

LOCTITE[®]
BONDERITE[®]
TECHNOMELT[®]
TEROSON[®]
AQUENCE[®]

Adhesives, Sealants, Functional Coatings, Equipment and Services

Home Appliance Solutions



Henkel

Henkel.

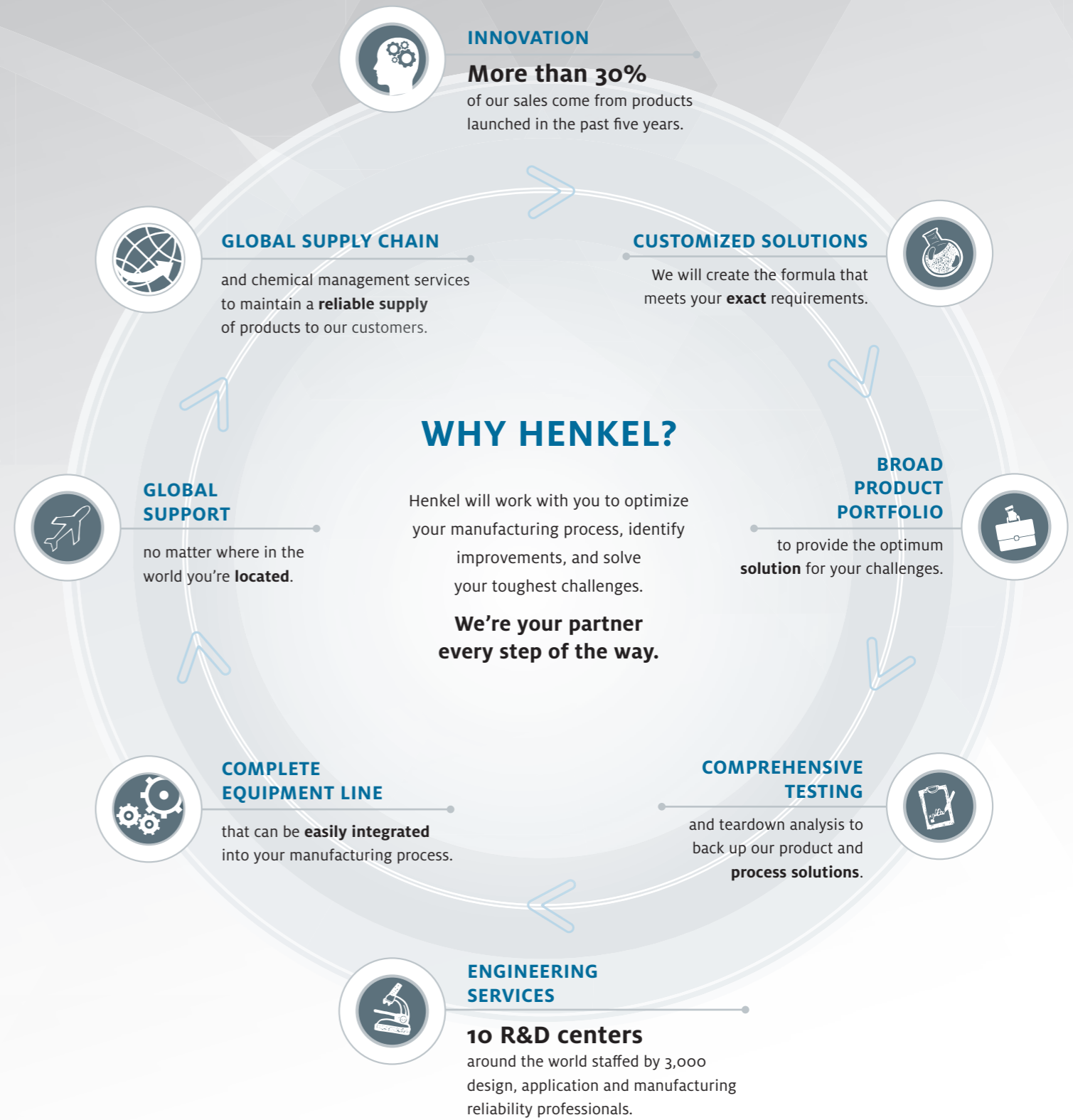
Improving your designs, understanding your challenges.

PROVEN SOLUTIONS FOR ALL YOUR NEEDS – TODAY AND TOMORROW

Appliance manufacturers face daily challenges – reducing costs, improving efficiency, and continuing to innovate, to name just a few. While there are many adhesive suppliers to choose from, they're not all created equal. You need a supplier with a broad product portfolio, a global footprint, and the engineering and application know-how to solve your challenges.

Henkel, **the leading solution provider for adhesives, sealants and functional coatings worldwide**, offers much more than quality adhesives. With our history and experience in the appliance industry, our experts can help you find ways to optimize your manufacturing processes and drive down costs. We can help you create appliances that are **stronger, more reliable, quieter, and more attractive**. And we're continually developing innovations to help you succeed in the future.

Let us show you the value Henkel offers.



WORLDWIDE RESEARCH AND DEVELOPMENT



ENGINEERING SOLUTIONS

Henkel's global network of engineering and R&D centers is staffed by 3,000 design and application professionals. We offer complete engineering services from application and design support to process optimization and a full array of analytical and testing services.



HENKEL: YOUR TOTAL SOLUTIONS PROVIDER | 6

APPLIANCE APPLICATIONS | 8

NOISE, VIBRATION, HARSHNESS (NVH) & METAL REINFORCEMENT SOLUTIONS | 12

NVH Solutions	14
Liquid Applied Sound Deadener (LASD)	16
Acoustics Labs and Engineering Services	17



BONDING SOLUTIONS | 18

Glass Bonding	20
Foam Stop	24
Thermally Conductive Bonding	26
Large Area Bonding	27
Structural and General Bonding	28
Metal Bonding	28
Metal to Glass Bonding	30
Instant Bonding	34
Plastic and Composite Bonding	36
Metal and Machinery Assembly	38
Paper and Packaging	40



FUNCTIONAL COATINGS AND METAL PRETREATMENT SOLUTIONS | 42

Portfolio	44
Nanotechnology Solutions	46
Autodeposition Solutions	47
Functional Coatings Solutions	48
Equipment Solutions	52



EQUIPMENT & ENGINEERING SOLUTIONS | 54

Equipment Solutions	56
Engineering Expertise	58
Consulting Expertise	60



INDEX | 62

HENKEL: YOUR TOTAL SOLUTIONS PROVIDER

SOLUTIONS

for every step of your process

Henkel offers a **broad array** of adhesives, sealants and functional coatings for every step of your manufacturing process, from forming and stamping to final assembly. But Henkel is more than just a supplier – our **partnership** with customers sets us apart. We have the expertise and ability to work with you from the R&D stage through the entire manufacturing process.

In addition to the product solutions shown below, we can also support your needs with our **testing capabilities, acoustics labs, analytical services, technical seminars, value calculators**, and much more. Our **global capabilities** enable us to service your manufacturing and design centers in all regions with our dedicated Henkel technical and account experts. It's part of our mission to be your total solutions provider.



METAL FORMING

METAL

MACHINING, FORMING AND STAMPING

- Metalworking fluids

WELDING AND PREASSEMBLY

- Panel stiffening
- Seam sealing
- Structural bonding
- Anti-weld spatter

FUNCTIONAL COATINGS

METAL PRETREATMENT

- Cleaning
- Conditioning
- Conversion coating

PRIMER AND TOP COAT PAINTING

- Powder coating
- E-coating
- Auto-deposition coating
- Seam sealing
- Structural/elastic bonding

ASSEMBLY

STRUCTURAL BONDING

- Glass bonding
- Cabinet assembly
- Seam sealing

GENERAL BONDING

- Overlay bonding
- Control panel bonding
- Machinery adhesives

NOISE AND THERMAL CONTROL

- Vibration damping
- Sound absorption

INSPECTION + TEST

PACKAGING

- Carton closing
- Packaging adhesives
- Labeling

ENGINEERING SERVICES

TESTING

ACOUSTICS LABS

ANALYTICAL SERVICES

TECHNICAL SEMINARS

TRAINING

GLOBAL SUPPORT

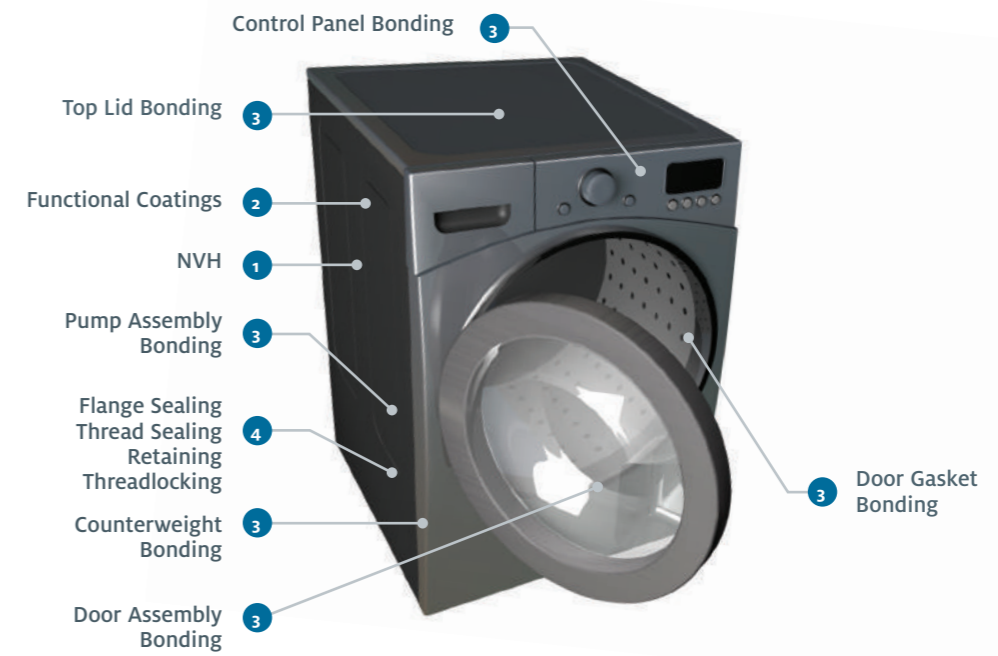
APPLIANCE APPLICATIONS

Application Categories

- 1 NOISE, VIBRATION, HARSHNESS (NVH)
- 2 FUNCTIONAL COATINGS
- 3 ASSEMBLY SOLUTIONS
- 4 MACHINERY ADHESIVES



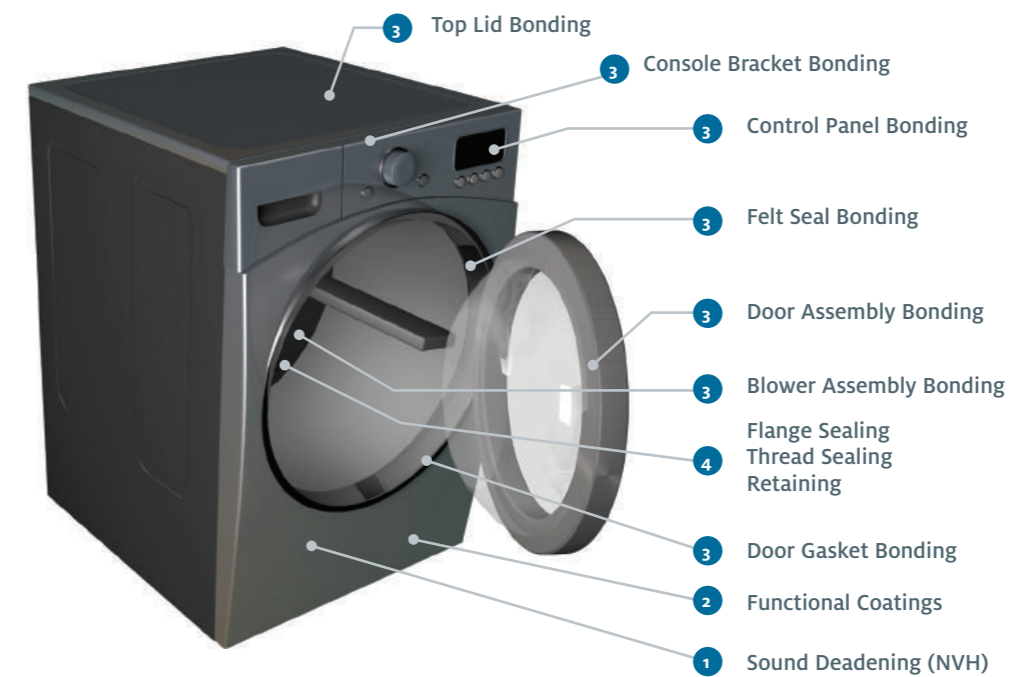
DISHWASHER



CLOTHES WASHER



RANGE

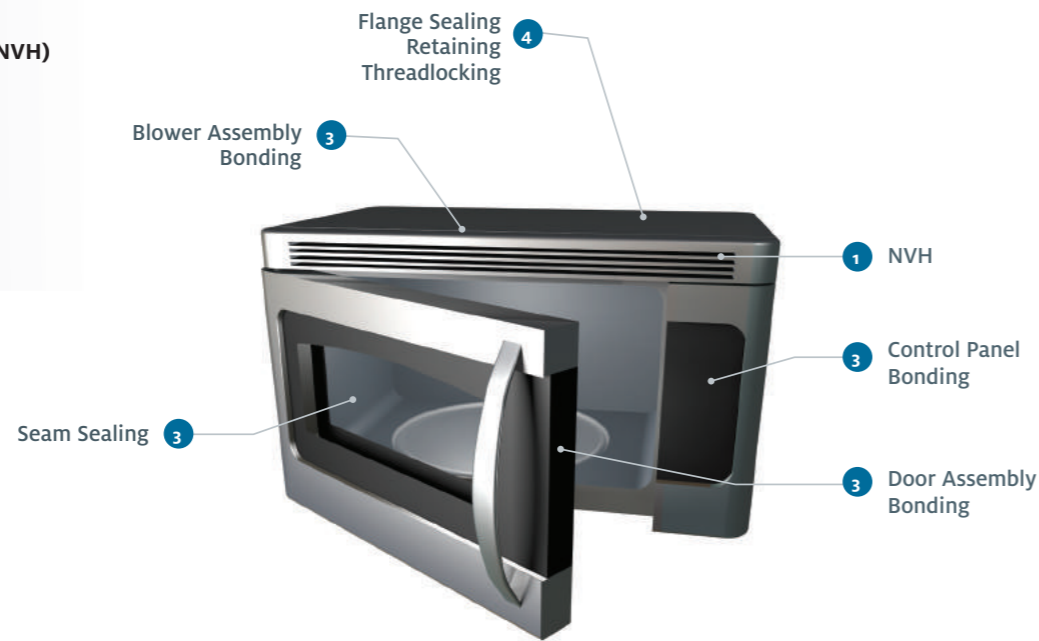


CLOTHES DRYER

APPLIANCE APPLICATIONS

Application Categories

- 1 NOISE, VIBRATION, HARSHNESS (NVH)
- 2 FUNCTIONAL COATINGS
- 3 ASSEMBLY SOLUTIONS
- 4 MACHINERY ADHESIVES



MICROWAVE



VACUUM



REFRIGERATOR AND FREEZER



NOISE, VIBRATION, HARSHNESS AND METAL REINFORCEMENT SOLUTIONS

Create Stronger and Quieter Appliances

Henkel's solutions to reduce noise, vibration and harshness (NVH) were originally designed for automotive vehicle cabins and are now used in appliance manufacturing. Our TEROSON brand NVH solutions and LOCTITE brand adhesives and sealants help enhance material properties and minimize audible noises.

NOISE, VIBRATION, HARSHNESS AND METAL REINFORCEMENT SOLUTIONS

Henkel is a leading source worldwide for NVH (noise, vibration and harshness) solutions. We provide advanced NVH technologies and comprehensive design and engineering support to our customers. Henkel has been an NVH partner with leading manufacturers for more than 20 years, and our expertise also helps appliance manufacturers create dimensionally stronger and quieter products. Our TEROSON brand NVH solutions and LOCTITE brand adhesives and sealants help enhance material properties and minimize audible noises.

NVH Product Portfolio and Technologies

- Henkel offers a full portfolio of NVH solutions in five categories – **reinforcement, damping, sealing, absorption and barrier** – detailed in Figure 1.
- We provide effective solutions to **airborne noise and structure-borne noise**, as well as **vibration and leakage**.
- We help our customers achieve **high performance sealing and save on process cost** through automation.

