		MicroEmission	Standard	
Granules	Sticks	Multi-purpose	Multi-purpose	Fast-setting
TECHNOMELT AS 3113	TECHNOMELT AS 9268 H	TECHNOMELT PUR 4671 ME	TECHNOMELT PUR 4663	TECHNOMELT PUR 3460
				
TECHNOMELT AS 3113	TECHNOMELT AS 9268 H	TECHNOMELT PUR 4671 ME	TECHNOMELT PUR 4663	TECHNOMELT PUR 3460
1.0 g/cm ³	1.0 g/cm ³	1.15 g/cm ³	1.13 – 1.23 g/cm ³	1.18 g/cm ³
+99°C to +109°C	+82°C to +90°C	–	–	–
+160°C to +180°C	+170°C to +190°C	–	+110°C to +140°C	+100°C to +140°C
Very short	Short	Long	4 – 8 min.	1 min.
17,000 – 23,000 mPa·s	–	6,000 – 12,000 mPa·s	6,000 – 12,000 mPa·s	6,000 – 15,000 mPa·s
6,600 – 8,800 mPa·s	24,000 – 30,000 mPa·s	–	–	–
3,800 – 5,800 mPa·s	–	–	–	–
25kg	10kg carton (stick 11.3mm diameter)	Not available in the U.K.	2kg candle, 20kg pail, 190kg drum	300g cartridge, 20kg pail
TECHNOMELT AS 3113	TECHNOMELT AS 9268 H	TECHNOMELT PUR 4671 ME	TECHNOMELT PUR 4663	TECHNOMELT PUR 3460
<ul style="list-style-type: none"> • Solvent-free • BHT-free • Low fogging • Short setting time • Low shrinkage on cooling 	<ul style="list-style-type: none"> • Solvent-free • Hotmelt sticks • Wide range of adhesion • Short open time • Good impact strength 	<ul style="list-style-type: none"> • Micro Emission • Good water resistance • Good adhesion on steel and stainless steel 	<ul style="list-style-type: none"> • Solvent-free • Long open time • Low application temperature • High temperature resistance • Flame retardant (IMO FTCP Part 5) 	<ul style="list-style-type: none"> • Solvent-free • Medium open time • Low application temperature • High temperature resistance

Hotmelt Adhesives

Product List

Product	Chemical basis	Colour	Density (approx.)	Viscosity	Open time
TECHNOMELT 8783	Pressure-sensitive	Amber	1 g/cm ³	25,000 – 45,000 mPa·s at +180°C	Permanently tacky
TECHNOMELT AS 3113	Ethylene vinyl acetate	White	1 g/cm ³	3,800 – 5,800 mPa·s at +180°C	Very short
TECHNOMELT AS 3188	Ethylene vinyl acetate	White	1 g/cm ³	850 – 1,200 mPa·s at +160°C	Short
TECHNOMELT AS 4203	Polyolefin	Opaque	0.89 g/cm ³	32,000 – 44,000 mPa·s at +180°C	Short
TECHNOMELT AS 4209	Polyolefin	Opaque	0.89 g/cm ³	27,000 – 39,000 mPa·s at +180°C	Short
TECHNOMELT AS 5374	Polyolefin	Amber	0.95 g/cm ³	2,250 – 2,950 mPa·s at +170°C	Long
TECHNOMELT AS 9268 H	Ethylene vinyl acetate	White	1 g/cm ³	24,000 – 30,000 mPa·s at +160°C	Short
TECHNOMELT PA 652	Polyamide	Amber	0.98 g/cm ³	9,500 mPa·s at +180°C	Very short
TECHNOMELT PA 657 BLACK	Polyamide	Black	0.98 g/cm ³	8,600 mPa·s at +180°C	Very short
TECHNOMELT PA 673	Polyamide	Amber	0.98 g/cm ³	3,000 mPa·s at +210°C	Very short
TECHNOMELT PA 678 BLACK	Polyamide	Black	0.98 g/cm ³	3,300 mPa·s at +210°C	Very short
TECHNOMELT PA 6208 BLACK	Polyamide	Black	0.98 g/cm ³	3,500 mPa·s at +210°C	Very short
TECHNOMELT PA 6238	Polyamide	Amber	0.98 g/cm ³	7,000 mPa·s at +200°C	Short
TECHNOMELT PS 8707	Pressure-sensitive	Amber	1 g/cm ³	3,200 – 4,800 mPa·s at +180°C	Permanently tacky
TECHNOMELT PUR 3460	Polyurethane (reactive)	Light ivory	1.18 g/cm ³	7,000 – 13,000 mPa·s at +130°C	Short
TECHNOMELT PUR 4661	Polyurethane (reactive)	Yellowish	1.15 g/cm ³	5,000 – 13,000 mPa·s at +130°C	Long
TECHNOMELT PUR 4663	Polyurethane (reactive)	Light ivory	1.13 – 1.23 g/cm ³	6,000 – 12,000 mPa·s at +130°C	Long
TECHNOMELT PUR 4665 ME	Polyurethane (reactive)	Yellowish	1.15 g/cm ³	10,000 mPa·s at +130°C	Long
TECHNOMELT PUR 4671 ME	Polyurethane (reactive)	Light opaque	1.15 g/cm ³	6,000 – 12,000 mPa·s at +130°C	–

Softening point	Application temperature	Pack sizes	Comments
+132°C to +142°C	+160°C to +180°C	Not available in U.K.	Pressure-sensitive adhesive, high temperature resistance
+99°C to +109°C	+160°C to +180°C	25kg bag	Filtration, pleat stabilisation, sealing
+100°C to +120°C	+150°C to +180°C	Not available in the U.K.	Filtration, sealing
+160°C to +170°C	+180°C to +200°C	20kg bag	Filtration, high temperature resistance
+155°C to +165°C	+180°C to +200°C	25kg bag	Filtration, high temperature resistance
+99°C to +109°C	+160°C to +200°C	Approx. 13.5kg carton	General assembly, good adhesion to polypropylene
+82°C to +90°C	+170°C to +190°C	10kg carton (stick 11.3 mm diameter)	Hotmelt sticks
+155°C	+180°C to +230°C	20kg bag	Low-pressure moulding, UL-listing (V-0)
+155°C	+180°C to +230°C	20kg bag	Low-pressure moulding, UL-listing (V-0)
+185°C	+210°C to +230°C	20kg bag	Low-pressure moulding, UL-listing (V-0)
+185°C	+210°C to +230°C	20kg bag	Low-pressure moulding, UL-listing (V-0)
+155°C	+180°C to +230°C	20kg bag	Wide range of adhesion
+139°C	+180°C to +220°C	20kg bag	Wide range of adhesion
+105°C to +115°C	+150°C to +180°C	Approx. 15kg carton	Pressure-sensitive adhesive, good adhesion to rigid PVC
–	+100°C to +140°C	300g cartridge, 20kg pail	General assembly, short open time
–	+110°C to +140°C	Not available in the U.K.	Good adhesion to metal
–	+110°C to +140°C	2kg candle, 20kg pail, 190kg drum	Panel bonding, long open time, IMO approval 653 part 5
–	+130°C to +150°C	Not available in U.K.	Panel bonding, MicroEmission, long open time
+110°C to +140°C	–	Not available in U.K.	Good adhesion to metal, white goods applications

Solvent-Based / Water-Based Adhesives

Contact Adhesives with Good Initial Strength

Solvent-Based Adhesives

Solvent-based adhesives (polychloroprene) are formulated with different raw material groups including natural and synthetic rubbers and suitable resin combinations (naphthas, ketones, esters or aromatics). Adhesive films are formed upon evaporation of the solvents. Assemblies may be made by contact bonding (adhesive application to both surfaces) or wet bonding (applied to one of the bond faces).

Most the contact adhesives are based on polychloroprene rubber. They exhibit good initial strength and achieve high strengths on various substrates.

TEROSON SB 2444

TEROSON SB 2444 can be applied by brush and spatula. It is used to bond rubber to different surfaces e.g. metal, wood, and to itself. TEROSON SB 2444 offers high initial bond strength and contactability. The bondline is flexible and provides good heat resistance.



TEROSON SB 2140

TEROSON SB 2140 is a solvent-based contact adhesive based on polychloroprene. The product exhibits good high-temperature strength and the ability to bond various substrates to one another. TEROSON SB 2140 is suitable for spray application and is particularly effective when bonds have to withstand temperatures up to 120°C.

Water-based products with improved bonding characteristics

Water-based or “dispersion” adhesives contain insoluble resins which are finely distributed as solid particles in water. These adhesives cure on evaporation of the water. Crosslinking of the dispersed particles is achieved as a result of added mainly basic catalysts. This greatly improves the resistance of the bonded joint to water and heat.

As a rule, dispersion adhesives do not contain solvents or other problematic chemicals, they are not harmful to the environment and are less critical with regard to health and safety at work. Dispersion adhesives are applied by means of rollers or hand guns. The curing speed of the adhesives can be accelerated through the application of heat and air ventilation.

AQUENCE FB 7088

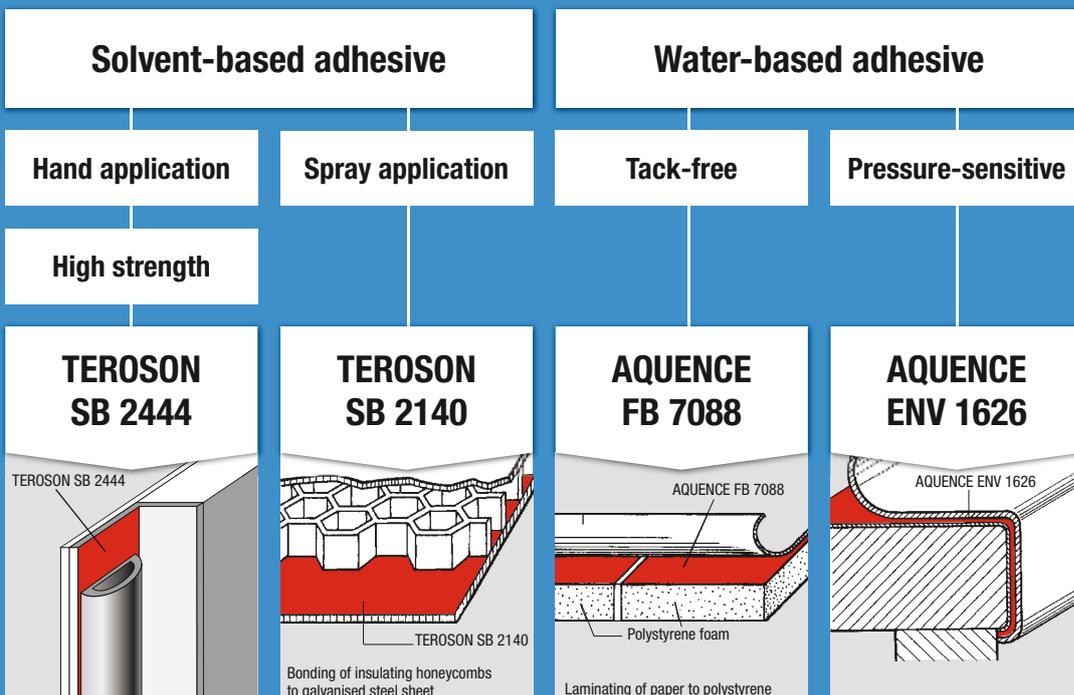
AQUENCE FB 7088 is a water-based dispersion. It is used for bonding plasticised PVC films and painted surfaces to paper and cardboard. It also exhibits good bonding properties on aluminium coated PVDC-coated surfaces and polystyrene films.



AQUENCE ENV 1626

AQUENCE ENV 1626 is a water-based dispersion based on acrylic ester. It is a highly concentrated, fast-setting dispersion adhesive and therefore suitable for high line speeds. AQUENCE ENV 1626 is a pressure-sensitive adhesive suitable for paper, fabric and plastics films/sheets, for coating aluminium and plastic signboards, screens and indicating dials for the electrical/recording industries, and for bonding aluminium foil to aluminium sheet.

Solution



Chemical base	Polychloroprene	Polychloroprene	Dispersion	Acrylic dispersion
Solids contents	Approx. 30%	15 – 18%	57 – 61%	65.5 – 68.5%
Viscosity	Approx. 3,000 mPa·s	Approx. 140 – 300 mPa·s	4,000 – 6,000 mPa·s	2,000 – 3,400 mPa·s
ph value	–	–	3 – 5	6 – 8
Service temperature range	-30°C to +90°C (100°C)	-30°C to +120°C (130°C)	–	–
Usage	150 – 300 g/m ²	150 – 250 g/m ²	–	–
Density	Approx. 0.89 g/cm ³	0.78 – 0.88 g/cm ³	–	Approx. 1.0 g/cm ³
Colour	Beige	Beige	White	White
Pack sizes	340g, 5kg	Not available in U.K.	Not available in U.K.	28kg

Handy Hints

Solvent-based

- To improve adhesion on rubber, it's recommended to bond on roughened surfaces.

Water-based

- Tools can be cleaned with water.

TEROSON SB 2444

- Good adhesion to rubber
- High strength
- High contactability

TEROSON SB 2140

- Good sprayability
- High temperature resistance

AQUENCE FB 7088

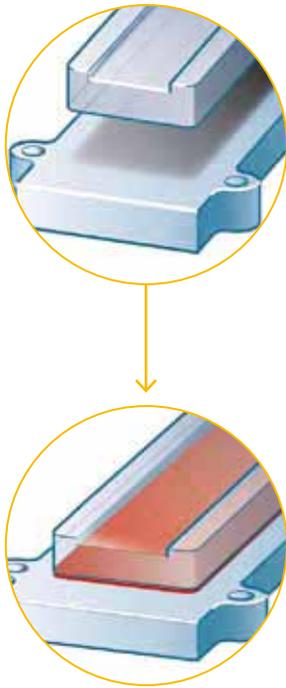
- Good adhesion to plasticised PVC and polystyrene foils
- Soft elastic dry film

AQUENCE ENV 1626

- Good surface tackiness
- High cohesion

Structural Bonding

For Demanding Requirements



Why use a Henkel adhesive for structural bonding?

The Henkel range of structural bonding products offers a wide choice of solutions to meet the different requirements and conditions that apply to industrial design and construction.

Bonding

Adhesive bonding is a process in which two similar or dissimilar materials are solidly and permanently assembled using an adhesive.

Adhesives build "bridges" between the surfaces of substrates to be joined.

To achieve the optimal bonding result, the following prerequisites must be met:

- Compatibility of the adhesive with the materials to be bonded
- Compatibility of the adhesive with the specified requirements
- Correct application of the adhesive

Advantages of bonding compared to conventional joining methods

More uniform stress distribution over the entire bond face

This has a very positive effect on the static and dynamic strength achieved. Where welding and riveting result in localised stress peaks, adhesive bonding achieves uniform distribution and absorption of stress loads.

No change in surface and structure of the joined materials

Welding temperatures may change the structure and therefore the mechanical properties of materials. In addition, welding, riveting and bolting all affect the visual appearance of the parts.

Weight saving

Adhesives are particularly popular for light-weight constructions, where thin-walled parts (wall thickness < 0.5mm) must be joined.

Sealed joints

Adhesives also act as sealants, preventing loss of pressure or liquids, blocking the penetration of condensation water and protecting against corrosion.

Joining dissimilar materials and reducing the risk of corrosion

The adhesive forms an insulating film to prevent contact corrosion when different types of metals are joined. It also acts as an electrical and thermal insulator.

Surface preparation

The following key points should be observed for the design of bonded joints:

- The surfaces to be joined should be as large as possible for maximum load transmission capability
- Forces acting on the joint should be distributed across the entire bond line

Joint designs suitable for adhesive bonding

All designs involving a shear, tensile or compressive load e.g. single and double lap joint, single and double cover plate, tapered overlap and double overlapping.

Joint designs unfavourable for adhesive bonding

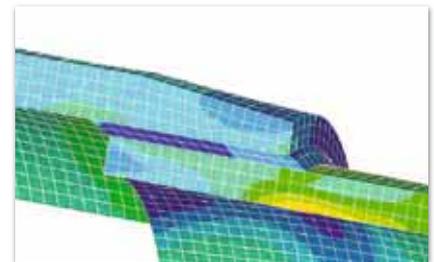
Butt joint, cleavage loading and peel loading.

Rigid bonding

Rigid adhesives are mainly used for high load transmission to replace common mechanical joining methods. Two parts bonded with such an adhesive could be considered as structurally linked. Mechanical characteristics like high strength, high modulus and high adhesion have proven to be effective for customer applications, particularly in demanding industries like aerospace and automotive.

Rigid bonding offers significant benefits for users:

- Simplifies construction by increasing strength/rigidity for load transmission
- Prevents material fatigue and failure by achieving uniform transmission of loads (stress distribution) and by maintaining structural integrity (no thermal or mechanical weakening of parts)
- Saves production costs by replacing conventional mechanical fasteners (screws, rivets or welding)
- Saves material cost and saves weight by reducing material thickness while maintaining load transmission characteristics
- Allows the most varied substrate combinations, e.g. metal/plastics, metal/glass, metal/wood etc



Stress analysis of bonded pipe joint

Available technologies

Epoxies

- Rigid bonding
- 1K or 2K solutions
- Capability to fill large gap
- Very high strength
- For small to medium surface areas
- Very good chemical resistance

Acrylics

- Rigid to slightly flexible bonding
- 1K or 2K solutions
- For small surface areas
- Very high strength
- Good chemical resistance

Polyurethanes

- Slightly flexible bonding
- 2K solution
- Capability to fill large gaps
- High strength
- For medium to large surface areas
- Good chemical resistance

Structural Bonding – Epoxies

Product Table

What is your focus?

	General bonding		Fast curing
	High viscosity	Flowable	Clear
Solution	LOCTITE EA 3423	LOCTITE EA 9483	LOCTITE EA 3430
Description	2K Epoxy	2K Epoxy	2K Epoxy
Mix ratio by volume (A:B)	1:1	2:1	1:1
Mix ratio by weight (A:B)	100:70	100:46	1:1
Working life	45 min.	30 min.	7 min.
Fixture time	180 min.	210 min.	15 min.
Colour	Grey	Ultra clear	Ultra clear
Viscosity	300 Pa·s	7 Pa·s	23 Pa·s
Shear strength (GBMS)	17 N/mm ²	23 N/mm ²	22 N/mm ²
Peel strength (GBMS)	2.7 N/mm	1.5 N/mm	3 N/mm
Service temperature range	-55°C to +120°C	-55°C to +150°C	-55°C to +100°C



LOCTITE EA 3423

- Non-sag paste
- Medium working life
- Excellent chemical resistance

LOCTITE EA 3423 is a general purpose 2K epoxy adhesive, suitable for gap filling and vertical applications. Ideal for bonding metal components.

LOCTITE EA 9483

- Flowable
- Ultra-clear
- Low moisture absorption

LOCTITE EA 9483 is a general purpose 2K epoxy adhesive, suitable for bonding and potting where optical clarity and high strength are required. Ideal for bonding decorative panels and displays.

LOCTITE EA 3430

- Medium viscosity
- Ultra-clear
- Toughened
- Water resistant

LOCTITE EA 3430 is a five minute 2K epoxy adhesive suitable for applications requiring an optically clear bond line. Ideal for bonding glass, decorative panels and displays, and general repair.

* Gel time at +120°C

** Cure time at +120°C or higher: see technical data sheet

Food contact	High technical performance		
Food approved	Toughened	High temperature resistant	
LOCTITE EA 9480	LOCTITE EA 9466	LOCTITE EA 9514	LOCTITE EA 9497
			
2K Epoxy	2K Epoxy	1K Epoxy	2K Epoxy
2:1	2:1	–	2:1
100:46.5	100:50	–	100:50
110 min.	60 min.	5 min.*	3 hr
270 min.	180 min.	30 min.**	8 hr
Off-white	Yellowish	Grey	Grey
8.7 Pa·s	35 Pa·s	45 Pa·s	12 Pa·s
24 N/mm ²	37 N/mm ²	46 N/mm ²	20 N/mm ²
0.4 N/mm	8 N/mm	9.5 N/mm	–
-55°C to +120°C	-55°C to +120°C	-55°C to +200°C	-55°C to +180°C
<p>LOCTITE EA 9480</p> <ul style="list-style-type: none"> • Good chemical resistance • Toughened • Good adhesion on stainless steel <p>LOCTITE EA 9480 is a food approved 2K epoxy adhesive suitable for bonding metals and most plastic parts in and around food processing areas.</p> <p>KTW approval for potable water, Fraunhofer approval for incidental food contact</p>	<p>LOCTITE EA 9466</p> <ul style="list-style-type: none"> • Medium viscosity • Low density – SG = 1.0 • High strength <p>LOCTITE EA 9466 is a toughened 2K epoxy adhesive suitable for multi-purpose applications requiring a long open time and high bonding strength. Ideal for a wide variety of substrates such as metals, ceramics and most plastics.</p>	<p>LOCTITE EA 9514</p> <ul style="list-style-type: none"> • Suitable for induction curing • High shear and peel strength • Excellent chemical resistance • High temperature resistance (+200°C) <p>LOCTITE EA 9514 is a toughened 1K epoxy adhesive suitable for gap filling and resistant to high operating temperatures. Ideal for applications requiring toughness such as filter and magnet bonding.</p>	<p>LOCTITE EA 9497</p> <ul style="list-style-type: none"> • Medium viscosity • High thermal conductivity • High compressive strength • High temperature resistance (+180°C) <p>LOCTITE EA 9497 is a thermally conductive 2K epoxy adhesive for high temperature filling and bonding applications. Ideal for heat dissipation.</p>

Structural Bonding – Epoxies

Product List

Product	Technology	Colour mix	Mixed viscosity	Mix ratio by volume	Working life	Fixture time	Service temperature range
LOCTITE EA Double Bubble	2K Epoxy	Clear	35 Pa·s	1:1	3 min.	5 min.	-55°C to +100°C
LOCTITE EA 3032	2K Epoxy	Grey	80 Pa·s	1:1	120 min.	480 min.	-55°C to +80°C
LOCTITE EA 3421	2K Epoxy	Clear amber	37 Pa·s	1:1	30 – 150 min.	240 min.	-55°C to +120°C
LOCTITE EA 3423	2K Epoxy	Grey	300 Pa·s	1:1	30 – 60 min.	180 min.	-55°C to +120°C
LOCTITE EA 3425	2K Epoxy	Yellow/white	1350 Pa·s	1:1	55 – 105 min.	240 min.	-55°C to +120°C
LOCTITE EA 3430	2K Epoxy	Ultra-clear	23 Pa·s	1:1	5 – 10 min.	15 min.	-55°C to +100°C
LOCTITE EA 3450	2K Epoxy	Grey	35 Pa·s	1:1	4 – 6 min.	15 min.	-55°C to +100°C
LOCTITE EA 3455	2K Epoxy	Grey	Pasty	1:1	40 min.	120 min.	-55°C to +100°C
LOCTITE EA 4108	1K Epoxy	Silver	170 Pa·s	–	–	Heat curing	-55°C to +180°C
LOCTITE EA 9250	2K Epoxy	White	45 Pa·s	3:1	9 min.	12 min.	-55°C to +150°C
LOCTITE EA 9450	2K Epoxy	Translucent	200 Pa·s	1:1	2 – 7 min.	13 min.	-55°C to +100°C
LOCTITE EA 9461	2K Epoxy	Grey	72 Pa·s	1:1	40 min.	240 min.	-55°C to +120°C
LOCTITE EA 9464	2K Epoxy	Grey	96 Pa·s	1:1	10 – 20 min.	180 min.	-55°C to +120°C
LOCTITE EA 9466	2K Epoxy	Yellowish	35 Pa·s	2:1	60 min.	180 min.	-55°C to +120°C
LOCTITE EA 9480	2K Epoxy	Off-white	8.7 Pa·s	2:1	110 – 190 min.	270 min.	-55°C to +120°C
LOCTITE EA 9483	2K Epoxy	Ultra-clear	7 Pa·s	2:1	25 – 60 min.	210 min.	-55°C to +150°C
LOCTITE EA 9489	2K Epoxy	Grey	45 Pa·s	1:1	60 – 120 min.	300 min.	-55°C to +120°C
LOCTITE EA 9492	2K Epoxy	White	30 Pa·s	2:1	15 min.	75 min.	-55°C to +180°C
LOCTITE EA 9497	2K Epoxy	Grey	12 Pa·s	2:1	165 – 255 min.	480 min.	-55°C to +180°C
LOCTITE EA 9514	1K Epoxy	Grey	45 Pa·s	–	–	Heat curing	-55°C to +200°C
TEROSON EP 5055	2K Epoxy	Grey	A: 145 Pa·s; B: 75 Pa·s	1:1	75 min.	270 min.	-55°C to +100°C

Tensile strength	Peel strength	Pack sizes	Comments
–	–	3g	For small and quick repairs, fast curing
–	–	Not available in the U.K.	Multiple purpose bonder, suitable for contact with potable water (approved to the Waters Byelaws Scheme)
28 N/mm ²	2 – 3 N/mm	50ml, 200ml, 1kg	Structural adhesive, general purpose, long open time
24 N/mm ²	2 – 3 N/mm	50ml, 1kg	Multiple purpose bonder, excellent for metals, good humidity resistance
27 N/mm ²	1.5 – 2.5 N/mm	50ml, 200ml	Multiple purpose bonder, excellent for metals, for large surfaces, thixotropic
36 N/mm ²	3 N/mm	24ml, 50ml, 200ml	Multiple purpose bonder, fast cure, ultra-clear
–	–	25ml	Structural adhesive, fast cure, ideal for metal repair
–	–	Not available in the U.K.	Structural adhesive, fast cure, high viscosity
–	–	Not available in the U.K.	Free flowing, high chemical resistance, looks like silver solder
–	–	Not available in the U.K.	Thixotropic, high temperature resistance, good chemical resistance, cream coloured, fast set
17 N/mm ²	0.6 N/mm	50ml, 200ml, 1kg	Multiple purpose bonder, fast cure (5 min.), gap filling, translucent
30 N/mm ²	10 N/mm	50ml, 400ml, 20kg	Structural adhesive, toughened, gap filling
–	7 – 10 N/mm	50ml, 400ml	Structural adhesive, toughened, gap filling, fast cure
32 N/mm ²	8 N/mm	50ml, 400ml, 1kg	Toughened multiple purpose bonder, high bond strength for all substrates
47 N/mm ²	0.4 N/mm	50ml, 400ml	Multiple purpose bonder, approved for incidental food contact and potable water
47 N/mm ²	1.5 N/mm	50ml, 400ml, 1kg	Multiple purpose bonder, ultra-clear, excellent for panels and displays
14 N/mm ²	2.2 N/mm	50ml	Structural adhesive, general purpose, extended working life
31 N/mm ²	1.6 N/mm	50ml, 400ml	High temperature resistance, high chemical resistance
52.6 N/mm ²	–	50ml, 400ml	High temperature resistance, thermally conductive, excellent for bonding metal components (thixotropic)
44 N/mm ²	9.5 N/mm	300ml, 1kg	High temperature resistance, heat resistant bonding, toughened, high mechanical resistance
23 N/mm ²	4 N/mm	250ml	Crash resistant structural bonder for car panels

