

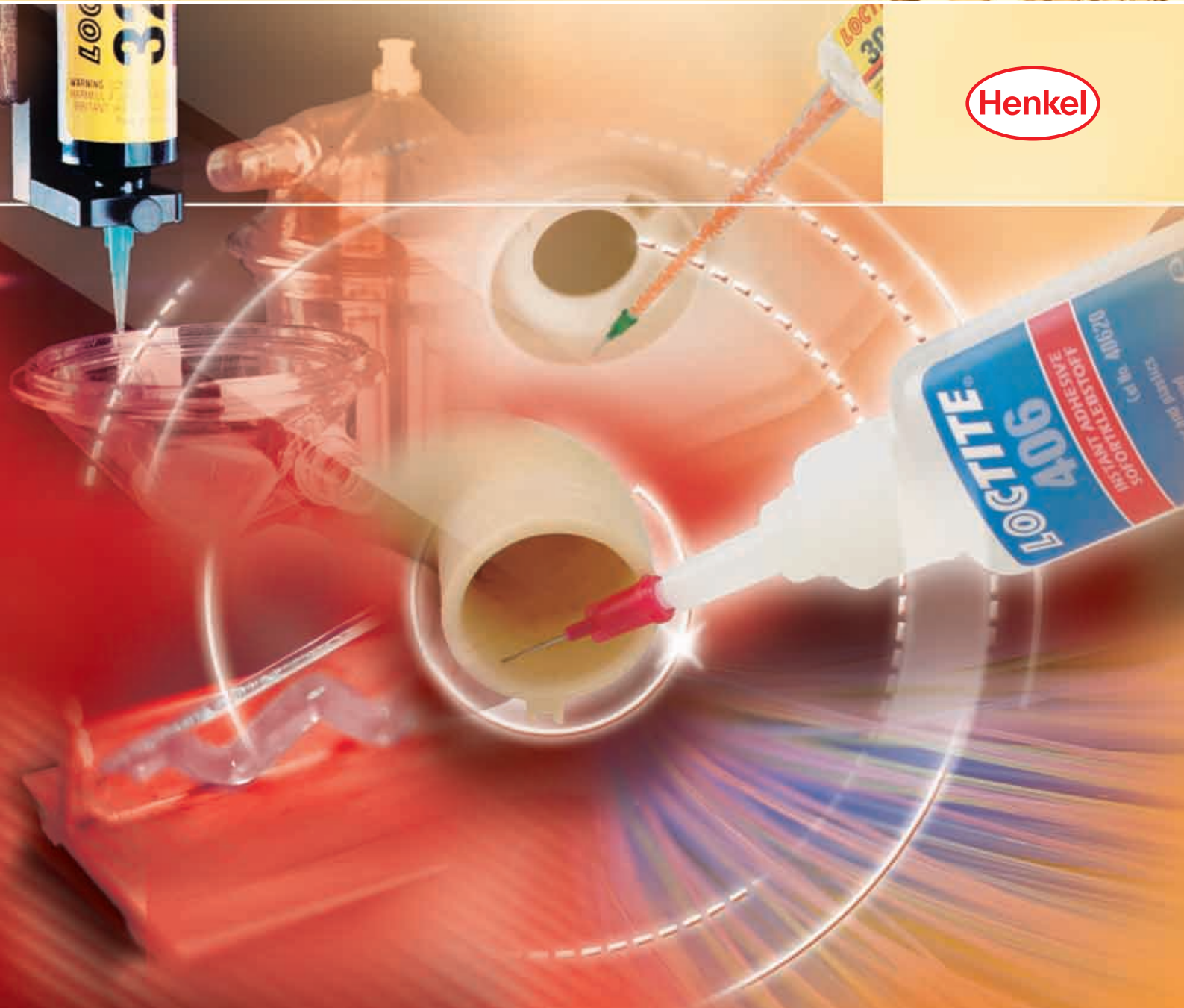
LOCTITE®

Teroson

Plastic and Elastomer Bonding Guide



Henkel





Why use Loctite® and Teroson adhesives instead of other joining methods

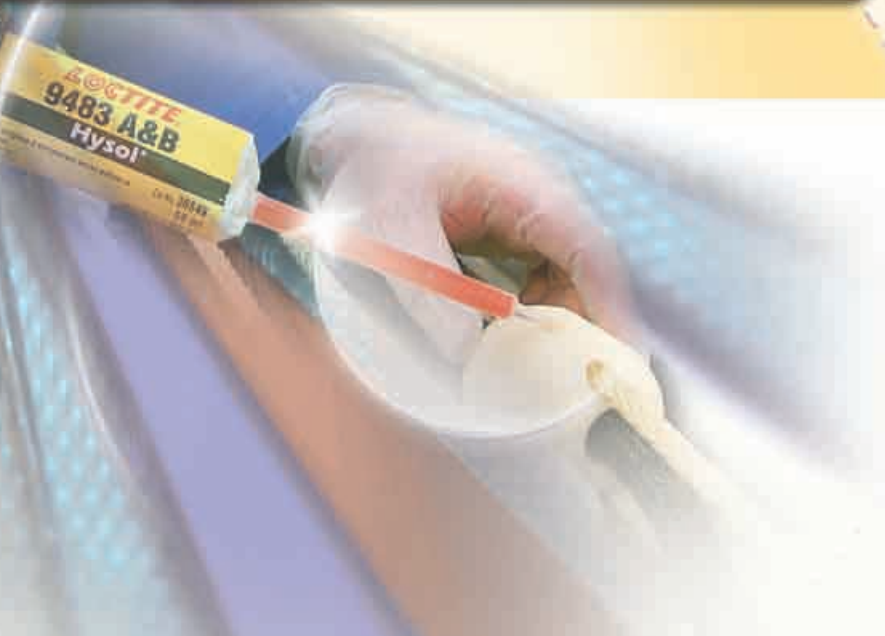
This guide offers users a basic guideline for choosing the right Loctite® and Teroson adhesive from the Henkel portfolio for successfully bonding plastic and elastomeric materials.

Today's designers have an exciting variety of different polymer formulations available, offering choices that were unheard of only a few years ago. Countless modifications and grades achieve a wide range of properties and application options. Identifying the appropriate joining technique is therefore a complex challenge. The right adhesive technology, carefully selected to match the individual characteristics of specific plastics and elastomers, can obtain optimum performance like no other joining technique. Please contact your local Henkel Representative for your specific Loctite® or Teroson solution.