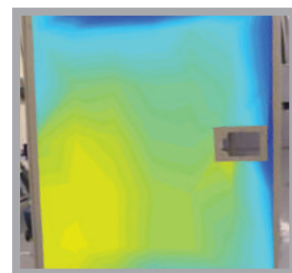
Vibration Response Test (Figure 2)

> BEFORE

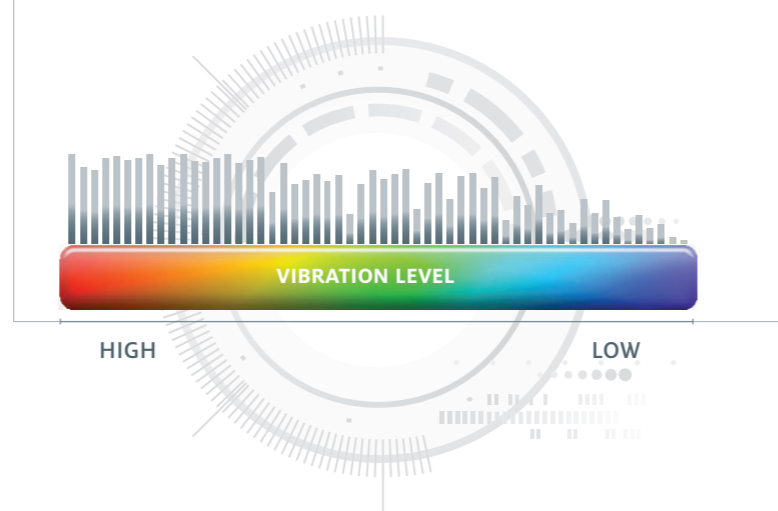


Vibration response test for side panel. Red/yellow indicates high levels of vibration.

> AFTER



Test results for side panel using Henkel expandable material. Blue/green indicates low levels of vibration.



NOISE, VIBRATION AND HARSHNESS SOLUTIONS (FIGURE 1)

	REINFORCEMENT	DAMPING	SEALING	ABSORPTION	BARRIER
APPLICATION					
NEED	Increase stiffness, shift resonant frequency	Dissipate vibration of panel structure	Isolate noise sources	Reduce airborne noise	Block sound transmission
SOLUTION	Expandable Foams Reinforcing with Stiffening Pads Structural Adhesives Structural Tapes	Liquid Applied Sound Deadener High Damping Foam Constrained Layer Pads	Gap Filling Sealants Semi-Structural Sealant and Expandable Foams	Acoustic Barrier/Absorber	
	<ul style="list-style-type: none"> • Structural vibration reduction • Allows metal design with thinner panels • Reduction in mass 	<ul style="list-style-type: none"> • High loss factor performance • Structural vibration reduction • Improves NVH performance • Converts vibration into thermal energy • Reduction in sound pressure levels • Easy to apply on various substrates 	<ul style="list-style-type: none"> • Less welding • Less corrosion • Process cost savings through automation • Blocks noise pathway 	<ul style="list-style-type: none"> • High Sound Transmission Loss (STL) performance • High absorption performance • Tunable performance 	

NVH Technology Overview

AIRBORNE NOISE	BARRIER ABSORPTION SEALING	> Multilayer composite materials > Fiber absorbers (non-woven) > Foam absorbers > Elastomeric baffle foam materials > Expandable elastomeric sealants and tapes
	DAMPING	> Bitumen sheets (mass damping) > Constrained layer damping sheets > Ambient cured, spray-grade coatings > Heat cured, spray-grade coatings > Pumpable anti-vibration panel isolators > Semi-structural adhesives
	REINFORCEMENT	> Structural adhesives > 2K expandable structural epoxy > Fiberglass panel stiffening tapes > Expandable rigid foam parts

NOISE, VIBRATION, HARSHNESS AND METAL REINFORCEMENT SOLUTIONS

TEROSON Liquid Applied Sound Deadener (LASD)

TEROSON Liquid Applied Sound Deadener (LASD) significantly reduces structural noise by absorbing and dissipating vibrational energy. LASD is applied directly to the appliance, reducing unwanted noise and vibration.

LASD offers a sustainable and cost-effective solution by providing mass reduction, improved Noise Vibration Harshness (NVH) performance and reduced complexity.

► BENEFITS

- Targeted, robotically applied LASD spray assures optimal damping application and performance.
- Automation reduces total material usage.

Service and Support

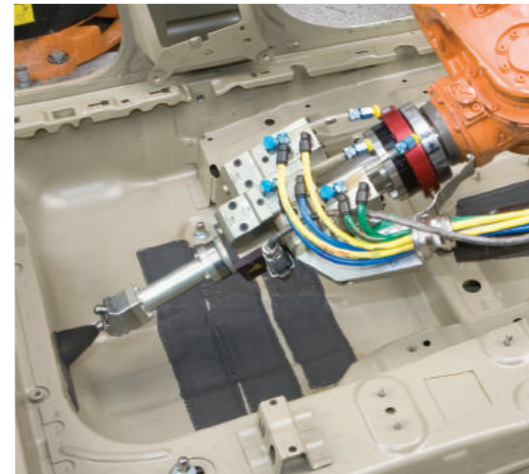
Henkel supports its LASD technology with experienced acoustic/materials engineering, laboratory, and field service personnel. LASD application systems can be easily added into existing processes.

TEROSON Fiber Absorbers

TEROSON sound-deadening fiber absorbers are an effective solution for reducing noise. The fiber blocks the passage of the airborne noise in hollow cavities and prevents noise, vibration and harshness.

► BENEFITS:

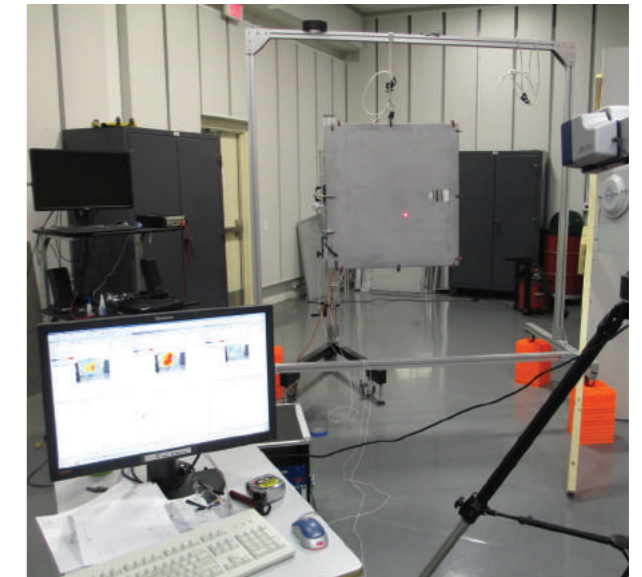
- Blocks the passage of airborne noise in hollow cavities
- Prevents noise, vibration and harshness (NVH)
- Flame retardant



Acoustics Labs and Engineering Services

Henkel's technical support team offers engineering, design, prototyping, application evaluation and testing services to help customers solve NVH problems and improve machine design.

- **Acoustics labs** with state-of-the-art instrumentation and validation equipment for testing and analysis of noise and vibration reduction variables.
- **Lab locations** in each of our major regional hubs – Germany, United States, China and India.
- **NVH Engineering:** Our comprehensive services include analysis, application solution design and application solution validation.
- **NVH Testing:** Our world-class testing resources include acoustic material testing and machine/component testing.
- **NVH Simulation:** We use a broad range of modeling tools for structural, acoustic, thermal and aerodynamic simulation.



Our services include:

NVH Analysis	Acoustic Material Testing	Other NVH Testing	
<ul style="list-style-type: none"> • Noise source • Transmission path • Contribution • Frequency response 	<ul style="list-style-type: none"> • Damping test (Oberst, impedance, free method) • Sound absorption • Transmission loss 	<ul style="list-style-type: none"> • Semi anechoic room test • Reverberant room test • Vibration test by laser meter • Acoustic camera (holography) 	<ul style="list-style-type: none"> • Sound pressure level • Sound intensity/power • Field test • Modal test

NVH Simulation Capabilities:

SIMULATION TYPES	FEA	BEM	SEA
Strength	✓	x	x
Stiffness	✓	x	x
Modal	✓	x	x
Vibration	✓	x	x
Noise	✓	✓	✓
Thermal	✓	x	x

- **FEA** Finite element analysis for structural and low frequency
- **BEM** Boundary element analysis for mid and high frequency
- **SEA** Statistical energy analysis for mid and high frequency



BONDING SOLUTIONS

Faster and Lower-Cost Assembly

The design and manufacture of appliances presents numerous challenges in assembly, mounting, fastening and sealing. Henkel's solutions enable manufacturers to reduce or replace traditional mechanical fastening methods and improve the long-term durability of appliances. Henkel adhesives and sealants have been specified by the world's major appliance manufacturers for more than 40 years.

GLASS BONDING

LEARN MORE:

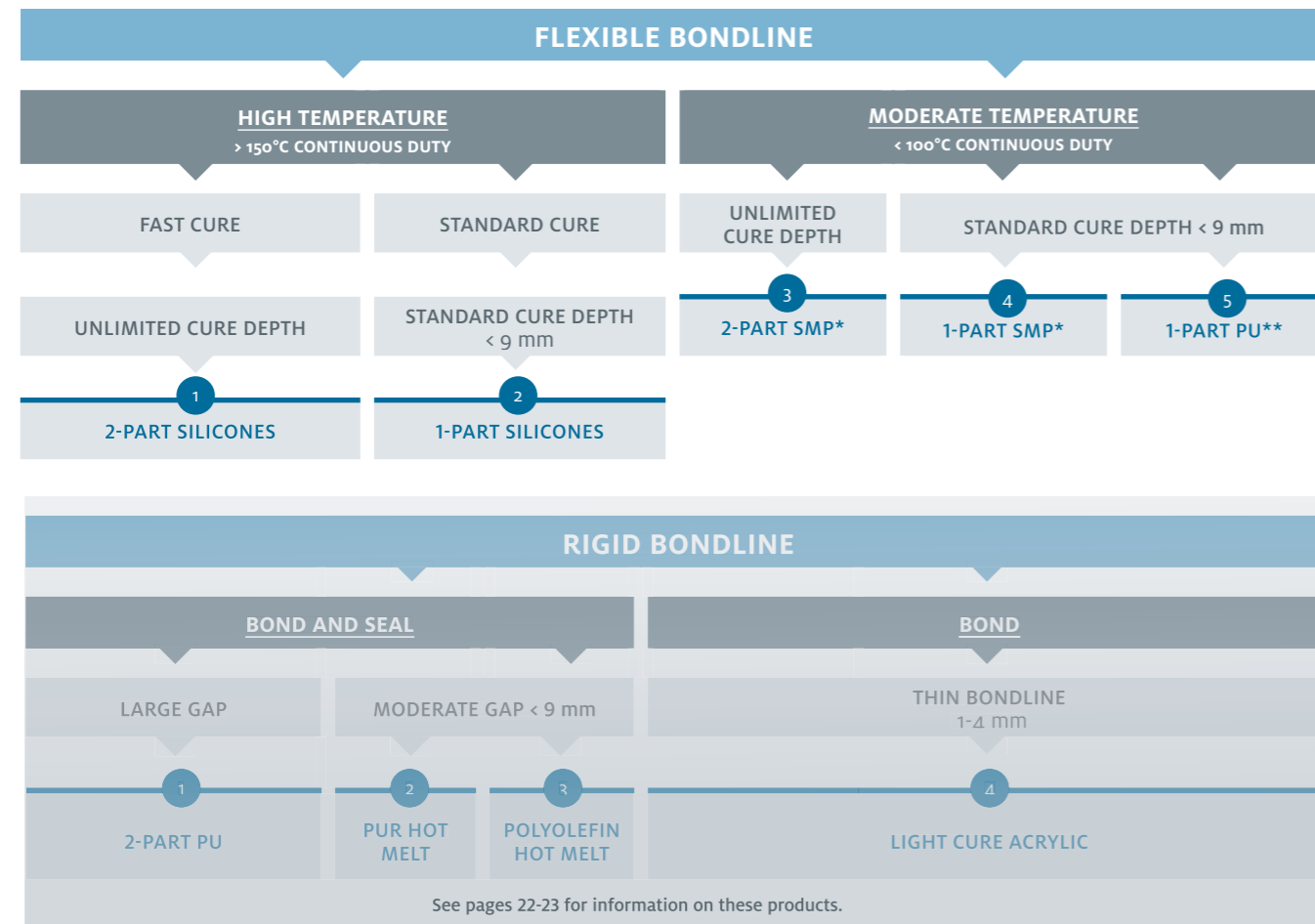
This catalog lists the most common products used in each application. Many additional products are available. Not all products are available in all countries. Contact your Henkel representative for assistance.

Dependable Bonding

The use of glass and tempered glass is becoming more popular in the manufacture of appliances. Glass provides a smooth, durable, easy-to-clean surface that provides structural properties. Glass also withstands temperature extremes and thermal cycling with minimal distortion. Connections between the glass and metals and plastics are easily achieved with adhesives. The goal is to provide a long-term, reliable bond and seal between the components. Several types of adhesives meet these challenges.

► BENEFITS:

- Silicones seal against moisture and solvents and withstand high temperatures.
- Silane modified polymers (SMPs) provide strong, resilient bonds to many substrates without a primer.
- Polyurethanes bond a wide variety of materials, including most metals, plastics and composites.
- Light cure acrylics are excellent for bonding glass, metals and plastics for thin or transparent bondlines.



* Silane Modified Polymers
** Polyurethanes

SURFACE TREATMENT		
PRODUCT NO.	TYPE	NOTES
TEROSON SB 450	Cleaner & adhesion promoter	Used on plastics and coated surfaces to promote the adhesion of silane modified polymers and silicones.

1

2-PART SILICONES – HIGH TEMPERATURE, FLEXIBLE BONDLINES							
PRODUCT NO.	MIX RATIO (VOLUME)	MIX RATIO (WEIGHT)	WORK LIFE (MINS.)	SKIN OVER TIME (MINS.)	FIXTURE TIME (MINS.)	COLOR	DESCRIPTION
LOCTITE SI 5600	2:1	100:66	1	2	5	Black, Grey, Almond	UL 746C, 180°C
LOCTITE SI 5604	4:1	100:33	2	4	10	Black, Grey, Almond	UL 746C, 180°C
LOCTITE SI 5607	2:1	100:67	6	30	20	Grey	Extended working life
LOCTITE SI 5610	2:1	100:67	2	3	5	Black	Service temperature up to 180°C
LOCTITE SI 5612	4:1	100:34	6	22	30	Red	Service temperature up to 220°C
LOCTITE SI 5615	2:1	100:66	5	12	12	Black	Service temperature up to 180°C
LOCTITE SI 5616	2:1	100:66	5	21	13	White	Service temperature up to 180°C
LOCTITE SI 5618	10:1	100:7	4	10	14	Black	Fast work life

2

1-PART SILICONES – HIGH TEMPERATURE, FLEXIBLE BONDLINES					
PRODUCT NO.	SKIN OVER TIME (MINS.)	ELONGATION (%)	HARDNESS (SHORE A)	COLOR	DESCRIPTION
LOCTITE SI 587	30	>350	A32	Blue	Neutral cure oxime Service temperature up to 260°C
LOCTITE SI 593	60	>300	A18	Black	UL94 HB; UL746C, 180°C
LOCTITE SI 598	25	>325	A32	Black	Neutral cure oxime Service temperature -54°C to 260°C
LOCTITE SI 5900	15	>400	A38	Black	NSF P1. Neutral cure oxime

3

2-PART SILANE MODIFIED POLYMERS – MODERATE TEMPERATURE, FLEXIBLE BONDLINES							
PRODUCT NO.	MIX RATIO (VOLUME)	MIX RATIO (WEIGHT)	WORK LIFE (MINS.)	SKIN OVER TIME (MINS.)	FIXTURE TIME (MINS.)	COLOR	DESCRIPTION
TEROSON MS 650	10:1	10:1	2	5	10	Black	Service temperature -40°C to 90°C
TEROSON MS 5590	1:1	1:1	8	30	60	Black	Service temperature -40°C to 100°C
TEROSON MS 9399	1:1	1:1	8	20	90	Black, Grey, White	Service temperature -40°C to 100 °C

4

1-PART SILANE MODIFIED POLYMERS – MODERATE TEMPERATURE, FLEXIBLE BONDLINES					
PRODUCT NO.	SKIN OVER TIME (MINS.)	ELONGATION %	HARDNESS (SHORE A)	COLOR	DESCRIPTION
TEROSON MS 930	20	250	A30	Black, Grey, White	Service temperature -50°C to 80°C
TEROSON MS 935	10	230	A50	Black, Grey, White	Service temperature -40°C to 100°C
TEROSON MS 939	6	250	A55	Black, Grey, White	Service temperature -40°C to 100°C
TEROSON MS 660	4	230	A40	Transparent	Service temperature -30°C to 80°C
TEROSON MS 9360	6	200	A60	Black	Service temperature -40°C to 100°C