Structural Bonding – Acrylics

Product Table

Solution	No-mix		
	General purpose	High temperature	Glass bonding
	LOCTITE AA 330	LOCTITE AA 3342	LOCTITE AA 3298
Activator	7388	7386	7386
Mix ratio by volume (A:B)	–	–	–
Colour	Pale yellow	Yellow opaque	Green-grey
Viscosity	67,500 mPa·s	90,000 mPa·s	29,000 mPa·s
Working life	–	–	–
Fixture time	3 min.	1 – 1.5 min.	3 min.
Shear strength (GBMS)	15 – 30 N/mm ²	15 – 30 N/mm ²	26 – 32 N/mm ²
Service temperature (up to)	+100°C	+180°C	+120°C
Pack sizes	1 ltr, 5 ltr	300ml	300ml
	<p>LOCTITE AA 330</p> <ul style="list-style-type: none"> • General purpose product • Good impact resistance • Ideal for bonding dissimilar substrates like PVC, phenolic and acrylic compounds • Use with activator LOCTITE SF 7386 or LOCTITE SF 7388 	<p>LOCTITE AA 3342</p> <ul style="list-style-type: none"> • High temperature resistance • Good impact resistance • Good humidity resistance • Use with activator LOCTITE SF 7386 	<p>LOCTITE AA 3298</p> <ul style="list-style-type: none"> • Very good adhesion on glass • High strength • Good impact resistance • Use with activator LOCTITE SF 7386

Pre-mix

Magnet bonding	General purpose	Clear bond line	Polyolefin bonder
LOCTITE AA 326	LOCTITE AA 3295	LOCTITE AA V5004	LOCTITE AA 3038
			
7649	–	–	–
–	1:1	1:1	1:10
Yellow to amber	Green	Pale mauve, clear	Yellow
18,000 mPa·s	17,000 mPa·s	18,000 mPa·s	12,000 mPa·s
–	4 min.	0.5 min.	4 min.
3 min.	5 – 10 min.	3 min.	> 40 min.
15 N/mm ²	25 N/mm ²	21 N/mm ²	13 N/mm ² (PBT)
+120°C	+120°C	+80°C	+100°C
50ml, 250ml	50ml, 600ml	50ml	50ml, 490ml, 15kg, 18kg
LOCTITE AA 326 <ul style="list-style-type: none"> • Product for magnet bonding • Medium viscosity (thixotropic) • Good adhesion to different types of ferrite • Use with activator LOCTITE SF 7649 	LOCTITE AA 3295 <ul style="list-style-type: none"> • 2K general purpose product • Good impact resistance • Bonding of metals, ceramics and plastics 	LOCTITE AA V5004 <ul style="list-style-type: none"> • Clear bond line after curing • Fast curing • Medium strength • Good adhesion to metals and plastics 	LOCTITE AA 3038 <ul style="list-style-type: none"> • Very good adhesion to polyolefin substrates (PP, PE) • Good impact resistance • Good adhesion to e-coated metals

Structural Bonding – Acrylics

Product List

Product	Activator	Mix ratio by volume (A:B)	Colour	Viscosity	Working life
LOCTITE AA 319	LOCTITE SF 7649	–	Light amber	2,750 mPa·s	–
LOCTITE AA 326	LOCTITE SF 7649	–	Yellow to amber	18,000 mPa·s	–
LOCTITE AA 329	LOCTITE SF 7386	–	Light straw	26,500 mPa·s	–
LOCTITE AA 330	LOCTITE SF 7388	–	Pale yellow	67,500 mPa·s	–
LOCTITE AA 366	LOCTITE SF 7649	–	Yellow to amber	7,500 mPa·s	–
LOCTITE AA 3038	–	1:10	Yellow	12,000 mPa·s	4 min.
LOCTITE AA 3295	–	1:1	Green	17,000 mPa·s	4 min.
LOCTITE AA 3298	LOCTITE SF 7386	–	Green-grey	29,000 mPa·s	–
LOCTITE AA 3342	LOCTITE SF 7386	–	Yellow opaque	90,000 mPa·s	–
LOCTITE AA 3504	LOCTITE SF 7649	–	Amber	1,050 mPa·s	–
LOCTITE AA V1315	–	1:1	Off-white	Thixotropic	–
LOCTITE AA V5004	–	1:1	Pale mauve, clear	18,000 mPa·s	0.5 min.

Fixture time	Shear strength (GBMS)	Service temperature (up to)	Pack sizes	Comments
1 min.	10 N/mm ²	+120°C	0.5g kit	Glass-metal bonder
3 min.	15 N/mm ²	+120°C	50ml, 250ml	Magnet bonder
1 min.	20 N/mm ²	+100°C	315ml, 1 ltr	Fast fixture
3 min.	15 – 30 N/mm ²	+100°C	1 ltr, 5 ltr	General purpose
–	13.5 N/mm ²	+120°C	250ml	Additional UV cure
> 40 min.	13 (PBT) N/mm ²	+100°C	50ml, 490ml, 15kg, 18kg	PO bonder
5 – 10 min.	25 N/mm ²	+120°C	50ml, 600ml	General purpose
3 min.	26 – 32 N/mm ²	+120°C	300ml	Glass bonding
1 – 1.5 min.	15 – 30 N/mm ²	+180°C	300ml	High temperature
–	22 N/mm ²	+120°C	Not available in the U.K.	Additional UV cure
15 min.	15 N/mm ²	+120°C	50ml	Composite/plastic bonding
3 min.	21 N/mm ²	+80°C	50ml	Clear bond line



Structural Bonding – Polyurethanes

Product Table

Solution	Large surface bonding		
	Gap variation tolerance		
	1K		2K
	General purpose	Fast curing	General purpose
	LOCTITE UR 7221 	LOCTITE UR 7228 	LOCTITE UK 8103 
Technology	1K PU	1K PU	2K PU
Viscosity	5,500 – 10,500 mPa·s	5,500 – 10,500 mPa·s	8,000 – 10,000 mPa·s
Initial strength	2 – 4 hr	10 – 15 min.	5 – 8 hr
Working life at 20°C	–	–	40 – 70 min.
Tensile shear strength	> 6 N/mm ²	> 6 N/mm ²	> 6 N/mm ²
Service temperature range (short exposure)	-40°C to +80 (+100)°C	-40°C to +80 (+100)°C	-40°C to +80 (+120)°C
Pack sizes	11lb kit	1kg, 30kg	250kg
Handy Hints <ul style="list-style-type: none"> • LOCTITE SF 8040 is used for cleaning tanks, pumps, hoses and mixing heads of metering equipment • LOCTITE SF 7515 can be used to increase ageing resistant of polyurethane adhesives on metals in humid conditions. For further information please refer to the TDS. • Refill working packs into new buckets to prevent applying unmixed adhesive from the bottom of the working pack 	LOCTITE UR 7221 <ul style="list-style-type: none"> • Long open time • Multi-purpose • Foaming • IMO approval <p>A 1K PU adhesive which cures with humidity from the air or fine water spray to bond PVC and PU rigid foams to lacquered or (epoxy primer) coated metal sheets. Good ratio of open time to press time.</p>	LOCTITE UR 7228 <ul style="list-style-type: none"> • Short fixture time • Foaming • IMO approval <p>A 1K PU adhesive which cures with humidity from the air or fine water spray to bond PVC and PU rigid foams to lacquered or (epoxy primer) coated metal sheets. Very fast application for panel bonding.</p>	LOCTITE UK 8103 <ul style="list-style-type: none"> • Multi-purpose • Different acceleration levels available • Good flow properties • IMO approval <p>A general purpose 2K PU adhesive, easy to spread over large surface areas for bonding coated metals and PU foams, especially in the shipbuilding industry.</p>

Structural bonding

Gap filling

1K

2K

Low temperature
resistance

Elastic bonding

Primerless adhesion

Good adhesion to
plastics

High strength

**LOCTITE
UK 8202****TEROSON
PU 8597 HMLC****LOCTITE
UK 8326 B30****LOCTITE
UK 1366 B10****LOCTITE
UK 1351 B25**

2K PU

1K PU

2K PU

2K PU

2K PU

8,000 – 10,000 mPa·s

Pasty

250,000 – 310,000 mPa·s

400,000 – 500,000 mPa·s

400,000 – 500,000 mPa·s

8 – 10 hr

1 h/4 hr*

3 – 4 hr

40 – 60 min.

1 – 2 hr

80 – 120 min.

–

25 – 35 min.

7 – 13 min.

20 – 30 min.

> 12 N/mm²> 5 N/mm² at 5 mm layer> 12 N/mm²> 10 N/mm²> 20 N/mm²

-190°C to +80 (+150)°C

-40°C to +90 (+120)°C

-40°C to +80 (+150)°C

-40°C to +80 (+100)°C

-40°C to +120 (+150)°C

24kg pail

310ml cartridge,
400ml foil, 570ml foil, set

3.6kg combi pack

415ml twin cartridge,
25kg

400ml twin cartridge

LOCTITE UK 8202

- Good flexibility at low temperatures
- High strength

A low viscous 2K PU adhesive suitable for the construction of panels for LNG/LPG tankers complying with the regulations of American Bureau of Shipping (ABS).

TEROSON PU 8597 HMLC

- High modulus
- Low conductivity
- Elastic
- Stress compensation

An elastic 1K PU adhesive which cures by moisture from the air. Used for direct glazing in automotive industry and in joints where tension should be leveraged by the adhesive (elastic bonding).

LOCTITE UK 8326 B30

- Primerless metal adhesion
- Good ageing stability
- Sag resistant

A sag resistant 2K PU adhesive which is suitable for vertical application combining primerless metal adhesion with good elastic and shock absorption properties for use in trailer production.

LOCTITE UK 1366 B10

- Short fixture time
- Good adhesion to plastics and metal
- Shock absorbent

A multi purpose, sag resistant cartridge grade 2K PU adhesive with a very good extrusion rate and outstanding adhesion to metals and plastics. Slightly elastic for good shock absorption.

LOCTITE UK 1351 B25

- GL approved
- High strength
- No tempering required

A cartridge grade 2K PU adhesive with high strength and stiffness and good compressive strength. It is certified by Germanischer Lloyd for bonding in wind power applications.

Structural Bonding – Polyurethanes

Product List (2K)

Product	Technology	Viscosity	Mix ratio by weight	Working life at 20°C	Initial strength	Tensile strength
LOCTITE UK 1351 B25	2K PU	400,000 – 500,000 mPa·s	2:1 vol.	20 – 30 min.	1 – 2 hr	> 20 N/mm ²
LOCTITE UK 1366 B10		400,000 – 500,000 mPa·s	4:1 vol.	7 – 13 min.	40 – 60 min.	> 10 N/mm ²
LOCTITE UK 8101*		Liquid	4:1	50 – 70 min.	5 – 8 hr	> 9 N/mm ²
LOCTITE UK 8103*		8,000 – 10,000 mPa·s	5:1	40 – 70 min.	5 – 8 hr	> 6 N/mm ²
LOCTITE UK 8126*		300 – 900 mPa·s	100:65	45 – 70 min.	–	> 15 N/mm ²
LOCTITE UK 8160*		Pasty	5:1	60 – 90 min.	5 – 8 hr	> 7 N/mm ²
LOCTITE UK 8202*		8,000 – 10,000 mPa·s	4:1	80 – 120 min.	8 – 10 hr	> 12 N/mm ²
LOCTITE UK 8303 B60*		200,000 – 300,000 mPa·s	6:1	60 – 75 min.	4 – 5 hr	> 12 N/mm ²
LOCTITE UK 8306 B60*		250,000 – 310,000 mPa·s	5:1	55 – 65 min.	4 – 5 hr	> 12 N/mm ²
LOCTITE UK 8309*		850,000 mPa·s	5:1	40 – 60 min.	3.5 – 4 hr	> 9 N/mm ²
LOCTITE UK 8326 B30*		250,000 – 310,000 mPa·s	5:1	25 – 35 min.	3 – 4 hr	> 12 N/mm ²
LOCTITE UK 8436*		500 – 900 mPa·s	2:1	90 – 130 sec	50 – 60 min.	–
LOCTITE UK 8445 B1 W*		Liquid	100:22	70 – 74 sec	–	> 6 N/mm ²
TEROSON PU 6700		Pasty	1:1 vol.	10 min.	30 min.	> 12 N/mm ²
TEROSON PU 8630 2K HMLC		Pasty	100:0.3 vol.	25 min.	2 hr***	> 4 N/mm ² at 5 mm layer
TEROSON PU 9225 SF ME	Pasty	1:1 vol.	~150 sec	6 min	13 N/mm ²	

Consumption per m ²	Service temperature range (short exposure)	Pack sizes	Comments
–	-40°C to +120 (+150)°C	400ml twin cartridge	Pasty/sag resistant, high strength, high compressive strength, no tempering necessary, GL approved as Duromeric Adhesive according to Rules for Classification and Construction, II, Part 2
–	-40°C to +80 (+100)°C	415ml twin cartridge, 25kg	Pasty/sag resistant, short fixture time, cartridge grade, good adhesion to plastics and metal, shock absorbent
200 – 400g	-40°C to +80 (+120)°C	Not available in the U.K.	Low viscosity
200 – 400g	-40°C to +80 (+120)°C	250kg drum	Low viscosity, multi-purpose, different acceleration levels available, good flow properties, IMO approval for shipbuilding (wheel mark, low spread of flame)
–	-40°C to +80 (+150)°C	Not available in the U.K.	Low viscosity, good penetration properties for laminates e.g. in the ski and snowboard industry
200 – 500g	-190°C to +80 (+150)°C	3.6kg combi pack**,	Very pasty, IMO approval for shipbuilding (wheel mark, low spread of flame)
200 – 400g	-190°C to +80 (+150)°C	24kg pail	Liquid, good flexibility at low temperatures, high strength, ABS type approval (shipbuilding), Bureau Veritas (type approval liquefied Gas Tanks)
200 – 500g	-40°C to +80 (+150)°C	24kg pail, 300kg drum	Multi purpose, pasty/sag resistant, DIN 4102 B1, IMO approval for shipbuilding (wheel mark, low spread of flame)
200 – 500g	-40°C to +80 (+150)°C	Not available in the U.K.	Pasty/sag resistant, high strength and good elasticity, different working life versions available
200 – 500g	-40°C to +80 (+150)°C	30kg pail	Pasty/sag resistant, good workability, used for truck body assembly
200 – 500g	-40°C to +80 (+150)°C	3.6kg combi pack**	Pasty/sag resistant, primerless metal adhesion, good ageing stability
–	-40°C to +80 (+120)°C	Not available in the U.K.	Good adhesion properties and excellent flowability
–	-40°C to +80 (+150)°C	Not available in the U.K.	Liquid, fast setting for top lid bonding
–	-40°C to +80 (+140)°C	50ml (2 x 25ml) cartridge, 250ml (2 x 125ml) cartridge, 620ml (2 x 310ml) cartridge	Easy to use
–	-40°C to +90 (+120)°C	310ml cartridge	Warm applied, high modulus, low conductivity, 2K material, 2 hours drive away time acc. to European standard
–	-40°C to +80 (+140)°C	50ml (2 x 25ml) cartridge	Developed for plastic repairs

** Combi packs include hardener component LOCTITE UK 5400

*** Drive away time

Structural Bonding – Polyurethanes

Product List (1K)

Product	Technology	Viscosity	Open time at 23°C, 50% RH	Initial strength	Curing time	Tensile shear strength
LOCTITE UR 7220	1K PU	5,500 – 10,500 mPa·s	4 – 6 hr	6 – 10 hr	3 days	> 6 N/mm ²
LOCTITE UR 7221		5,500 – 10,500 mPa·s	40 – 60 min.	2 – 4 hr	2 days	> 6 N/mm ²
LOCTITE UR 7225		5,500 – 10,500 mPa·s	20 – 25 min.	50 – 70 min.	1 day	> 6 N/mm ²
LOCTITE UR 7228		5,500 – 10,500 mPa·s	7 – 9 min.	10 – 15 min.	1 day	> 6 N/mm ²
LOCTITE UR 7388		3,000 – 5,000 mPa·s	7 – 9 min.	10 – 15 min.	1 day	> 6 N/mm ²
LOCTITE UR 7396		2,000 – 4,000 mPa·s	25 – 35 min.	60 – 90 min.	1 day	> 7 N/mm ²
LOCTITE UR 7398		3,000 – 6,000 mPa·s	5 – 7 min.	7.5 – 9.5 min.	5 – 7 days	> 4 N/mm ²
TEROSON PU 8596		Pasty	25 min.	6 hr*	5 – 7 days	> 5 N/mm ² with 5 mm layer
TEROSON PU 8597 HMLC		Pasty	20 min.	1 hr / 4 hr*	5 – 7 days	> 5 N/mm ² with 5 mm layer
TEROSON PU 8599 HMLC		Pasty	15 min.	15 min.*	5 – 7 days	> 4 N/mm ² with 5 mm layer
TEROSON PU 9097 PL HMLC	Pasty	25 min.	1 hr*	5 – 7 days	> 5 N/mm ² with 5 mm layer	

Cleaner:

LOCTITE SF 8040 (viscosity – 3 mPa·s) in 30kg pack. Rinsing and cleaning agent for 1K and 2K polyurethane adhesives / high dissolving capacity / low evaporation rate.

For further information, please refer to the TDS and MSDS.

Consumption per m ²	Service temperature range (short exposure)	Pack sizes	Comments
100 – 200g	-40°C to +80 (+100)°C	Not available in the U.K.	Very long open time for large panel applications, foaming
100 – 200g	-40°C to +80 (+100)°C	11 lb	Long open time, foaming, IMO approval for shipbuilding (wheel mark, low spread of flame)
100 – 200g	-40°C to +80 (+100)°C	1,000kg container	Medium open time, foaming, IMO approval for shipbuilding (wheel mark, low spread of flame)
100 – 200g	-40°C to +80 (+100)°C	1kg, 30kg jerry can	Short fixture time, foaming, IMO approval for shipbuilding (wheel mark, low spread of flame)
100 – 200g	-40°C to +80 (+100)°C	1,000 kg container	Low viscosity, fast setting
100 – 200g	-40°C to +80 (+100)°C	Not available in the U.K.	Low viscosity, thermally accelerated, medium open time
120 – 150g	-40°C to +80 (+100)°C	Not available in the U.K.	Low viscosity, thermally accelerated, IMO approval for shipbuilding (wheel mark, low spread of flame)
–	-40°C to +90 (+120)°C	310ml cartridge, set	6 hours drive away time acc. to FMVSS
–	-40°C to +90 (+120)°C	310ml cartridge, 400ml foil, 570ml foil, set	High modulus, low conductivity, 4 hours drive away time acc. to European standard (frontal crash test at 64 km/h with 40% overlap)
–	-40°C to +90 (+120)°C	310ml cartridge, 400ml, set	Warm applied, high modulus, low conductivity, 15 minutes drive away time acc. to FMVSS
–	-40°C to +90 (+120)°C	310ml cartridge, set	Primerless adhesion, high modulus, low conductivity, 1 hour drive away time acc. to FMVSS

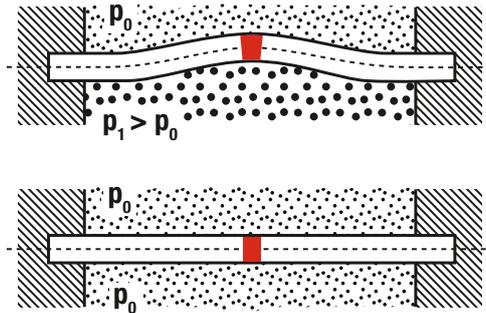


Industrial Sealants / Adhesives

Elastic / Plastic Bonding and Sealing

Why use Henkel products for elastic / plastic bonding and sealing?

The Henkel portfolio of industrial elastic / plastic bonding and sealing products offers a wide range of solutions to meet the different requirements and conditions that apply to industrial design and construction.



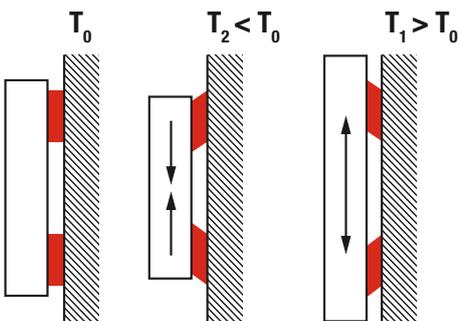
Elastic Sealing

Elastic sealing involves applying an appropriate product in the joint in order to prevent the penetration of moisture/or the passage of air between elements, components and assemblies made of the same or dissimilar materials. The elastic sealing material seals by adhesion to the substrates. The elastic behaviour of the sealant acts as a media barrier while relative part movements are tolerated.



Plastic Sealing

Plastic sealing involves applying an appropriate product in the joint in order to act as a media barrier. The primary criterion for selection of a plastic sealant (besides the sealing/ media barrier performance) is its mechanical behaviour under deformation. When exposed to forces, each sealant shows both a plastic (deformable) and an elastic (e.g. rubber like) reaction. If the plastic response is dominant, the sealant is referred to as plastic.



Elastic Bonding

Elastic bonding is a process in which two similar or dissimilar materials are joined with an elastic adhesive. Elastic bonding adhesives are selected mainly for their capability to tolerate relative movements of the parts while the parts are bonded by adhesion to the substrates. Besides their elastic properties, many elastic adhesives from Henkel exhibit high inherent strength (cohesion) and a relatively high modulus, producing friction-locked joints which, at the same time, have elastic properties.

Advantages of Elastic / Plastic Bonding and Sealing

- Improved aesthetic aspects
- New designs
- Use of new materials incl. advanced composites
- Fewer parts
- Increased reliability & durability
- Higher quality
- Weight reduction, light weight design
- Efficient production process, fewer production steps
- Cost reduction

Choosing the right Henkel Industrial Elastic / Plastic Adhesive or Sealant

Technical aspects/considerations of elastic/plastic bonding and sealing

- Elastic bonding and sealing assembly needs a gap for elasticity to achieve more even stress distribution and higher elasticity (figure 1 and 2)
- Adhesion to the substrates enables elongation of the product during relative movements without loosening surface contact (figure 3)
- Joint design needs to take into account service conditions, environmental factors and specific durability, compatibility and aesthetic requirements

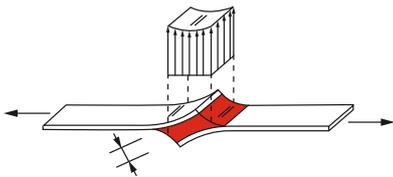


Figure 1: Larger gap



Figure 2: Smaller gap

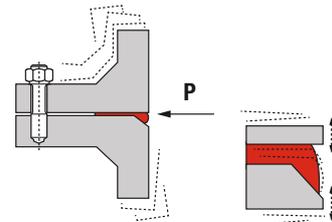


Figure 3: Adhesive & sealant

Silicones

The LOCTITE Silicones are based on silicon – oxygen backbones with organic side groups. Products incorporating this technology undergo moisture curing (1K, RTV*), after mixing (2K) or by temperature (1K, heat cure) to a high performance rubber-like elastomer.

- Elastic bonding and sealing with high flexibility
- 1K or 2K solution
- Outstanding temperature resistance
- Excellent UV and chemical resistance - e.g. in the presence of oil, water and glycol
- Primerless adhesion to many substrates

*Room Temperature Vulcanization

Silane Modified Polymers

The TEROSON MS line is based on silane-modified polymers (SMP). Products incorporating this technology undergo moisture curing and react to form high-performance elastomers. SMP products contain an adhesion promoter (primer) as part of the formulation.

- 1K or 2K solution
- Excellent adhesion on almost all substrates
- Excellent weathering and ageing resistance
- Elastic bonding, sealing and coating

Butyls

The TEROSON RB line is based on butyl rubber and/or polyisobutylene. Due to their inherent tackiness, butyl and PIB sealants adhere to metals, glass, ceramics, mineral substrates, wood, PS, EPDM and other plastics.

- Plastic sealing
- 1K solution
- Final properties directly upon application
- High flexibility even at low temperatures
- Excellent adhesion to almost all substrates
- Good resistance to water and ageing
- Low permeability to water vapour and gases
- Self-welding

Henkel classification of plastic sealants

Flat, Round, Pre-Cut Profiles

- Wound on reels or cut to length
- No application equipment required

Putties

- Easily shapeable kneading mass
- Shaped by hand and pressed into gaps, joints or openings
- Excellent seal against water, moisture, gases and dust

Hotmelt Butyls

- Highly viscous and very tacky at room temperature
- Must be heated to 80°C to 120°C (or even higher) for application
- Applied from hobbocks (pails) or drums

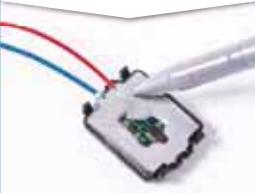
Gun Grade Butyl Sealants

- Cold processable sealants applied at room temperature
- Applied from cartridges or foil cartridges

Industrial Sealants / Adhesives – Silicones

Product Table

Solution	2K		
	General purpose	Fast cure	Medium cure
	LOCTITE SI 5615	LOCTITE SI 5616	LOCTITE SI 5607
			
Description	2K alkoxy silicone	2K alkoxy silicone	2K alkoxy silicone
Mix ratio by volume (A:B)	2:1	2:1	2:1
Colour	Black	White	Grey
Mix tip working life (static mixer)	3 – 5 min.	3 – 5 min.	5 – 7 min.
Skin formation time	–	–	–
Fixture time	10 – 15 min.	10 – 15 min.	50 min.
Elongation at break	230%	200%	140%
Shore A hardness	34	30	43
Shear strength (GBALU*)	1.7 N/mm ²	1.7 N/mm ²	1.6 N/mm ²
Service temperature range	-50°C to +180°C	-50°C to +180°C	-50°C to +180°C
Pack sizes	400ml, 17 ltr	Not available in the U.K.	400ml
Handy Hints	<p>LOCTITE SI 5615</p> <ul style="list-style-type: none"> • Fast cure 2K silicone • Good adhesion to a wide range of substrates 	<p>LOCTITE SI 5616</p> <ul style="list-style-type: none"> • Fast cure 2K silicone • Sealing/bonding applications 	<p>LOCTITE SI 5607</p> <ul style="list-style-type: none"> • Medium cure 2K silicone
<ul style="list-style-type: none"> • To improve adhesion on difficult-to-bond materials, we recommend cleaner/adhesion promoter TEROSON SB 450 or Corona/Plasma treatment • Using 2K silicones with mixing nozzle: <ol style="list-style-type: none"> 1. After opening the cartridge, press gun until both components come out of the cartridge. Do this without mixer nozzle attached. 2. Mount the mixer and discard the first 5cm of mixed product. 3. Pay attention to the “mix tip pot life”. Make sure that the applied bead is smooth. If you see crumbs on the bead surface, the product is already partly cured and the final properties will not be reached. 4. Change the mixer if you have not used the product for some time. 			