	Loctite® & Teroson adhesives	Welding	Solvent bonding	Mechanical fasteners	Snap fitting joints
For all plastics and elastomers	✓			✓	
Joins dissimilar materials	✓			✓	✓
Avoids stress concentration	✓				
Sealing capability	✓	✓	✓		
Tolerates wide gaps	✓				
Invisible joints for improved styling	✓	✓	✓		✓
No holes or bosses	✓	✓	✓		
Does not require high investment	✓			✓	



Bonding Solutions



- Cyanoacrylate
- Epoxy
- Acrylic
- PUR
- Contact adhesive
- MS
- Silicone
- PU flexible
- Surface preparation
- very good
- ▣ good
- moderate

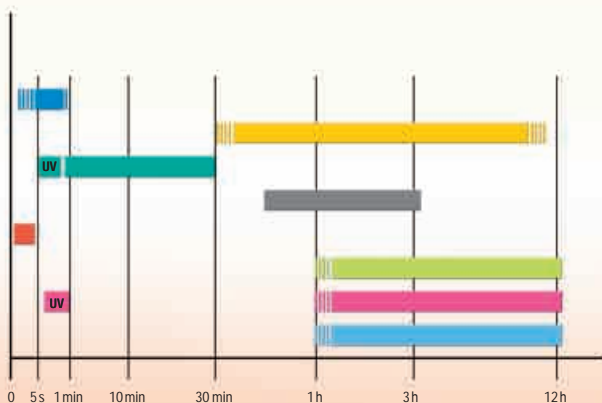
Substrates	
Cyanoacrylates	CA
	CA + Primer
	UV CA ¹
Epoxies	1K
	2K
Acrylics	1K + Activator
	2K
	PO Bonder
	UV Acrylic ¹
PUR	2K PUR
Contact adhesive	
MS	1K
Silicones	1K
	UV-Silicones ¹
PU	1K flexible
Surface preparation	Cleaner ⁴
	Optional Pre-treatment