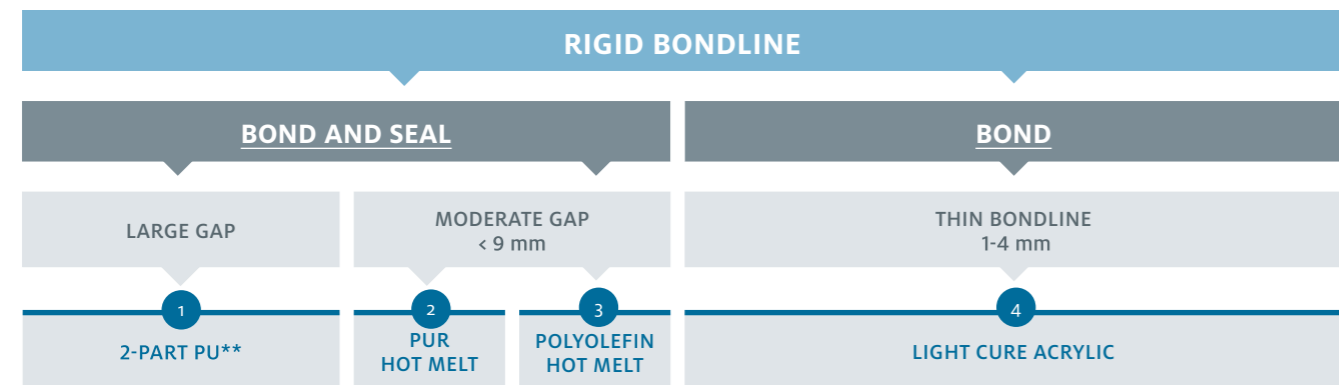
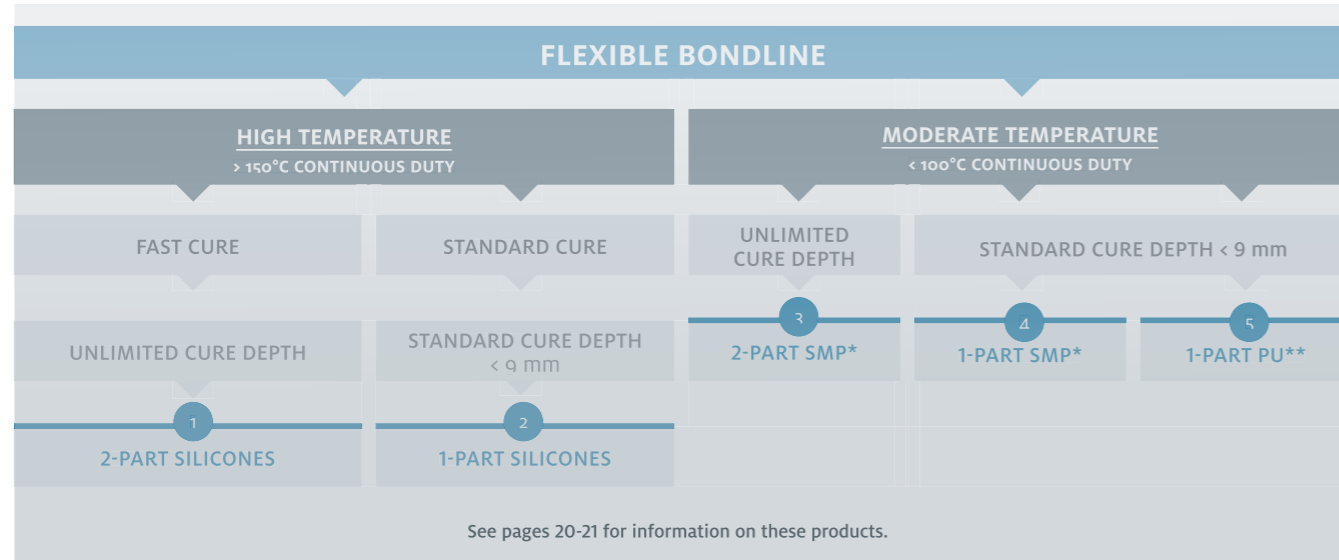
5

1-PART POLYURETHANES – MODERATE TEMPERATURE, FLEXIBLE BONDLINES				
PRODUCT NO.	SKIN OVER TIME (MINS.)	FIXTURE TIME (MINS.)	COLOR	DESCRIPTION
LOCTITE 3370	25	90	Black, Grey, White	Typically used on glass and metals

GLASS BONDING

LEARN MORE:

This catalog lists the most common products used in each application. Many additional products are available. Not all products are available in all countries. Contact your Henkel representative for assistance.



* Silane Modified Polymers
** Polyurethanes

1

2-PART POLYURETHANES – RIGID BONDLINE, BOND AND SEAL

PRODUCT NO.	MIX RATIO (VOLUME)	MIX RATIO (WEIGHT)	MIXED VISCOSITY mPas	WORK LIFE (MINS.)	COLOR	DESCRIPTION
LOCTITE UK 8445 B1 / UK 5400	4:1	100:22	6,500	1	Beige	Used in top lid bonding

2

POLYURETHANE HOT MELTS – RIGID BONDLINE, BOND AND SEAL

PRODUCT NO.	VISCOSITY AT DISPENSE TEMP. (mPas)	DISPENSE TEMP. (°C)	HEAT RESISTANCE
TECHNOMELT PUR 4661	8,500	130	150°C
TECHNOMELT PUR 4663	10,000	130	150°C
TECHNOMELT PUR 3460	10,000	130	150°C
TECHNOMELT PUR 3533 - 22	10,000	130	-
TECHNOMELT PUR 310	7,500	120	150°C

3

POLYOLEFIN HOT MELTS – RIGID BONDLINE, BOND AND SEAL

PRODUCT NO.	VISCOSITY AT DISPENSE TEMP. (mPas)	DISPENSE TEMP. (°C)	SOFTENING POINT (°C)	COLOR	DESCRIPTION
TECHNOMELT AS 5375	4,500	180	140	White to Light Beige	Polyolefin Bonder

4

LIGHT CURE ACRYLICS – THIN BONDLINE / TRANSPARENT BONDLINE

PRODUCT NO.	VISCOSITY (mPas)	ELONGATION	HARDNESS (SHORE)	DESCRIPTION
UV / VISIBLE CURE				
LOCTITE AA 3525	15,000	260	D60	Typically used on glass, metal, and thermosets.
LOCTITE AA 3974	2,400	100	A77	Typically used on thermoplastics, thermosets, and glass.
LOCTITE AA 3494	6,000	190	D65	Typically used on glass and metals.
UV CURE				
LOCTITE AA 3108	5,100	330	A72	Typically used on thermoplastics, thermosets, and glass.
LOCTITE AA 302	100	160	D68	Typically used on glass, metals and plastics.

FOAM STOP

LEARN MORE:

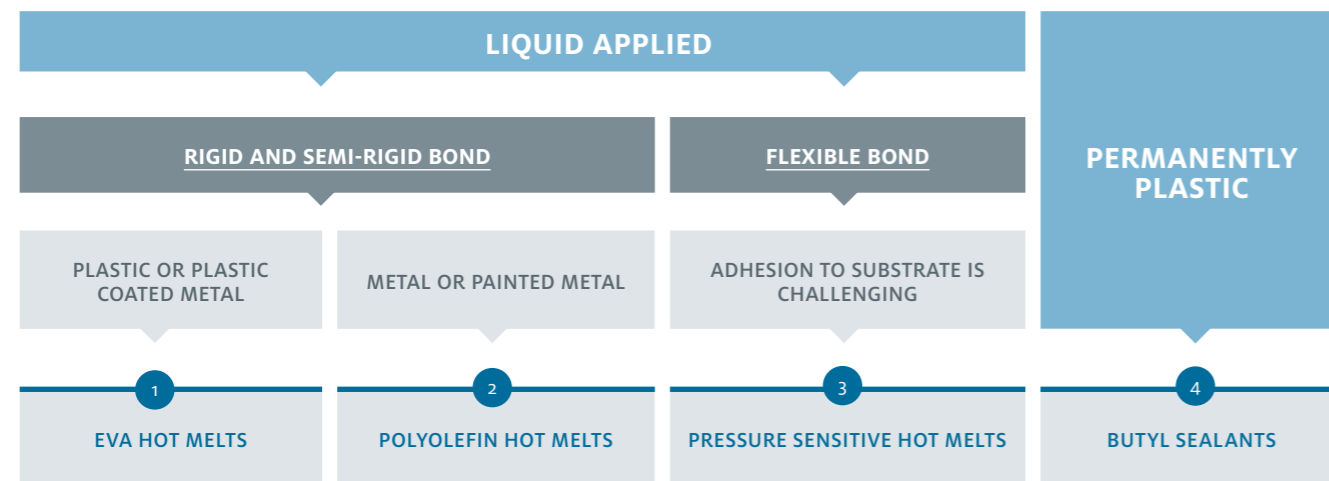
This catalog lists the most common products used in each application. Many additional products are available. Not all products are available in all countries. Contact your Henkel representative for assistance.

Reliable Sealing

Foam stop provides a seal for the gaps in a refrigerator cabinet to prevent polyurethane foam from leaking during the insulation injection process. Incomplete or inadequate foam stops result in insulation leaks, rework/cleanup and incomplete insulation fill, resulting in lower operating efficiency. Proper foaming of hot melts can help provide the needed coverage at an attractive value.

► BENEFITS:

- Hot melt adhesives bond a variety of substrates, including difficult-to-bond, painted surfaces.
- Ideal for applications requiring high-speed manufacturing, large gap filling, fast green strength, and minimal shrinkage.



1

EVA HOT MELTS – RIGID AND SEMI RIGID BOND, PLASTIC OR PLASTIC COATED METAL					
PRODUCT NO.	VISCOSITY AT DISPENSE TEMP. (mPas)	DISPENSE TEMP. (°C)	SOFTENING POINT (°C)	COLOR	DESCRIPTION
TECHNOMELT AS TK 779	1,820	140	87	White	21 CFR 175.105
TECHNOMELT AS 2184	800	120	85	Light yellow	21 CFR 175.105 Typical foam rate 40-50%
TECHNOMELT AS 3115	13,000	130	109	White	General assembly applications
TECHNOMELT AS 2131	1,000	160	106	White	Typically used in packaging

2

POLYOLEFIN HOT MELTS – RIGID AND SEMI RIGID BOND, METAL OR PAINTED METAL					
PRODUCT NO.	VISCOSITY AT DISPENSE TEMP. (mPas)	DISPENSE TEMP. (°C)	SOFTENING POINT (°C)	COLOR	DESCRIPTION
TECHNOMELT AS 8890	5,500	177	155	Translucent Amber	Typical foam rate 70-75%, 21 CFR 175.105
TECHNOMELT AS 4161	2,500	120	90	O -white Opaque	Typical foam rate 60%
TECHNOMELT AS 5303	4,200	180	124	Light Beige	Polyolefin bonde
TECHNOMELT AS 5368	18,000	165	100	Beige	Polyolefin bonde

3

PRESSURE SENSITIVE HOT MELTS – FLEXIBLE BOND, CHALLENGING SUBSTRATES					
PRODUCT NO.	VISCOSITY AT DISPENSE TEMP. (mPas)	DISPENSE TEMP. (°C)	SOFTENING POINT (°C)	COLOR	DESCRIPTION
SYNTHETIC RUBBER					
TECHNOMELT PS 8557	25,000	180	130	Light Yellow	Aggressive tack, UL stabilizers
TECHNOMELT PS 8701	20,000	180	110	Yellow	General assembly applications
TECHNOMELT PS 8707	4,000	180	110	Light Yellow	Transparent adhesive fil
TECHNOMELT PS 8746	10,000	170	100	Yellow	Tapes and labels
TECHNOMELT PS 8772	9,000	150	90	Yellow	Tapes and labels
TECHNOMELT PS 8791	11,000	160	95	Pale Yellow	Tapes and labels
TECHNOMELT PS 8797	8,000	120	85	Pale Yellow	Fabric, metal and foam bonder
TECHNOMELT AS 8848	2,100	135	93	Translucent White	Typical foam rate 60%, 21 CFR 175.105
SYNTHETIC POLYMER					
TECHNOMELT EM 725	7,800	150	80	Light Yellow to Light Brown	Plastic bonder
TECHNOMELT EM 357	800	150	68	Transparent Yellow	Plastic and foam bonder

4

BUTYL SEALANTS – PERMANENTLY PLASTIC					
PRODUCT NO.	DENSITY (g/cm³)	SERVICE TEMP. (°C)	SHORT-TERM EXPOSURE (°C)	COLOR	DESCRIPTION
SYNTHETIC RUBBER					
TEROSON RB XI L	1.7	-30 to 80	160	Beige	Kneaded before applied
TEROSON RB IX	1.8	-30 to 80	160	Light Grey	Kneaded before applied

THERMALLY CONDUCTIVE BONDING

High Thermal Efficiency

Close contact between the evaporator tube and the refrigerator/freezer cabinet is critical to achieve good thermal efficiency. Thermally conductive butyl adhesives keep the tube attached to the cabinet during the foaming process and allow heat to pass easily from the cabinet to the tube. Pressure sensitive hot melt adhesives can be incorporated with aluminum sheets to attach the flat plate evaporator to the inner cabinet.

► BENEFITS:

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

BUTYL					
PRODUCT NO.	DENSITY (g/cm ³)	SERVICE TEMPERATURE (°C)	SHORT-TERM EXPOSURE (°C)	COLOR	DESCRIPTION
TEROSON RB 301	1.25	-40 to 80	160	Black	Extrude with heat 140°C
TEROSON RB 82	2.1	-40 to 80	200	Black	Damping sealing tape
TEROSON RB 9718	1.5	–	–	Cream	Non-curable sealing compound

HOT MELT					
PRODUCT NO.	VISCOSITY AT DISPENSE TEMP. (mPas)	DISPENSE TEMP. (°C)	SOFTENING POINT (°C)	COLOR	DESCRIPTION
TECHNOMELT PS 8707	4,000	180	110	Light Yellow	Transparent adhesive fil
TECHNOMELT PS 8746	10,000	170	100	Yellow	Tapes and labels

LARGE AREA BONDING

LEARN MORE:

This catalog lists the most common products used in each application. Many additional products are available. Not all products are available in all countries. Contact your Henkel representative for assistance.

Bonding Insulation and Vacuum Insulation Panels

Connection of Vacuum Insulation Panels (VIP) involves bonding the film laminate to the painted steel cabinet shell. Using pressure sensitive adhesives with high initial tack achieves a strong, immediate bond between the components.

► BENEFITS:

- High initial tack for fast processing
- High strength and thermally resistant
- UL rating for flame and smoke index

HOT MELT					
	VISCOSITY (mPas)	DISPENSE TEMP. (°C)	SOFTENING POINT (°C)	COLOR	DESCRIPTION
SYNTHETIC RUBBER					
TECHNOMELT PS 1530	11,000	160	92	Light Yellow	Spray or roll coat
TECHNOMELT PS 1573	17,000	160	92	Light Yellow	Spray or roll coat
TECHNOMELT PS 8707	4,000	180	110	Light Yellow	Spray or roll coat
TECHNOMELT PS 703	6,000	180	100	Light Yellow	Spray or roll coat
TECHNOMELT PS 1573E	8,200	180	95	Light Yellow	Slot nozzle or roll coat
TECHNOMELT PS 977EX	7,300	180	94	Amber	Slot nozzle or roll coat
POLYOLEFIN					
TECHNOMELT 3210	8,000	177	135	O -white	UL 723 Class 1 for flame and smoke spread, UL 2395, UL 727
EVA					
TECHNOMELT 491C	2,200	150	132	Light Yellow	UL 723

WATER-BASED				
	VISCOSITY (mPas)	SOLIDS (%)	COLOR	DESCRIPTION
AQUENCE 452A	300	65	White Liquid	UL 2395, UL 727, 0 flame spread, 0 smoke index
AQUENCE 514A	300	65	Blue Liquid	UL 2395, UL 727, 0 flame spread, 0 smoke index
AQUENCE 0885	22,500	66	O -white	Bonding of porous substrates
SOLVENT-BASED				
LOCTITE S 563R	125	18	Red	Contact adhesive
LOCTITE S 6097	700	26	Amber	Contact adhesive

STRUCTURAL AND GENERAL BONDING

LEARN MORE:

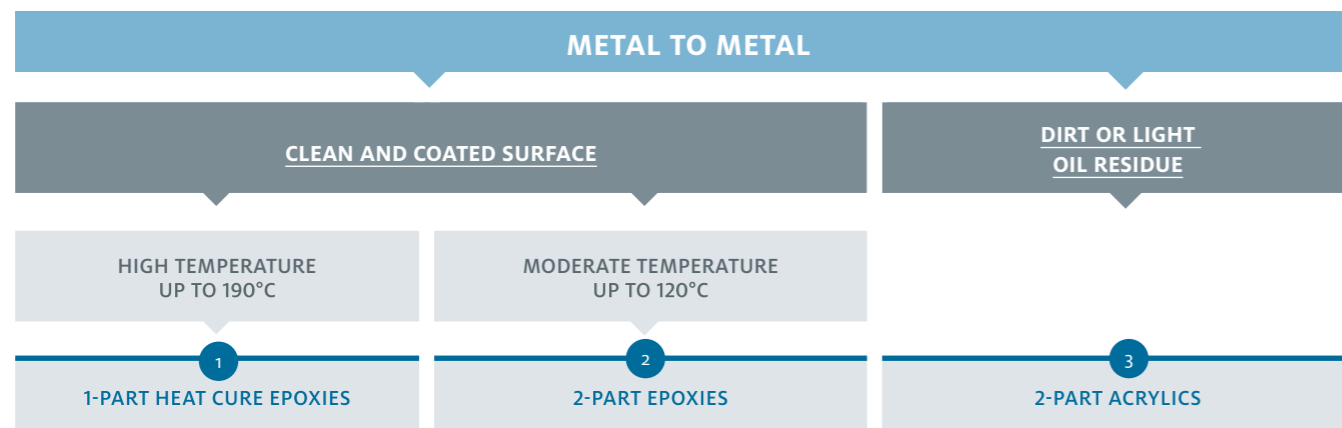
This catalog lists the most common products used in each application. Many additional products are available. Not all products are available in all countries. Contact your Henkel representative for assistance.