		1K		
Self-levelling				
Fast cure	Ultra clear	General purpose	Electrical components	High temperature resistance
LOCTITE SI 5611	LOCTITE SI 5700	LOCTITE SI 5366	LOCTITE SI 5145	LOCTITE SI 5399
				
2K alkoxy silicone	2K polyaddition silicone	1K acetoxy silicone	1K alkoxy silicone	1K acetoxy silicone
10:1	1:1	–	–	–
Grey	Clear	Clear	Clear	Red
2 – 3 min.	15 min.	–	–	–
–	–	5 min.	70 min.	5 min.
6 – 10 min.	220 min.	–	–	–
60%	190%	530%	500%	500%
50	39	25	25	33
0.9 N/mm ²	–	2 N/mm ²	3.5 N/mm ²	2.5 N/mm ²
-50°C to +180°C	-50°C to +150°C	-50°C to +200°C	-50°C to +200°C	-50°C to +300°C
400ml	400ml	310ml	40ml	310ml
LOCTITE SI 5611 <ul style="list-style-type: none"> • Very fast cure 2K silicone • Self-levelling • Potting/sealing applications • Lighting elements, switches, electronic connectors 	LOCTITE SI 5700 <ul style="list-style-type: none"> • Transparent 2K polyaddition silicone (no by-product) • Self-levelling • Potting/sealing applications • Lighting applications • Electrical & optical, e.g. connectors, switches 	LOCTITE SI 5366 <ul style="list-style-type: none"> • General purpose 1K silicone • Suitable for glass, metal, ceramics etc. 	LOCTITE SI 5145 <ul style="list-style-type: none"> • Neutral curing 1K silicone • Non-corrosive • Especially for sealing and protecting electrical components 	LOCTITE SI 5399 <ul style="list-style-type: none"> • High temperature resistant 1K silicone • For bonding and sealing glass, metal and ceramics, e.g. industrial ovens, stove flues, etc.

Industrial Sealants / Adhesives – Silicones

Product List

Product	Description	Mix ratio by volume A:B	Colour	Mix tip working life (static mixer)	Skin formation time	Fixture time	
TEROSON SI 33	1K amine silicone	–	Transparent, grey, black, white	–	10 min.	–	
TEROSON SI 111	1K alkoxy silicone	–	Grey, black, white	–	25 min.	–	
LOCTITE SI 5145	1K alkoxy silicone	–	Clear	–	5 min.	–	
LOCTITE SI 5366	1K acetoxy silicone	–	Clear	–	5 min.	–	
LOCTITE SI 5367	1K acetoxy silicone	–	White	–	5 min.	–	
LOCTITE SI 5368	1K acetoxy silicone	–	Black	–	5 min.	–	
LOCTITE SI 5398	1K acetoxy silicone	–	Red	–	8 min.	–	
LOCTITE SI 5399	1K acetoxy silicone	–	Red	–	5 min.	–	
LOCTITE SI 5404	1K heat curing silicone	–	White to grey	–	–	–	
LOCTITE SI 5607	2K alkoxy silicone	2:1	Grey	5 – 7 min.	–	10 – 20 min.	
LOCTITE SI 5610	2K alkoxy silicone	2:1	Black	2 – 3 min.	–	4 – 6 min.	
LOCTITE SI 5611	2K alkoxy silicone	10:1	Grey	2 – 3 min.	–	6 – 10 min.	
LOCTITE SI 5612	2K alkoxy silicone	4:1	Red	4 – 6 min.	–	25 – 30 min.	
LOCTITE SI 5615	2K alkoxy silicone	2:1	Black	3 – 5 min.	–	10 – 15 min.	
LOCTITE SI 5616	2K alkoxy silicone	2:1	White	3 – 5 min.	–	10 – 15 min.	
LOCTITE SI 5660	1K oxime silicone	–	Grey	–	< 60 min.	–	
LOCTITE SI 5700	2K polyaddition silicone	1:1	Clear	15 min.	–*	220 min.	
LOCTITE SI 5970	1K alkoxy silicone	–	Black	–	25 min.	–	
LOCTITE SI 5980	1K alkoxy silicone	–	Black	–	30 min.	–	
LOCTITE SI 5990	1K oxime silicone	–	Copper	–	25 min.	–	

*Tack-free time = approx. 220 min

Elongation at break	Shore A hardness	Shear strength GB ALU	Service temperature range	Pack sizes	Comments
250%	22	1.2 N/mm ²	-50°C to +150°C	Not available in the U.K.	General purpose sealing
590%	23	1.4 N/mm ²	-50°C to +150°C	Not available in the U.K.	High elongation
500%	25	3.5 N/mm ²	-50°C to +200°C	40ml	For electrical components
530%	25	2 N/mm ²	-50°C to +200°C	310ml	General purpose
500%	20	2 N/mm ²	-50°C to +200°C	310ml	General purpose
435%	26	2 N/mm ²	-50°C to +200°C	310ml	General purpose
200%	35	0.7 N/mm ²	-50°C to +300°C	310ml	Flowable
500%	33	2.5 N/mm ²	-50°C to +300°C	310ml	High temperature resistance
65%	60	1.6 N/mm ²	–	Not available in the U.K.	Thermally conductive
180 %	40	1.5 N/mm ²	-50°C to +180°C	400ml	Medium curing speed
210%	40	1.8 N/mm ²	-50°C to +180°C	400ml	Very fast curing
60%	50	0.9 N/mm ²	-50°C to +180°C	400ml	Very fast curing
180%	45	2.5 N/mm ²	-50°C to +220°C	400ml	High temperature resistance
230%	34	1.7 N/mm ²	-50°C to +180°C	400ml, 17 ltr	Fast curing
200%	30	1.7 N/mm ²	-50°C to +180°C	Not available in the U.K.	White version of LOCTITE SI 5615
100%	45 to 75	1.8 N/mm ²	-50°C to +200°C	40ml, 100ml, 200ml, 300ml	Excellent water/glycol resistance
190%	39	–	-50°C to +200°C	400ml	Ultra-transparent polyaddition curing silicone for potting
200%	44	1.5 N/mm ²	-50°C to +200°C	300ml, 20 ltr	Excellent oil resistance
290%	27	1.4 N/mm ²	-50°C to +200°C	40ml, 100ml, 200ml, 300ml	Excellent oil resistance, pressurised can for direct application
270%	27	1 N/mm ²	-50°C to +300°C	40ml, 100ml, 200ml, 300ml	High temperature resistance

Cleaner

TERSON SB 450 – alcoholic solution designed for cleaning and to improve adhesion (thin fluid, colourless)

Industrial Sealants / Adhesives – Silane Modified Polymers

Product Table

What main function are you looking for?

Solution

Elastic sealing		
General purpose	High / medium strength	Self-levelling
TEROSON MS 930	TEROSON MS 935	TEROSON MS 931
		

Colour	White, grey, black	White, grey, black	White, grey, black
Consistency	Pasty, thixotropic	Pasty, thixotropic	Self-levelling
Shore A hardness (DIN EN ISO 868)	30	50	30
Depth of cure after 24 hr	4 mm	3 mm	3 mm
Skin formation time	18 min.	8 min.	20 min.
Tensile strength (DIN 53504)	0.9 MPa	2.8 MPa	0.8 MPa
Elongation at break (DIN 53504)	250%	230%	100%
Service temperature range	-50°C to +80°C	-40°C to +100°C	-40°C to +80°C
Pack sizes	290ml, 310ml, 570ml, 27kg	290ml, 310ml, 570ml	290ml

Handy Hints

- To improve adhesion on materials difficult to bond please use cleaner/adhesion promoter TEROSON SB 450 or Corona/Plasma treatment
- To increase cure speed, all TEROSON MS products (except MS 9399 and MS 500) can be accelerated by using the B-component TEROSON MS 9371B with a mix ratio of 10:1
- Application of TEROSON MS products on plastics such as PMMA or PC may cause stress cracking of the plastic - suitability for these materials should be tested prior to use
- Bonding of transparent materials such as glass, PC or PMMA may require additional UV protection of the bond line where it is directly exposed to intense UV light through the transparent material

TEROSON MS 930

- For sealing and bonding of plastics and metals
- Universal range of applications
- Broad adhesion range without use of primers
- Excellent UV and weathering resistance

TEROSON MS 935

- Elastic sealant/ adhesive
- Broad adhesion range without use of primer
- Excellent UV and weathering resistance
- Good overpaintability

TEROSON MS 931

- Self-levelling/ pourable
- For the coating of surfaces
- Broad adhesion range without use of primers
- Good overpaintability
- Universal range of applications

Elastic bonding				Coating
High / medium strength	General purpose	Flame retardant	2K rapid cure	Fast cure
TEROSON MS 650	TEROSON MS 939	TEROSON MS 939 FR	TEROSON MS 9399	TEROSON MS 9320 SF
				
Black	White, off-white, grey, black	Black, grey	White, grey, black	Grey, ochre, black
Pasty, thixotropic	Pasty, thixotropic	Pasty, thixotropic	Pasty, thixotropic	Pasty, thixotropic
55	55	55	55	30
3 mm	3 mm	3 mm	2K system	4.5 mm
5 min.	5 min.	20 min.	35 min.	12 min.
3 MPa	3.0 MPa	3.5 MPa	3.0 MPa	–
200%	250%	180%	150%	–
-40°C to +100°C	-40°C to +100°C	-40°C to +100°C	-40°C to +100°C	-40°C to +100°C
Not available in the U.K.	290ml, 570ml, 25kg, 280kg	290ml, 570ml, 25kg	2 x 25ml*, 2 x 200ml**	300ml
TEROSON MS 650 <ul style="list-style-type: none"> • Fast skin formation • High green strength 	TEROSON MS 939 <ul style="list-style-type: none"> • Broad adhesion range without use of primers • Excellent UV and weathering resistance • Universal range of applications 	TEROSON MS 939 FR <ul style="list-style-type: none"> • Good fire resistance and low smoke emission • High strength assembly and vibration damping • Broad adhesion range without use of primers • Excellent UV and weathering resistance 	TEROSON MS 9399 <ul style="list-style-type: none"> • Curing Independent of air/ humidity • Easy handling 2K system • Short tack-free time • High initial strength 	TEROSON MS 9320 SF <ul style="list-style-type: none"> • Sag resistant • Sprayable and brushable • Overpaintable • Fast curing
			*Only available in white **Available in white, grey, black	

Industrial Sealants / Adhesives – Silane Modified Polymers

Product List

Product	Colour	Consistency	Shore A hardness (DIN EN ISO 868)	Depth of cure after 24 hr	Skin formation time	Tensile strength (DIN 53504)
TEROSON MS 500	White, black	Pasty, high holding force	63	3 mm	12 min.	3 MPa
TEROSON MS 647	White, black	Pasty, thixotropic	50	3 mm	15 min.	2.8 MPa
TEROSON MS 650	Black	Pasty, thixotropic	55	3 mm	5 min.	3 MPa
TEROSON MS 930	White, grey, black	Pasty, thixotropic	30	4 mm	18 min.	0.9 MPa
TEROSON MS 931	White, grey, black	Self-levelling	30	3 mm	20 min.	0.8 MPa
TEROSON MS 935	White, grey, black	Pasty, thixotropic	50	3 mm	8 min.	2.8 MPa
TEROSON MS 937	White, grey, black	Pasty, thixotropic	50	4 mm	8 min.	3.0 MPa
TEROSON MS 939	White, off-white, grey, black	Pasty, thixotropic	55	3 mm	5 min.	3.0 MPa
TEROSON MS 939 FR	Black, grey	Pasty, thixotropic	55	3 mm	20 min.	3.5 MPa
TEROSON MS 9302	Grey, brown	Thixotropic	30	3 mm	10 min.	1.1 MPa
TEROSON MS 9320 SF	Grey, ochre, black	Pasty, thixotropic	30	4.5 mm	12 min.	–
TEROSON MS 9360	Black	Pasty, thixotropic	60	3 mm	5 min.	3.5 MPa
TEROSON MS 9380	White, grey	Pasty, thixotropic	70	3 mm	5 min.	3.5 MPa
TEROSON MS 9399	White, grey, black	Pasty, thixotropic	55	2K system	35 min.	3.0 MPa

Cleaner

TEROSON SB 450 – alcoholic solution designed for cleaning and to improve adhesion (thin fluid, colourless)

B-Component (Hardener) for 2K Curing

TEROSON MS 9371 B – accelerator paste for TEROSON MS adhesives and sealants (pasty, thixotropic, white)

Elongation at break (DIN 53504)	Service temperature range	Pack sizes	Comments / special features
200%	-40°C to +100°C	310ml, 25kg	UL QMFZ2 electrical safety, hot applicable
200%	-40°C to +100°C	Not available in the U.K.	2K / UL QOQW2 mechanical safety
200%	-40°C to +100°C	Not available in the U.K.	Unique ultra-fast curing as 2K
250%	-50°C to +80°C	290ml, 310ml, 570ml, 27kg	2K / UL QMFZ2 electrical safety
100%	-40°C to +80°C	290ml	Sensory analysis acc. to DIN 10955
230%	-40°C to +100°C	290ml, 310ml, 570ml	1K/2K / UL QMFZ2 electrical safety
220%	-40°C to +100°C	290ml, 570ml, 27kg	ILH fungus resistance to DIN EN ISO 864 (VDI 6022)
250%	-40°C to +100°C	290ml, 570ml, 25kg, 280kg	1K/2K / UL QOQW2 mechanical safety
180%	-40°C to +100°C	290ml, 570ml, 25kg	Flame retardant approvals: Flammability + smoke DIN 5510-2, ASTM E162 + E 662, NF F, 16-101 M1/F0
250%	-40°C to +80°C	Not available in the U.K.	ILH fungus resistance to DIN EN ISO 864 (VDI 6022)
–	-40°C to +100°C	300ml	Fast curing, no cracks, no rust penetration
200%	-40°C to +100°C	290ml, 25kg, 250kg	High strength
120%	-40°C to +100°C	290ml, 25kg	GL (Germanischer Lloyd) approved elastomeric adhesive
150%	-40°C to +100°C	2 x 25ml*, 2 x 200ml**	ILH fungus resistance to DIN EN ISO 864 (VDI 6022), ASTM E 162 + E 662

*Only available in white

**Available in white, grey, black



Industrial Sealants / Adhesives – Butyls

Product Table

How do you want to apply the product?

Manual application

Pre-formed

Cold applied

Can be applied after the release paper / foil has been pulled off

Low tackiness

High tackiness

Medium cohesion

High cohesion

Solution

TEROSON RB VII



TEROSON RB 276



TEROSON RB 81



Density

1.69 g/cm³

1.41 g/cm³

1.26 g/cm³

Solids content

100%

100%

100%

Adhesion strength

Low

High

Very high

Processing temperature

Room temperature

Room temperature
(hot applied: +120°C to +140°C)

Room temperature
(hot applied: +80°C to +160°C)

Service temperature range

-40°C to +80°C

-40°C to +80°C

-40°C to +80°C

Pack sizes on request

TEROSON RB VII

- Easy to remove
- Very good water and ageing resistance
- Good for spacing

TEROSON RB 276

- High tackiness
- Very good ageing resistance
- Pumpable at elevated temperatures

TEROSON RB 81

- High quality sealing tape
- High tackiness and self-welding
- Very good water and ageing resistance
- No corrosive constituents

		Automated application	
		Formed in place	
		Cold applied	Hot applied
		Gun grade butyls	Hotmelt butyls
Kneadable			Heat conductive
TEROSON RB IX	TEROSON RB 2759	TEROSON RB 6814	TEROSON RB 301
			
1.8 g/cm ³	1.48 g/cm ³	1.3 g/cm ³	1.25 g/cm ³
100%	87%	100%	100%
Low	Medium	Very high	Very high
Room temperature	Room temperature	+80°C to +150°C	+80°C to +160°C
-30°C to +80°C	-30°C to +80°C	-40°C to +80°C	-40°C to +80°C
TEROSON RB IX <ul style="list-style-type: none"> • Slight tackiness • Very good water and ageing resistance • Good for spacing 	TEROSON RB 2759 <ul style="list-style-type: none"> • Easy to dab off • Very good water and ageing resistance 	TEROSON RB 6814 <ul style="list-style-type: none"> • High tackiness • Pumpable • Soft plastic 	TEROSON RB 301 <ul style="list-style-type: none"> • High thermal conductivity • Pumpable and hot extrudable • Also available as profiled grade

Industrial Sealants / Adhesives – Butyls

Product List

Product	Characteristic	Colour	Density	Solid content	Adhesion strength	Processing temperature
TEROSON RB IX	Putty	Light grey	1.80 g/cm ³	100%	Low	Room temperature*
TEROSON RB VII	Putty	Light grey	1.69 g/cm ³	100%	Low	Room temperature*
TEROSON RB 81	Pre-formed and hot applied butyl	Black	1.26 g/cm ³	100%	Very high	Room temperature* hot applied**: +80°C to +160°C
TEROSON RB 276	Pre-formed and hot applied butyl	Grey and black	1.41 g/cm ³	100%	High	Room temperature* hot applied**: +120°C to +140°C
TEROSON RB 276 Alu	Composite	Silver black	1.41 g/cm ³	100%	High	Room temperature*
TEROSON RB 279	Hot applied butyl	Black	1.40 g/cm ³	100%	Very high	+80°C to +160°C
TEROSON RB 285	Hot applied butyl	Grey	1.33 g/cm ³	100%	Very high	+80°C to +160°C
TEROSON RB 301	Hot applied butyl	Anthracite	1.25 g/cm ³	100%	Very high	+80°C to +160°C
TEROSON RB 302	Hot applied butyl	Anthracite	1.25 g/cm ³	100%	High	+80°C to +160°C
TEROSON RB 2759	Cartridge grade, room temperature extrudable	Grey	1.48 g/cm ³	87%	Medium	Room temperature*
TEROSON RB 2761	Pre-formed butyl	Black	1.30 g/cm ³	100%	High	Room temperature*
TEROSON RB 2785	Hot applied butyl	Black	1.05 g/cm ³	> 98%	Very high	Room temperature* hot applied**: +90°C to +130°C
TEROSON RB 3631 FR	Pre-formed parts	Black	1.40 g/cm ³	100%	Medium	Room temperature*
TEROSON RB 4006	Cartridge grade, room temperature extrudable	Grey	1.40 g/cm ³	85%	Low	Room temperature***
TEROSON RB 6814	Hot applied butyl	Black	1.30 g/cm ³	100%	Very high	+80°C to +150°C

* Pack size: tape

** Pack size: drum or hobbock

*** Pack size: cartridge or sausage

Service temperature range	Penetration 1/10 mm	Comments
-30°C to +80°C	75	Kneadable sealant for gap and breakthrough filling
-40°C to +80°C	56	Sealing of metal sheet overlap
-40°C to +80°C	71	Very high tackiness, improved performance
-40°C to +80°C	55	Multi-purpose, high strength
-40°C to +80°C	–	Laminated with an aluminium composite foil for excellent weathering and UV resistance, water vapour diffusion (DIN 53 122): $\mu = 645,000$
-40°C to +80°C	85	Excellent pumpable hot butyl with high adhesion strength
-40°C to +80°C	160	Fungus resistant pumpable hot butyl
-40°C to +80°C	70	High thermal conductivity, pumpable hot butyl
-40°C to +80°C	85	Very high thermal conductivity, pumpable and hot extrudable, also available as profiled grade
-30°C to +80°C	–	Solvent-based gun grade
-40°C to +80°C	50	Vacuum bagging tape for infusion processes up to +80°C mould temperature
-40°C to +100°C	55	Good adhesion, high temperature resistance
-40°C to +105°C	48	Flame retardant tape, high temperature resistance
-20°C to +80°C	–	Gun grade, solvent-based sag resistant sealant
-40°C to +80°C	105	High performance hot butyl

Casting Resins

Product Table

What kind of application are you looking at?

Solution	Air		Food / Water	
	Liquid	Thixotropic	Dry substrates	
	LOCTITE UK 8439-21	LOCTITE UK 8180 N	LOCTITE CR 3525	LOCTITE UK 178 A
Technology	2K PU	2K PU	2K PU	2K PU
Recommended hardener (Part B)	LOCTITE UK 5400	LOCTITE UK 5400	LOCTITE CR 4200	LOCTITE UK 178 B
Mixed colour	Light beige	Beige	Yellowish	Yellowish
Mix ratio by weight*	5:2	5:3	100:75	1:1
Working life**	4 – 5 min.	4 – 6 min.	20 – 26 min.	40 – 60 min.
Mixture viscosity**	400 – 1,000 mPa·s	Thixotropic	900 – 1,700 mPa·s	18,000 – 30,000 mPa·s
Service temperature range	-40°C to +80°C	-40°C to +80°C	80°C in process	+50°C in process
Short exposure (1hr)	+150°C	+150°C	+120°C	+120°C
Pack sizes	Not available in the U.K.	Not available in the U.K.	Not available in the U.K.	Not available in the U.K.
	<p>LOCTITE UK 8439-21</p> <ul style="list-style-type: none"> • Self-levelling • Fast setting • Broad adhesion spectrum <p>LOCTITE UK 8439-21 has very good workability and self-levelling properties. It is designed for the manufacture of particulate air filters. The product meets the requirements of the HEPA filter industry.</p>	<p>LOCTITE UK 8180 N</p> <ul style="list-style-type: none"> • Fast built-in thixotropy • Short processing time • Good penetration into filter media <p>LOCTITE UK 8180 N forms a chemical thixotropy which allows very fast in line processing for the assembly of filter elements. The product is suitable for clean room applications.</p>	<p>LOCTITE CR 3525</p> <ul style="list-style-type: none"> • Fast setting • Easy processability <p>LOCTITE CR 3525 undergoes a low exothermic reaction and therefore allows fast processing.</p> <p>KTW approval EG 1935 2004, direct food contact 2002/72/EC approval for the plastics industry</p>	<p>LOCTITE UK 178 A</p> <ul style="list-style-type: none"> • NSF approval, especially for spiral wound filters (RO)

Filter application

Electrical application

Medical

Oil

Wet substrates

**LOCTITE
EA 9299 A**



2K EP

LOCTITE EA 9299 B

Yellowish

100:35

6 hr

Liquid

+80°C in process

+200°C

Not available in the U.K.

LOCTITE EA 9299 A

- Good adhesion properties
- High processing temperature resistance

LOCTITE EA 9299 A has a very good chemical resistance and offers good adhesion to wet fibres in the production process.

**LOCTITE
CR 5103**



2K PU

LOCTITE CR 4100

Yellowish

100:72

5.5 – 7.5 min.

700 – 1,500 mPa·s

+45°C in process

+120°C

Not available in the U.K.

LOCTITE CR 5103

- Allows steam, ETO or gamma ray sterilisation
- Very good adhesion

LOCTITE CR 5103 has very good penetration properties during centrifugation. The product is ISO 10993 compliant for medical equipment and approved for dialysers.

**LOCTITE
CR 3502**



2K PU

LOCTITE CR 4100

Yellowish

100:62

330 – 430 sec.

600 – 1,400 mPa·s

+40°C in process

+120°C

Not available in the U.K.

LOCTITE CR 3502

- Allows steam, ETO or gamma ray sterilisation
 - Very good adhesion
- LOCTITE CR 3502 has very good penetration properties during centrifugation. The product is ISO 10993 compliant for medical equipment and approved for dialysers.

**LOCTITE
EA 9430 A**



2K EP

LOCTITE EA 9430 B

Yellowish

10:1

16 hr

8,000 mPa·s

-55°C to +100°C

+200°C

Not available in the U.K.

LOCTITE EA 9430 A

- Long working life
 - High temperature stability
 - Low shrinkage
- LOCTITE EA 9430 A exhibits very good resistance to hydraulic fluids, fuel and chemicals. Due to its long open time it can also be used for large potting applications e.g. in gas separation filters.

**LOCTITE
CR 6127**



2K PU

LOCTITE CR 4300

Light beige

85:15

70 – 110 min.

2,600 mPa·s

-40°C to +80°C

+150°C

35kg

LOCTITE CR 6127

- Flame retardant acc. to UL 94 V0
 - Elastic properties
 - Very good electrical properties e.g. dielectric strength or permittivity
- LOCTITE CR 6127 is qualified for the casting of telecommunication components, transformers or other electrical/electronic devices.