¹ stress cracking sensitive plastic

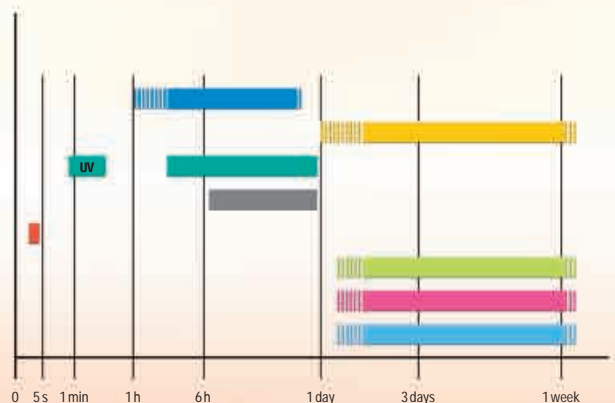
Adhesive Properties

General performance of adhesive type
 depends on grade
 depends on application

Fixture time



Time to full cure

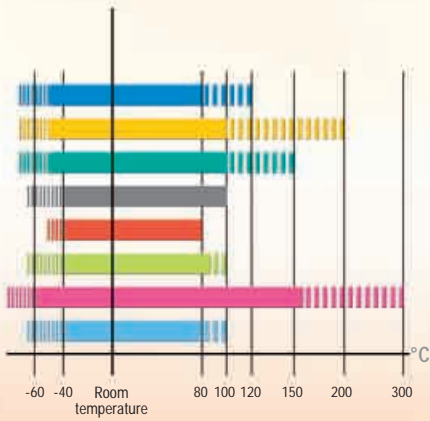


Thermoplastics

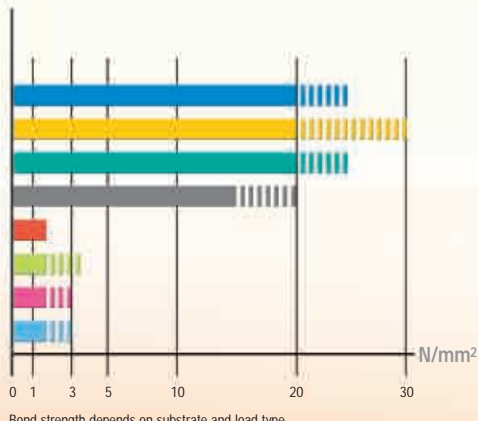
ABS*	ASA*	LCP	PA6	PBT	PC*	PE	PEEK	PEI	PES*	PET	PI	PMMA*	POM	PP	PPO*	PS*	PTFE	PVC-P	PVC-U*	SAN*
■	■	□	■	▣	■		□	■	▣	■	■	■			■	▣			■	■
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		■	■	■			■	■						■						
		■		■		■	■	■	■	■	■			■						

¹ minimum one substrate must be transparent or UV transparent
² corrosion protected metals only
³ for reinforced plastics: CRP (carbon-fibre reinforced plastics): heavy abrading may decrease bondability
 GRP (glass-fibre reinforced plastics): abrading always increases bondability
⁴ It is recommended to clean the surfaces before bonding or pretreatment. Refer to the nature of the substrate and use the appropriate cleaner

Operating Temperature

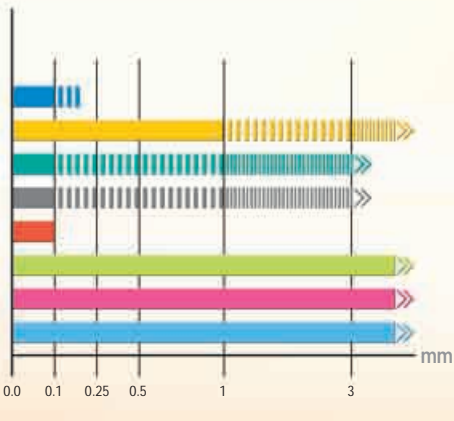


Strength



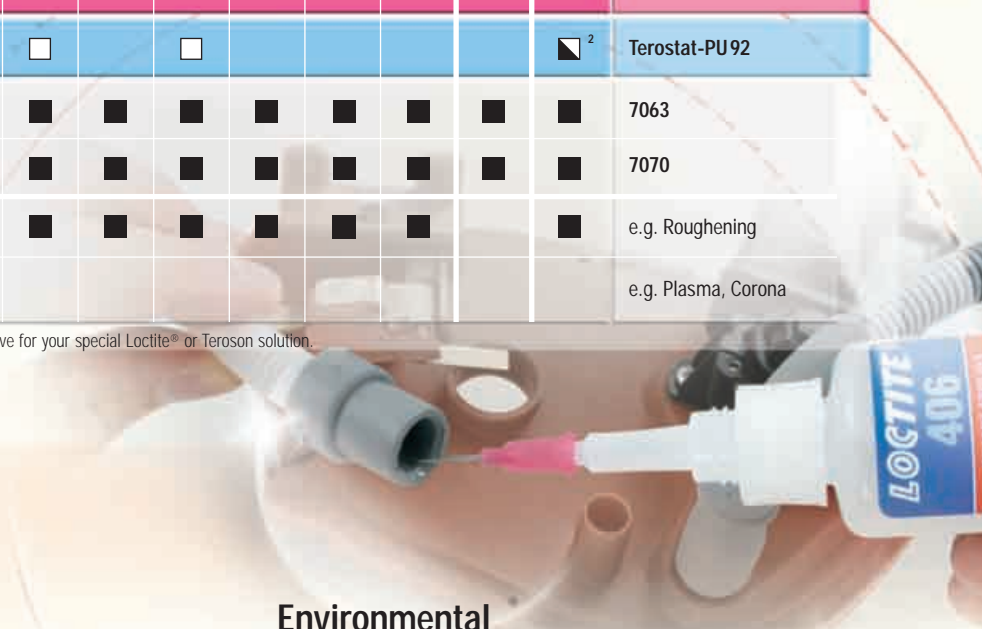
Bond strength depends on substrate and load type. Regarding bondability of substrate see selection table.