Metal Bonding

Henkel structural adhesives for metal bonding provide tough, long-lasting bonds to metal surfaces such as steel, galvanized steel, aluminum and stainless steel. These adhesives reduce or replace the need for threaded fasteners, welds or rivets, resulting in a higher quality and lighter-weight assembly. Henkel structural adhesives withstand higher temperatures, provide excellent chemical resistance, and survive aggressive pretreatment and high performance paint processes.

► BENEFITS:

- High strength coupled with high impact and peel resistance
- Resistance to high temperatures and aggressive chemicals
- Bond gap control to prevent adhesive squeeze-out
- A variety of open times to meet processing line needs
- Cost benefits by replacing or reducing welds, rivets and screws



Anti-Weld Spatter

For applications where welding is required, Henkel's Anti-Weld Spatter coatings can help manufacturers increase productivity and lower costs. These innovative coatings protect welding equipment and parts by preventing metal spatter from adhering to the contact tip, nozzle and surrounding parts. Products can be applied manually or robotically and are suitable for MIG and MAG welding.

► BENEFITS:

- Minimizes downtime
- Extends torch nozzle and tip life
- Decreases cleaning time and frequency
- Silicone-free, no paint issues
- Improves quality of weld seams
- High temperature resistance (1,100°C)

1

1-PART HEAT CURE EPOXIES				
	VISCOSITY (mPas)	HEAT CURE	SERVICE TEMPERATURE	COLOR
LOCTITE EA 3985	50,000	Heat cure 30 minutes at 150°C	149°C	Black
TEROSON EP 5089	100,000	Heat cure 40 minutes at 160°C	178°C	Purple

2

2-PART EPOXIES							
	MIX RATIO (VOLUME)	MIX RATIO (WEIGHT)	MIXED VISCOSITY (mPas)	WORK LIFE (MINS.)	GLASS TRANSITION TEMPERATURE (°C)	COLOR	DESCRIPTION
LOCTITE EA E-00NS	1:1	100:92	100,000	3	20	Yellow Translucent	Fast fixture, non-sag
LOCTITE EA E-04SS	1:1	100:98	-	3	-	Light Grey	Color matched for stainless steel
LOCTITE EA E-05MR	1:1	100:100	25,000	5	39	Water White Clear	Moisture resistant
LOCTITE EA E-05CL	1:1	100:105	2,500	3	10	Clear	Fast fixture
LOCTITE EA E-20NS	2:1	100:52	60,000	20	87	Tan	Low sag
LOCTITE EA E-20HP	2:1	100:55	30,000	20	60	O -white	Toughened, high performance
LOCTITE EA E-30CL	2:1	100:46	10,000	30	70	Clear	Chemically resistant
LOCTITE EA E-30UT	2:1	100:46	65,000	30	45	Dark Purple	Ultra-tough
LOCTITE EA E-40FL	1:1	100:85	70,000	40	30	Opaque Grey	Flexible
LOCTITE EA E-40HT	2:1	100:43	430,000	40	57	O -white	Service temperature to 148°C
LOCTITE EA E-60HP	2:1	100:50	45,000	60	70	O -white	Toughened, high performance
LOCTITE EA E-60NC	1:1	100:91	8,000	60	55	Black	Noncorrosive potting
LOCTITE EA E-120HP	2:1	100:46	30,000	120	90	Amber	Chemically resistant
LOCTITE EA 9460	1:1	100:97	200,000	50	68	Grey	Non-sag
LOCTITE EA 3430	1:1	100:100	23,000	5	58	Ultra Clear	Transparent
LOCTITE EA 3450	1:1	100:106	33,000	5	37	Metallic Grey	Metal bonder

3

2-PART ACRYLICS							
	MIX RATIO (VOLUME)	MIX RATIO (WEIGHT)	MIXED VISCOSITY (mPas)	WORK LIFE (MINS.)	GLASS TRANSITION TEMPERATURE (°C)	COLOR	DESCRIPTION
LOCTITE AA H3151	1:1	100:100	70,000	45	-	Light Yellow	High peel strength
LOCTITE AA H3300	1:1	100:100	110,000	5	-	Yellow	Plastic bonder, fast work time
LOCTITE AA H4500	10:1	100:10	45,000	15	107	Grey	Metal bonder
LOCTITE AA H4800	10:1	100:10	50,000	30	-	Light Yellow	Plastic bonder, impact resistant
LOCTITE AA H8000	10:1	100:12	190,000	30	71	Green	Aluminum metal bonder, long work time
LOCTITE AA H8510	10:1	100:10	45,000	30	85	Grey	Metal bonder, long work time
LOCTITE AA H8600	2:1	100:50	86,000	25	-	Blue	Galvanized steel metal bonder
LOCTITE AA H8700	2:1	100:56	40,000	40	88	Blue	Paint bake compatible

STRUCTURAL AND GENERAL BONDING

LEARN MORE:

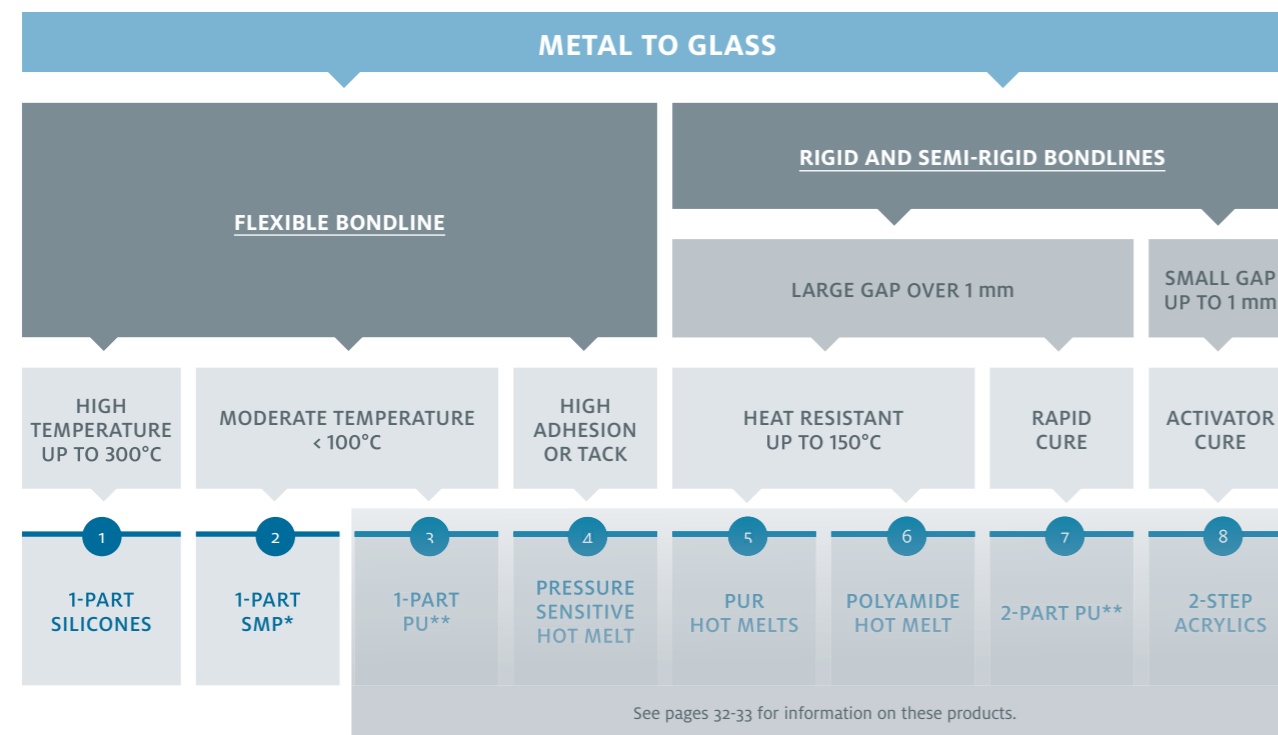
This catalog lists the most common products used in each application. Many additional products are available. Not all products are available in all countries. Contact your Henkel representative for assistance.

Metal to Glass Bonding

Henkel structural adhesives for multiple surfaces bond a wide variety of substrates such as metals, ceramics, plastics and glass. They are available in a variety of formulations and performance capabilities, including fast cure, superior water/humidity resistance, ease of dispense, excellent heat strength, and resistance to a wide range of chemicals.

► BENEFITS:

- Range of cure profiles
- Range of viscosities
- High-impact strength
- Peel strength
- Toughness
- Durability



* Silane Modified Polymers
** Polyurethanes

1

1-PART SILICONES							
	CURE TYPE	SKIN OVER TIME (MIN.)	ELONGATION %	SHORE HARDNESS	TEMP. RESISTANCE (°C)	COLOR	DESCRIPTION
LOCTITE SI 593	Acetoxy	60	>300	A18	200	Black	UL94 HB; UL746C, 180°C
LOCTITE SI 595	Acetoxy	30	>275	A14	200	Clear	NSF 51, UL
LOCTITE SI 587	Neutral Cure Oxime	30	>350	A32	260	Blue	Neutral cure oxime. Service temperature up to 260°C
LOCTITE SI 596	Acetoxy	60	>300	A18	315	Red	Service temperature to 315°C
LOCTITE SI 598	Neutral Cure Oxime	25	>325	A32	300	Black	Neutral cure oxime. Service temperature -54°C to 260°C
LOCTITE SI 5011 CL	Neutral Cure Oxime	20	>300	A20	260	Clear	Neutral cure oxime
LOCTITE SI 5039	UV Cure/ Acetoxy	20	>150	A40	177	Light Yellow Translucent	Dual cure RTV & UV / visible light
LOCTITE SI 5248	UV Cure / Neutral Cure Alkoxy	11	>135	A 25	250	Light Straw Translucent	Dual cure RTV & UV light
LOCTITE SI 5331	Acetoxy	5	-	-	150	White	NSF P1. Typically used as a thread sealant on plastic pipe threads
LOCTITE SI 5368	Acetoxy	5	435	A 26	250	Black	Service Temperature up to 250°C
LOCTITE SI 5398	Acetoxy	8	200	A35	350	Red	Service temperature up to 350°C
LOCTITE SI 5900	Neutral Cure Oxime	15	>400	A38	260	Black	NSF P1. Neutral cure oxime
LOCTITE SI 5905	Neutral Cure Oxime	20	>250	A39	260	Black, White	Neutral cure oxime
LOCTITE SI 5920	Neutral Cure Oxime	20	>350	A30	350	Copper	Neutral cure oxime. Service temperature up to 350°C

2

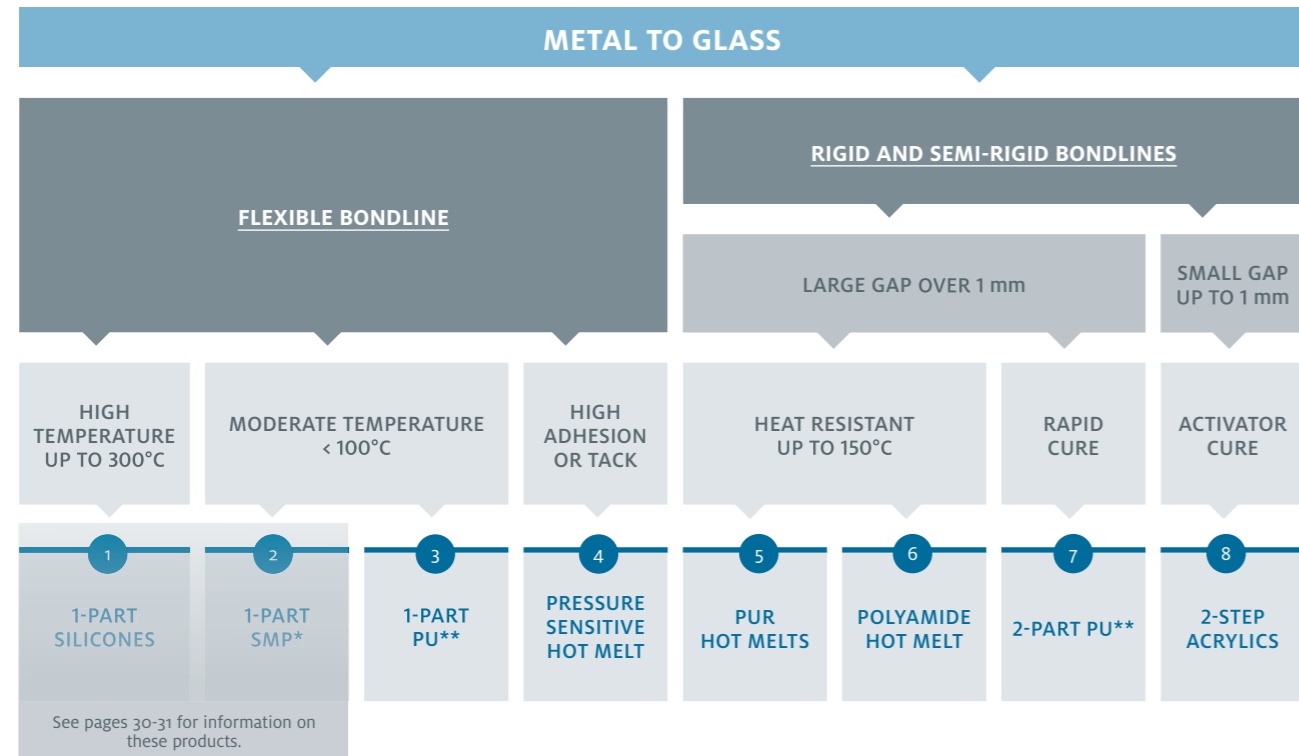
1-PART SILANE MODIFIED POLYMERS							
	CURE TYPE	SKIN OVER TIME (MINS.)	ELONGATION %	SHORE HARDNESS	TEMP. RESISTANCE (°C)	COLOR	DESCRIPTION
LOCTITE MS 5572	Humidity	6	225	A55	100	Black	Sealing and bonding
TEROSON MS 930	Humidity	20	250	A30	80	Black, Grey, White	Service temperature -50°C to 80°C
TEROSON MS 939	Humidity	6	250	A55	100	Black, Grey, White	Service temperature -40°C to 100°C
TEROSON MS 9360	Humidity	6	200	A60	100	Black	Service temperature -40°C to 100°C
TEROSON MS 9120	Humidity	8	250	A50	100	Black, Grey, White	Service temperature -30°C to 100°C

STRUCTURAL AND GENERAL BONDING

LEARN MORE:

This catalog lists the most common products used in each application. Many additional products are available. Not all products are available in all countries. Contact your Henkel representative for assistance.