Casting Resins

Product List

Product	Technology	Application	Colour	Viscosity	Can be used with hardener part B	Mixed data	
						Mix ratio by weight*	Viscosity**
LOCTITE CR 3502	2K PU Resin	Medical	Yellowish	800 – 1,600 mPa·s	LOCTITE CR 4100	100:62	600 – 1,400 mPa·s
LOCTITE CR 3507	2K PU Resin	Medical	Yellowish	7,000 – 8,500 mPa·s	LOCTITE CR 4100	100:44	3,800 – 5,000 mPa·s
LOCTITE CR 3510	2K PU Resin	Water	Beige	1,600 – 2,400 mPa·s	LOCTITE CR 4300	100:60	200 – 600 mPa·s
LOCTITE CR 3519	2K PU Resin	Water	White	2,600 – 3,800 mPa·s	LOCTITE CR 4200	100:80	1,100 – 1,900 mPa·s
LOCTITE CR 3525	2K PU Resin	Food/water	Yellowish	1,000 – 1,600 mPa·s	LOCTITE CR 4200	100:75	900 – 1,700 mPa·s
LOCTITE CR 3528	2K PU Resin	Water	Yellowish	900 – 1,700 mPa·s	LOCTITE CR 4200	100:82	900 – 1,700 mPa·s
LOCTITE CR 5103	2K PU Resin	Medical	Yellowish	1,000 – 1,400 mPa·s	LOCTITE CR 4100	100:72	700 – 1,500 mPa·s
LOCTITE CR 6127	2K PU Resin	Electrical	White	8,000 – 14,000 mPa·s	LOCTITE CR 4300	85:15	2,200 – 3,000 mPa·s
LOCTITE CR 6130	2K PU Resin	Electrical	White	3,000 – 4,600 mPa·s	LOCTITE CR 4300	100:28	800 – 1,400 mPa·s
LOCTITE EA 1623986 A	2K Epoxy	End cap/water	Beige	4,000 – 7,000 mPa·s	LOCTITE EA 1623986 B	10:2,9	–
LOCTITE EA 9299 A	2K Epoxy	Food/water	Amber (mixture)	–	LOCTITE EA 9299 B	100:35	Liquid
LOCTITE EA 9430 A	2K Epoxy	Oil	–	–	LOCTITE EA 9430 B	10:1	Approx. 8,000 mPa·s
LOCTITE UK 178 A	2K PU Resin	Food/water	Yellowish (mixture)	18,000 – 26,000 mPa·s	LOCTITE UK 178 B	1:1	18,000 – 30,000 mPa·s
LOCTITE UK 8101	2K PU Resin	Air/waste water	Beige	6,000 – 10,000 mPa·s	LOCTITE UK 5400	4:1	2,500 – 2,800 mPa·s
LOCTITE UK 8103	2K PU Resin	Air/waste water/oil	Beige	24,000 – 30,000 mPa·s	LOCTITE UK 5400	5:1	8,000 – 10,000 mPa·s
LOCTITE UK 8121 B11	2K PU Resin	Oil/waste water	Beige	4,000 – 7,000 mPa·s	LOCTITE CR 4120	100:35	800 – 1,400 mPa·s

* Mix ratio by weight depends on used hardener. For further details please refer to the TDS or contact your sales representative

** Viscosity and working life data are linked to the standard hardener (the first in the range)

Mixed data					Pack size	Comments
Pot life	Shore A/D hardness	Short exposure (1hr)	Service temperature			
330 – 430 sec.	87 – 97 (D)	+120°C	+40°C in process	Not available in the U.K.	Biologically compatible casting resin for dialysers	
8 – 10.5 min.	80 – 90 (A)	+120°C	+40°C in process	Not available in the U.K.	Biologically compatible casting adhesives for medical devices	
25 – 35 min.	65 – 75 (D)	+120°C	+50°C in process	Not available in the U.K.	KTW approval	
30 – 40 min.	60 – 70 (D)	+120°C	+40°C in process	Not available in the U.K.	KTW approval, casting resin for filters	
20 – 26 min.	58 – 68 (D)	+120°C	+80°C in process	Not available in the U.K.	Fast setting, KTW approval	
15 – 20 min.	70 – 80 (D)	+120°C	-40°C to +80°C	Not available in the U.K.	Casting resin for water and food filters, KTW approval	
5.5 – 7.5 min.	58 – 68 (D)	+120°C	+40°C in process	Not available in the U.K.	Biologically compatible for dialyser end caps	
70 – 110 min.	79 – 89 (A)	+150°C	-40°C to +80°C	35kg	Low viscosity, good elasticity, long open time, UL-94 approval	
135 – 225 sec.	65 – 75 (A)	+120°C	-40°C to +80°C	250kg	Low viscosity, good elasticity, short open time	
800 – 1.200 sec.	–	–	–	Not available in the U.K.	Especially suited for the spiral winding and binding of glass yarns used during the production of reverse osmosis filter elements	
6 hr	80 (D)	+200°C	+80°C in process	Not available in the U.K.	KTW approval, good adhesion properties, for wet fibres, high processing temperature resistance	
16 min.	–	+200°C	-55°C to +100°C	Not available in the U.K.	Long working life, high temperature stability	
40 – 60 min.	80 – 90 (A)	+120°C	+50°C in process	Not available in the U.K.	NSF approval, for spiral wound filters	
50 – 70 min.	–	+150°C	-40°C to +80°C	Not available in the U.K.	Low viscosity, for air filter casting	
40 – 70 min.	–	+150°C	-40°C to +80°C	24kg	For air filter casting, IMO approval	
9.5 – 12.5 min.	75 – 85 (D)	+120°C	-40°C to +80°C	Not available in the U.K.	Especially for gravel filters, KTW approval	

Casting Resins

Product List

Product	Technology	Application	Colour	Viscosity	Can be used with hardener part B	Mixed data	
						Mix ratio by weight*	Viscosity**
LOCTITE UK 8180 N	2K PU Resin	Air	Beige	700 – 1,000 mPa·s	LOCTITE UK 5400	5:3	Thixotropic
LOCTITE UK 8439-21	2K PU Resin	Air	White	750 – 1,250 mPa·s	LOCTITE UK 5400	5:2	400 – 1,000 mPa·s
LOCTITE UK 8630	2K PU Resin	Oil	Beige	5,000 – 9,000 mPa·s	LOCTITE UK 5400	100:57.5	3,000 – 5,000 mPa·s
LOCTITE CR 4100	2K PU Hardener	–	Yellowish	700 – 1,500 mPa·s	–	–	–
LOCTITE CR 4200	2K PU Hardener	–	Yellowish	3,000 – 4,400 mPa·s	–	–	–
LOCTITE CR 4300	2K PU Hardener	–	Clear brown	40 – 70 mPa·s	–	–	–
LOCTITE UK 5400	2K PU Hardener	–	Brown	250 – 300 mPa·s	–	–	–

Casting Resins Based on Epoxy and Polyurethane Technology

Possessing versatile characteristics, casting resins based on epoxy and polyurethane technology have been steadily gaining ground over the past decades. They can be chemically engineered to be very hard and impact resistant or soft and elastic. A casting resin usually consists of two basic components which are mixed and react with each other to form a cross-linked product. Systems of this kind generally display high strength, are easy to apply, and have very good gap filling properties. Polyurethane casting resins are compatible with a broad range of materials and withstand temperatures of up to 120°C (with brief peaks up to 150°C). If higher temperatures are required (up to 180°C), epoxy casting resins are used.

* Mix ratio by weight depends on used hardener. For further details please refer to the TDS or contact your sales representative

** Viscosity and working life data are linked to the standard hardener (the first in the range)

Mixed data					Pack size	Comments
Pot life	Shore A/D hardness	Short exposure (1hr)	Service temperature			
4 – 6 min.	–	+120°C	-40°C to +80°C	Not available in the U.K.	Thixotropic, good penetration into filter media	
4 – 5 min.	–	+120°C	-40°C to +80°C	Not available in the U.K.	For HEPA filters, self-levelling	
35 – 55 min.	–	+150°C	-40°C to +80°C	Not available in the U.K.	For air filter casting, low viscosity	
–	–	–	–	Not available in the U.K.	Temperature sensitive, do not store at lower than 20°C	
–	–	–	–	Not available in the U.K.	Temperature sensitive, do not store at lower than 20°C	
–	–	–	–	6kg	Temperature sensitive, do not store at lower than 20°C	
–	–	–	–	6kg, 30kg, 250kg	Temperature sensitive, do not store at lower than 20°C	

Acoustic Coatings

Soundproofing



Why use TEROSON acoustic coatings?

Basically, there are two options for controlling noise: insulation or absorption. As both options can be applied to airborne and to structure-borne sound, there are in fact four different types of noise control:

1. Absorption of structure-borne sound

Absorption of structure-borne sound is achieved by converting part of the sound energy into thermal energy while the sound travels through homogeneous materials attached or bonded to a solid body. In this way, the structure-borne sound is absorbed before it generates air-borne sound. The better the absorption properties of such damping materials, the better the structure-borne sound absorption. The “loss factor” is a parameter for measuring this effect.

2. Insulation against structure-borne sound

Insulation against structure-borne sound is achieved by attenuating the propagation of sound by using a flexible material for sound insulation. The softer and more voluminous this material, the better the structure-borne sound insulation.

3. Absorption of air-borne sound

Absorption of air-borne sound is achieved by converting part of the air-borne sound energy into thermal energy as the sound penetrates into fibrous or foam materials. The thicker the fibrous or foam materials, the better the air-borne sound absorption.

4. Insulation against air-borne sound

Insulation against air-borne sound is achieved when part of the sound energy is reflected by a wall. The remaining sound energy is transmitted through the wall and re-radiated on the opposite side in the form of air-borne sound. The heavier and more flexible the partitioning wall, the better the air-borne sound insulation.

Sound Measurement and Evaluation

The pressure of air-borne sound waves is measured by means of a sound level meter with a microphone. Sound levels are measured in units of decibels (dB). As the subjective response to noise as perceived by the human ear is largely dependent on the frequency or the frequency spectrum of a sound, level meters are provided with weighting filters for equalisation. The A-weighted sound level, expressed as dBA, will be sufficiently accurate for most comparative noise measurements.

Loss Factor “d”

The acoustic loss factor “d” is used as a measure of the noise absorption capability of a material. This factor indicates how much of the sound energy propagated in the form of flexural waves will be absorbed and converted into heat energy. The loss factor of a material depends on frequency and temperature. It does not, however, provide a meaningful indication of the actual reduction of noise level which can be achieved. It must therefore be measured on site. Striking a reasonable compromise between economic cost and benefit, a loss factor of approx. 0.1 has been found acceptable for a wide range of applications.

Air-Borne Sound Absorption Coefficient α

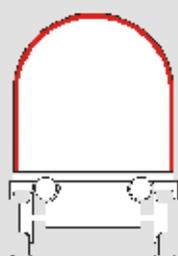
The absorption capability of a material is expressed as an air-borne sound absorption coefficient α . It describes the percentage of incident sound energy which is absorbed and converted into heat energy. The absorption coefficient α depends to a great extent on frequency. The lower (deeper) the frequency, the thicker the absorbent material that needs to be used!

Soundproofing

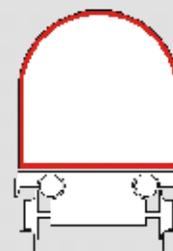
- Highly efficient paste-type soundproofing materials
- Offer outstanding absorption capabilities
- Reduction of structure-borne noise
- Can be coated in any thickness to meet the most exacting requirements for universal structure-borne sound absorption
- Can be applied by spatula or spray gun
- Approved according DIN 5510 Part 2, class S4-SR2-ST2 (Fire Behaviour)

Solution

TEROSON WT 112 DB



TEROSON WT 129



Chemical base

Aqueous synthetic resin dispersion

Aqueous synthetic resin dispersion

Density wet/dry

1.4 g/cm³ / 1.2 g/cm³

1.35 g/cm³ / 1.15 g/cm³

Solids content

65%

70%

Drying time (4 mm wet film) (DIN EN ISO 291)

24 hr

20 hr

Temperature resistance

-50°C to +120°C

-50°C to +120°C

Pack size

40kg, 250kg drum

Not available in the U.K.

Handy Hints

- Never apply TEROSON water-based products to bare steel sheets because there is serious risk of corrosion
- The Henkel range includes other soundproofing products which are available on request

TEROSON WT 112 DB

- Solvent-free
 - Ready to apply from spray guns
 - Excellent fire resistance
 - Low flammability
 - Good thermal insulation properties
- TEROSON WT 112 DB is used for damping vibrating planar surfaces. Examples are rail coaches, ships, plant and equipment, buildings, ventilation ducts, fan housings, lifts, waste disposal units, facade elements or containers. TEROSON WT 112 DB coatings must not be directly exposed to water.

TEROSON WT 129

- Solvent-free
 - Ready to apply from spray guns
 - Moisture resistant
 - Low flammability
 - Good thermal insulation properties
- TEROSON WT 129 is used for damping of thin walled metal structures. Examples are similar to TEROSON WT 112 DB. TEROSON WT 129 can be exposed to standing water for a longer period of time.

Metal-Filled Compounds

To Repair Metal Parts



Why use a LOCTITE metal-filled compound?

LOCTITE metal-filled compounds offer maintenance solutions to the problems caused by impingement and mechanical damage, including cracks in housings, worn keyways in shafts and collars, worn cylindrical shafts etc.

LOCTITE metal-filled compounds repair, rebuild and restore damaged machinery and equipment permanently and without the need for heating or welding.

Traditional Methods vs Modern Solutions

Traditional repair methods such as hard face welding are time consuming and expensive. Alternatively, LOCTITE metal-filled compounds are easily applied and offer superior compressive strength and protection qualities.

LOCTITE metal-filled compounds and LOCTITE protective coatings and compounds help you restore and rebuild a wide variety of worn parts and return them to a serviceable condition.

Key benefits of LOCTITE metal-filled compounds

- Fast repair
- Low shrinkage to reduce stress on components
- Easy to apply
- No need to heat parts
- Suitable for production line repairs
- Match metal colour
- Can be drilled, tapped or machined after cure
- Superior adhesion to metal, ceramic, wood, glass and some plastics
- Excellent resistance to aggressive chemicals to increase part life
- Choice of mild steel, aluminium or non-metallic fillers for metal colour matching
- Create durable repairs
- High compression strength for mechanical applications

Key factors to consider when choosing the right LOCTITE metal-filled compound

Metal Repair

LOCTITE products for metal repair use steel or aluminium fillers to obtain properties as close as possible to the part being repaired. Non metal filled products can be used to rebuild worn areas constantly subjected to cavitation and wear.

Consistency

The range of LOCTITE metal-filled compounds includes pourable, putty or kneadable products to meet all requirements.

Special Requirements

As some applications are extremely demanding, Henkel has developed special products to resist high compression loads, high temperatures and highly abrasive environments.

Surface Preparation

Correct surface preparation is vital for the successful application of these products.

Good surface preparation will:

- Improve adhesion of LOCTITE metal-filled compounds to parts
- Prevent corrosion between the metal surface and the LOCTITE metal-filled compound
- Extend part life

After surface preparation, parts must be:

- Clean and dry
- Without surface or internal chemical contamination
- Without corrosion
- Left with a surface profile of 75 µm minimum



Product Application

LOCTITE metal-filled compounds are two-component epoxies. Products must be mixed thoroughly before application, using the correct mixing ratio, until a uniform colour is achieved.

Putty products should be applied in thin layers. Press in place firmly and build up to the required thickness to fill the gap. Particular care must be taken to prevent air bubbles forming.



Shaft Repair

Use LOCTITE EA 3478 for this special application. This product is particularly suitable for rebuilding bearing seats. Please contact your local Technical Support to obtain specific recommendations for shaft repair solutions.



Metal-Filled Compounds

Product Table

Repair or rebuild damaged metal parts?

Solution

	Steel		
	Kneadable	High compressive strength	Putty
	LOCTITE EA 3463 (Metal Magic Steel™ stick)	LOCTITE EA 3478 (Superior Metal)	LOCTITE EA 3471 (Metal Set S1)
			
Description	2K Epoxy	2K Epoxy	2K Epoxy
Mix ratio by weight	–	7.25:1	1:1
Working life	3 min.	20 min.	45 min.
Fixture time	10 min.	180 min.	180 min.
Shear strength (GBMS)	≥ 6 N/mm ²	17 N/mm ²	20 N/mm ²
Compressive strength	83 N/mm ²	125 N/mm ²	70 N/mm ²
Service temperature range	-30°C to +120°C	-30°C to +120°C	-20°C to +120°C
Pack sizes	114g	453g, 3.5kg tub kit	500g tub kit

LOCTITE EA 3463

- Emergency sealing of leaks in pipes and tanks
- Smooths welds
- Repairs small cracks in castings

Sets in 10 minutes. Steel-filled kneadable stick. Adheres to damp surfaces and cures under water. Chemical and corrosion resistant. Can be drilled, filed and painted.

LOCTITE EA 3478

- Rebuilds keyways and spline assemblies
- Rebuilding of bearings, clamp connections, tensioning elements, gear wheels or bearing seats

Ferro-silicon-filled, with outstanding compression strength. Ideal for renewing surfaces subjected to compressive, thrust, impact and harsh environments.

LOCTITE EA 3471

- Seals cracks in tanks, castings, vessels and valves
- Patches non structural defects in steel casings
- Resurfaces worn air seals
- Repairs pitting caused by cavitation and/or corrosion

General purpose steel filled, non sagging two component epoxy. Used to rebuild worn metal parts.

What material are you filling?

Aluminium

Metallic components
exposed to friction

Pourable

Fast cure

Multi-purpose

High temperature
resistance

Wear resistant

**LOCTITE
EA 3472**

(Metal Set S2)



2K Epoxy

1:1

45 min.

180 min.

25 N/mm²

70 N/mm²

-20°C to +120°C

500g tub kit

LOCTITE EA 3472

- Forms moulds, fixtures and prototypes
 - Repairs threaded parts, pipes and tanks
- Pourable, steel filled, self levelling. Recommended for casting into hard to reach areas, anchoring and levelling, forming moulds and parts.

**LOCTITE
EA 3473**

(Metal Set S3)



2K Epoxy

1:1

6 min.

15 min.

20 N/mm²

60 N/mm²

-20°C to +120°C

500g tub kit

LOCTITE EA 3473

- Repairs holes in tanks, leaks in pipes and elbows
 - Renews stripped threads
 - Rebuilds worn steel parts
- Fast curing, steel filled, non sagging. Ideal for emergency repair and repairing worn metal parts to prevent downtime.

**LOCTITE
EA 3475**

(Metal Set A1)



2K Epoxy

1:1

45 min.

180 min.

20 N/mm²

70 N/mm²

-20°C to +120°C

500g tub kit

LOCTITE EA 3475

- Repairs aluminium castings, cracked or worn aluminium parts and stripped aluminium threads
- A non sagging, heavily reinforced, aluminium powder filled two component epoxy. Easily mixed and moulded to form odd shapes if required. Cures to a non-rusting, aluminium like finish.

**LOCTITE
EA 3479**

(Metal Set HTA)



2K Epoxy

1:1

40 min.

150 min.

20 N/mm²

90 N/mm²

-20°C to +190°C

500g tub kit

LOCTITE EA 3479

- Rebuilds and repairs worn metal parts in high operating temperature applications
- A non sagging, heavily reinforced, aluminium powder filled two component epoxy. Easily mixed and moulded to form odd shapes if required. Cures to a non-rusting, aluminium like finish.

**LOCTITE
EA 3474**

(Metal Set M)



2K Epoxy

1:1

45 min.

180 min.

20 N/mm²

70 N/mm²

-20°C to +120°C

Not available in the U.K.

LOCTITE EA 3474

- Ideal for repairing metallic surfaces under friction
- Steel putty, high wear resistant. Forms a self lubricating surface to reduce sliding wear on moving parts.

Concrete Repair and Chocking

Rebuilding and Protection of Concrete / Chocking of Machinery

Why use LOCTITE concrete repair compounds?

Our concrete repair products are designed to rebuild, repair and protect concrete structures and floors from mechanical damage and chemical attack. They bond to concrete, wood, glass, steel and other construction materials and guarantee fast, reliable and long lasting repairs.

Typical applications include ramps and loading areas, support beam and footer repairs, bridge decking and supports, concrete bunds and walls, floor and tank protection etc.

Rebuild and Repair



Damaged



Restored

Use LOCTITE PC 7257 or LOCTITE PC 7204 to restore concrete. Both products can be applied horizontally, vertically and overhead.

Protection



Unprotected



Protected

Use LOCTITE PC 7277 to protect concrete against chemical attack. Easy to apply by brush, roller or spray equipment.

Traditional repair methods such as repairing floors or walls with conventional concrete need extensive time for curing. Alternatively, LOCTITE concrete repair products are easily mixed, applied and cured on the same day.

Key Benefits

- Easy to apply
- Chemical resistant
- Quick drying time compared to traditional methods
- Reduces repair time, labour costs and downtime
- Can be applied at temperatures even below 0°C
- Can be applied on damp surfaces
- Does not shrink or crack
- Can be coloured with standard cement colouring powders



Why use LOCTITE marine chocking?

LOCTITE marine chocking is a two-component epoxy system recommended for the installation of main engines and other equipment in the marine industry. It is used to build a foundation for devices like engines, gear boxes, winches etc. not only in ships, but also in general industrial plants.

The product achieves:

- 100% surface coverage
- Equipment alignment
- High compressive strength
- Long term durability

It is specifically developed for chocking marine main propulsion and auxiliary machinery. Other shipboard applications include: stern tube and strut bearings, pintle and rudder bearings, pedestal bearings, steering gears, stern winches, engine room pumps, cargo pumps, cable penetrations, large ball or roller bearings, bow thrusters and anchor windlasses.

Key Benefits

- Self levelling, fast curing, non shrinking
- Excellent chemical and vibration resistance
- Excellent compressive strength
- Eliminates need for precise preparation of machine surface
- Decreases shock induced noise of machinery

Approved By

- BUREAU VERITAS
- GL/DNV
- Lloyd's Register
- ABS
- RINA
- Russian Maritime Register of Shipping
- PRS
- MAN

Traditional Method vs. Modern Solution

	Concrete	LOCTITE PC 7202 Marine Chocking
Compressive strength	Low	High
Tensile strength	Low	High
Chemical resistance	Low	High
Cure time	7 – 21 days	24 hr @ 25°C
Drying time	28 days	24 hr
Adhesion to steel / metal	None	Very good
Layer thickness	–	10 – 100 mm

Concrete Repair and Chocking

Product Table

What is your application?

Solution

Rapid setting grout

LOCTITE PC 7257



Colour

Grey

Service temperature range

-26°C to +1,090°C

Mix ratio by volume / weight (A:B)

1:5/100:500

Working time

3 – 11 min.

Surface drying time

15 – 22 min.

Recommended layer thickness

Min. 64mm

Pack sizes

5.54 kg, 25.7 kg

LOCTITE PC 7257

Rapid setting concrete repair and grouting system for

- Repair/rebuilding of ramps and loading areas
- Support beam and footer repairs
- Bridge decking and supports
- Concrete bunds and walls
- Grouting bedplates and soleplates
- Anchoring bolts and handrails

Concrete repair and protection

Chocking

Chemical resistant grout

Protective coating

LOCTITE PC 7204

LOCTITE PC 7277

LOCTITE PC 7202



Grey

Blue

Green

-29°C to + 65°C

-30°C to +95°C

-40°C to 121°C

Refer to TDS

2.8:1/100:28

100:11.6/100:6.9

60 min.

20 min.

10 – 15 min.

5 hr

2.8 hr

24 hr

Min. 6mm

Refer to TDS

10 – 100 mm

Not available in the U.K.

5kg, 30kg

Not available in the U.K.

LOCTITE PC 7204

Chemical resistant quartz filled epoxy for

- Floor protection in chemical containment areas (bunds)
- Protection of concrete support areas against high dynamic loads
- Resurfacing ramps and stairs

LOCTITE PC 7277

Chemical resistant brushable non filled two component epoxy for

- Tanks, reservoirs and pipes
- Flooring

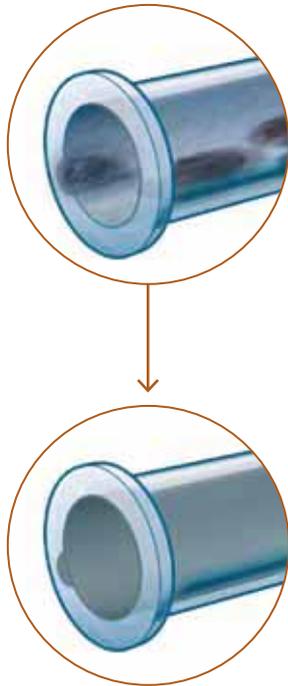
LOCTITE PC 7202

Self levelling, fast curing, non shrinking two component epoxy for installation of main propulsion and auxiliary machinery like

- Stern tube and strut bearings
- Pintle and rudder bearings
- Stern winches

Surface Coatings

Protection of Parts Against External Attack



Why use a LOCTITE surface coating?

LOCTITE surface coatings offer maintenance solutions to problems caused by wear, abrasion, erosion, chemical attack and corrosion. They are available in trowelable, brushable and sprayable formulations with special fillers for tough conditions and are ideal for all those large scale repairs that have to last. Typical applications for this product range include air ducts, pumps, heat exchangers, centrifuges, impellers, fan blades, cyclones, pipes, tanks, retention areas etc.

LOCTITE surface coatings provide excellent wear resistance and superior adhesion. Filled with ceramic particles, specific to the different service conditions, they protect against abrasion and therefore extend the service life of a wide range of plant areas and equipment. Their key advantage is their capability to create a sacrificial and renewable working surface, protecting the structural integrity of the original substrate.

One grade has specifically been developed to protect against corrosion and chemical attack. This grade does not contain any ceramic filler and therefore allows a very smooth surface to be created.

Traditional Methods vs Modern Solutions

Traditional repair methods such as hard metal welding or flame spraying are expensive and difficult to use for large surfaces. Alternatively, LOCTITE surface coatings are easily applied on all surface sizes and offer the extra benefit of corrosion protection. In addition they do not create heat stress during their application.

Key Benefits

- Restore worn surfaces and extend part life of new as well as old parts
- Increase part efficiency
- Save costs by avoiding part replacement and reducing spare part inventories
- Protect parts against abrasion, erosion, chemical attack and corrosion
- Excellent chemical resistance for effective protection of assemblies



Key factors to consider when choosing the right LOCTITE surface coating

Temperature Resistance

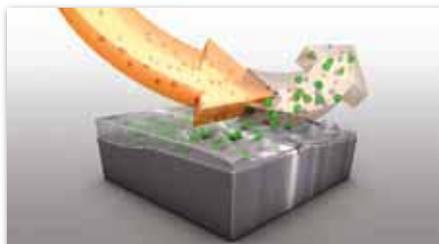
Operating temperatures of LOCTITE surface coatings range from -30°C to $+120^{\circ}\text{C}$. Some special grades, such as LOCTITE PC 7230 or LOCTITE PC 7229, can be used up to 230°C . These special grades require post curing to achieve their ultimate high temperature performance.

Particle Size

To improve abrasion resistance, the particle sizes of the abrasive materials and of the LOCTITE surface coatings should be similar. The range of LOCTITE surface coatings offers grades for coarse particles as well as fine particle protection.



Small fillers knocked out by large particles



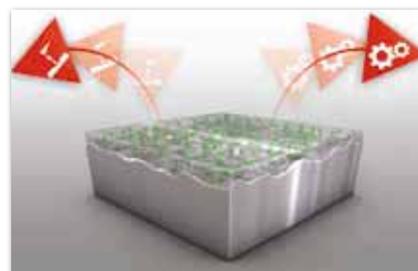
Large fillers undermined by small particles



Fillers of similar size provide best protection

Chemical and Corrosion Resistance

Thanks to the special epoxy matrix, this range of products is resistant to most types of chemical attack. All our products offer good protection against fresh water and sea water, ammonium sulphate and sodium hydroxide. Specific products also resist strong chemicals such as sulphuric acid and urea. A comprehensive overview for the chemical resistance of LOCTITE surface coatings is available – please contact your local Henkel Technical Support team for further information.



Product Application

LOCTITE surface coatings are two component epoxies. Products must be mixed correctly before application, using the proper mixing ratio, until a uniform colour is achieved.

To ensure good wettability, it is recommended that you apply a brushable product like LOCTITE PC 7117 as a primer prior to using coarse particle reinforced coatings. For coatings thicker than 25mm, apply material in layers of 25mm at a time, allowing the layer to cool before applying the next layer.



Surface Preparation

Correct surface preparation is vital for the successful application of these products.

