LOCTITE®
BONDERITE®
TECHNOMELT®
TEROSON®

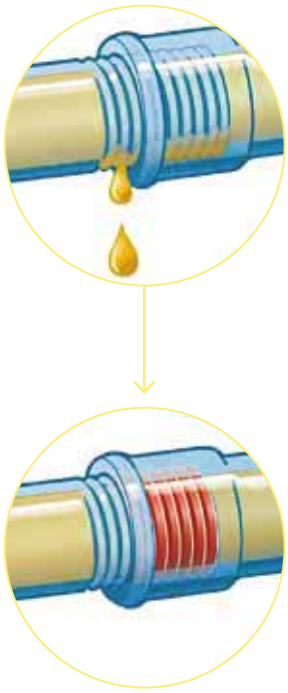
Product Selector

Industrial Adhesive, Sealant and
Functional Coating Solutions

Henkel

Issue 3

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
Equipment[1]	–	–	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 anaerobic sealant (LOCTITE 542, 561, 572, 577 or 586) is applied below 5°C, pre-treatment with LOCTITE SF 7240 or LOCTITE SF 7649 is advised (see Surface Preparation on page 133)

LOCTITE 55

- General purpose, threaded pipe and fitting sealant
- Non-curing, immediate, full pressure seal
- For a quick, easy and reliable seal

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

LOCTITE SI 5331

- 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

WRAS listed, meets BS 6920 for potable water: 0706521
DVGW approval, tested in accordance with EN 751-1
P1 NSF Reg. No.: 123620

LOCTITE 542

- Ideal for fine threads as used in hydraulic, pneumatic & general fittings

DVGW approval (EN 751-1): NG-5146AR0855

1 For detailed information see pages 152 – 163

Metal

Are the threads fine or coarse?

Medium	Coarse		
Gel	**Gel**	**Gel**	**Gel**
LOCTITE 586	**LOCTITE 577**	**LOCTITE 5776**	**LOCTITE 5400**
			
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

LOCTITE 586
- Slow curing, high strength sealant
- Especially suitable for copper and brass fittings

LOCTITE 577
- General purpose sealant for all coarse metal threads
- Suitable where a fast cure is required or at low temperatures, e.g. outdoor plant maintenance.

P1 NSF Reg. No.: 123001
DVGW Approval (EN 751-1): NG-5146AR0621
WRAS Approval (BS 6920): 0711506

LOCTITE 5776
- 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

DVGW Approval (EN 751-1): NG-5146BU0527
WRAS Approval (BS 6920-1-2000) Reg. No.: 1208532
NSF/ANSI Standard 61

LOCTITE 5400
- 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	Fluores-cence	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