Metal to Glass Bonding – Continued



* Silane Modified Polymers
** Polyurethanes

1-PART POLYURETHANES				
SKIN OVER TIME (MINS.)	FIXTURE TIME (MINS.)	COLOR	DESCRIPTION	
LOCTITE 3370	25	90	Black, Grey, White	Typically used on glass and metals

PRESSURE SENSITIVE HOT MELTS					
TECHNOMELT	VISCOSITY AT DISPENSE TEMP. (mPas)	DISPENSE TEMP. (°C)	SOFTENING POINT (°C)	COLOR	DESCRIPTION
TECHNOMELT PS 8668	36,000	177	140	Amber	Typically used in packaging 21 CFR 175.105
TECHNOMELT PS 8707	4,000	180	110	Light Yellow	Transparent adhesive 1m
TECHNOMELT PS 8845	19,000	180	108	Yellow Amber	Slot die applied
TECHNOMELT GA 003A	8,400	150	97	Translucent	Typically used in labeling, 21 CFR 175.105

POLYURETHANE HOT MELTS				
TECHNOMELT	VISCOSITY AT DISPENSE TEMP. (mPas)	DISPENSE TEMP. (°C)	COLOR	DESCRIPTION
TECHNOMELT PUR 3533 - 22	10,000	130	Light Ivory Opaque	Bonds wood, paper, plastic, glass, metal
TECHNOMELT PUR 3631	12,000	121	O -white	Bonds wood, plastic, glass, metal

POLYAMIDE HOT MELTS						
TECHNOMELT	VISCOSITY AT DISPENSE TEMP. (mPas)	DISPENSE TEMP. (°C)	SOFTENING POINT (°C)	OPEN TIME (SECONDS)	COLOR	DESCRIPTION
TECHNOMELT PA 7809FR	7,000	177	132	35	Amber	UL 94 Vo

2-PART POLYURETHANES						
LOCTITE	MIX RATIO (VOLUME)	MIX RATIO (WEIGHT)	MIXED VISCOSITY (mPas)	WORK LIFE (MINS.)	COLOR	DESCRIPTION
LOCTITE U-05FL	1:2	100:200	100,000	5	O -white	Metal bonder, exible
LOCTITE U-09FL	1:1	100:91	5,000	10	Ultra-clear	Plastic bonder, exible
LOCTITE UK 3497	1:1	100:102	24,000	3	White	21 CFR 175.105
LOCTITE UK 1351 B25 / UK 5452	2:1	100:40	450,000	50	Green	Composite bonder, toughened
LOCTITE UK 1366 B10 / UK 5452	4:1	100:22	450,000	30	Green	Metal bonder, exible
LOCTITE UK 8445 B1 / UK 5400	4:1	100:22	6,500	1	Beige	Used in top lid bonding
LOCTITE UK 8119 B1 / UK 5400	3:1	100:25	3,000	45	Beige	Used in top lid bonding
LOCTITE UK 8103 B10 / UK 5400	3.7:1	100:20	9,000	10	Beige	Used to manually repair PUR foam defects

2-STEP ACRYLICS			
LOCTITE	VISCOSITY (mPas)	FIXTURE TIME (MINS.)	DESCRIPTION
LOCTITE AA 326	17,000	1	Fast xture
LOCTITE AA 330	67,500	5	NSF Category P1
LOCTITE AA 331	20,000	1	Fast xture, service temperature to 176°C
LOCTITE AA 332	100,000	3	Service temperature to 204°C
LOCTITE AA 392	6,500	1	Fast xture, dual cure activator/heat
LOCTITE AA 3920	10,000	0.5	Dual cure activator/UV

ACTIVATOR			
LOCTITE	DISPENSE TEMP. (°C)	COLOR	DESCRIPTION
LOCTITE SF 7387	2	Transparent Yellow	Activator for 2-step acrylics 330, 331, 332, 392
LOCTITE SF 7649	2	Transparent Green	NSF 61, NSF Category P1; Activator for 2-step acrylic 326

STRUCTURAL AND GENERAL BONDING

LEARN MORE:

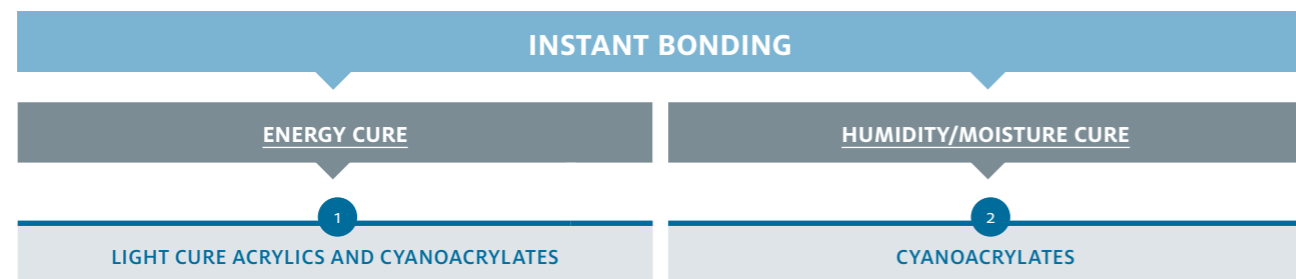
This catalog lists the most common products used in each application. Many additional products are available. Not all products are available in all countries. Contact your Henkel representative for assistance.

Instant Bonding

Henkel cyanoacrylate adhesives cure rapidly at room temperature without heat or light and are easy to use. Products include specialty grades where thermal and impact resistance, flexibility and gap filling are needed. Light curing adhesives provide repositioning time during assembly, followed by bond-on-demand capability when exposed to light.

► BENEFITS:

- Single component
- Fast fixturing and cure for high volume, high speed production lines
- Cure-on-demand capability



LIGHT CURE ACRYLICS					
	VISCOSITY (mPas)	ELONGATION	SHORE HARDNESS	COLOR	DESCRIPTION
UV CURE ACRYLIC					
LOCTITE 349	9,500	300	D70	Clear/Straw	Typically used on glass and metal.
LOCTITE 3108	5,000	330	A72	Translucent/Colorless	Typically used on thermoplastics, thermosets, and glass.
UV / ACTIVATOR CURE ACRYLIC					
LOCTITE 352	19,500	290	D60	Clear/Light Amber	Typically used on glass and metal.
UV / VISIBLE CURE ACRYLIC					
LOCTITE 3311	300	265	D64	Clear/Pale Straw	Typically used on glass, metal, thermoplastics, polycarbonate, and PVC.
LOCTITE 3321	5,000	250	D53	Clear/Pale Straw	Typically used on glass, metal, thermoplastics, polycarbonate, and PVC.
LOCTITE 3525	15,000	260	D60	Clear/Pale Straw/Fluorescent	Typically used on glass, metal, and thermosets.
LOCTITE 3972	4,500	88	D68	Transparent/ To Hazy Fluorescent	Typically used on metal, thermoplastics, PVC, and polyurethane.
LOCTITE 3979	56,500	227	D56	Translucent/Straw/Fluorescent	Gel

LIGHT CURE CYANOACRYLATES					
	VISCOSITY (mPas)	FIXTURE TIME (SEC.)	TEMP. RESISTANCE (°C)	COLOR	DESCRIPTION
LOCTITE 4310	150	5	116	Transparent Light Green/Fluorescent	Toughened
LOCTITE 4311	900	5	93	Transparent Light Green/Fluorescent	Toughened

CYANOACRYLATES					
	VISCOSITY (mPas)	FIXTURE TIME (SEC.)	TEMP. RESISTANCE (°C)	COLOR	DESCRIPTION
TOUGHENED					
LOCTITE 380	300	90	107	Black	Excellent peel, impact and shear strength
LOCTITE 411	5,000	30	99	Clear	Designed for impact and peel strength in gap filling application
LOCTITE 435	200	30	107	Clear	Surface insensitive for metal, rubber and plastics
LOCTITE 480	200	90	82	Black	Rubber toughened, increased flexibility and peel strength, enhanced shock resistance
SURFACE INSENSITIVE					
LOCTITE 401	110	5	121	Clear	Bonds a wide range of materials including metals, plastics and elastomers
LOCTITE 406	20	10	121	Clear	For plastics and elastomeric materials requiring very fast fixturing
LOCTITE 431	1,000	15	82	Clear	Bonds a wide range of materials including metals, plastics and elastomers
LOCTITE 454	Gel	15	121	Clear	No-run viscosity for large gaps and vertical surfaces.
THERMALLY RESISTANT					
LOCTITE 407	35	20	82	Clear	High temperature, low viscosity for plastics, rubbers and metals
LOCTITE 4204	4,000	75	121	Clear	Excellent hot strength and heat aging properties
LOCTITE 4205	Gel	90	121	Clear	For porous surfaces and vertical or overhead applications
ETHYL					
LOCTITE 495	45	5	121	Clear	Bonds rubber, metal, and plastic parts with gaps to 0.004 inch
METHYL					
LOCTITE 496	125	30	82	Clear	General purpose adhesive; suited to bonding metal substrates
ETHYL BUTYL					
LOCTITE 4850	375	15	50	Clear	Flexible and bendable; designed for difficult to bond materia
CA/EPOXY HYBRID					
LOCTITE HY 4090	18,000	90	148	O -white to Light Yellow	1:1 Mix ratio, 2-part system

STRUCTURAL AND GENERAL BONDING

LEARN MORE:

This catalog lists the most common products used in each application. Many additional products are available. Not all products are available in all countries. Contact your Henkel representative for assistance.

Plastic and Composite Bonding

Henkel structural adhesives for plastic and composite surfaces bond a variety of materials, including fiber reinforced plastic, gel coat, thermoset plastics, polycarbonate, ABS, PVC, polyethylene and polypropylene. They have been specially formulated to provide UV resistance, impact resistance, and peel resistance.

► BENEFITS

- Non-sag
- High temperature resistance
- Flexible bond strengths
- Toughened bond strengths
- Fast fixture time

PLASTIC AND COMPOSITES

HIGH PEEL AND IMPACT STRENGTH

MOISTURE RESISTANCE/DURABILITY

FAST FIXTURING

2-PART ACRYLICS

2-PART POLYURETHANES

1-PART POLYURETHANES

EVA HOT MELTS

POLYOLEFIN HOT MELTS

2-PART ACRYLICS

	MIX RATIO (VOLUME)	MIX RATIO (WEIGHT)	MIXED VISCOSITY (mPas)	WORK LIFE (MINS.)	GLASS TRANSITION TEMPERATURE (°C)	COLOR	DESCRIPTION
LOCTITE AA H3151	1:1	100:100	70,000	45	-	Light Yellow	High peel strength
LOCTITE AA H3300	1:1	100:100	110,000	5	-	Yellow	Plastic bonder, fast work time
LOCTITE AA H4500	10:1	100:10	45,000	15	107	Grey	Metal bonder
LOCTITE AA H4800	10:1	100:10	50,000	30	-	Light Yellow	Plastic bonder, impact resistant
LOCTITE AA H8000	10:1	100:12	190,000	30	71	Green	Aluminum metal bonder Long work time
LOCTITE AA H8510	10:1	100:10	45,000	30	85	Grey	Metal bonder, long work time
LOCTITE AA H8600	2:1	100:50	86,000	25	-	Blue	Galvanized steel metal bonder
LOCTITE AA H8700	2:1	100:56	40,000	40	88	Blue	Paint bake compatible

2-PART POLYURETHANES

	MIX RATIO (VOLUME)	MIX RATIO (WEIGHT)	MIXED VISCOSITY (mPas)	WORK LIFE (MINS.)	COLOR	DESCRIPTION
LOCTITE U-05FL	1:2	100:200	100,000	5	O -white	Metal bonder, flexibl
LOCTITE U-09FL	1:1	100:91	5,000	10	Ultra clear	Plastic bonder, flexibl
LOCTITE UK 3497	1:1	100:102	24,000	3	White	21 CFR 175.105
LOCTITE UK 1351 B25 / UK 5452	2:1	100:40	450,000	50	Green	Composite bonder, toughened
LOCTITE UK 1366 B10 / UK 5452	4:1	100:22	450,000	30	Green	Metal bonder, flexibl
LOCTITE UK 8445 B1 / UK 5400	4:1	100:22	6,500	1	Beige	Used in top lid bonding
LOCTITE UK 8119 B1 / UK 5400	3:1	100:25	3,000	45	Beige	Used in top lid bonding
LOCTITE UK 8103 B10 / UK 5400	3-7:1	100:20	9,000	10	Beige	Used to manually repair PUR foam defects

1-PART POLYURETHANES

	SKIN OVER TIME (MINS.)	FIXTURE TIME (MINS.)	COLOR	DESCRIPTION
LOCTITE 3370	25	90	Black, Grey, White	Typically used on glass and metals.

EVA HOT MELTS

	VISCOSITY AT DISPENSE TEMP. (mPas)	DISPENSE TEMP. (°C)	SOFTENING POINT (°C)	OPEN TIME (SECONDS)	COLOR	DESCRIPTION
TECHNOMELT AS 236	8,500	177	82	25	Clear	21 CFR 175.105
TECHNOMELT AS 1942	5,000	177	92	30	Tan	21 CFR 175.105
TECHNOMELT CoolMelt	7,200	121	98	15	White	Typically used on EPS, plastic foam, polyethylene, and plastics.
TECHNOMELT AS 8448	1,100	177	110	15	Tan	Typically used in packaging 21 CFR 175.105
TECHNOMELT AS 3267	5,000	170	118	-	Light Yellow	General assembly applications
TECHNOMELT AS 9268	15,000	170	86	50	White Transparent	General assembly applications
TECHNOMELT AS 9268Y	4,500	160	90	25	Yellow	General assembly applications
TECHNOMELT AS 9270	14,000	170	86	50	Translucent White	21 CFR 175.105

POLYOLEFIN HOT MELTS

	VISCOSITY AT DISPENSE TEMP. (mPas)	DISPENSE TEMP. (°C)	SOFTENING POINT (°C)	COLOR	DESCRIPTION
TECHNOMELT DM 200E	12,000	130	85	Yellow	Slot die applied

STRUCTURAL AND GENERAL BONDING

LEARN MORE:

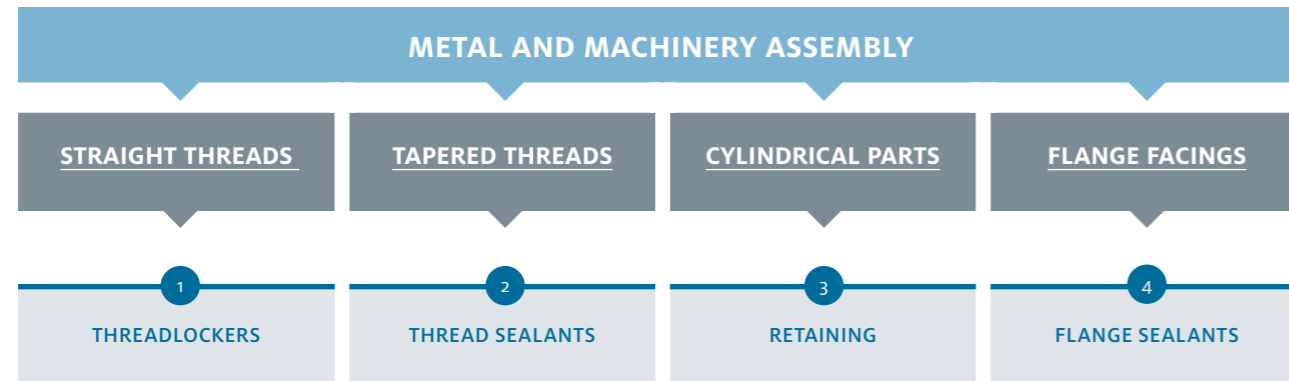
This catalog lists the most common products used in each application. Many additional products are available. Not all products are available in all countries. Contact your Henkel representative for assistance.

Metal and Machinery Assembly

Henkel's wide range of LOCTITE machinery adhesives replace mechanical locking and sealing methods and help manufacturers increase reliability and improve performance. Henkel can replace many traditional fasteners with versatile, reliable alternatives, which have made previously difficult or cost-prohibitive designs possible.