Good surface preparation will:

- Improve adhesion of the LOCTITE surface coating to parts
- Prevent corrosion between the metal surface and the LOCTITE surface coating
- Extend maintenance intervals

After surface preparation parts must be:

- Clean and dry
- Without surface or internal chemical contamination
- Without corrosion
- Left with a surface profile of 75 µm minimum
- Left with a blast profile of class 2.5

For large surfaces LOCTITE SF 7515 should be applied to avoid flash rusting.



Surface Coatings

Product Table

What is your application?

Pure chemical attack or corrosion on metal

Non-filled

Sprayable ceramic

Brushable ceramic

Solution

LOCTITE PC 7266



LOCTITE PC 7255



LOCTITE PC 7117



Colour	Blue	Green, grey	Black
Service temperature range (dry)	-30°C to + 100°C	-30°C to +95°C	-30°C to +95°C
Mix ratio by volume (A:B)	2.8:1	2:1	3.33:1
Mix ratio by weight (A:B)	100:22	100:50	100:16
Working time	30 min.	40 min.	60 min.
Surface drying time	3.5 hr	4 hr	3.5 hr
Recommended total layer thickness*	Min. 0.2 mm	Min. 0.5 mm	Min. 0.6 mm
Pack sizes	1kg, 10kg	900ml, 30kg	1kg, 6kg

Handy Hints

1. Apply LOCTITE SF 7515 at the end of surface preparation and before applying the final coating/compound. Benefit: Temporary corrosion protection which prolongs the working time of the surface to up to 48 hr.

2. Badly worn surfaces are rebuilt using LOCTITE PC 7222 wear resistant putty or LOCTITE PC 7230 high temperature wear resistant putty, prior to applying protective LOCTITE PC surface coatings.

Ask your Henkel engineer for further information.

LOCTITE PC 7266

Sprayable non filled two component epoxy for

- Pumps, centrifuges and pipes
- Gearboxes, engines and compressors
- Heat exchangers, fans and casings
- Tanks and reservoirs

LOCTITE PC 7255

Ultra smooth, ceramic reinforced two component epoxy for

- Lining tanks and chutes
- Rudders and pintle housings
- Heat exchangers
- Condensers
- Cooling pump impellers

WRAS approved

LOCTITE PC 7117

Brushable ceramic filled two component epoxy for

- Impellers, butterfly valves
- Pump housings
- Cyclones
- Lining tanks

*It is recommended for sprayable and brushable products to apply minimum two layers to achieve total layer thickness.

Abrasion or erosion on metal with or without chemical attack

Fine particle

Coarse particle

High temperature brushable ceramic

Pneu-wear ceramic

KTW approved brushable ceramic

Trowelable ceramic

High impact trowelable ceramic

LOCTITE
PC 7234LOCTITE
PC 7226LOCTITE
PC 7118LOCTITE
PC 7218LOCTITE
PC 7219

Grey

Grey

Black

Grey

Grey

-30°C to +205°C

-30°C to +120°C

- 30°C to + 95°C

-30°C to +120°C

-30°C to +120°C

2.75:1

4:1

3.33:1

2:1

2:1

100:21

100:25

100:16

100:50

100:50

30 min.

30 min.

35 min.

30 min.

30 min.

8 hr + 3 hr post-cure

6 hr

2.5 hr

7 hr

6 hr

Min. 0.5 mm

Min. 6 mm

Min. 0.6 mm

Min. 6 mm

Min. 6 mm

1kg

1kg, 10kg

1kg, 6kg

1kg, 6kg

1kg, 10kg

LOCTITE PC 7234

Brushable ceramic filled two component epoxy for

- Exhausts
- Heat exchangers and condensers
- Lining tanks and chutes
- Butterfly valves

LOCTITE PC 7226

Ceramic filled two component epoxy for

- Dredge pump liners
- Flumes and troughs
- Pump impellers
- Vibrating feeders
- Chutes/hoppers

LOCTITE PC 7118

Brushable ceramic filled two component epoxy for

- Impellers, butterfly valves
- Pump housings
- Cyclones
- Lining tanks

KTW approved**LOCTITE PC 7218**

Trowelable, ceramic filled two component epoxy for

- Cyclone and separator bodies
- Dust collectors and exhausters
- Pump liners and impellers
- Fan blades and housings
- Chutes and hoppers
- Elbows and transition points

LOCTITE PC 7219

Rubber modified, ceramic filled two component epoxy for

- Dredge pump liners
- Flumes and troughs
- Pump impellers
- Vibrating feeders
- Chutes/hoppers

Surface Coatings

Product List

Product	Product description	Particle size	Colour	Mix ratio by volume (A:B)	Mix ratio by weight (A:B)	Working time	Surface drying time
LOCTITE PC 7117	Brushable ceramic coating	Fine	Black	3.33:1	100:16	60 min.	3.5 hr
LOCTITE PC 7118	KTW approved brushable ceramic coating	Fine	Black	3.33:1	100:16	35 min.	2.5 hr
LOCTITE PC 7218	Trowelable ceramic coating	Large	Grey	2:1	100:50	30 min.	7 hr
LOCTITE PC 7219	High impact resistant trowelable ceramic coating	Large	Grey	2:1	100:50	30 min.	6 hr
LOCTITE PC 7221	High chemical. resistant brushable ceramic coating	Fine	Grey	2.3:1	100:29.4	20 min.	16 hr
LOCTITE PC 7222	Trowelable ceramic coating	Small	Grey	2:1	100:50	30 min.	6 hr
LOCTITE PC 7226	Pneu-wear ceramic coating	Fine	Grey	4:1	100:25	30 min.	6 hr
LOCTITE PC 7227	Brushable ceramic coating	Fine	Grey	2.75:1	100:20.8	30 min.	6 hr

Recommended layer thickness	Shore D hardness	Compressive strength	Shear strength	Service temperature range	Pack sizes	Comments
Min. 0.6 mm	87	105 N/mm ²	23.2 N/mm ²	-30°C to +95°C	1kg, 6kg	Brushable two component epoxy that provides a high gloss, low friction coating to protect equipment from wear, abrasion and corrosion.
Min. 0.6 mm	80	114 N/mm ²	26 N/mm ²	-30°C to + 95°C	1kg, 6kg	Brushable ceramic filled two component epoxy specifically developed and approved to be used on devices carrying cold potable water.
Min. 6 mm	90	110.3 N/mm ²	–	-30°C to +120°C	1kg, 6kg	Trowelable, ceramic filled epoxy designed to protect, rebuild and repair high wear areas of processing equipment; suitable for overhead applications and irregular surfaces.
Min. 6 mm	85	82.7 N/mm ²	–	-30°C to +120°C	1kg, 10kg	Rubber modified, ceramic filled epoxy that offers high impact resistance; ideal for areas exposed to abrasion and impact; non-sagging and suitable for overhead applications and irregular surfaces.
Min. 0.5 mm	83	69 N/mm ²	17.2 N/mm ²	-30°C to + 65°C	5kg	Brushable ceramic filled two component chemical resistant epoxy to protect equipment against extreme corrosion caused by chemical exposure.
–	85	72 N/mm ²	16.8 N/mm ²	-30°C to +105°C	3lb	Trowelable ceramic filled two component epoxy putty for badly worn surfaces exposed to wear, erosion and cavitation.
Min. 6 mm	85	103.4 N/mm ²	34.5 N/mm ²	-30°C to +120°C	1kg, 10kg	Carbide-filled epoxy for protecting processing equipment from fine particle abrasion; this trowelable and non-sagging epoxy is suitable for overhead and vertical surfaces.
Min. 0.5 mm	85	86.2 N/mm ²	24.2 N/mm ²	-30°C to +95°C	1kg	Brushable ceramic filled two component epoxy with self-levelling properties, providing a high gloss and low friction surface.

Surface Coatings

Product List

Product	Product description	Particle size	Colour	Mix ratio by volume (A:B)	Mix ratio by weight (A:B)	Working time	Surface drying time
LOCTITE PC 7228	Brushable ceramic coating	Fine	White	2.8:1	100:22.2	15 min.	5 hr
LOCTITE PC 7229	High temperature resistant trowelable ceramic coating	Small	Grey	4:1	100:25	30 min.	6 hr + 2 hr post-cure
LOCTITE PC 7230	High temperature resistant trowelable ceramic coating	Large	Grey	4:1	100:25.6	30 min.	7 hr + 2 hr post-cure
LOCTITE PC 7234	High temperature resistant brushable ceramic coating	Fine	Grey	2.75:1	100:21	30 min.	8 hr + 3 hr post-cure
LOCTITE PC 7255	Sprayable ceramic coating	Fine	Green/grey	2:1	100:50	40 min.	4 hr
LOCTITE PC 7266	Non-filled sprayable coating	—	Blue	2.8:1	100:22	30 min.	3.5 hr

Recommended layer thickness	Shore D hardness	Compressive strength	Shear strength	Service temperature range	Pack sizes	Comments
Min. 0.5 mm	85	86 N/mm ²	24 N/mm ²	-30°C to +95°C	1kg	Brushable ceramic filled two component epoxy with self levelling properties, providing a high gloss and low friction surface.
Min. 6 mm	85	103.4 N/mm ²	34.5 N/mm ²	-30°C to +230°C	10kg	Trowelable ceramic filled two component epoxy putty with high temperature resistance to protect against small particles; suitable for overhead and vertical surfaces.
Min. 6 mm	90	103.4 N/mm ²	–	-30°C to +230°C	10kg	High temperature resistant two component ceramic filled epoxy compound to protect against large particles, suitable for overhead and vertical surfaces.
Min. 0.5 mm	–	–	–	-30°C to +205°C	1kg	Brushable two component epoxy designed to protect against turbulence and abrasion under extreme heat.
Min. 0.5 mm	86	106 N/mm ²	31 N/mm ²	-30°C to +95°C	900ml, 30kg	Ultra smooth, ceramic reinforced epoxy that provides a high gloss, low friction coating to protect against turbulence and abrasion; seals and protects equipment from corrosion and wear.
Min. 0.2 mm	83	110 N/mm ²	21 N/mm ²	-30°C to +100°C	1kg, 30kg	Sprayable non filled two component epoxy that provides corrosion protection and high chemical resistance; easy to spray with standard airless spray gun.

Cleaning

Parts, Hands and Maintenance Cleaning



Why use LOCTITE cleaners prior to bonding?

LOCTITE cleaners and degreasers are highly effective and are available in both water based and solvent based formulations. When choosing a cleaner or degreaser, the major factors to consider are drying time, residue, odour, and substrate compatibility. Residue is a particularly important concern: if there is any secondary processing of the part, e.g. painting or bonding, a residue could interfere with that process. Substrate compatibility is a common concern when dealing with plastics and solvent based cleaners.

The LOCTITE cleaner portfolio offers products for:

- Cleaning components before applying LOCTITE adhesives/sealants
- Cleaning and degreasing worktops and parts
- Removing cured sealant residue
- Cleaning harsh dirt on hands

The product line includes:

- Three highly effective gentle and biodegradable hand cleaners
- Electrical contact cleaner
- Food grade cleaner (NSF A7)



Why choose BONDERITE?

BONDERITE offers you a cleaner for every step in your production chain (one stop supplier):

- Over 80 years of experience in cleaning
- High sustainability
- Highest quality
- State of the art technologies
- Continuous development and innovation



Why use BONDERITE for maintenance cleaning?

Vehicles, industrial facilities and equipment require professional maintenance and safety of the operator. Maintenance extends equipment service lifetimes and avoids long and costly downtimes. In recent years, maintenance has taken on a new dimension, with such work being frequently outsourced to companies offering specific experience and know-how, and using technical and environmentally compatible products from Henkel.

Henkel develops innovative products aligned to the demanding specifications and the latest regulations encountered in modern maintenance work.

Key industries and application areas

Public transport (rail, road), automotive, energy, cleaning companies, petrochemical plants, defense engineering, aeronautic and marine.

Some key applications

Vehicle interior and exterior cleaning, tank and pipe cleaning, floor cleaning, parts cleaning prior to inspection, paint stripping, graffiti removal and anti-graffiti protection, heat exchanger descaling, reodourising, hand cleaning.

Key advantages of using BONDERITE for maintenance cleaning

- Specific products for maintenance in industrial environments
- Equipment compatible
- Recycling possibilities
- Easy to dispense and use
- Easy waste treatment



Why use BONDERITE for industrial cleaning?

Industrial Cleaners

At each phase of their transformation, the surfaces of all metal parts must be oil and stain-free. With its years of experience in surfactant chemistry, Henkel offers high performance cleaners for all processes. The products are formulated to meet all specifications for each phase, application method, environment, temperature or substrate while respecting environmental norms.

The high quality and efficiency of Henkel products substantially increase production quality and help to decrease operating costs.

Key Industries

Metal forming, pulp and paper, steel, automotive, appliance manufacturing, wind power, aluminium, rail, agriculture, vehicle construction, weapon, electrical, medical.

Key Applications

Inter-operational and final neutral degreasing with temporary corrosion protection, water and oil-based corrosion protection, heavy-duty degreasing prior to surface treatment and painting, paint stripping, paint detack, acid descaling and pickling.

Parts and Hand Cleaning

Product Table

Do you need a parts or a hand cleaner?

Parts cleaner

General purpose

Plastic parts

Low VOC

Solution

LOCTITE SF 7061



LOCTITE SF 7063



LOCTITE SF 7070



LOCTITE SF 7066



Description

Cleaner & degreaser

Cleaner & degreaser

Cleaner & degreaser

Cleaner & degreaser

Pack sizes

400ml aerosol

400ml aerosol, pump,
10 ltr can, 200 ltr

400ml aerosol, 10 ltr

Not available in the U.K.

Handy Hints

- If cleaning tissues are required, use LOCTITE SF 7852. Parts and hand cleaner for use without water. Available in a bucket containing 70 wipes.

LOCTITE SF 7061

- Solvent-based (acetone) general parts cleaner
- Very fast evaporation
- Removes dirt, resins, lacquer, oils and greases

LOCTITE SF 7063

- Solvent-based general parts cleaner
- Leaves no residue
- Ideal for use prior to adhesive bonding and sealing applications
- Removes most greases, oils, lubrication fluids, metal cuttings and fines from all surfaces

LOCTITE SF 7070

- Solvent-based general parts cleaner
- Usable as spray or in immersion cleaning process at room temperature
- Removes special heavy oils
- For most plastic parts without the risk of stress cracks

LOCTITE SF 7066

- Water-based emulsion with low VOC
 - Use for metals and plastics
- A7 NSF Reg.No.: 142646**

		Hand cleaner		
Gasket remover	Electrical contacts	Without abrasives	With abrasives	
LOCTITE SF 7200	LOCTITE SF 7039	LOCTITE SF 7830 Manuvo	LOCTITE SF 7850	LOCTITE SF 7855
				
Gasket remover	Contact cleaner spray	Hand cleaner	Hand cleaner	Hand cleaner
400ml aerosol	400ml aerosol	Not available in the U.K.	400ml bottle, 3 ltr pump dispenser, 10 ltr	400ml bottle, 1.75 ltr pump dispenser
<p>LOCTITE SF 7200</p> <ul style="list-style-type: none"> Removes cured gasket sealants and traditional gaskets in 10 to 15 minutes Minimal scraping Usable on most types of surface Do not use on plastic or painted surfaces 	<p>LOCTITE SF 7039</p> <ul style="list-style-type: none"> For cleaning electrical contacts exposed to moisture or other contamination Does not affect insulating varnishes Typical application: cleaning of electrical contacts, relays, switchgear, etc. 	<p>LOCTITE SF 7830 Manuvo</p> <ul style="list-style-type: none"> Highly efficient Does not contain abrasives Works with or without water Biodegradable 	<p>LOCTITE SF 7850</p> <ul style="list-style-type: none"> Free of mineral oils With abrasives Removes ground-in dirt, grease, grime, and oil Contains premium skin conditioners Works with or without water Biodegradable 	<p>LOCTITE SF 7855</p> <ul style="list-style-type: none"> Non-toxic With abrasives Removes paint, resin and adhesives Works with or without water Biodegradable

Industrial Cleaners

Product Table

	General dip	General spray	High pressure
Solution	BONDERITE C-NE 20 	BONDERITE C-NE FA 	BONDERITE C-MC 80 
Application	Dip	Spray	Spray or high pressure
Appearance	Yellow to light brown liquid	Clear, red-brown liquid	Clear liquid
Application concentration	2 – 8%	3 – 10%	0.5 – 5%
Working temperature	+40°C to +90°C	+20°C to +50°C	+20°C to +90°C
	BONDERITE C-NE 20 All-purpose neutral dip cleaner <ul style="list-style-type: none"> • Salts of organic acids, non-ionic surfactants, alkanolamines • Neutral cleaner • Multi-metal • Dewatering properties • Very good corrosion protection • For final as well as for intermediate cleaning 	BONDERITE C-NE FA All-round spray cleaner for heavy soiling <ul style="list-style-type: none"> • Contains corrosion protection agent • Also usable with other cleaning methods (dip, HP, manual, etc.) • For use on all substrates • Environmentally compatible alternative to solvent cleaners 	BONDERITE C-MC 80 Alkaline high pressure cleaner <ul style="list-style-type: none"> • Contains alkalis, surfactants, silicates • All-round alkaline cleaner • Contains inhibitors for use on aluminium • High degreasing performance • Ideal tank cleaning product

Parts cleaning

Alkaline		Corrosion protection	Neutral	Acid
BONDERITE C-AK 5800	BONDERITE C-AK 5520	BONDERITE S-PR 6776	BONDERITE C-NE 3300	BONDERITE C-IC 3500
				
Spray	Spray	Dip/spray	All	Dip/spray
Clear colourless liquid	Clear liquid	Clear, yellowish liquid	Clear, light yellowish liquid	Clear, yellow-brownish liquid
4 – 8%	2 – 6%	1 – 5%	1 – 3%	10 – 30%, 1 – 5%
+40°C to +80°C	+50°C to +80°C	+40°C to +80°C	+30°C to +80°C	+50°C to +90°C
BONDERITE C-AK 5800 Liquid spray cleaner for degreasing of steel parts and plastic <ul style="list-style-type: none"> • Contains alkalis, phosphates, salts of organic acids, non-ionic surfactants • High degreasing performance • Usable in all water qualities 	BONDERITE C-AK 5520 Liquid spray cleaner for all metals <ul style="list-style-type: none"> • Contains silicates, surfactants • Contains inhibitor for use on aluminium • Low foaming 	BONDERITE S-PR 6776 Cleaning before machining and corrosion protection after machining <ul style="list-style-type: none"> • Organic corrosion protectors of solubilisers, mineral oil fractions • Applicable in immersion and spray process • All metals • Corrosion protection for long term storage 	BONDERITE C-NE 3300 Water-based neutral cleaner <ul style="list-style-type: none"> • Organic corrosion inhibitors • Very good demulsifying behaviour • Multi-metal • Applicable in all kinds of processes • Salt-free 	BONDERITE C-IC 3500 Pickling and derusting agent for immersion and spray processes <ul style="list-style-type: none"> • Contains phosphoric acid, sulphuric acid, inhibitor • Fast pickling • Contains inhibitor • Ideal for equipment cleanouts

Cleaning, Protecting and Specialities

Product Table

Solution	Paint removing		
	Paint stripping		Paint detack
	Hot	Cold	Solvent-based paints
	BONDERITE S-ST 9210	BONDERITE S-ST 6776 LO / THIN	BONDERITE S-PD 810
Application	Spray	Brushing/dip	–
Application concentration	30 – 50%	Ready-to-use	10 – 20%
Working temperature	> +80°C	Room temperature up to +35°C	Room temperature
	BONDERITE S-ST 9210 Highly alkaline paint stripper (for use on steel only) <ul style="list-style-type: none"> • Amine-free • Solvent-free 	BONDERITE S-ST 6776 LO / THIN Acid paint stripper <ul style="list-style-type: none"> • Methylene chloride-free • BONDERITE S-ST 6776 LO: Thickened for good adherence • BONDERITE S-ST 6776 THIN: For dip application • All metals (incl. aluminium) • Low odour 	BONDERITE S-PD 810 Neutral paint coagulant <ul style="list-style-type: none"> • All-rounder for solvent-based paints • Neutral • Contains corrosion inhibitor



Protecting

Cleaning specialities

Corrosion protection

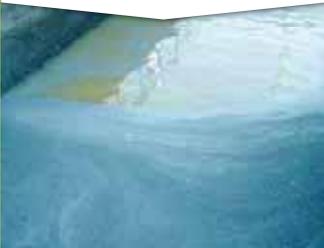
Reodouring

Water-based paints

Water-based

Oil-based

BONDERITE S-PD 828



BONDERITE S-FN 7400



BONDERITE S-PR 3



BONDERITE S-OT WP



–

Spray/dip

Spray/dip

Spray

4 – 5%

0.5 – 2% (steel), 1.5 – 3% (cast iron)

Ready-to-use

> 2%

Room temperature

+15°C to +80°C

Room temperature

Room temperature

BONDERITE S-PD 828
Neutral paint coagulant for solvent- and water-based paints

- Contains special silicates, dust binding agents
- Neutral
- For both solvent- and water-based paints

BONDERITE S-FN 7400
Passivation of steel and cast iron for subsequent temporary storage in closed warehouses

- Contains organic corrosion protection components
- Organic corrosion protection components
- Water-based
- No disturbance of following process steps (painting, bonding, etc.)

BONDERITE S-PR 3
Passivation of steel and cast iron for subsequent storage or transport

- Contains organic corrosion protection components
- Organic corrosion protection components mineral oil fractions
- Flashpoint > +100°C
- 3 – 6 months corrosion protection in closed warehouse

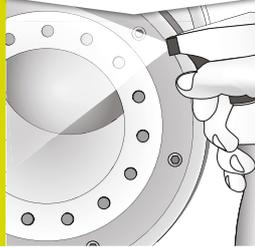
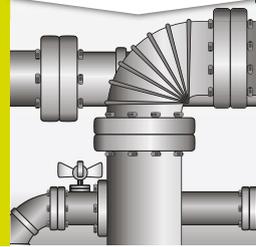
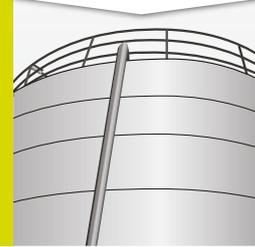
BONDERITE S-OT WP
Deodourant

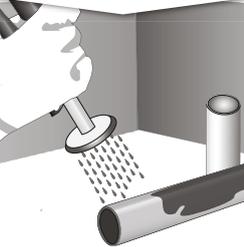
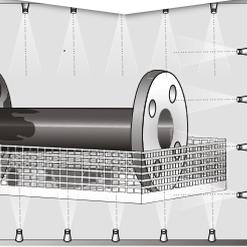
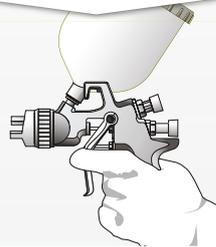
- Special technology to neutralise unpleasant smells
- Low consumption / high performance

Cleaners – Heavy-Duty Maintenance Cleaners

Product Table

Which type of heavy-duty maintenance cleaner is required?

Solution	General cleaning		Heat exchanger & pipes	
	Universal cleaner	Heavy-duty cleaner	Lime scale and corrosion removal	Degreaser
	LOCTITE SF 7840 	BONDERITE C-MC 3000 	BONDERITE C-IC 146 	BONDERITE C-AK 187 U 
pH at 10 g/l	pH 10	pH 12.5 – 13.5	pH 1.3 – 1.9	pH 12 – 13
Service temperature range	+10°C to +50°C	+10°C to +50°C	+60°C to +70°C	+60°C to +70°C
Application concentration	Heavy Cleaning: 25 - 50% Medium Cleaning: 3 - 6% Light Cleaning: 1 - 2%	2 – 20%	8 – 16%	–
	LOCTITE SF 7840 Cleaner & degreaser <ul style="list-style-type: none"> • Biodegradable • Solvent-free, non-toxic, non-flammable • Can be diluted with water • Removal of grease, oil, cutting fluids and workshop grime 	BONDERITE C-MC 3000 High pressure cleaner <ul style="list-style-type: none"> • Economical in use • Phosphate, EDTA- and NTA-free • Excellent degreasing properties • Highly efficient all-round alkaline cleaner • Ideal vehicle cleaner 	BONDERITE C-IC 146 <ul style="list-style-type: none"> • All metals • Contains inhibitor to avoid over-pickling • Degreasing action • Highly concentrated • Descaling – derusting mainly used in circulation applicators 	BONDERITE C-AK 187 U <ul style="list-style-type: none"> • For steel surfaces • Strong degreasing action on very oiled steel surfaces • Highly concentrated • Silicate and phosphate free • Addition of cleaning booster if necessary • Non-foaming • Derusting action • Degreasing in circulation applicators

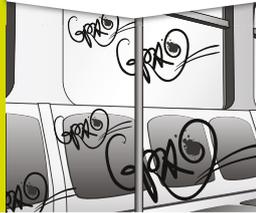
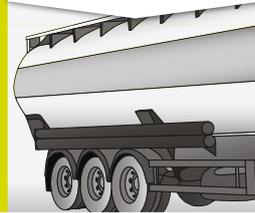
Floor cleaning	Cleaning of mechanical parts			Paint removing
Low-foam floor cleaner	Fountain cleaner / Washing table	Washing machine	Dip cleaning	Paint cleaner
<p>BONDERITE C-MC 20100</p> 	<p>BONDERITE C-MC 1030</p> 	<p>BONDERITE C-MC 352</p> 	<p>BONDERITE C-MC 1204</p> 	<p>BONDERITE C-MC 21130</p> 
pH 10.5	neat: pH 9.5	pH 11.5	pH 11.3	neat: pH 9 – 10
Room temperature	Room temperature	+50°C to +75°C	Room temperature, up to +40°C	Room temperature, up to +40°C
2 – 10%	Ready-to-use	2 – 6%	1 – 50%	8 – 10%
<p>BONDERITE C-MC 20100 Floor cleaner for automatic & manual cleaning</p> <ul style="list-style-type: none"> • Neutral • Low-foaming for use in floor cleaning equipment • Slightly perfumed • Leaves soil-repellent protection layer 	<p>BONDERITE C-MC 1030 Industrial cleaner for fountain applications</p> <ul style="list-style-type: none"> • Water-based cleaner to replace solvents • Provides temporary rust protection • Solvent-free • For cleaning mechanical parts using cleaning tables 	<p>BONDERITE C-MC 352 Spray cleaner</p> <ul style="list-style-type: none"> • Efficient metal cleaner and degreaser used in spray cleaning machines • Strong detergent efficiency • Contains inhibitor for light metals • Solvent-free • Efficient metal cleaner and degreaser used in spray cleaning machines 	<p>BONDERITE C-MC 1204 Dip cleaner</p> <ul style="list-style-type: none"> • General cleaner and degreaser for heavy soils • Excellent penetrating action on dirt and easy dissolution of grease • Can be applied by spraying, dipping or manually • Solvent-free <p>Applications: Cleaning of all metal mechanical parts, with or without high pressure. Also suitable on synthetic substances, rubbers and painted surfaces.</p>	<p>BONDERITE C-MC 21130 Painting equipment cleaner</p> <ul style="list-style-type: none"> • For cleaning solvent-based and water-soluble paints • Free of chlorinated, petroleum-based or oxygenated solvents • Non-flammable • For cleaning all kinds of painting equipment

Cleaners – Heavy-Duty Maintenance Cleaners

Product Table

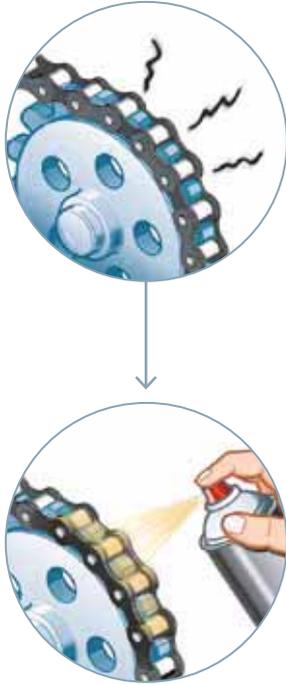
Which type of heavy-duty maintenance cleaner is required?