Gap filling

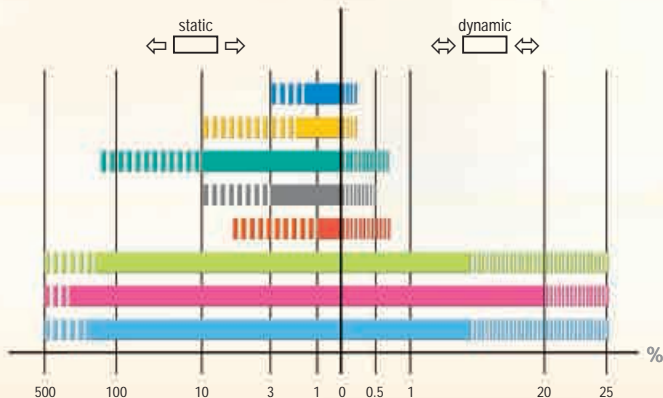


TPU*	Thermoset				Elastomers									Glass	Metal	Loctite® and Teroson product examples
	EP	MF	PF	UP	CR	EPDM	IR	NBR	NR	PU	SBR	SI	TPE			
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	401, 406, 480
■					■	■	■	■	■	■	■	■	■	■	■	CA + Primer 770
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	4304
	■	■	□	■										■	■	9514
■	■	■	■	■	□	□		□					□	■	■	3430, 9461, 9483, 9489, 9492
	■	■	■	■				■					□	■	■	3298 + Activator 7386
□	■	■	■	■				■					□	■	■	3292, 3295
■	■	■	■	■									□	■	■	3030
■	■	■	■	■	■			■	□	□	□		■	■	■	3311, 3321, 3341
□	■	■	■	■										■ ²	■	Teromix 6700
	■	■	■	■	■	■	■	■	■	■	■		■	■	■	Terokal 2444
□	■	■	■	■	□	□		■		□	□		□	■	■	Terostat 9220
□	■	■	■	■	□	□		■		□	□	■	■	■	■	5910, 5970
□	■	□	■	■				□				■	■	■	■	5088
□	■	□	■	■				□		□				■ ²	■	Terostat-PU92
	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	7063
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	7070
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	e.g. Roughening
																e.g. Plasma, Corona

Above chart contains general information. Please contact your local Henkel Representative for your special Loctite® or Teroson solution.



Flexibility



Environmental resistance

The environmental resistance of bonded joints depends on many different factors including the gap between the parts, the surface finish, the joint design, the type of adhesive selected, the load on the joint and the operating environment. Please refer to the Technical Data Sheets or contact your local Henkel Technical Centre for more details and advice.

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Henkel – The Solution Provider

The Henkel portfolio includes the following groups of Loctite® and Teroson adhesives for bonding plastics and elastomers:

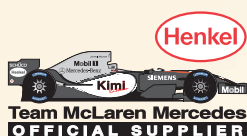
- **Cyanoacrylates**, more commonly known as instant adhesives, are very fast curing, single component adhesives
- **Epoxy adhesives** (one-part and two-part systems) cure into tough and very strong thermosets with good resistance against a wide range of chemicals
- **Acrylic adhesives** have good gap filling properties and good peel and impact resistance
- **2-component PUR adhesives** cure to form strong, tough thermoset materials
- **Contact adhesives** reach handling strength right after assembly
- **MS-Polymers** achieve good adhesion to various substrates and have good UV resistance and high flexibility
- **Silicone adhesives** cure to form elastomers which are highly flexible, show very good weathering and outstanding temperature resistance
- **Flexible polyurethane adhesives** are cured by ambient moisture to form highly flexible, paintable elastomers with good chemical resistance

Surface preparation

Correct surface preparation is critical to achieving optimum bond strength and joint reliability. Henkel offers suitable cleaners like Loctite® 7063 and 7070 to make sure that surfaces to be bonded are clean and free from grease, oil and other impurities that may affect adhesion and bond strength.

Other pre-treatments to further enhance adhesive bond performance include:

- Mechanical treatment such as grinding and blasting to generate a rough surface texture
- Physical treatments such as corona discharge, flame or plasma techniques to improve the bondability of plastics and elastomers
- Primers, recommended as adhesion promoters for certain plastic and elastomer formulations



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