► BENEFITS

- Prevent loosening from shock and vibration
- Strengthen assemblies
- Can be used on various sizes of fasteners – reduce inventory costs
- Long open time
- Single component – clean and easy to apply
- Seal and protect from leaks and corrosion



1				
THREADLOCKING				
	VISCOSITY (mPas)	FIXTURE TIME (MINS.)	COLOR	DESCRIPTION
REMOVABLE STRENGTH				
LOCTITE 243	1,300	10	Blue	NSF 61
PERMANENT STRENGTH				
LOCTITE 263	400	10	Red	High temperature performance and oil tolerant
LOCTITE 270	400	10	Green	NSF P1
WICKING GRADE				
LOCTITE 290	25	20	Green	NSF 61
LOCTITE 294	30	20	Green	Service temperatures up to 232°C

2				
THREAD SEALING				
	TYPICAL USE	VISCOSITY (mPas)	COLOR	DESCRIPTION
LOCTITE 542	Small thread gaps	600	Brown	Medium strength
LOCTITE 554	Refrigerant sealant	2,500	Red	High strength
LOCTITE 565	Controlled strength	300,000	White	General-purpose sealant
LOCTITE 567	Stainless steel and inactive metals	540,000	White	Ideal for stainless steel and all other metal fitting
LOCTITE 5770	High temperature	paste	White	Service temperatures to 277°C

3						
RETAINING						
	TYPICAL USE	VISCOSITY (mPas)	GAP FILL (IN.)	FIXTURE TIME (MINS.)	COLOR	DESCRIPTION
LOCTITE 603	Close fi	125	0.005	10	Green	Prevents fretting and corrosion
LOCTITE 620	High temperature	8,500	0.008	60	Green	Service temperatures -54°C to 232°C
LOCTITE 638	Primerless, oil tolerant, slip fi	2,500	0.01	4	Green	Cures on metals without an activator
LOCTITE 641	Removable strength	525	0.008	20	Yellow	Controlled-strength retaining
LOCTITE 648	Primerless, oil tolerant, close fi	500	0.006	3	Green	Cures on metals without an activator
LOCTITE 680	Primerless, oil tolerant, slip fi	1,250	0.015	4	Green	Best resistance to dynamic, axial and radial loads

4					
FLANGE SEALANTS					
	TYPICAL USE	VISCOSITY (mPas)	GAP FILL (IN.)	COLOR	DESCRIPTION
LOCTITE 510	High temperature	188,000	0.01	Red	Service temperatures -54°C to 204°C
LOCTITE 515	Flexible	275,000	0.01	Purple	UL
LOCTITE 518	Aluminium and all metals	800,000	0.01	Red	NSF 61
LOCTITE 5188	Highly flexibl	14,000	0.005	Red	Use on rigid metal-flanged connection

STRUCTURAL AND GENERAL BONDING

LEARN MORE:

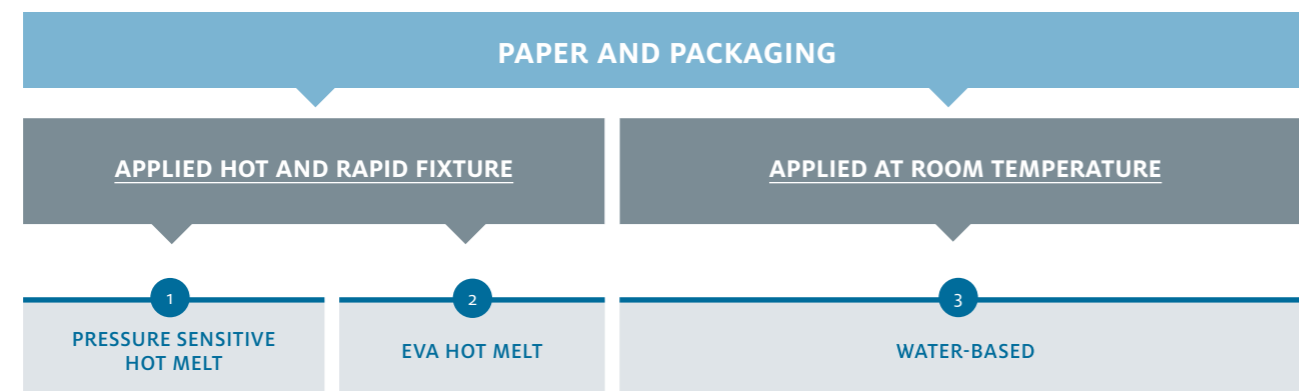
This catalog lists the most common products used in each application. Many additional products are available. Not all products are available in all countries. Contact your Henkel representative for assistance.

Paper and Packaging

As a major supplier of packaging adhesives globally, Henkel provides a broad range of hot melt adhesives for case and carton sealing for every condition, substrate, process, and budget. Henkel adhesives reduce or eliminate such assembly line frustrations as throwing, stringing, downtime, and rejects.

► BENEFITS

- **Functional:** Containers that provide protection during storage and transport
- **Economic:** A cost-effective component of the overall package
- **Sustainable:** Less adhesive consumption means fewer natural resources are consumed
- **Reliability:** Consistent performance, case after case



1 PRESSURE SENSITIVE HOT MELTS					
	VISCOSITY AT DISPENSE TEMP. (mPas)	DISPENSE TEMP. (°C)	SOFTENING POINT (°C)	COLOR	DESCRIPTION
TECHNOMELT PS 8668	36,000	177	140	Amber	Typically used in packaging 21 CFR 175.105
TECHNOMELT PS 8707	4,000	180	110	Light Yellow	Transparent adhesive fil
TECHNOMELT PS 8845	19,000	180	108	Yellow Amber	Slot die applied
TECHNOMELT GA 003A	8,400	150	97	Translucent	Typically used in labeling 21 CFR 175.105

2 EVA HOT MELTS						
	VISCOSITY AT DISPENSE TEMP. (mPas)	DISPENSE TEMP. (°C)	SOFTENING POINT (°C)	OPEN TIME (SECONDS)	COLOR	DESCRIPTION
TECHNOMELT AS 236	8,500	177	82	25	Clear	21 CFR 175.105
TECHNOMELT AS 1942	5,000	177	92	30	Tan	21 CFR 175.105
TECHNOMELT CoolMelt	7,200	121	98	15	White	Typically used on EPS, plastic foam, polyethylene, and plastics.
TECHNOMELT AS 8448	1,100	177	110	15	Tan	Typically used in packaging. 21 CFR 175.105
TECHNOMELT AS 3267	5,000	170	118	-	Light Yellow	General assembly applications
TECHNOMELT AS 9268	15,000	170	86	50	White Transparent	General assembly applications
TECHNOMELT AS 9268Y	4,500	160	90	25	Yellow	General assembly applications
TECHNOMELT AS 9270	14,000	170	86	50	Translucent White	21 CFR 175.105

3 WATER-BASED			
	VISCOSITY (mPas)	SOLIDS (%)	DESCRIPTION
AQUENCE WL 0294	8,500	44	High performance, high tack wood assembly adhesive. UV indicator.
AQUENCE WL 3053	1,500	54	White General-purpose assembly and laminating. 21 CFR 175.105



FUNCTIONAL COATINGS

Solutions for Metal Pretreatment

Henkel offers a full range of solutions for the pretreatment of appliance components to clean metal, promote paint adhesion, and improve corrosion resistance. Our solutions include conversion coatings for high-visibility appliances, corrosion and detergent protection for clothes washers and dishwashers, as well as cleaners for the removal of oils and greases.

FUNCTIONAL COATINGS AND METAL PRETREATMENT SOLUTIONS

THE HENKEL PORTFOLIO

CLEANERS

- ▶ Maintenance
- ▶ Process
- ▶ Industrial
- ▶ Speciality
- ▶ Pickles
- ▶ Strippers
- ▶ Alkaline
- ▶ Neutral
- ▶ Conditioners

BONDERITE cleaners help to increase efficiency, lower operating costs, and simplify your daily business processes.

METAL PRETREATMENT AND CONVERSION COATINGS

- ▶ Iron phosphate, zinc phosphate, manganese phosphate
- ▶ New generation coatings (nanoceramics)
- ▶ Light metal finishing (chrome, non-chrome technologies, anodizing)

BONDERITE metal pretreatments and conversion coatings set a high standard for corrosion protection and paint adhesion. These high-performance, sustainable products can help improve your process reliability and are available in multiple options for dip or spray applications.

COATINGS

- ▶ Electro-ceramic coating
- ▶ Autophoretic coating
- ▶ Water-based primer

BONDERITE coating processes deliver anti-corrosion, friction reduction, and improved heat resistance benefits while offering a number of environmental benefits.

Key Henkel Processes

Henkel's focus on innovation has led to the development of new, more efficient surface treatment processes that offer environmental benefits and reduced energy and CO₂.

- **Henkel Nanoceramic Process:** Our **BONDERITE Nanotechnology** conversion coating provides a phosphate-free alternative to traditional iron phosphate.
- **Henkel Autodeposition Process:** Our **BONDERITE M-PP** autodeposition process combines metal pretreatment and finishing in one process, increasing efficiency along with energy and cost savings.

Read more about these innovative processes on the following page.

Henkel Process Services

Process selection

Henkel's experts consult with customers to match their individual requirements to the right Henkel process.

Analytic and process validation

Henkel analyzes the complete production process for customers, reducing production cycle times and rejection rates.

Start-up of application and lab testing

Henkel tests applications of your process in our labs and ensures that Henkel products can be smoothly integrated into your plant.

Process optimization

Henkel works with customers to design simpler and more efficient production processes, with a focus on meeting environmental and safety criteria.

Customer training

Henkel offers comprehensive training to help our customers understand our products in detail and learn correct application methods.



Equipment

All our product solutions are supported by a full range of dispensing equipment that can be easily integrated into your existing manufacturing processes.

See page 52-53 for more information.

FUNCTIONAL COATINGS AND METAL PRETREATMENT SOLUTIONS

Henkel Nanotechnology Solutions

MORE SAVINGS, FEWER STEPS

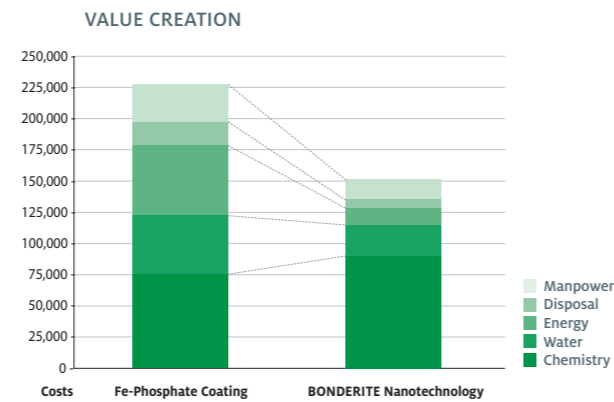
BONDERITE Nanotechnology

The BONDERITE Nanotechnology conversion coating is single-part zirconium-based nanotechnology, which provides a phosphate-free alternative to traditional iron phosphate. It runs at low temperatures and is completely phosphate- and regulated heavy metal-free to reduce energy consumption and waste removal. BONDERITE Nanotechnology is suitable for dip and spray applications.

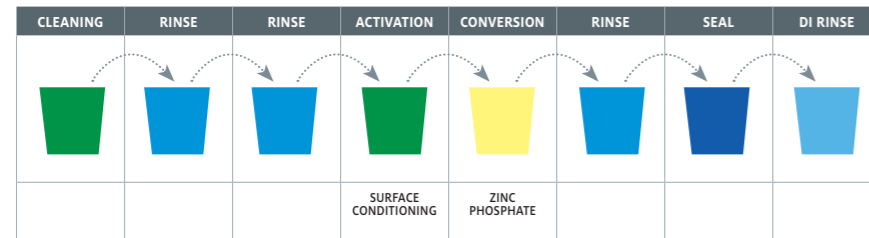
► BENEFITS

The Henkel Nanoceramic process offers significant savings in manpower, disposal, energy, and water cost savings compared to traditional processes:

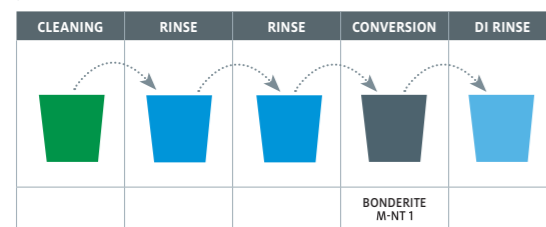
- **Lower energy and water use:** BONDERITE Nanotechnology operates at ambient temperatures, reducing energy use and associated CO₂
- **Reduced hazardous waste:** Free of nickel, phosphates, VOCs and regulated chemicals
- **Marginal sludge formation:** Significant savings in hazardous waste generation
- **Fewer process steps:** Activation and passivation are no longer required; contact times are simultaneously reduced



► TRADITIONAL MULTI-STEP PROCESS



► HENKEL NANOCERAMIC PROCESS



Henkel Autodeposition Solutions

ENHANCED CORROSION PROTECTION FOR DEMANDING APPLICATIONS

BONDERITE M-PP

The BONDERITE Autodeposition process delivers a highly corrosion-resistant, thin organic coating while increasing process efficiency over traditional finishing methods. It combines metal pretreatment and finishing in one process, providing a lasting finish – both inside and outside of parts.

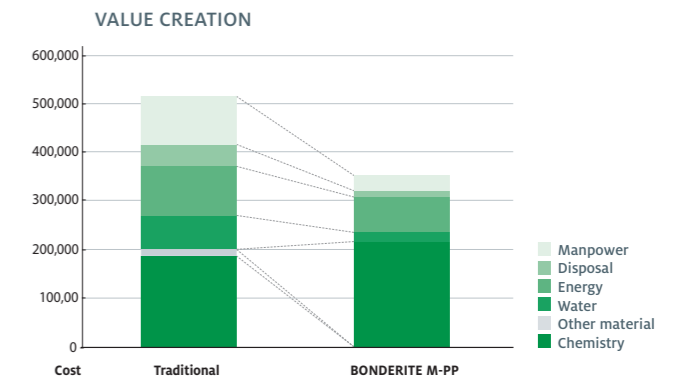
► BENEFITS

Henkel's Autodeposition process provides substantial savings compared to traditional e-coating methods:

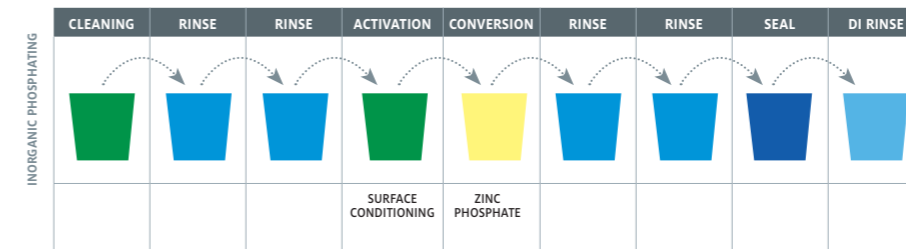
- **Requires significantly less manpower and equipment,** less cycle time, energy, part rework, and handling
- **Reduced energy:** BONDERITE M-PP and powder coating topcoats are "co-cured" in a single oven, significantly reducing energy requirements and the production footprint
- **Environmental benefits:** No toxic heavy metals, very low Volatile Organic Compounds (VOCs)

► PROCESS ADVANTAGES

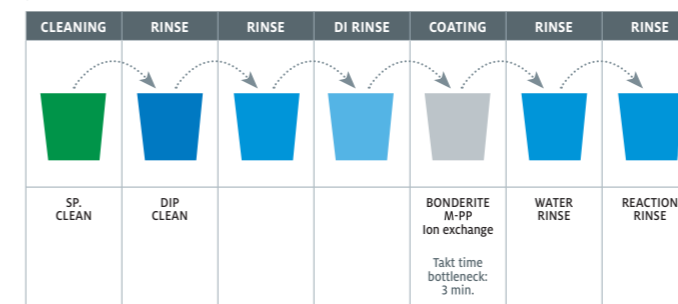
- Unlimited throwing (wetting) power with uniform coverage
- Coats fully assembled parts
- Inside and outside part protection
- No electrical contacts required



► TRADITIONAL MULTI-STEP PROCESS



► HENKEL AUTODEPOSITION PROCESS



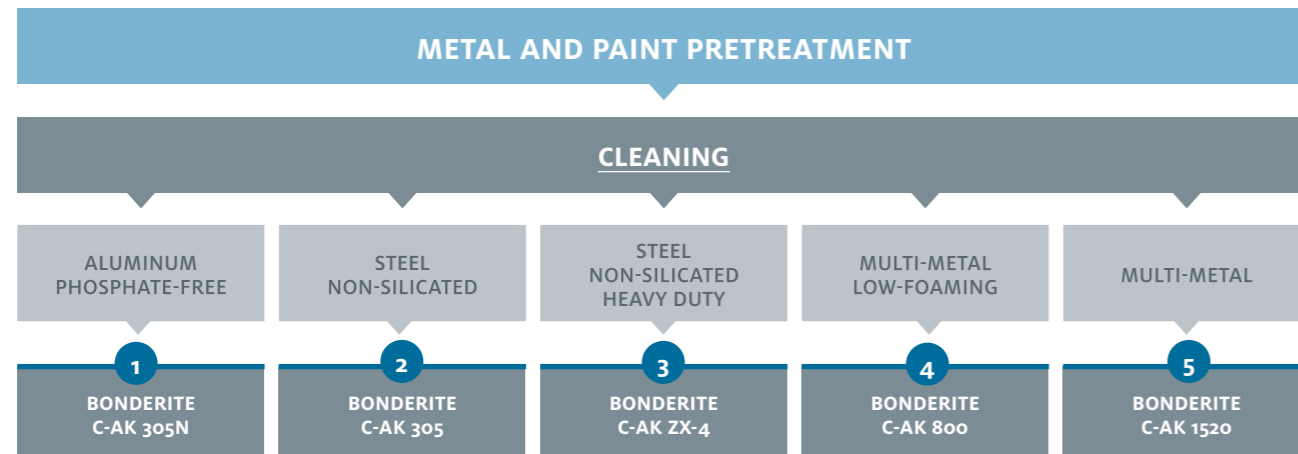
► PRODUCT LINE SUPPORT

Henkel's BONDERITE team is made up of chemists, engineers, application specialists and pilot plant facilities that can assist you in the evaluation, design and installation of autodeposition coating processes. For more information, please contact your Henkel representative.