Solution	Vehicle exterior cleaning			
	Multi-purpose cleaner	Acid cleaner	Neutral cleaner	Cleaning paste
	BONDERITE C-MC 3100	BONDERITE C-MC CS	BONDERITE C-MC N DB	BONDERITE C-MC 10130
				
pH at 10 g/l	pH 10.6	pH 1.6 – 2.2	pH 7	–
Service temperature range	Room temperature	Room temperature	Room temperature	Room temperature
Application concentration	3 – 5%	1 – 20%	3 – 5%	Ready-to-use
	<p>BONDERITE C-MC 3100 High pressure cleaner</p> <ul style="list-style-type: none"> • For the exteriors of all kinds of vehicles/vehicle parts • Special low odour properties, specifically for manual high pressure cleaning and especially for all indoor cleaning operations • Free of phosphates, EDTA and NTA • Low pH level • No attack on painted or plastic surfaces • Efficient exterior alkaline cleaner for vehicles 	<p>BONDERITE C-MC CS</p> <ul style="list-style-type: none"> • For exterior cleaning of railway vehicles and trucks • Ideal for removing flash rust, particularly on trains 	<p>BONDERITE C-MC N DB Neutral cleaning product for general cleaning operations</p> <ul style="list-style-type: none"> • Specifically for cleaning vehicles, especially railway but also wheeled and water vehicles • Outstanding surface compatibility 	<p>BONDERITE C-MC 10130 Renovation paste – for cleaning und polishing</p> <ul style="list-style-type: none"> • Removing lime scale and soap residues from glass and metal surfaces • High detergent efficiency

Vehicle interior cleaning		Graffiti cleaning		Tank cleaning
General interior cleaner	Glass cleaner	Exterior / metal-paint	Interior	General tank cleaner
BONDERITE C-MC 12300	BONDERITE C-MC 17120	BONDERITE C-MC 400	BONDERITE S-ST 1302	BONDERITE C-MC 60
				
Neat: pH 9.5 – 10.5	Neat: pH 10.3	Neat: pH 3.7	pH 9.8 – 10.8	pH 12.0 – 13.0
+10°C to +49°C	Room temperature	+10°C to +40°C	Room temperature	+20°C to +90°C
3 – 50%	Ready-to-use	Ready-to-use	Ready-to-use	5 – 20%
BONDERITE C-MC 12300 Universal liquid cleaner <ul style="list-style-type: none"> • All substrates • Perfumed • High degreasing properties • All application methods 	BONDERITE C-MC 17120 <ul style="list-style-type: none"> • Self drying • Also ideal for cleaning of plastics 	BONDERITE C-MC 400 Graffiti and marking remover <ul style="list-style-type: none"> • Very efficient on almost any type of graffiti • Particularly active on bitumen containing spray paints • Can be used on vertical surfaces • Label free • For the removal of graffiti and markings from all common substrates 	BONDERITE S-ST 1302 Ink and graffiti remover <ul style="list-style-type: none"> • Removal of graffiti, grease, rubber tracks, on glass and ceramics • Suitable for synthetic leather surfaces, as well as metal surfaces without damaging the base material • Free of CFC, mineral oil, acid and caustic substances • For the removal of graffiti and grease on glass and ceramics 	BONDERITE C-MC 60 Strong alkaline high pressure cleaner <ul style="list-style-type: none"> • Efficient heavy duty cleaner for concrete floors • Solvent-free • Water-based strong alkaline cleaning agent • Cleans steel, copper, copper alloys, stainless steel and most plastic surfaces • Removes oil, fats (vegetable, animal, mineral), fatty acids, mineral contaminants and additives, even if hardened, oxidized or burned • Leaves a temporary rust protection film after drying

Lubrication

Lubrication and Protection



Why Use a LOCTITE lubricant?

LOCTITE lubricants offer superior protection for industrial plants and equipment. The range includes organic, mineral and synthetic based products meeting the requirements of industrial applications.

What is the function of a lubricant?

The typical function of a lubricant is to protect against friction and wear. Lubricants are also used to protect against corrosion by displacing moisture and leaving a continuous coating on the part.

What considerations are important when choosing a lubricant?

When choosing a lubricant, it is important to consider the intended application as well as the environmental conditions to which the assembly will be exposed. Environmental conditions are critical to the successful selection of the right lubricant product. Factors including high temperature, harsh chemicals and contaminants may have an adverse effect on the expected lubricant performance.

LOCTITE anti-seize products

LOCTITE anti-seize products provide protection in harsh environments and operating conditions, e.g. extreme temperatures and corrosive attack. They prevent fretting and galvanic corrosion. They can also be used as a running in lubricant for new equipment.



LOCTITE greases

LOCTITE lubricating greases have been designed to offer the following performance benefits:

- Protect against friction
- Reduce wear and corrosion
- Prevent overheating

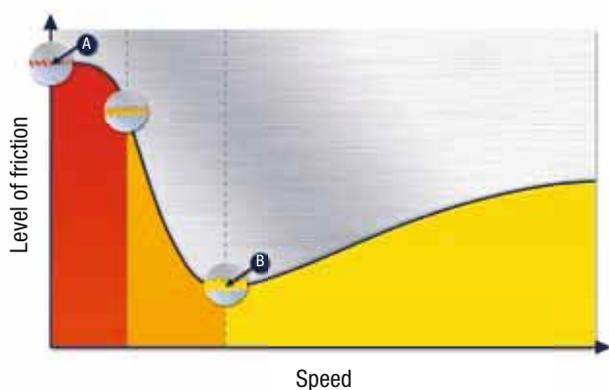
To match specific requirements, LOCTITE greases are made of mineral or synthetic base oils combined with a thickening agent, e.g. lithium soap or inorganic material such as silica gel.



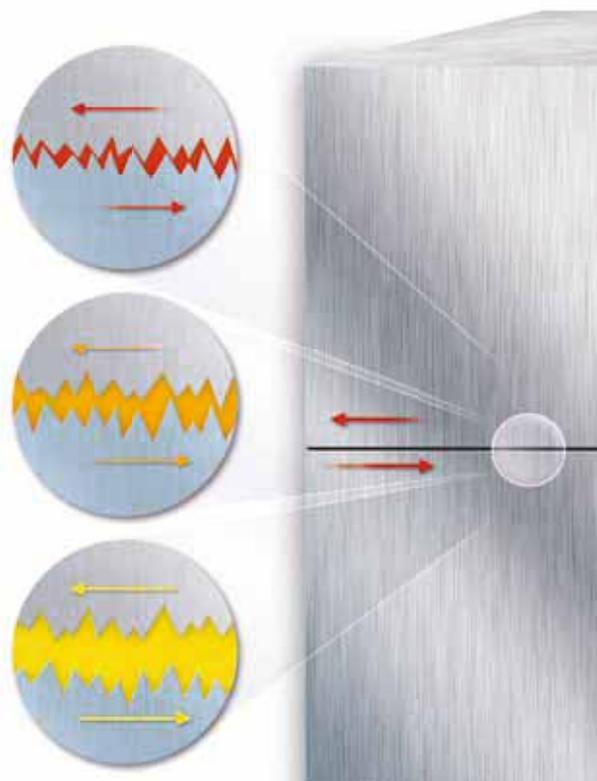
Application areas of oils, greases and anti-seizes

A lubricant needs to be chosen based on the speed, temperature and boundary friction encountered in the application concerned.

	Oils and Greases	Anti-Seizes
Speed of movement	Medium to high	Low to zero
Temperature	Up to 250°C	Up to 1,300°C
Load	Low to medium	High



- Anti-seize (boundary friction)
- Grease (mixed friction)
- Oil (fluid friction)
- Ⓐ Starting friction
- Ⓑ Translation speed to fluid friction



LOCTITE oils

LOCTITE lubricating oils have been designed for moving parts in equipment ranging from major plants to mini machines. Flowability and surface adhesion ensure good lubrication at both high and low speeds within the specified temperature range.



LOCTITE dry film lubricants

MoS₂ and PTFE based LOCTITE dry film lubricants reduce friction, prevent seizing, ensure protection against corrosion and enhance the performance of oils and greases.



Anti-Seizes

Product Table

What type of Anti-Seize do you require?

Solution	General purpose		
	Aluminium anti-seize	Copper anti-seize	Heavy duty
	LOCTITE LB 8150/8151 	LOCTITE LB 8007/8008 	LOCTITE LB 8009 
Colour	Silver	Copper	Black
Solid lubricating agent	Aluminium, graphite, extreme pressure (EP) additives	Copper & graphite	Graphite & calcium fluoride
NLGI class	1	0	1
Service temperature range	-30°C to +900°C	-30°C to +980°C	-30°C to +1,315°C
Pack sizes	LB 8150: 500g, LB 8151: 400ml aerosol	LB 8007: 400ml aerosol LB 8008: 454g brush top	454g brush top
Handy Hints <ul style="list-style-type: none"> Look for this icon for metal-free anti-seize products  LOCTITE LB 8065 offers the same trusted performance in a semi-solid stick product that is clean, fast and easy to apply 	LOCTITE LB 8150 can LOCTITE LB 8151 aerosol <ul style="list-style-type: none"> Heavy duty, temperature resistant, petroleum-based lubricant compound fortified with graphite and metallic flake Inert and will not evaporate or harden in extreme cold or heat For use in assemblies up to 900°C 	LOCTITE LB 8007 aerosol LOCTITE LB 8008 brush top <ul style="list-style-type: none"> Exclusive formula with copper and graphite suspended in a high quality grease Protects metal parts from rust, corrosion, galling and seizing at temperatures up to 980°C 	LOCTITE LB 8009 brush top <ul style="list-style-type: none"> Metal-free Excellent lubricity Provides outstanding lubrication to all metals including stainless steel, aluminium and soft metals up to 1,315°C

High performance

Speciality

Water resistant

High load

High purity

Incidental food contact

**LOCTITE
LB 8023**

**LOCTITE
LB 8012**

**LOCTITE
LB 8013**

**LOCTITE
LB 8014**



Black

Black

Dark grey

White

Graphite, calcium, boron nitride & rust inhibitors

MoS₂ & rust inhibitors

Graphite & calcium oxide

White oil and extreme pressure (EP) additives

1

2

–

0

-30°C to +1,315°C

-30°C to +400°C

-30°C to +1,315°C

-30°C to +400°C

454g brush top

454g brush top

454g brush top

907g can

LOCTITE LB 8023 brush top

- Metal-free
- Formulated to protect assemblies exposed directly or indirectly to fresh water and salt water, this anti-seize product works especially well in high humidity conditions
- It has excellent lubricity, superior water wash-out spray resistance and prevents galvanic corrosion

ABS approved

LOCTITE LB 8012 brush top

- Metal-free
- Formulated to protect assemblies during running-in period
- Resists high static loads and MoS₂ paste ensures maximum lubricity

LOCTITE LB 8013 brush top

- Metal-free
- High purity formula with excellent chemical resistance
- For stainless steel
- Ideal for use in the nuclear industry

PMUC approved

LOCTITE LB 8014

- Metal-free
- Prevents seizure, galling and friction in stainless steel and other metal parts up to 400°C

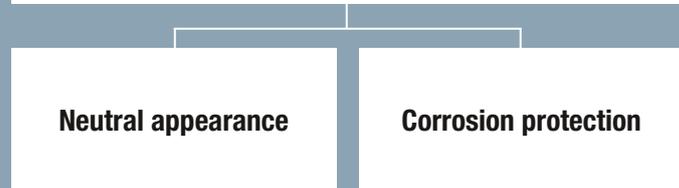
H1 NSF Reg. No.: 123004

Greases

Product Table

Solution

General purpose



	LOCTITE LB 8105	LOCTITE LB 8106
Appearance	Colourless	Light brown
Base oil and additives	Mineral	Mineral
Thickener	Inorganic gel	Lithium soap
Drop point	None	> +230°C
NLGI class	2	2
Service temperature range	-20°C to +150°C	-30°C to +160°C
Load test 4 ball N (weld load)	1,300	2,400
Pack sizes	Not available in the U.K.	Not available in the U.K.

LOCTITE LB 8105

- Mineral grease
- Lubricates moving parts
- Colourless
- Odourless
- Ideal for bearings, cams, valves and conveyors

H1 NSF Reg. No.: 122979

LOCTITE LB 8106

- Multi-purpose grease
- Lubricates moving parts
- Provides corrosion protection
- For rolling/plain bearings and slideways

High performance

Special purpose

High temperature resistance

Heavy load applications

Plastic part applications

Chains, gears

LOCTITE
LB 8102

Light brown

Mineral, EP

Lithium soap complex

> +250°C

2

-30°C to +200°C

3,300

Not available in the U.K.

LOCTITE LB 8102

- High-temperature grease
- Prevents wear and corrosion
- Suitable in humid environmental conditions
- Withstands heavy loads at medium and high speeds
- Lubricates rolling/plain bearings, open gears and slideways

LOCTITE
LB 8103

Black

Mineral oil, MoS₂

Lithium soap

> +250°C

2

-30°C to +160°C

3,600

Not available in the U.K.

LOCTITE LB 8103

- MoS₂ grease
- For moving parts at all speeds
- Withstands vibration and heavy loads
- For highly stressed joints, plain and roller bearings, socket joints and slideways

LOCTITE
LB 8104

Colourless

Silicone

Silica gel

-

2/3

-50°C to +200°C

-

75ml tube, 1 ltr can

LOCTITE LB 8104

- Silicone grease
- Valve and packing grease
- Wide temperature range
- Lubricates most plastic and elastomeric components

H1 NSF Reg. No.: 122981LOCTITE
LB 8101

Amber

Mineral oil, EP

Lithium soap

> +250°C

2

-30°C to +170°C

3,900

Not available in the U.K.

LOCTITE LB 8101

- Chain lubricant
- Adhesive grease for open mechanical systems with anti-fling properties
- Protects against water ingress
- Excellent wear and high pressure resistance
- Lubricates chains, open gears and worm screws

Dry Films and Oils

Product Table

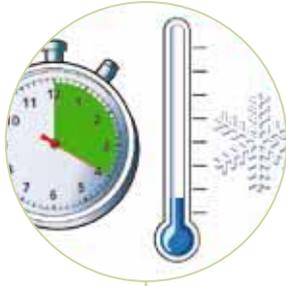
Solution	Dry film lubricant		Penetrating oil		Chain lubricant
	General purpose	Non-metal surface	Penetrating oil	Chain lubricant	
	LOCTITE LB 8191	LOCTITE LB 8192	LOCTITE LB 8001	LOCTITE LB 8011	
Appearance	Black	White	Colourless	Yellow	
Base	MoS ₂	PTFE	Mineral oil	Synthetic oil	
Viscosity	11 s (Cup 4)	11 s (Cup 4)	4 cSt	11.5 cSt	
Service temperature range	-40°C to +340°C	-180°C to +260°C	-20°C to +120°C	-20°C to +250°C	
Load test 4 ball N (weld load)	–	–	1,200	2,450	
Pack sizes	400ml aerosol	Not available in the U.K.	Not available in the U.K.	Not available in the U.K.	
	<p>LOCTITE LB 8191</p> <ul style="list-style-type: none"> MoS₂ anti-friction coating – aerosol Quick drying Surface protection against corrosion Enhances the performance of oils and greases 	<p>LOCTITE LB 8192</p> <ul style="list-style-type: none"> PTFE coating For non-metal and metal surfaces Creates sliding surface for free movement Prevents dust/dirt accumulation Protection against corrosion For conveyor belts, slideways and cams <p>H2 NSF Reg. No.: 122980</p>	<p>LOCTITE LB 8001</p> <ul style="list-style-type: none"> Penetrating mineral oil spray Multi-purpose penetrating oil for micro-mechanisms Penetrates inaccessible mechanisms Lubricates valve seats, collars, chains, hinges and cutting blades <p>H1 NSF Reg. No.: 122999</p>	<p>LOCTITE LB 8011</p> <ul style="list-style-type: none"> High-temperature chain oil spray Oxidation resistance prolongs lubricant service life Lubricates open mechanisms, conveyors and chains at elevated temperatures up to 250°C <p>H2 NSF Reg. No.: 122978</p>	

Oil

Silicone oil	Cutting oil	All-round cutting fluid	General purpose	Special purpose
LOCTITE LB 8021	LOCTITE LB 8030/8031	LOCTITE LB 8035	LOCTITE LB 8201	LOCTITE LB LM416
				
Colourless	Dark yellow	Brownish liquid	Light yellow	Green
Silicone oil	Mineral oil	Emulsifier	Mineral oil	Mineral oil
350 mPa·s	170 cSt	Low	17.5 cSt (+50°C)	–
-30°C to +150°C	-20°C to +160°C	–	-20°C to +120°C	-10°C to +60°C
–	8,000	–	–	–
Not available in U.K.	Not available in the U.K.	5 ltr / 20 ltr bucket	400ml aerosol	400ml aerosol, 4kg pail
LOCTITE LB 8021 <ul style="list-style-type: none"> • Silicone oil • Lubricates metal and non-metal surfaces • Suitable as release agent H1 NSF Reg. No.: 141642	LOCTITE LB 8030 bottle LOCTITE LB 8031 aerosol <ul style="list-style-type: none"> • Cutting oil • Protects cutting tools in operation • Improves surface finish • Increases tool life • For drilling, sawing or tapping steel, stainless steel and most non-ferrous metals 	LOCTITE LB 8035 <ul style="list-style-type: none"> • Water-miscible and bactericide-free • With patented emulsifier system • Very good corrosion protection and high process economy • For drilling, turning, sawing, milling, threading, grinding • Suitable for a broad range of materials: steel, high-alloy steel, cast iron and non-ferrous metals, including brass and aluminium alloys 	LOCTITE LB 8201 <ul style="list-style-type: none"> • Five-way spray • Frees assemblies • Lubricates metal • Cleans parts • Displaces moisture • Prevents corrosion 	LOCTITE LB LM 416 <ul style="list-style-type: none"> • Biodegradable track lubricant • Superior corrosion protection • Applicable in any season • Long intervals between applications • Mainly used for slide chair lubrication Approved by Network Rail, UK

Surface Preparation and Emergency Repair

Preparation, Protection and Repair



Why Use a LOCTITE activator or primer?

Henkel offers a complete range of activators and primers providing solutions for the following LOCTITE adhesive technologies:

1. LOCTITE activators / primers for instant bonding (cyanoacrylates)

LOCTITE primers are used for improving adhesion to substrates. They are applied before the adhesive. For low surface energy plastic substrates, e.g. polyolefin, PP, PE, best adhesion will be achieved with LOCTITE 770 / 7701.

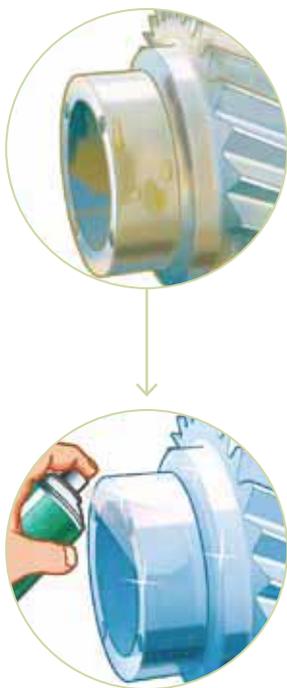
LOCTITE activators are used to increase cure speed. Loctite activators are mostly applied before the adhesive. Heptane-based activators have good “on-part life” and provide for a good aesthetic appearance of the bondline. They are also suitable for use on plastics which are sensitive to stress cracking. Activators can also be applied after the adhesive, e.g. for curing residual adhesive. They provide for an excellent cosmetic appearance by avoiding white staining of instant adhesives.

2. LOCTITE activators for modified acrylics

LOCTITE activators for modified acrylics are needed to initiate the curing process. Usually, the activator is applied to one surface and the modified acrylic to the other surface. The curing process starts when the two parts are assembled. Fixture time is dependent on the adhesive, on the substrate and on the cleanliness of the surfaces.

3. LOCTITE activators for threadlocking, pipe and thread Sealing, gasketing, retaining and anaerobic acrylics

LOCTITE activators for this group of adhesives are used to increase the cure speed of the products. They are recommended for applications on passive metals such as stainless steel, plated or passivated surfaces. Activators are available as solvent-based or solvent-free formulations.



Why use a LOCTITE surface preparation product?

The LOCTITE portfolio of surface preparation products offers solutions for all types of surface treatments or preparations. All products are easy to use and thus ideal for maintenance and line production.

1. Protection of Welding Equipment

Protect shroud and contact tip from welding spatter and ensure uninterrupted welding for a complete shift.

2. Belt Dressing

Prevent slippage and increase friction for all types of belts.

3. Rust Treatment

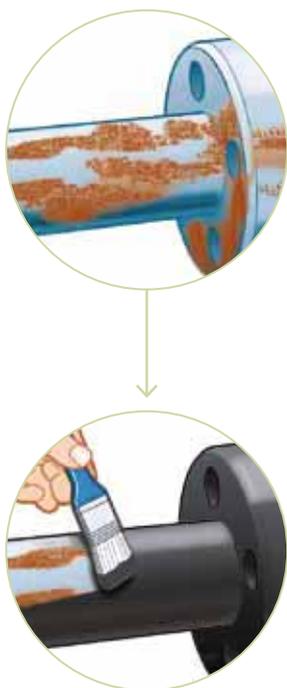
Conversion of rust into a stable base – treated surface can be overpainted.

4. Corrosion Protection

Protect surfaces against corrosion – drying and non-drying product available.

5. Tamper Proofing

Visually detect movements in adjusted parts.



Why use a LOCTITE emergency repair product?

Whatever your working environment, unpredictable and emergency situations can happen and in most of the cases need to be sorted out within a very short timeframe. Our range of emergency repair products helps you to avoid unnecessary downtime and costs. All of them are easy to apply, enabling you to deal with emergencies quickly. More than this, some will also help you to increase the reliability of your industrial equipment.

1. O-Ring Replacement

O-rings can be made as and when required, avoiding the need to stock.

2. Freeing of Corroded Parts

Releasing rusted, corroded and seized components using the shock freeze effect.

3. Detection of Pipe Leaks

Easy-to-apply system for location of small leaks in iron, copper and plastic pipes.

4. Sealing of Leaks

For emergency sealing of tanks, pipes and castings without the need to replace components.

5. Taping

For immediate fixing and protection of various materials.

Surface Protection

Product Table

Solution	Rust treatment	Corrosion protection	
		Short-term	Long-term
		Flash rust prevention	Ferrous metals
			Finish
	LOCTITE SF 7500 	LOCTITE SF 7515 	LOCTITE SF 7800 
Description	Rust treatment	Flash rust prevention	Zinc spray
Colour	Matt black	Amber liquid	Grey
Service temperature range	–	–	-50°C to +550°C
Pack sizes	1 ltr can	5 ltr, 20 ltr	Not available in the U.K.
	LOCTITE SF 7500 Rust treatment <ul style="list-style-type: none"> • Converts existing rust into a stable base • Protects surfaces from corrosion • Cured product acts as a primer ready for painting • For metal pipes, valves, fittings, storage tanks, fences, guard rails, conveyors, construction and agricultural equipment 	LOCTITE SF 7515 <ul style="list-style-type: none"> • Pre-treatment on large surfaces, giving protection against flash rust for up to 48 hours 	LOCTITE SF 7800 Zinc spray <ul style="list-style-type: none"> • Excellent cathodic corrosion protection on ferrous metals • Restores protection to galvanised parts • Typical applications: Touching-up of metal parts after welding, long-term protection of metal assemblies

Protection of welding equipment

Tamper proofing

Belt dressing

Long-term

General purpose

Non-drying

General purpose

Electronic components

LOCTITE SF 7803

LOCTITE SF 7900 Ceramic Shield

LOCTITE SF 7414

LOCTITE SF 7400

LOCTITE SF 8005



Metal protection coating

Ceramic, silicone-free protective coating

Detect movements of parts

Detect movements of parts

Liquid spray

White

White

Blue

Red

Clear yellow

-30°C to +60°C

–

-35°C to +145°C

-35°C to +145°C

–

Not available in the U.K.

400ml aerosol

50ml

20ml, 500ml

Not available in the U.K.

LOCTITE SF 7803 Metal protection coating spray

- Non drying, tack free coating
- Provides long term corrosion protection
- For iron, steel, sheet steel, pipes, moulds, machines and installations that have to be stored outdoors

LOCTITE SF 7900 Ceramic Shield

- Prevents adhesion of welding spatter
- Provides long term protection to welding equipment and ensures reliable, uninterrupted processes
- Excellent adhesion to the surface
- Eliminates the need for cleaning processes

LOCTITE SF 7414 Tamper proofing

- Visually detect movement of adjusted parts
- Use for fittings, studs, nuts, etc.
- Good adhesion to metals
- Non corrosive
- Also for outdoor applications

LOCTITE SF 7400 Tamper proofing

- Visually detect movement of adjusted parts, mark adjustment points, or mark components that have been set or tested
- Use for electronic equipment
- Good adhesion to a wide range of substrates

LOCTITE SF 8005 Belt dressing

- Prevents slippage
- Increases friction for all types of belts
- Extends belt life

Surface Preparation

Product Table

What is your application?

Instant bonding

What do you want to do?