FUNCTIONAL COATINGS AND METAL PRETREATMENT SOLUTIONS

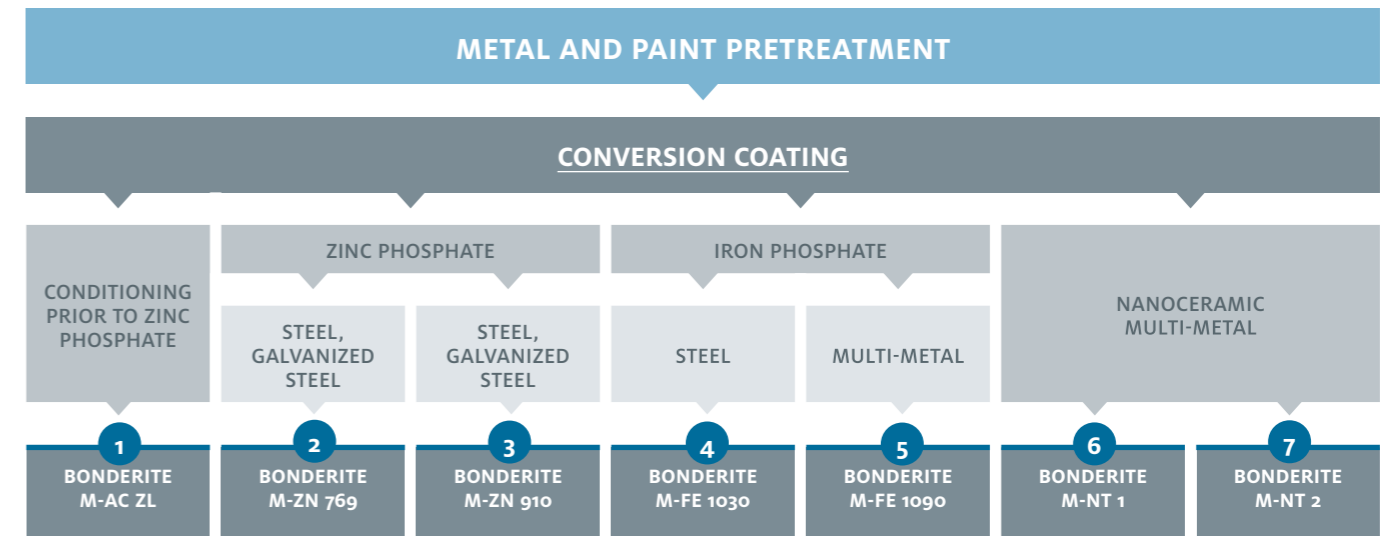
LEARN MORE:

This catalog lists the most common products used in each application. Many additional products are available. Not all products are available in all countries. Contact your Henkel representative for assistance.



CLEANING – TYPICAL PROPERTIES

		APPLICATION TEMP.	CONCENTRATION BY VOLUME	CONTACT TIME	APPLICATION	ACID/ALKALINE
1	BONDERITE C-AK 305N	37°C–60°C 99°F–140°F	2–5%	30–120 sec.	Spray	Alkaline
2	BONDERITE C-AK 305	49°C–60°C 120°F–140°F	2–5%	30–120 sec.	Spray	Alkaline
3	BONDERITE C-AK ZX-4	49°C–60°C 120°F–140°F	2–5%	45–180 sec.	Spray	Alkaline
4	BONDERITE C-AK 800	49°C–60°C 120°F–140°F	2–5%	45–180 sec.	Spray	Alkaline
5	BONDERITE C-AK 1520	43°C–60°C 109°F–140°F	1–3%	60–180 sec.	Spray, immersion	Alkaline



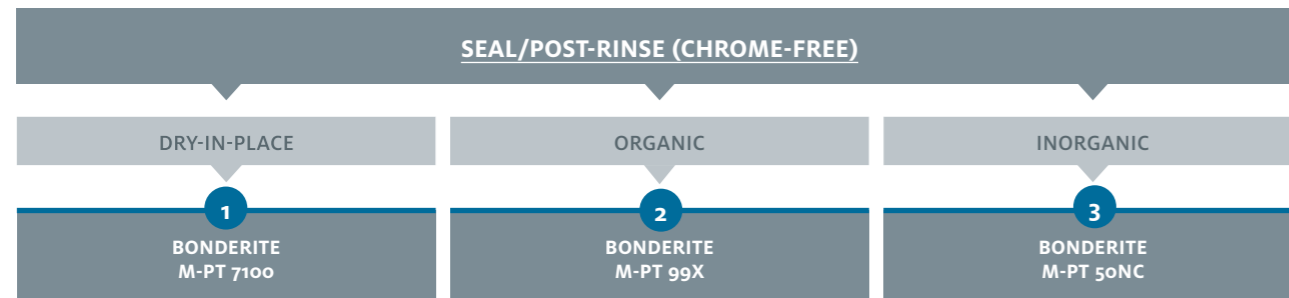
CONVERSION COATING – TYPICAL PROPERTIES

		APPLICATION TEMP.	CONCENTRATION BY VOLUME	CONTACT TIME	APPLICATION	ACID/ALKALINE
CONDITIONING						
1	BONDERITE M-AC ZL	>49°C >120°F	0.25–1.0%	20–60 sec.	Spray, immersion	Alkaline
ZINC PHOSPHATE						
2	BONDERITE M-ZN 769	>52°C >126°F	1.5–3.0%	40–90 sec.	Spray, immersion	Acid
3	BONDERITE M-ZN 910	>52°C >126°F	2.50%	60–180 sec.	Spray	Acid
IRON PHOSPHATE						
4	BONDERITE M-FE 1030	38°C–49°C 100°F–120°F	3–4%	45–90 sec.	Spray	Acid
5	BONDERITE M-FE 1090	43°C–60°C 109°F–140°F	2–6%	30 sec. –5 min.	Spray, immersion	Acid
NANOCERAMIC MULTI-METAL						
6	BONDERITE M-NT 1	Ambient	3–5%	20–120 sec.	Spray, immersion	Acid
7	BONDERITE M-NT 2	Ambient	3–5%	20–120 sec.	Spray, immersion	Alkaline

FUNCTIONAL COATINGS AND METAL PRETREATMENT SOLUTIONS

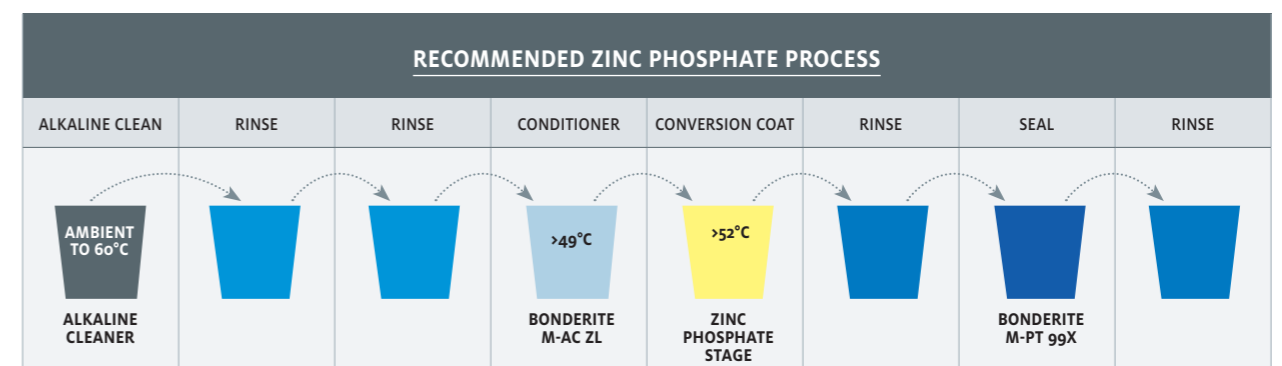
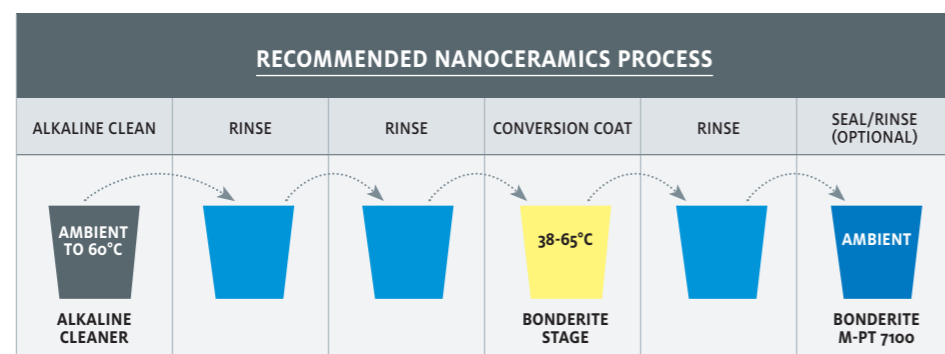
LEARN MORE:

This catalog lists the most common products used in each application. Many additional products are available. Not all products are available in all countries. Contact your Henkel representative for assistance.

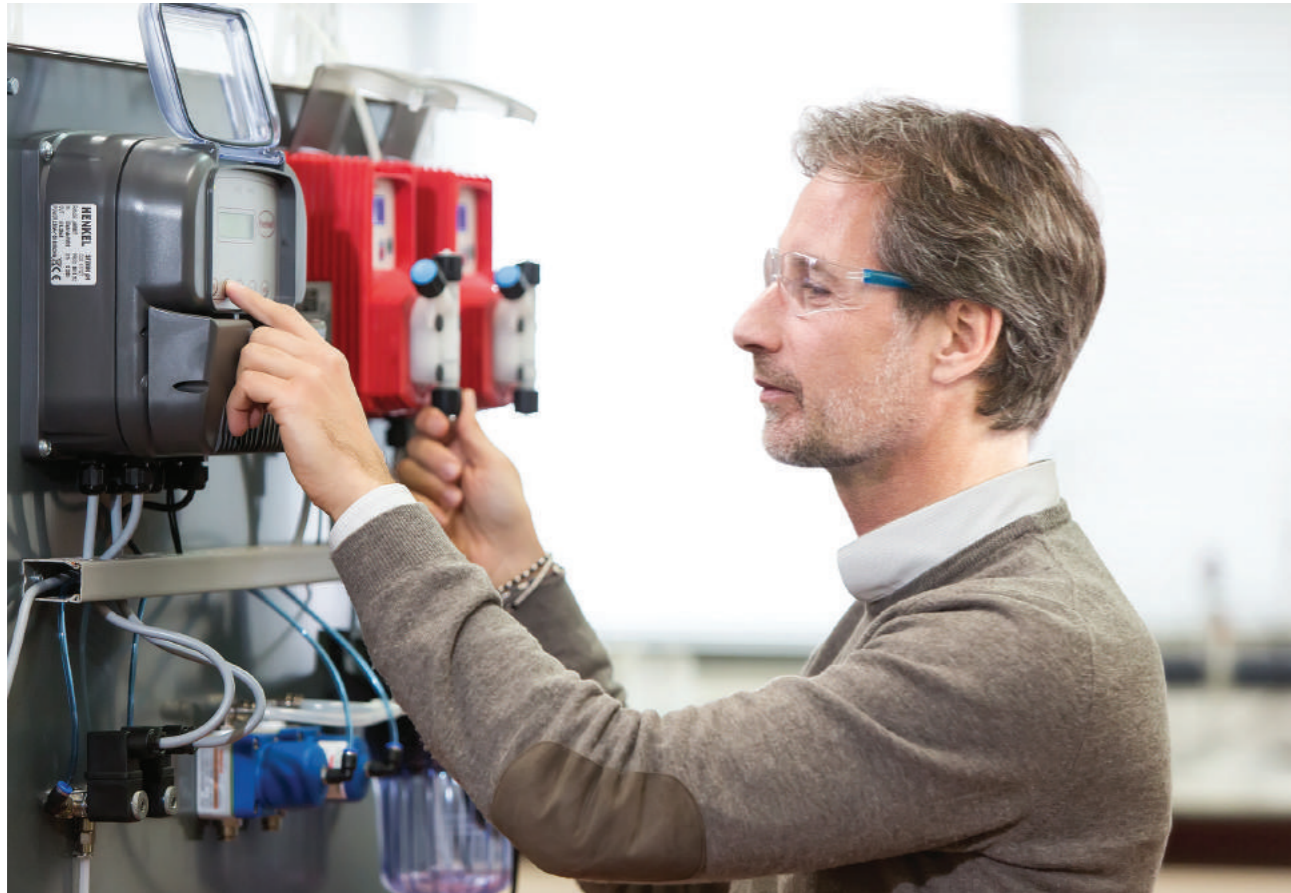


SEAL/POST-RINSE – TYPICAL PROPERTIES

		APPLICATION TEMP.	CONCENTRATION BY VOLUME	CONTACT TIME	APPLICATION	ACID/ALKALINE
1	BONDERITE M-PT 7100	Ambient	5-10%	5-15 sec.	Spray	Acid
2	BONDERITE M-PT 99X	Ambient	3%	20-120 sec.	Spray, immersion	Acid
3	BONDERITE M-PT 50NC	21°C–30°C 70°F–100°F	10%	15-60 sec.	Spray, immersion	Acid

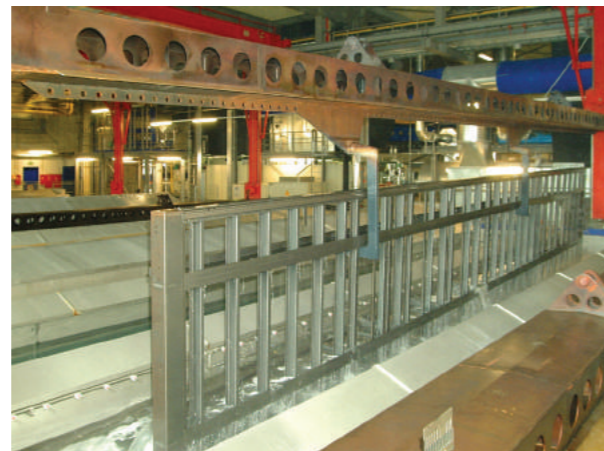


FUNCTIONAL COATINGS AND METAL PRETREATMENT SOLUTIONS



Functional Coating Equipment Solutions

Over the past 30 years, Henkel has designed, built and integrated advanced equipment solutions to optimize the application of metal pretreatment products, providing trusted, high quality services to our customers. We offer a complete line of application equipment, process controls, pretreatment support equipment and other specialty systems that can be easily integrated into your existing manufacturing processes.



Henkel's equipment systems include:

- Process Control Systems:** Our LINEGUARD control systems streamline process steps, increase efficiencies, and improve overall quality. We can demonstrate washer chemical savings of 10-25%, water usage savings of 5-30%, and quality improvements (reduced paint line rejections) of up to 10% after LINEGUARD system installations.
 - Solid state
 - Programmable logic controller (PLC)
 - PC based logic controller
- Pretreatment Support Equipment:** The right support equipment can maximize process efficiencies, recycle processing solutions for longer bath life, reduce fresh water requirements, and minimize waste loading.
 - Chemical metering pumps
 - Air diaphragm pumps
 - Level controls
 - Spray nozzles
 - Coalescing oil separators
 - Ion exchange
- Test Equipment and Data Management Systems:** Essential for good manufacturing quality control, our test equipment and data management systems are developed in close collaboration with our customers and fully supported by our team of equipment engineers.
- Equipment field service support**
- Customized equipment solutions and systems**



BONDERITE equipment package

BONDERITE equipment supports the complete bath management process. Baths can be analyzed precisely, and adjusted efficiently or even automatically. Remote access and monitoring is also available.

► BENEFITS:

- Linear and constant bath management
- Improved coating quality
- Increased safety
- Process cost reduction
- Documented and recorded process parameters
- Monitoring of process costs and chemicals



EQUIPMENT & ENGINEERING SOLUTIONS


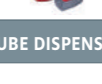

Dependable Equipment, High-Quality Services





Henkel provides a complete line of rugged and dependable dispensing systems for both one- and two-component adhesives and sealants. Our engineering services range from design and product development to simulated testing of the manufacturing process and dispensing trials. In a design-through-assembly partnership, no one adds value like Henkel.






EQUIPMENT SOLUTIONS





LOCTITE and TEROSON Standard Equipment







From simple handheld devices to fully automated systems and a broad range of accessories, Henkel offers a complete line of off-the-shelf and custom-built dispensing equipment that can be integrated easily into your manufacturing process.