Improve adhesion

Accelerate

General purpose

Solution

**LOCTITE
SF 7239**



**LOCTITE
SF 770/7701***



**LOCTITE
SF 7458**



**LOCTITE
SF 7455**



	LOCTITE SF 7239	LOCTITE SF 770/7701*	LOCTITE SF 7458	LOCTITE SF 7455
Description	Primer	Primer	Activator	Activator
Colour	Colourless	Colourless	Colourless	Colourless
Solvent	Heptane	Heptane	Heptane	Heptane
Application method	Pre-applied	Pre-applied	Pre or post applied	Post applied
Pack sizes	Not available in the U.K.	SF 770: 10g, 300g SF 7701: 454 g	500ml	25ml, 150ml, 500ml

LOCTITE SF 7239

- Plastic Primer
- General purpose
- Suitable for use on all industrial plastics
- Improves the adhesion of instant adhesives on polyolefins and other low surface energy plastics

LOCTITE SF 770

LOCTITE SF 7701*

- Polyolefin primer
- Only for difficult to bond plastics
- Provides (best) adhesion of instant adhesives to polyolefins and other low surface energy plastics

LOCTITE SF 7458

- General purpose
- For all substrates
- Good onpart life can be pre or post applied
- Low odour
- Minimises post cure white discolouring
- Provides good aesthetic appearance of the bondline

LOCTITE SF 7455

- General purpose
- For all substrates
- Fast fixturing between close fitting parts
- For post application

**Modified acrylics
(329, 3298, 330,
3342)**

**Threadlocking, pipe and thread sealing,
gasketing, retaining and anaerobic acrylics**

What activator is preferred?

**Best cosmetic
appearance**

**Ideal for plastics
prone to stress
cracking**

Solvent-based

Solvent-based

Solvent-free

**LOCTITE
SF 7452**

**LOCTITE
SF 7457**

**LOCTITE
SF 7386**

**LOCTITE
SF 7471/7649**

**LOCTITE
SF 7240**



Activator

Activator

Activator

Activator

Activator

Transparent, light amber

Colourless

Transparent

Transparent, green

Blue-green

Acetone

Heptane

Heptane

Acetone

Solvent-free

Post-applied

Pre or post applied

Pre-applied

Pre-applied

Pre-applied

500ml

150ml, 500ml

500ml

150ml, 500ml, 15.8kg

90ml

LOCTITE SF 7452

- Cures excess adhesive
- Provides excellent cosmetic appearance avoiding white discolouring of instant adhesive
- Not recommended on plastics prone to stress cracking

LOCTITE SF 7457

- Good on part life – can be pre or post applied
- Recommended for use on plastics prone to stress cracking

LOCTITE SF 7386

- Initiate the cure of modified acrylic adhesives
- Fixture time and cure speed depend on adhesive, bonded substrate and surface cleanliness

**LOCTITE SF 7471
LOCTITE SF 7649**

- Speed up cure on passive and inactive surfaces
- For large bond gaps
- On-part life of:
LOCTITE 7649:
≤ 30 days,
LOCTITE 7471: ≤ 7 days

LOCTITE SF 7240

- Increase cure speed on passive and inactive surfaces
- For large bond gaps
- For low (< 5°C) temperature curing

Emergency Repair

Product Table

What is your application?

Solution

Free corroded parts

LOCTITE LB 8040



Leak detector

LOCTITE SF 7100



O-ring replacement

LOCTITE O-RING KIT



Colour

Amber

Colourless

–

Base

Mineral Oil

Mixture of surfactants

–

Viscosity cup 4

5 mPa·s

10 mPa·s

–

Service temperature range

–

+10°C to +50°C

–

Pack sizes

400ml aerosol

400ml aerosol

Set containing 20g LOCTITE 406 and tools

LOCTITE LB 8040

- Shock freezing (-40°C)
- Releases rusted, corroded and seized components
- Wicks directly into the rust by capillary action
- Released parts remain lubricated and protected from corrosion

LOCTITE SF 7100

- Produces bubbles at leakages
- For all gases and gas mixtures except oxygen
- Non toxic / non flammable
- Suitable for iron, copper and plastic pipework

LOCTITE O-RING KIT

- Replacement of stationary O-rings
- Eliminates the need for an inventory of different sized O-rings
- Water and oil resistant

Seal pipe leaks

Taping

**LOCTITE
EA 3463**

Grey

Epoxy

-

-30°C to +120°C

114g

LOCTITE EA 3463

- Steel filled kneadable stick
- Ideal for emergency sealing of tanks and pipes

**LOCTITE
PC 5070**

-

Epoxy, GRP

-

-

Set containing LOCTITE EA 3463 and GRP tape

LOCTITE PC 5070

- Easy to use repair kit for temporary repair of weak areas on pipes

**LOCTITE
SI 5075**

Red, black

Silicone

-

-54°C to +260°C

2.5 cm x 4.27 m

LOCTITE SI 5075

- Non sticky, self fusing multi purpose wrap
- Resistant to salt water, fuels and acids
- Stretches to three times its length
- Seals instantly
- Tensile shear strength 50kg/cm²
- UV resistant
- Dielectric strength up to 400 volts per mil

**TEROSON
VR 5080**

Silver

-

-

up to +70°C

25m

TEROSON VR 5080

- Fabric reinforced tape
- Easy to tear by hand
- Repair, reinforce, fix, seal and protect

Metal Pre-Treatment and Functional Coatings

Corrosion Protection



Why use BONDERITE pre-treatment or functional coating solutions?

The BONDERITE M-NT and M-PP product ranges comprise innovative corrosion protection products for metal pre-treatment and coating.

Technology Features

New generation BONDERITE M-NT solutions solve your specific metal pre-treatment challenges beyond your expectations.

- Broader operation window
- Few process steps
- Short contact times
- Less maintenance

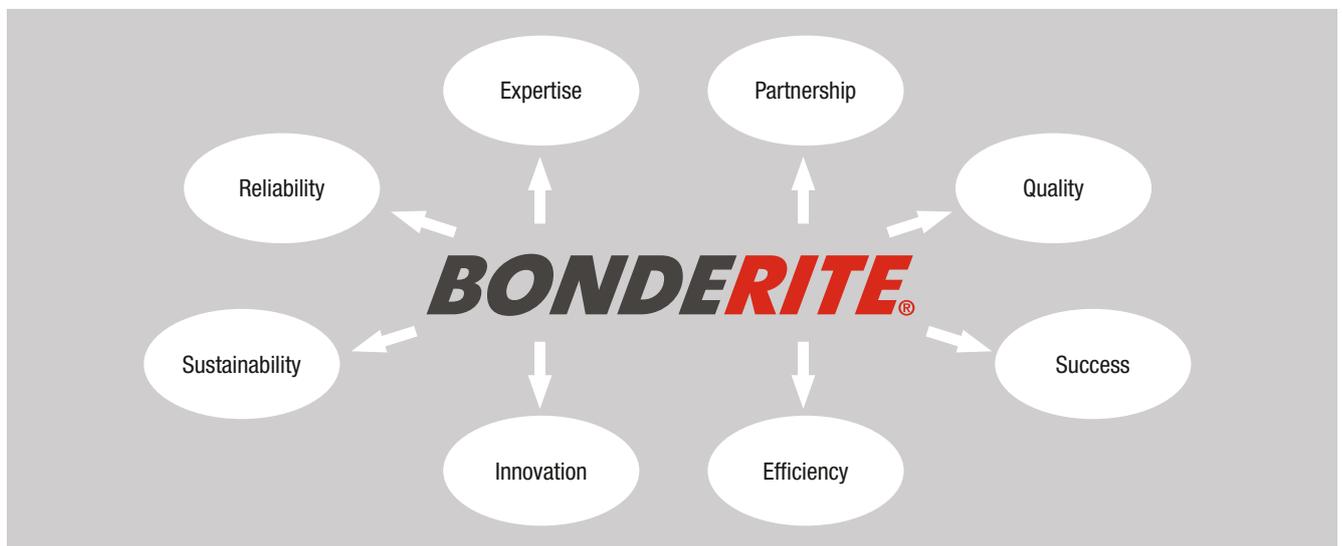
BONDERITE M-PP is the only organic coating solution able to provide outstanding steel corrosion protection on sharp metal edges and inside tubes or box sections. Unlike electrocoating and powder coating, BONDERITE M-PP has no throwing power limitations.

- Coats fully assembled parts
- Inside and outside part protection
- No electrical contacts required
- No special rack stripping required

Process Cost Reduction

By using BONDERITE, you will generate significant process cost savings derived from both low investment costs (shorter processes than conventional methods) and low running costs (reduced energy, manpower, maintenance, waste disposal and water consumption). Capitalising on recognised values such as reliability and high quality standards, our know-how will help you to optimise your individual metal pre-treatment processes. We will support you in utilising the advantages of the BONDERITE solutions and integrating them into your own production facility. These solutions are supported by advanced equipment technologies.

Advantages of using BONDERITE metal pre-treatment and functional coating solutions at a glance



Process management systems

Henkel can provide you with a customised multi-channel process control system for exact dosing of cleaners and surface treatment products:

- Fully automated handling of different chemical measurements and dosages
- One computer to control all the data
- Transfer of all data for the documentation to an internet-based database

For more information please contact your local sales engineer.



Benefits

- External communication and control
- Deep knowledge of your process parameters
- Assurance of consistently high quality
- Detailed documentation with regard to standards and specifications

Service

Profit from Henkel's market expertise and extensive support capability, which allow you to capitalise on complete solutions that go beyond the mere supply of chemicals for the pre-treatment process. Henkel laboratories carry out all kinds of analytical services or corrosion tests to guarantee that your process always meets the highest quality standards should you need personal assistance, we are always available at the local level via our recognised international technical and sales service team.

Design

We are keen to share our extensive experience with you – whenever processes have to be re-engineered, optimised or adapted to new materials, machine equipment, specifications or legislation. Our R&D team is permanently engaged in developing cutting edge technologies to take the efficiency and profitability of our metal pre-treatment processes to the next level.

Minimum Ecological Impact

All our products are solvent free, water based and free from regulated heavy metals. Gas and electricity resources are conserved since less equipment is needed and bath and oven curing temperatures are lower. As a result, our products deliver more value at a reduced ecological footprint.

Metal Pre-Treatment and Functional Coatings

Product Table

Solution

Application

Appearance

Process temperature

All BONDERITE M-PP products mentioned exhibit significant saving opportunities in greenfield versus traditional processes, plus uniform coating thickness without Faraday cage effect.

PVDC coating

BONDERITE M-PP 866



Dip

Black

+20°C

BONDERITE M-PP 866

- Outstanding barrier properties
- Low temperature curing (+90°C)
- Flexible coating with high impact resistance
- Water based
- Top coatable with liquid paints

Corrosion protection, auto-deposition coating

Epoxy-acrylic coating

BONDERITE M-PP 930



Dip

Black

+20°C

BONDERITE M-PP 930

- Tough and chemical resistant
- Curing at 180°C
- Energy efficient process
- Water based
- Hard coating
- Heat stability
- Top coatable with liquid or powder paint

BONDERITE M-PP 935G



Dip

Grey

+20°C

BONDERITE M-PP 935G

- Tough and chemical resistant
- Curing at 180°C
- Energy efficient process
- Water based
- Hard coating
- Heat stability
- Top coatable with liquid or powder paint

BONDERITE M-PP 930C



Dip

Black

+20°C

BONDERITE M-PP 930C

- Tough and chemical resistant
- Curing at 180°C
- Designed to coat cast iron
- Energy efficient process
- Water based
- Hard coating
- Heat stability
- Top coatable with liquid or powder paint

Metal Pre-Treatment and Functional Coatings

Product Table

Solution

Multi-metal phosphating

Tricationic zinc phosphate

Manganese phosphate

BONDERITE M-ZN 952/958

BONDERITE M-MN 117



Application

Spray/dip

Dip

Appearance

Clear liquid, green

Clear liquid, green

Concentration

–

–

Process temperature

+48°C to +55°C

+50°C to +60°C

BONDERITE M-ZN 952/958

- Generates a fine crystalline coating as excellent foundation for subsequent paint coatings
- Provides excellent adhesion and corrosion resistance properties
- Robust process
- Suitable for multi-metals and automatic control

BONDERITE M-MN 117

- Black manganese phosphate layers on iron and steel
- Reduces frictional resistance and shortens the running-in period of machine parts
- Low temperature application
- Combined with anticorrosion oils and waxes, the phosphate layers provide excellent corrosion protection
- Nickel free conversion coating

New generation coating

Cleaner-coater	Standard lines	High performance	
BONDERITE M-NT 40043*	BONDERITE M-NT 20120/2011	BONDERITE M-NT 1200	BONDERITE M-NT 30001/30002
			
Spray/dip	Spray/dip	Spray/dip	Spray/dip
Colourless with golden hues	Colourless with golden hues	Colourless with golden hues	Colourless
5 – 25 g/l	–	–	–
+20°C to +55°C	+20°C to +40°C	+20°C to +40°C	+20°C to +40°C
BONDERITE M-NT 40043* <ul style="list-style-type: none"> • Substitute for iron phosphating • Good compatibility with powder and liquid paints • Simple, robust, short process • Free of toxic, regulated heavy metals • Zirconium based chemical conversion for steel, galvanised steel and aluminium 	BONDERITE M-NT 20120/2011 <ul style="list-style-type: none"> • Substitute for iron phosphating • Free of phosphates, COD, BOD and toxic regulated heavy metals • Extremely fast process with very little chemical sludge • Low temperature application • Good compatibility with powder and liquid paints • Efficient flash-rust inhibition • No frost sensitive material • 2 years shelf life • Conversion coating for steel, zinc and aluminium surfaces 	BONDERITE M-NT 1200 <ul style="list-style-type: none"> • Substitute for zinc phosphating • Free of phosphates, COD, BOD and toxic regulated heavy metals • Very fast process with very little chemical sludge • Low temperature application • Conversion treatment for steel, galvanised steel and aluminium 	BONDERITE M-NT 30001/30002 <ul style="list-style-type: none"> • Free of phosphates, COD, BOD and toxic heavy metals • Low temperature application • Good compatibility with liquid, powder and electropaints • Conversion coating for zinc, steel and aluminium surfaces.
*Part of the cleaner-coater range			

Metal Pre-Treatment and Functional Coatings

Product Table

Solution

Electro ceramic coating

BONDERITE M-ED ECC



Application

Dip

Appearance

Light to dark grey

Concentration

–

Process temperature

+15°C to +50°C

BONDERITE M-ED ECC

- Exceptional protection against corrosion, extreme temperatures and abrasion
- Weight reduction – allows replacement of steel with protected aluminium, magnesium and titanium
- Low coefficient of friction

Light metal finishing

Conversion coating

Anodising

BONDERITE M-NT 4XXX



Spray/dip

Liquid, translucent, light yellow

5 – 10 g/l

+20°C to +35°C

BONDERITE M-NT 4XXX

- Excellent corrosion resistance and adhesion properties for subsequent paint coatings
- Low temperature application
- Rinse and no rinse process
- Ti/Zr based system
- Generates colourless conversion coating layer on aluminium and its alloys
- Aluminium substrates and multi-metal substrates in lower share

Chrome free conversion of light metals and post passivation of phosphate layers

BONDERITE M-NT 5XXX



Spray/dip

Changes from colourless to light green

30 – 250 g/l

+30°C to +50°C

BONDERITE M-NT 5XXX

- Coating and pre-treatment solution free of Cr6+
- Inorganic chemistry, COD-free
- High corrosion protection on bare metal
- Low electrical contact resistance
- Coating colour depends on alloy and application parameters
- Ecological alternative to MIL-C-5541 applications

Approval: GSB and Qualicoat

One product, two applications

BONDERITE M-ED 11002



Spray/dip

Colourless, clear liquid

1 – 3 g/l

> +96°C

BONDERITE M-ED 11002

- Generates a slight buffering effect
- Produces an outstanding optical finish on electrolytically coloured parts
- Substantially extends sealing bath life
- Fulfils all required short-time tests
- Zr-based system
- Prevention of sealing smut during the hot water sealing of anodised aluminium

Approval: Qualanod

Mould Release Agents

Semi-Permanent Mould Release Technology



World class products for release applications

Henkel offers highly effective solutions for tough moulding and application challenges. Customers worldwide turn to FREKOTE not just for our unique mould release products, but also for our expertise in developing customised solutions. We take pride in our knowledge, experience and responsiveness in providing the best technical service to our customers around the globe.

The FREKOTE line offers the broadest range of semi-permanent release agents, mould sealers and cleaners in the industry. FREKOTE mould release agents, backed by over 50 years of research and development, are the global industry standard for performance, quality and value. Having pioneered release solutions for many of the world's largest manufacturing organisations, Henkel understands what it takes to release the most complex materials in the most demanding applications.

Lowest cost per release – FREKOTE semi-permanent release agents minimise fouling and ensure the highest number of releases per application. Our customers realise higher productivity and profitability through reduced downtime, lower reject rates, and higher quality products. FREKOTE products are the industry standard replacement for sacrificial release agents. Unlike sacrificial waxes or silicones, FREKOTE semi-permanent mould release agents do not transfer to your parts; instead they chemically bond with the mould surface, enabling multiple releases. The parts release cleanly and will not stick to low energy film. A touch-up coat is all that is necessary to refresh the mould after multiple releases. FREKOTE products are designed to save you money.

Henkel has designed mould release agents for virtually all composite, plastic and rubber moulding operations. From jumbo jets to tennis rackets, truck tyres to O-rings, bathtubs to custom yachts, we have the release agent to fulfil your requirements.

Markets Served

A brief overview:

Thermoset Plastics

Advanced Composite Epoxy Systems

- Renewable energies: Wind rotor blades
- Aerospace : Aircraft, helicopters, etc.
- Recreational: Bicycles, skis, rackets, etc.
- Special: Racing parts, medicals, electronics, filament windings, etc.

GRP Composite Polyester, Vinyl Ester

- Marine GRP: Boats, yachts, jet-skis, etc.
- Transportation GRP: Panels, roofs, spoilers, etc.
- Construction GRP: Wind rotor blades, cultured marble sinks and countertops, bathtubs, etc.

Thermoplastics

Rotational Moulding

- Recreational: Kayaks, pedal boats, etc.
- Construction: Containers, tanks, chairs, waste bins, etc.

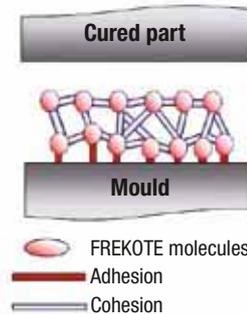
Rubbers

Rubber Industry

- Tyres: Treads / side walls
- Technical rubber products: Vibration dampers, roller blade wheels, footwear, custom moulding, etc.

How FREKOTE release agents work

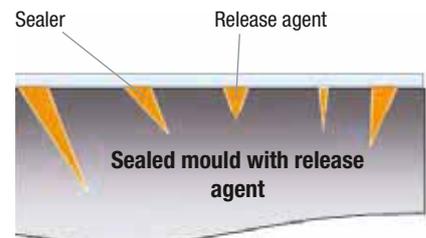
Solvent based semi permanent FREKOTE products are moisture curing, while the resins used in the Aqualine range are heat cured or cured at room temperature. FREKOTE release agents can be wiped on or sprayed on. Cured FREKOTE release coatings form a solid, non greasy, durable film which withstands the shear forces encountered in moulding and demoulding operations. The maximum film thickness is 5µm. This prevents mould build up to minimise costly mould cleaning while achieving excellent part detail and mould geometry retention. Special FREKOTE release agents are available that allow post-mould painting or bonding without the need for any cleaning of the released parts.



Semi-permanent technology as applied in coating the mould with a low energy film.

Sealing

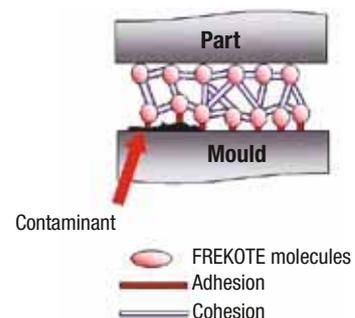
FREKOTE sealers are used prior to application of mould release coats to seal mould microporosities and provide a uniform, stable base coat for the release agent. Sealers also improve the durability of the FREKOTE film, ensuring the maximum number of releases per application. Some release agents contain a mould sealer, for example the water-based FREKOTE Aqualine C-600. Previous release contamination, e.g. sacrificial or semi-permanent release agents, should be removed before the sealer coat is applied.



Sealers seal microporosities to achieve a uniform release coating

Cleaning

For maximum performance, FREKOTE release agents should be applied to a completely cleaned mould. Therefore, mould cleaning is an important preparatory step to ensure that all cured release agents and other unwanted contaminants left on the mould are removed. FREKOTE water based and solvent based cleaners remove all contaminants from composite and metal moulds.



Unwanted contaminants may impair adhesion of the FREKOTE release agent to the mould.

FREKOTE Features and Benefits

- Semi-permanent technology – multiple release performance
- Quick room temperature cure, heat accelerated cure – reduces process downtime
- Spray on, wipe on – easy to apply with cloth or spray gun
- Low or no transfer – reduces part post cleaning
- 5µm film ensures low mould build up – reduces mould post cleaning
- Forms a hard durable and dry thermoset film – extended mould life
- Reduced cleaning and application time – lower cost per part

Mould Release Agents

Product Table

Are you releasing composites or rubber?

	Epoxy			
	High gloss	Matt		
	Sealer FMS, CS125	Sealer B15, CS125		
	Fast cure at RT	Post bonding / painting	Water-based	Wipe-on-leave-on
Solution	FREKOTE 770 NC	FREKOTE 55 NC	FREKOTE C 600	FREKOTE WOLO
				
Description	Release agent	Release agent	Release agent	Release agent
Appearance	Clear, liquid	Clear, liquid	White emulsion	Clear, liquid
Application temperature	+15°C to +60°C	+15°C to +60°C	+20°C to +40°C	+15°C to +45°C
Drying time between coats	5 min. / RT	5 min. / RT	15 min. / RT	5 min. / RT
Cure time after final coat	10 min. / RT	30 min. / RT	40 min. / RT	15 min. / RT
Thermal stability	Up to +400°C	Up to +400°C	Up to +315°C	Up to +400°C
	FREKOTE 770 NC <ul style="list-style-type: none"> • Fast RT cure • High gloss and high slip • Releases most polymers 	FREKOTE 55 NC <ul style="list-style-type: none"> • No mould build up • No contaminating transfer • High thermal stability 	FREKOTE C 600 <ul style="list-style-type: none"> • Fast RT application and cure • Large parts • Non-flammable 	FREKOTE WOLO <ul style="list-style-type: none"> • Easy application • Multiple releases • High gloss finish

FRP polyester		Rubber		Cleaner
High gloss		Water-based		Plastic & metal moulds
Sealer FMS		Sealer RS100		Polishing liquid
		Rubber to metal bonding	Highly filled elastomers	
Spray-on-leave-on	Water based	General purpose	Highest slip / special rubbers	Heavy contamination
FREKOTE 1 Step	FREKOTE C 400	FREKOTE R 120	FREKOTE R 220	FREKOTE 915 WB
				
Release agent	Release agent	Release agent	Release agent	Pre-cleaning
Clear, liquid	White emulsion	White emulsion	White emulsion	Beige, liquid
+15°C to +45°C	+15°C to +40°C	+60°C to +205°C	+60°C to +205°C	+10°C to +40°C
Immediate RT	5 min. / RT	Immediate at +60°C	Immediate at +60°C	5 min. / RT
30 min. / RT	30 min. / RT	10 min. at +90°C 4 min. at +150°C	10 min. at +90°C 4 min. at +150°C	–
Up to +400°C	Up to +315°C	Up to +315°C	Up to +315°C	–
FREKOTE 1 Step • Easy to use • High gloss finish • Minimal mould build up	FREKOTE C 400 • Water based system • Fast RT application and cure • High gloss finish	FREKOTE R 120 • Fast cure • General purpose • Low transfer	FREKOTE R 220 • Fast cure • High slip • For difficult to release rubbers	FREKOTE 915WB • Water-based • Polishing liquid • Removes cured release agents

Mould Release Agents

Product List

Product FREKOTE		Description	Chemical basis	Mould temperature	Cure system	Drying time between coats at		Cure time after final coat				
						20°C	60°C	20°C	60°C	100°C	150°C	
909 WB	▲	Pre-cleaner	Water	+10°C to +40°C	–	1 hr	–	–	–	–	–	
913 WB	▲	Post-cleaner	Water	+10°C to +40°C	–	*	–	–	–	–	–	
915 WB	▲	Pre-cleaner	Water	+10°C to +40°C	–	5 min.	–	–	–	–	–	
PMC	▲	Post-cleaner	Solvent	+15°C to +40°C	–	*	–	–	–	–	–	
B 15	●	Mould preparation	Solvent	+15°C to +60°C	Moisture	30 min.	5 min.	24 hr	2 hr	–	–	
CS 125	●	Mould preparation	Solvent	+13°C to +40°C	Moisture	5 min.	–	2 hr	–	–	–	
FMS	●	Mould preparation	Solvent	+15°C to +35°C	Moisture	15 min.	–	20 min.	–	–	–	
RS 100	●	Mould preparation	Water	+90°C to +200°C	Heat	–	–	–	–	30 min.	12 min.	
1 Step	■	FRP polyester parts	Solvent	+15°C to +40°C	Moisture	*	–	30 min.	–	–	–	
44 NC	■	Advanced composites	Solvent	+20°C to +60°C	Moisture	15 min.	5 min.	3 hr	30 min.	15 min.	–	
55 NC	■	Advanced composites, FRP polyester parts	Solvent	+15°C to +60°C	Moisture	5 min.	3 min.	30 min.	10 min.	–	–	
700 NC	■	Advanced composites	Solvent	+15°C to +135°C	Moisture	5 min.	3 min.	20 min.	8 min.	5 min.	–	
770 NC	■	Advanced composites, FRP polyester parts	Solvent	+15°C to +60°C	Moisture	5 min.	1 min.	10 min.	5 min.	–	–	
C 200	■	Advanced composites	Water	+60°C to +205°C	Heat	–	*	–	30 min.	10 min.	4 min.	
C 400	■	FRP polyester parts	Water	+14°C to +40°C	2K, room temperature	5 min	–	30 min.	–	–	–	
C 600	■	Advanced composites	Water	+20°C to +40°C	Evaporation	15 min.	1 min.	40 min.	10 min.	–	–	

Resulting surface	Type of polymer / elastomer	Application technique	Pack sizes							Comments
			1 ltr	3.7 ltr	5 ltr	10 ltr	25 ltr	208 ltr	210 ltr	
All	Steel, nickel, stainless steel	Wipe-on								Alkaline foam cleaner, removes cured release agents and other contamination
All	Polyesters, epoxies, steel, nickel, aluminium	Wipe-on								Antistatic mould cleaner, prevents dust re-contamination, removes fingerprints
All	Polyesters, epoxies, steel, nickel	Wipe-on	•							Removes cured release agents and other contamination
All	Polyesters, epoxies, steel, nickel, aluminium	Wipe-on	•		•					Removes dust, dirt, fingerprints, oil
Matt	Epoxies	Wipe-on	•		•					Seals microporosities, provides uniform release agent coating
High gloss	Epoxies	Wipe-on	•		•				•	Seals large porosities, provides uniform release agent coating, low odour, thicker coating, for tooling blocks
High gloss	Polyesters, vinyl ester	Wipe-on	•		•					Seals microporosities, provides uniform release agent coating
All	NR, SBR, HNBR, CR, EPDM	Spray-on			•					Seals microporosities, provides uniform release agent coating
High gloss	Polyester gel-coats	Spray-on			•					Spray-on-leave-on, no sealer required, high gloss gel-coat parts
Matt	Epoxies, PA	Wipe-on, spray-on			•		•			No mould build up, non-contaminating transfer, minimised cleaning before bonding and painting
Satin matt	Epoxies, polyester resin, PA	Wipe-on, spray-on	•				•	•		No mould build up, non-contaminating transfer
Gloss	Epoxies	Wipe-on, spray-on			•		•	•		High slip, universal for most composites, also for polyester resins
High gloss	Epoxies, polyester resin, PE	Wipe-on, spray-on	•		•					High slip, high gloss, fast curing, universal for most composites
Matt	Epoxies, PA, PP, PE	Spray-on								Low mould build up, non contaminating transfer
High gloss	Polyester gel-coats, polyester resins	Wipe-on, spray-on								Room temperature curing, high gloss gel-coat parts, 2K system
Matt	Epoxies	Wipe-on, spray-on			•					Integrated sealer, room-temperature curing

Mould Release Agents

Product List

Product FREKOTE	Description	Chemical basis	Mould temperature	Cure system	Drying time between coats at		Cure time after final coat			
					20°C	60°C	20°C	60°C	100°C	150°C
PUR 100	■ Polyurethane releasing	Water	+60°C to +205°C	Heat	–	*	–	30 min.	10 min.	4 min.
R 100	■ Rubber releasing	Water	+60°C to +205°C	Heat	–	*	–	30 min.	10 min.	4 min.
R 110	■ Rubber releasing	Water	+60°C to +205°C	Heat	–	*	–	30 min.	10 min.	4 min.
R 120	■ Rubber releasing	Water	+60°C to +205°C	Heat	–	*	–	30 min.	10 min.	4 min.
R 150	■ Rubber releasing	Water	+60°C to +205°C	Heat	–	*	–	30 min.	10 min.	4 min.
R 180	■ Rubber releasing	Water	+60°C to +205°C	Heat	–	*	–	30 min.	10 min.	4 min.
R 220	■ Rubber releasing	Water	+60°C to +205°C	Heat	–	*	–	30 min.	10 min.	4 min.
Frewax	■ FRP polyester parts	Solvent	+15°C to +35°C	Moisture	5 min.	–	10 min.	–	–	–
FRP NC	■ FRP polyester parts	Solvent	+15°C to +40°C	Moisture	15 min.	–	20 min.	–	–	–
S50 E	■ Special product	Water	+100°C to +205°C	Heat	–	–	–	–	*	*
WOLO	■ FRP polyester parts	Solvent	+15°C to +40°C	Moisture	5 min.	–	15 min.	–	–	–

Resulting surface	Type of polymer / elastomer	Application technique	Pack sizes							Comments
			1 ltr	3.7 ltr	5 ltr	10 ltr	25 ltr	208 ltr	210 ltr	
Matt	Rigid PUR	Spray-on		•						For rigid PUR materials
Matt	NR, SBR, HNBR, CR	Spray-on								High slip, difficult to release rubbers, synthetic rubbers
Matt	NR, SBR, HNBR	Spray-on								Low transfer, low mould build up, standard rubbers
Matt	NR, SBR, HNBR	Spray-on			•	•				General purpose, standard rubbers, low mould build up
Matt	NR, SBR, HNBR, CR	Spray-on								Low slip, low mould build up, standard rubbers, rubber to metal
Satin matt	NR, SBR, HNBR, CR, EPDM	Spray-on			•	•			•	High slip, difficult to release rubbers
Gloss	NR, SBR, HNBR, CR, EPDM	Spray-on							•	High slip, most difficult to release rubbers, for highly filled elastomers, synthetic rubbers
High gloss	Polyester gel-coat resins	Wipe-on	•		•					Easy to use, visible, no sealer required, high gloss gel-coat parts
High gloss	Polyester gel-coat resins	Wipe-on			•					Low mould build-up, high gloss gel-coat parts
Matt	Silicone rubber	Spray-on								For silicone elastomers
High gloss	Polyester gel-coats	Wipe-on	•		•					Wipe-on-leave-on, no sealer required, high gloss gel-coat parts



Equipment

Manual Hand-Held Applicators

Manual Hand-Held Applicators for 1K Cartridges

Cartridge Size	Technology	Mechanical Applicator	Pneumatic Applicator
30ml	All, including acrylics and light cure adhesives	98815 (IDH 1544934) 	see Syringe Dispensers page 154
50ml	Elastic adhesives and sealants, gasketing products	96005 (IDH 363544) 	
300ml	Elastic adhesives and sealants, gasketing products		97002 (IDH 88632) 
290ml, 300ml, 310ml	Elastic adhesives and sealants, e.g. silicones, silane modified polymers	142240 (IDH 142240) 	97046 (IDH 1047326) electrical 
310ml	Very high viscosity elastic adhesives and sealants, e.g. TEROSON 1K PU		PowerLine II (IDH 960304) 
290ml, 310ml	Spraying of TEROSON MS 9320 SF* or TEROSON MS 9302*		Multi-Press (IDH 142241) 
Foilpack 400ml, 570ml	Silane modified polymers, polyurethanes		Softpress (IDH 250052) 

Manual Hand-Held Applicators for 2K Cartridges

Cartridge Size	Mix Ratio	Technology	Mechanical Applicator	Pneumatic Applicator
50ml	1:1, 2:1	Epoxies, polyurethanes, acrylics, silane modified polymers, cyanoacrylates	96001 (IDH 267452) 	97042 (IDH 476898) 
50ml	10:1	Acrylics	IDH 1034026 	97047 (IDH 1493310) 
200ml	1:1, 2:1	Epoxies	96003 (IDH 267453) 	983437 (IDH 218315) 
400ml, 415ml	1:1, 2:1	Epoxies, acrylics, silicones, polyurethanes	983438 (IDH 218312) 	983439 (IDH 218311) 
	4:1	Polyurethanes	+ Conversion Kit 984211 (IDH 478553)	+ Conversion Kit 984210 (IDH 478552)
400ml	1:1	Silane modified polymers		IDH 1279011** 
490ml	10:1	Acrylics	985246 (IDH 478600) 	985249 (IDH 470572) 
2 x 300ml	1:1	LOCTITE AA 3295		1911001 (IDH 307418) 
2 x 310ml	1:1	TEROSON PU 6700		
900ml	2:1	LOCTITE PC 7255*		97048*** (IDH 1175530) 

* For spray application with hand-held applicator, preheat product to T= 50°C. Use heating box IDH 796993

** Available on request ***For spray application use spray nozzle IDH 1248606

Equipment

Manual Dispensers

Peristaltic Dispensers

Pack Size	Technology	Mechanical	Electrical / Pneumatic
20g	Cyanoacrylates	98810 (IDH 1506477) 	
50ml	Anaerobic threadlockers and thread sealants, retaining compounds	98414 (IDH 608966) 	
250ml	Anaerobic threadlockers and thread sealants, retaining compounds	97001 (IDH 88631) 	
All pack sizes	All low viscous products of 1K technology*		98548 (IDH 769914) (electrical) 

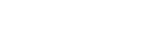
Syringe Dispensers

10ml or 30ml	All low viscous products of 1K technologies*	See hand-held applicators for 1K cartridges, page 152	97006 (IDH 88633) (electrical/ pneumatic) 
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Accessories – Syringes

Pack Size	Item No.	Product	Description
10ml 30ml	97207 (IDH 88656) 97244 (IDH 88677)		Clear Syringe Barrel Kit
10ml 30ml	97263 (IDH 218287) 97264 (IDH 218286)		Black Syringe Barrel Kit for UV and INDIGO adhesives
10ml 30ml	97208 (IDH 88657) 97245 (IDH 88678)		Syringe Airline Adapter

Accessories – Mixers and Nozzles

Pack Size	Mix	Technology	Item No.	Product
10ml	10:1	Cyanoacrylates	IDH 1453183	
50ml	1:1	Acrylics	IDH 1467955	
50ml	1:1, 2:1	Epoxies, polyurethanes, silane modified polymers	984569 (IDH 1487440)	
50ml	1:1	Acrylics	8958234 (IDH 1646832)	
50ml	1:1	Cyanoacrylates	IDH 1826921	
50ml	10:1	Acrylics	IDH 1034575	
2 x 125ml	1:1	Polyurethanes	IDH 780805	
200ml 400ml	1:1 2:1	Epoxies	984570 (IDH 1487439)	
400ml	1:1, 2:1, 4:1	Silicones	98457 (IDH 720174)	
400ml	1:1	Silane modified polymers	IDH 367545	
400ml 415ml	2:1 4:1	Polyurethanes	IDH 639381**	
490ml	10:1	Acrylics	8953187 (IDH 1104047)	
2 x 300ml	1:1	Acrylics	8958238 (IDH 1669495)*	
2 x 310ml	1:1	Polyurethanes	Not available in the U.K.	
900ml	2:1	Epoxies	IDH 1248606	
310ml		Silane modified polymers	IDH 1395025 (for spraying)	
310ml		Silane modified polymers, polyurethanes	IDH 581582	
310ml		1K silicone	IDH 546017**	
310ml		Silane modified polymers, polyurethanes	IDH 648894 (triangle nozzle)	
Foilpack 400ml, 570ml		Silane modified polymers, polyurethanes	IDH 582416	



* Y-adapter Manifold (IDH 398158) can be ordered separately
 ** Available on request

Equipment

Semi-Automatic Dispensing Systems

The systems are designed for integration into automated assembly lines and can be externally triggered by a PLC or robot control. They are suitable for dispensing microdots, dots, drops or beads of low to high viscosity products.

Time Pressure Dispensing Systems

Each system is equipped with Controller 97152 (IDH 1275665), Reservoir 97108 (IDH 135555) accommodating up to 1 Ltr LOCTITE bottles and Footswitch 97201 (IDH 88653) for combination with the appropriate valve. The valve is selected to suit the viscosity of the product and the amount to be dispensed. Please see table below.

Valve	Description	Cat. No.	IDH No.
	Stationary Applicator Valve 1/4"	97113	88644
	Stationary Applicator Valve 3/8"	97114	88645
	Light Cure Dispensing Valve	98009	218280
	Cyanoacrylate Dispensing Valve	98013	318654
	Diaphragm Valve	97135	215846
	Diaphragm Valve	97136	215848

Volumetric Dispensing Systems

The systems are designed for dispensing 1K or 2K adhesives with high. The volumetric design minimises any application variations caused by changes in adhesive viscosity due to temperature changes.

Dispenser	Description	Cat. No.	IDH No.
	Volumetric Rotor Dispenser	8953494	1197319
	Dual Rotor Pump**	MM25	1774437

* For other technologies or higher viscosities, please contact us

** For appropriate controller and product feeding system, please contact us



Suitable for Adhesive Technologies*				Viscosity*			Amount to Dispense		
Acrylics	Anaerobics	Cyanoacrylates	Light Cure Acrylics	Low (up to 2.500 mPa·s)	Medium (2.500 – 7.500 mPa·s)	High (7.500 – 50.000 mPa·s)	Microdot Micro Bead	Dot Medium Bead	Drop Bead
•	•	•	•		•			•	•
•	•	•	•			•			•
	•		•	•	•		•	•	
		•		•	•		•	•	
•	•		•	•	•			•	•
•	•		•		•			•	

Suitable for Adhesive Technologies*				Viscosity*			Amount to Dispense		
Acrylics	Anaerobics	Epoxies	Light Cure Acrylics	Low (up to 2.500 mPa·s)	Medium (2.500 – 7.500 mPa·s)	High (7.500 – 50.000 mPa·s)	Microdot Micro Bead	Dot Medium Bead	Drop Bead
1K	1K	1K	1K	•	•		•	•	•
2K		2K			•	•		•	•

Equipment

Hand-Held Dispensing Systems

The systems are designed for single-user manual workstations. They are suitable for dispensing dots, drops or beads of low to medium viscosity products. The systems comprise an integrated Controller & Reservoir 97009 (IDH 215845) and Footswitch 97201 (IDH 88653) for combination with the appropriate valve. The valve is selected to suit the viscosity of the product and the amount to be dispensed. Please see table below.

Valve	Description	Cat. No.	IDH No.
	Pinch Valve	97121	88650
	LV Hand-Held Applicator	97130	444643

Customised Systems

Henkel offers a wide range of customised equipment solutions to suit specific customer needs. The equipment solutions are designed based on combining Henkel's proven dispensing and curing systems with bespoke fixtures, enclosures and associated hardware. The customised solutions can incorporate 1k or 2k dispense systems, benchtop robots and UV cure systems. For further information please contact us.



Suitable for Adhesive Technologies*				Viscosity*			Amount to Dispense		
Acrylics	Anaerobics	Cyanoacrylates	Light Cure Acrylics	Low (up to 2,500 mPa·s)	Medium (2,500 – 7,500 mPa·s)	High (7,500 – 50,000 mPa·s)	Microdot Micro Bead	Dot Medium Bead	Drop Bead
•	•	•	•	•	•			•	•
•	•	•		•	•	•		•	•



Equipment

Light Curing Equipment

Four major factors must be taken into consideration when designing a successful light cure application: emission spectrum of the cure system, light intensity, transmission properties of substrate and required cure characteristics. As a manufacturer of both the chemistry and the curing equipment, Henkel knows how to match light cure adhesives to the correct dispensing and curing system.

Flood Cure Systems

Bulb Technology



LOCTITE 97055 / 97056

- LOCTITE 97055 (IDH 805741) high intensity light cure chamber system for manual loading
- LOCTITE 97056 (IDH 838778) tunnel version designed for integration into automated lines

Three different bulbs are available for appropriate emission spectrums



Bulb	IDH No.	UV C	UV A	UV VIS
LOCTITE 97346	870098	☀☀☀	☀☀	☀
LOCTITE 97347	870097	☀☀	☀☀☀☀	☀☀☀
LOCTITE 97348	870096	☀	☀☀	☀☀☀☀

LED Technology



LOCTITE 97070 / 97071

- LOCTITE 97070 high intensity, cool radiation LED system, designed to emit UV A light
- LOCTITE 97071 high intensity, cool radiation LED system, designed to emit UV VIS light

Mounting stand available on request.



LED Head	IDH No.	UV C	UV A	UV VIS
LOCTITE 97070	1427234	-	☀☀☀	-
LOCTITE 97071	1427233	-	-	☀☀☀☀

Accessories

LOCTITE 97360

LOCTITE 97360 (IDH 1511839) Light Cure Chamber for LED Flood Cure System 97070 / 97071. This chamber can accommodate up to two LED systems.



Spot Cure Systems

Bulb Technology



LOCTITE 97057 II (IDH 1465612)

High intensity light guide system emitting UV A and UV VIS. To be combined with appropriate light guide.

LOCTITE 97323 (IDH 376720): Ø 5 x 1,500 mm, LOCTITE 97324 (IDH 298849): Ø 8 x 1,500 mm, LOCTITE 97318 (IDH 951637): 2x Ø 3 x 1,500 mm

LOCTITE 97034 (IDH 331219)

High intensity light guide system emitting UV C, UV A and UV VIS. To be combined with appropriate light guide.

LOCTITE 97326 (IDH 329278): Ø 5 x 1,000 mm, LOCTITE 97327 (IDH 376721): Ø 8 x 1,000 mm, LOCTITE 97328 (IDH 352194): 2x Ø 3 x 1,000 mm



LED Technology



LOCTITE 97079 (IDH 1473952)

High intensity, long lifetime system designed for curing LOCTITE UV adhesives and coatings with UV light. Modern LED technology provides "cool" radiation in narrow bandwidth.



LOCTITE 98794 / 98793

LOCTITE 98794 (IDH 1427232) LED light pen, mains operated
LOCTITE 98793 (IDH 1427231) LED light pen, re-chargeable



LOCTITE 97067 / 97068

LOCTITE 97067 (IDH 1484215) LED line array, designed to emit UVA-light
LOCTITE 97068 (IDH 1523713) LED line array, designed to emit UV VIS light



Medium intensity

High intensity

Very high intensity

1000 W Energy consumption of bulb

Emission spectrum contains UV C light

Emission spectrum contains UV A light

Emission spectrum contains UV VIS light

LED LED system

Exposure timer

Interface for PLC connection, e.g. external start

Internal intensity monitoring



Spot cure system



Flood cure system

Equipment

Accessories

For Light-Curing Equipment

Product	Item No.	IDH No.	Description
	LOCTITE 98787 LOCTITE 98770	1390323 1265282	The Dosimeter-Radiometer measures light dose (energy) and light intensity of the UV curing equipment and is a self-contained one channel device. LOCTITE 98787 for UV A light, LOCTITE 98770 for UV VIS light.
	LOCTITE 98002	1406024	The LOCTITE Spot Radiometer is a self-contained, electro-optical instrument designed to measure and display the UV intensity emitted by a UV light guide. For light guides Ø 3 mm, Ø 5 mm and Ø 8 mm.
	LOCTITE 8953426 LOCTITE 8953427	1175127 1175128	UV protection glasses LOCTITE 8953426: protection glasses grey, best suited to UV A and UV C light LOCTITE 8953427: protection glasses orange, best suited to UV VIS light.

Dispensing Needles

Dispensing tips are colour coded to indicate the inner diameter of the needle. All dispensing tips have a helical thread and can be attached to all LOCTITE valves via 97233 (IDH 88672) Luer-Lock® Adapter. They can also be attached to most LOCTITE adhesive bottles and syringes to improve control of adhesive dispense.

Needle Size	 Flexible Dispensing Tips Polypropylene (PPF)	 Tapered Dispensing Tips (PPC)	 Stainless Steel Dispensing Tips Standard (SSS)
15 (= Amber) ID 1.37 mm	97229 (IDH 142640)		97225 (IDH 88664)
16 (= Grey) ID 1.19 mm		97221 (IDH 88660)	
18 (= Green) ID 0.84 mm	97230 (IDH 142641)	97222 (IDH 88661)	97226 (IDH 88665)
20 (= Pink) ID 0.61 mm	97231 (IDH 142642)	97223 (IDH 88662)	97227 (IDH 88666)
22 (= Blue) ID 0.41 mm		97224 (IDH 88663)	
25 (= Red) ID 0.25 mm	97232 (IDH 142643)		97228 (IDH 88667)
Kit containing 2 each of the above tips		97262 (IDH 218288)	
For light cure products: 16 (=Black) ID 1.19 mm		97513 (IDH 1382816)	

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Product name	Pack size	Page	Product name	Pack size	Page
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AQUENCE FB 7088	Not sold in the U.K.	53	BONDERITE M-NT 40043	Not sold in the U.K.	141
BONDERITE C-AK 187 U	1kg, 1130kg	116	BONDERITE M-NT 4XXX	Not sold in the U.K.	143
BONDERITE C-AK 5520	Not sold in the U.K.	113	BONDERITE M-NT 5XXX	Not sold in the U.K.	143
BONDERITE C-AK 5800	36kg	113	BONDERITE M-PP 866	250kg, 1,000kg	138
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BONDERITE C-IC 3500	Not sold in the U.K.	113	BONDERITE M-PP 930C	Not sold in the U.K.	139
BONDERITE C-MC 10130	Not sold in the U.K.	118	BONDERITE M-PP 935G	Not sold in the U.K.	139
BONDERITE C-MC 1030	20 ltr	117	BONDERITE M-ZN 952	1,350kg	140
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BONDERITE C-MC CS	Not sold in the U.K.	118	FREKOTE 44 NC	5 ltr, 25 ltr	148
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BONDERITE C-NE 20	Not sold in the U.K.	112	FREKOTE 700 NC	5 ltr, 25 ltr, 208 ltr	148
BONDERITE C-NE 3300	26kg	113	FREKOTE 770 NC	1 ltr, 5 ltr, 25 ltr	148
BONDERITE C-NE FA	Not sold in the U.K.	112	FREKOTE 909 WB	Not sold in the U.K.	148
BONDERITE M-ED 11002	26kg, 990kg	143	FREKOTE 913 WB	Not sold in the U.K.	148
BONDERITE M-ED ECC	Not sold in the U.K.	142	FREKOTE 915 WB	1 ltr	148
BONDERITE M-MN 117	1,110kg	140	FREKOTE B 15	1 ltr, 5 ltr	148
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LOCTITE 243	10ml, 50ml, 250ml, 2 ltr	10
LOCTITE 245	50ml, 250ml	10
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LOCTITE 262	250ml	10
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LOCTITE 4850	20g, 500g	36	LOCTITE 603	10ml, 50ml, 250ml, 1 ltr	28
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LOCTITE 5800	50ml, 300ml cartridge	22	LOCTITE AA 3301^{Med}	25ml	42
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			LOCTITE AA 3321^{Med}	25ml, 1 ltr	42
			LOCTITE AA 3341^{Med}	25ml, 1 ltr	42
			LOCTITE AA 3342	300ml	62

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LOCTITE AA 3345^{Med}	Not sold in the U.K.	42
LOCTITE AA 3381^{Med}	25ml, 1 ltr	42
LOCTITE AA 3491	25ml, 1 ltr	42
LOCTITE AA 3494	25ml, 1 ltr	42
LOCTITE AA 350	50ml, 250ml, 1 ltr	42
LOCTITE AA 3504	Not sold in the U.K.	62
LOCTITE AA 352	50ml, 250ml, 1 ltr	42
LOCTITE AA 3525	25ml, 1 ltr	42
LOCTITE AA 3556^{Med}	1 ltr	44
LOCTITE AA 366	250ml	62
LOCTITE AA 3921^{Med}	25ml, 1 ltr	44
LOCTITE AA 3922^{Med}	25ml, 1 ltr	44
LOCTITE AA 3926^{Med}	25ml, 1 ltr	44
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LOCTITE AA 3972	15 ltr	44
LOCTITE AA V1315	50ml	62
LOCTITE AA V5004	50ml	62
LOCTITE CR 3502	Not sold in the U.K.	86
LOCTITE CR 3507	Not sold in the U.K.	86
LOCTITE CR 3510	Not sold in the U.K.	86
LOCTITE CR 3519	Not sold in the U.K.	86
LOCTITE CR 3525	Not sold in the U.K.	86
LOCTITE CR 3528	Not sold in the U.K.	86
LOCTITE CR 4100	Not sold in the U.K.	88
LOCTITE CR 4200	Not sold in the U.K.	88
LOCTITE CR 4300	6kg	88
LOCTITE CR 5103	Not sold in the U.K.	86
LOCTITE CR 6127	35kg	86
LOCTITE CR 6130	250kg	86
LOCTITE EA 1623986 A	Not sold in the U.K.	86
LOCTITE EA 1623986 B	Not sold in the U.K.	86
LOCTITE EA 3032	Not sold in the U.K.	58
LOCTITE EA 3421	50ml, 200ml, 1kg	58

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LOCTITE EA 3425	50ml, 200ml	58
LOCTITE EA 3430	24ml, 50ml, 200ml	58
LOCTITE EA 3450	25ml	58
LOCTITE EA 3455	Not sold in the U.K.	58
LOCTITE EA 3463	114g	94, 135
LOCTITE EA 3471	500g tub kit	94
LOCTITE EA 3472	500g tub kit	95
LOCTITE EA 3473	500g tub kit	95
LOCTITE EA 3474	Not sold in the U.K.	95
LOCTITE EA 3475	500g tub kit	95
LOCTITE EA 3478	453g, 3.5kg tub kit	94
LOCTITE EA 3479	500g tub kit	95
LOCTITE EA 4108	Not sold in the U.K.	58
LOCTITE EA 9250	Not sold in the U.K.	58
LOCTITE EA 9299 A	Not sold in the U.K.	86
LOCTITE EA 9299 B	Not sold in the U.K.	86
LOCTITE EA 9430 A	Not sold in the U.K.	86
LOCTITE EA 9430 B	Not sold in the U.K.	86
LOCTITE EA 9450	50ml, 200ml, 1kg	58
LOCTITE EA 9461	50ml, 400ml, 20kg	58
LOCTITE EA 9464	50ml, 400ml, 20kg	58
LOCTITE EA 9466	50ml, 400ml, 1kg	58
LOCTITE EA 9480	50ml, 400ml	58
LOCTITE EA 9483	50ml, 400ml, 1kg	58
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LOCTITE LB 8011	Not sold in the U.K.	126	LOCTITE PC 7221	5.4kg	104
LOCTITE LB 8012	454g brush top	123	LOCTITE PC 7222	3lb	104
LOCTITE LB 8013	454g brush top	123	LOCTITE PC 7226	1kg, 10kg	104
LOCTITE LB 8014	907g can	123	LOCTITE PC 7227	1kg	104
LOCTITE LB 8021	Not sold in the U.K.	127	LOCTITE PC 7228	1kg	106
LOCTITE LB 8023	454g brush top	123	LOCTITE PC 7229	10kg	106
LOCTITE LB 8030	Not sold in the U.K.	127	LOCTITE PC 7230	10kg	106
LOCTITE LB 8031	Not sold in the U.K.	127	LOCTITE PC 7234	1kg	106
LOCTITE LB 8035	5 ltr, 20 ltr bucket	127	LOCTITE PC 7255	900ml, 30kg	106
LOCTITE LB 8040	400ml aerosol	134	LOCTITE PC 7257	5.54kg, 25.7kg	98
LOCTITE LB 8101	Not sold in the U.K.	125	LOCTITE PC 7266	1kg, 30kg	106
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LOCTITE LB 8103	Not sold in the U.K.	125	LOCTITE SF 7039	400ml aerosol	111
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LOCTITE PC 7202	Not sold in the U.K.	99	LOCTITE SF 7452	500ml	133
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LOCTITE SI 5331	100ml	16
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LOCTITE SI 5367	310ml	74
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LOCTITE UK 8439-21	Not sold in the U.K.	88	TECHNOMELT PS 8707	Approx. 15kg carton	50
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LOCTITE UK 8630	Not sold in the U.K.	88	TECHNOMELT PUR 4661	Not sold in the U.K.	50
LOCTITE UR 7220	Not sold in the U.K.	68	TECHNOMELT PUR 4663	2kg candle, 20kg pail, 190kg drum	50
LOCTITE UR 7221	11lb	68	TECHNOMELT PUR 4665 ME	Not sold in the U.K.	50
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LOCTITE UR 7228	1kg, 30kg jerry can	68	TEROSON EP 5055	250ml	58
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