LOCTITE PRODUCT		IDH NUMBER	USED TO DISPENSE	PACKAGE TYPES & SIZES	VISCOSITY RANGE	APPLICATION	CONSUMABLES - DISPENSE ACCESSORIES
VOLUMETRIC DISPENSING	BOTTLE DISPENSING						
	 50 ML HAND PUMP  250 ML HAND PUMP	608966 88631	Retaining Compounds, Threadlockers	50 ml bottle 250 ml bottle	Low to Medium	Manual	Dispense Tips and Accessories
VOLUMETRIC DISPENSING	TUBE DISPENSING						
	 50 ML-F TUBE SQUEEZE DISPENSER	1083845	Thread Sealants, Gasketing Compounds	50 ml tubes	Low to High	Manual	N/A

LOCTITE PRODUCT		IDH NUMBER	PRESSURE REGULATION	USED TO DISPENSE	PACKAGE TYPES & SIZES	VISCOSITY RANGE	LOW LEVEL SENSING	CONSUMABLES - DISPENSE ACCESSORIES
PRESSURE/TIME DISPENSING	BOTTLE DISPENSING							
	 INTEGRATED SEMI-AUTOMATIC DISPENSER	1390322 1390321	0 to 15 psi Viscosity >3,000 cP 0 to 100 psi Viscosity 0 to 3,000 cP	Gel Adhesives, Instant Adhesives, Light Cure/Acrylics, Retaining Compounds, Threadlockers	250 ml bottle 1 lb. bottle 1 liter bottle 2 kg bottle 200 g squeeze tube	Low to Medium Medium to High	Yes Yes	Dispense Tips and Accessories
	 LOCTITE BOND-A-MATIC 3000 DISPENSER  LOCTITE BOND-A-MATIC 3000 DISPENSER	209685 218323	0 to 15 psi 0 to 100 psi	Gel Adhesives, Instant Adhesives, Light Cure Acrylics, Retaining Compounds, Threadlockers	250 ml bottle 1 lb. bottle 1 liter bottle 2 kg bottle 200 g squeeze tube	Low Medium to High	No No	
	 LOCTITE ROTOSPRAY 9000 APPLICATOR			The LOCTITE Rotospray 9000 Applicator is a pneumatically powered applicator used for applying 360-degree beads of fluid on the inside diameter of any surface or threaded hole. Common materials applied are retaining compounds, threadlockers, activators/primers and oils. Common applications are engine cup plug sealing, bearing retaining and motor magnet bonding.				

LOCTITE PRODUCT		IDH NUMBER	PRESSURE REGULATION	USED TO DISPENSE	PACKAGE TYPE & SIZES	VISCOSITY RANGE	LOW LEVEL SENSING	CONSUMABLES - DISPENSE ACCESSORIES
SAUSAGE/CARTRIDGE DISPENSING	ONE-PART DISPENSING - PNEUMATIC							
	 HD10 300 ML PNEUMATIC CARTRIDGE DISPENSER	1714379	0 to 60 psi	Gel Cyanoacrylates, Anaerobic Gasketing, Light Cure/Acrylics, Silicones	300 ml cartridges 250 ml tubes	Medium to High	No	
	 SOFT PRESS HANDHELD PNEUMATIC APPLICATOR	250052	0 to 125 psi	Adhesive Packaged in Soft Packs	Soft Pack	Low to High	N/A	582416 - Soft Press Pneumatic Applicator Nozzle (1)
	 TEROSON MULTIPRESS TELESCOPIC DISPENSER	142241	0 to 145 psi	Sprayable SMP Adhesives	300 ml cartridges	Low to High	N/A	547882 - Pneumatic Spray Applicator Nozzle Kit (12)
	 TEROSON POWERLINE II 300 ML DISPENSER	960304	0 to 100 psi	MS Polymer Polyurethane	300/310 ml cartridges	Medium to Very High	N/A	Cartridge Accessories
 LOCTITE PUMP-A-BEAD II DISPENSER	209687	60 to 100 psi	LOCTITE brand Flange Sealants	850 ml cartridges	Medium to High			

LOCTITE PRODUCT		IDH NUMBER	USED TO DISPENSE	PACKAGE TYPE & SIZES	MIX RATIOS	VISCOSITY RANGE	TYPE
DUAL CARTRIDGE DISPENSING	TWO-PART DISPENSING						
	 50 ML DUAL CARTRIDGE MANUAL APPLICATORS	720228 1034026	Two-Component Epoxies, Urethanes, Methacrylates	50 ml dual cartridge 5-50 dual cartridge	1:1, 2:1, 4:1 10:1	Low to High	Manual
	 200 ML/400 ML DUAL CARTRIDGE MANUAL APPLICATORS	218483 218312 478600	Two-Component Epoxies, Urethanes, Methacrylates	200 ml dual cartridge 400 ml dual cartridge 490 ml dual cartridge	1:1, 2:1 1:1, 2:1 10:1	High to Paste	Manual
	 200 ML/400 ML DUAL CARTRIDGE PNEUMATIC APPLICATORS	218315 218311 470572	Two-Component Epoxies, Urethanes, Methacrylates	200 ml dual cartridge 400 ml dual cartridge 490 ml dual cartridge	1:1, 2:1 1:1, 2:1 10:1	High to Paste	Pneumatic
 LOCTITE DURAPUMP PROGRAMMABLE METER MIX SYSTEM	1041635	Two-Part Epoxies, Two-Part Polyurethanes, Two-Part Acrylics, Two-Part Silicones	Any, excluding dual cartridges	Custom		SHOT SIZE RANGE 0.2 ml up to 26 ml depending on ratio selected	

ADDITIONAL EQUIPMENT OFFERINGS		
ROBOTIC SYSTEMS		Henkel offers a full line of bench top Gantry and Scara robots for all of your automation needs. These systems integrate directly with all of our LOCTITE brand dispensing and curing equipment and allow manufacturers to reliably dispense difficult patterns onto complex surfaces with ease and efficiency.
DISPENSE VALVES, RESERVOIRS AND CONTROLLERS		Henkel features a robust line of precision dispense systems, valves, reservoirs and controllers specifically designed to meet various manufacturing needs for any handheld, bench top, stationary work cell or fully automated production process.
MIX NOZZLES		Henkel offers a comprehensive line of LOCTITE precision mix nozzles, gasket rollers, dispense tips and syringe barrel components for all of your single-component or two-part adhesive dispensing needs.
DISPENSE TIPS, ROLLERS AND NEEDLES		
CUSTOM EQUIPMENT		Henkel specializes in high-quality customized equipment solutions for difficult applications. Our custom high-flow meter mix systems provide simple, accurate and reliable metering equipment. These systems are easy to use and ruggedly designed to keep maintenance to a minimum.
		Our customized high viscosity paste pump systems are specifically designed to dispense paste products packaged in 5-gallon open-top pails up to 55-gallon drums. Pump ratios can be tailored for pumping medium to high viscosity paste products.
		The LOCTITE UV curing conveyor is a benchtop, ultraviolet curing conveyor that produces high-intensity ultraviolet energy in the UVA, UVB and UVC spectral region. This system can be integrated into an automatic or semiautomatic production line for cure-on-demand assembly.

For specific information on the equipment offered in the categories above or to see the full LOCTITE equipment product line, please contact your local Henkel representative.

ENGINEERING EXPERTISE

Engineered for your applications

Henkel offers complete engineering services for projects demanding expertise and support beyond the limits of our standard technical services. Our engineers and scientists can provide the following value-added services:

- On-site engineering assistance
- Joint product development programs
- Prototype testing, fixture preparation and consultation
- Contract lab services and testing
- Custom formulations

Services:

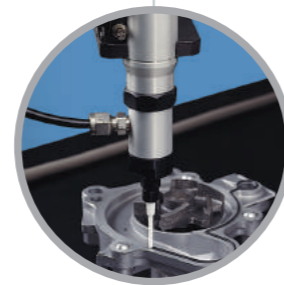
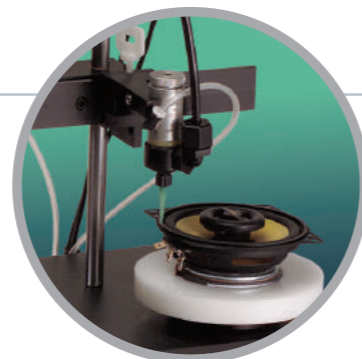
Custom test fixtures and protocols: Henkel can perform an array of rigorous strength tests to determine whether the customer's application and the adhesive criteria can hold up. Custom test fixtures and protocols can be developed to meet specific end-use requirements.

Prototyping capability: Our prototyping capability can provide valuable data regarding the feasibility of full-scale manufacturing.

Durability and longevity testing: Our engineers can create environmental conditions that simulate and even exceed the most severe conditions. With heat aging, salt fog, humidity, and thermal cycling chambers, our engineers can provide manufacturers with confidence in the durability and longevity of an assembly in the field.

Additional Capabilities:

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



Laboratory Evaluations:

- Adhesive bond strengths
- Threadlocking and thread sealing
- Gasketing and sealing
- Porosity sealing
- Bulk material properties
- Fluid immersion
- Accelerated aging
- Environmental exposure testing
- Robotic programming/dispensing

Robotics Lab

The robotics lab dispensing capabilities enable Henkel to utilize production-intent equipment for evaluation purposes. Various functions include:

- Full engine assembly (formed-in-place, cured-in-place, XIP gasketing)
- Electrical/electronic potting and gasketing
- Headlamp/lighting assembly
- Conducting dispense studies for process optimization

► BENEFITS

- Simulates full manufacturing capabilities using production-intent equipment
- Full-scale UV and heat-cure equipment for small to large parts
- Dispense stations are able to be customized for small-scale testing to larger developmental validation test requirements
- Opportunity to dispense and test Henkel product on actual parts

Physical Testing Lab

Capabilities include:

- Evaluating bulk material properties of adhesives

► BENEFITS

- Ability to conduct mechanical testing according to standard test methods and OEM specifications
- Capable of low load to high capacity forces
- Variety of fixtures available for testing various substrates and conditions



For complete product testing and engineering support, partner with Henkel to identify and validate the best adhesive solutions for your application.

HENKEL CONSULTING EXPERTISE



In addition to offering a **broad product portfolio**, Henkel provides an array of services to help our appliance customers **optimize** their manufacturing process, **improve efficiency** and **reduce overall costs**. The following services are available worldwide:



MANUFACTURING EXCELLENCE

Henkel has decades of success optimizing manufacturing processes. We can analyze your complete manufacturing process and provide tailor-made recommendations on how to reduce production cycle times and rejection rates, thereby lowering your overall costs and increasing your productivity.



LAB TESTING

Henkel's testing capabilities can provide complete data on our product recommendations. Whether you want to analyze a single component of your production process or review the complete system, our labs can provide all the data you need.



CUSTOMER TRAINING

Henkel offers a wide selection of customized training programs to help customers learn the details of our product technologies and how to apply them effectively. We can also train you to use our custom-designed equipment efficiently. Our Technology Days provide additional training and demonstrations of our newest innovations.



VALUE CALCULATORS

Using our Value Calculators, our adhesives specialists can accurately analyze the total costs of your adhesive processes and determine your savings potential. Simply arrange an appointment with our specialists, and they will visit your production facilities to conduct an in-depth analysis.



ANALYTICAL SERVICES

Henkel provides comprehensive analyses of all steps in your manufacturing process using our own industry experts. We will identify problem points on the production line and recommend improvements to the manufacturing process. These services can also include equipment tear-downs, surface analysis, and testing.

INDEX

Product Solutions	
Product Name	Page No.
AQUENCE o885	27
AQUENCE 452A	27
AQUENCE 514A	27
AQUENCE WL o294	41
AQUENCE WL 3053	41
BONDERITE C-AK 305	48
BONDERITE C-AK 305N	48
BONDERITE C-AK 800	48
BONDERITE C-AK 1520	48
BONDERITE C-AK ZX-4	48
BONDERITE M-AC ZL	49
BONDERITE M-FE 1030	49
BONDERITE M-FE 1090	49
BONDERITE M-NT 1	49
BONDERITE M-NT 2	49
BONDERITE M-PT 50NC	50
BONDERITE M-PT 99X	50
BONDERITE M-PT 7100	50
BONDERITE M-ZN 769	49
BONDERITE M-ZN 910	49
LOCTITE 243	38
LOCTITE 263	38
LOCTITE 270	38
LOCTITE 290	38
LOCTITE 294	38
LOCTITE 349	34
LOCTITE 352	34
LOCTITE 380	35
LOCTITE 401	35
LOCTITE 406	35
LOCTITE 407	35
LOCTITE 411	35
LOCTITE 431	35
LOCTITE 435	35
LOCTITE 454	35
LOCTITE 480	35

Product Solutions	
Product Name	Page No.
LOCTITE 495	35
LOCTITE 496	35
LOCTITE 510	39
LOCTITE 515	39
LOCTITE 518	39
LOCTITE 542	39
LOCTITE 554	39
LOCTITE 565	39
LOCTITE 567	39
LOCTITE 603	39
LOCTITE 620	39
LOCTITE 638	39
LOCTITE 641	39
LOCTITE 648	39
LOCTITE 680	39
LOCTITE 3108	34
LOCTITE 3311	34
LOCTITE 3321	34
LOCTITE 3370	21, 32, 37
LOCTITE 3525	34
LOCTITE 3972	34
LOCTITE 3979	34
LOCTITE HY 4090	35
LOCTITE 4204	35
LOCTITE 4205	35
LOCTITE 4310	35
LOCTITE 4311	35
LOCTITE 4850	35
LOCTITE 5188	39
LOCTITE 5770	39
LOCTITE AA 302	23
LOCTITE AA 326	33
LOCTITE AA 330	33
LOCTITE AA 331	33
LOCTITE AA 332	33
LOCTITE AA 392	33

Product Solutions	
Product Name	Page No.
LOCTITE AA 3108	23
LOCTITE AA 3494	23
LOCTITE AA 3525	23
LOCTITE AA 3920	33
LOCTITE AA 3974	23
LOCTITE AA H3151	29, 36
LOCTITE AA H3300	29, 36
LOCTITE AA H4500	29, 36
LOCTITE AA H4800	29, 36
LOCTITE AA H8000	29, 36
LOCTITE AA H8510	29, 36
LOCTITE AA H8600	29, 36
LOCTITE AA H8700	29, 36
LOCTITE EA 3430	29
LOCTITE EA 3450	29
LOCTITE EA 3985	29
LOCTITE EA 9460	29
LOCTITE EA E-05CL	29
LOCTITE EA E-30CL	29
LOCTITE EA E-40FL	29
LOCTITE EA E-20HP	29
LOCTITE EA E-60HP	29
LOCTITE EA E-120HP	29
LOCTITE EA E-40HT	29
LOCTITE EA E-05MR	29
LOCTITE EA E-60NC	29
LOCTITE EA E-00NS	29
LOCTITE EA E-20NS	29
LOCTITE EA E-30UT	29
LOCTITE EA E-04SS	29
LOCTITE MS 5572	31
LOCTITE S 563R	27
LOCTITE S 6097	27
LOCTITE SF 7387	33
LOCTITE SF 7649	33
LOCTITE SI 587	21, 31

Product Solutions	
Product Name	Page No.
LOCTITE SI 593	21, 31
LOCTITE SI 595	31
LOCTITE SI 596	31
LOCTITE SI 598	21, 31
LOCTITE SI 5011 CL	31
LOCTITE SI 5039	31
LOCTITE SI 5248	31
LOCTITE SI 5331	31
LOCTITE SI 5368	31
LOCTITE SI 5398	31
LOCTITE SI 5600	21
LOCTITE SI 5604	21
LOCTITE SI 5607	21
LOCTITE SI 5610	21
LOCTITE SI 5612	21
LOCTITE SI 5615	21
LOCTITE SI 5616	21
LOCTITE SI 5618	21
LOCTITE SI 5900	21, 31
LOCTITE SI 5905	31
LOCTITE SI 5920	31
LOCTITE U-05FL	33, 37
LOCTITE U-09FL	33, 37
LOCTITE UK 1351 B25 / UK 5452	33, 37
LOCTITE UK 1366 B10 / UK 5452	33, 37
LOCTITE UK 3497	33, 37
LOCTITE UK 8103 B10 / UK 5400	33, 37
LOCTITE UK 8119 B1 / UK 5400	33, 37
LOCTITE UK 8445 B1 / UK 5400	22, 33, 37
TECHNOMELT 3210	27
TECHNOMELT 491C	27
TECHNOMELT AS 236	37, 41
TECHNOMELT AS 1942	37, 41
TECHNOMELT AS 2131	24
TECHNOMELT AS 2184	24
TECHNOMELT AS 3115	24

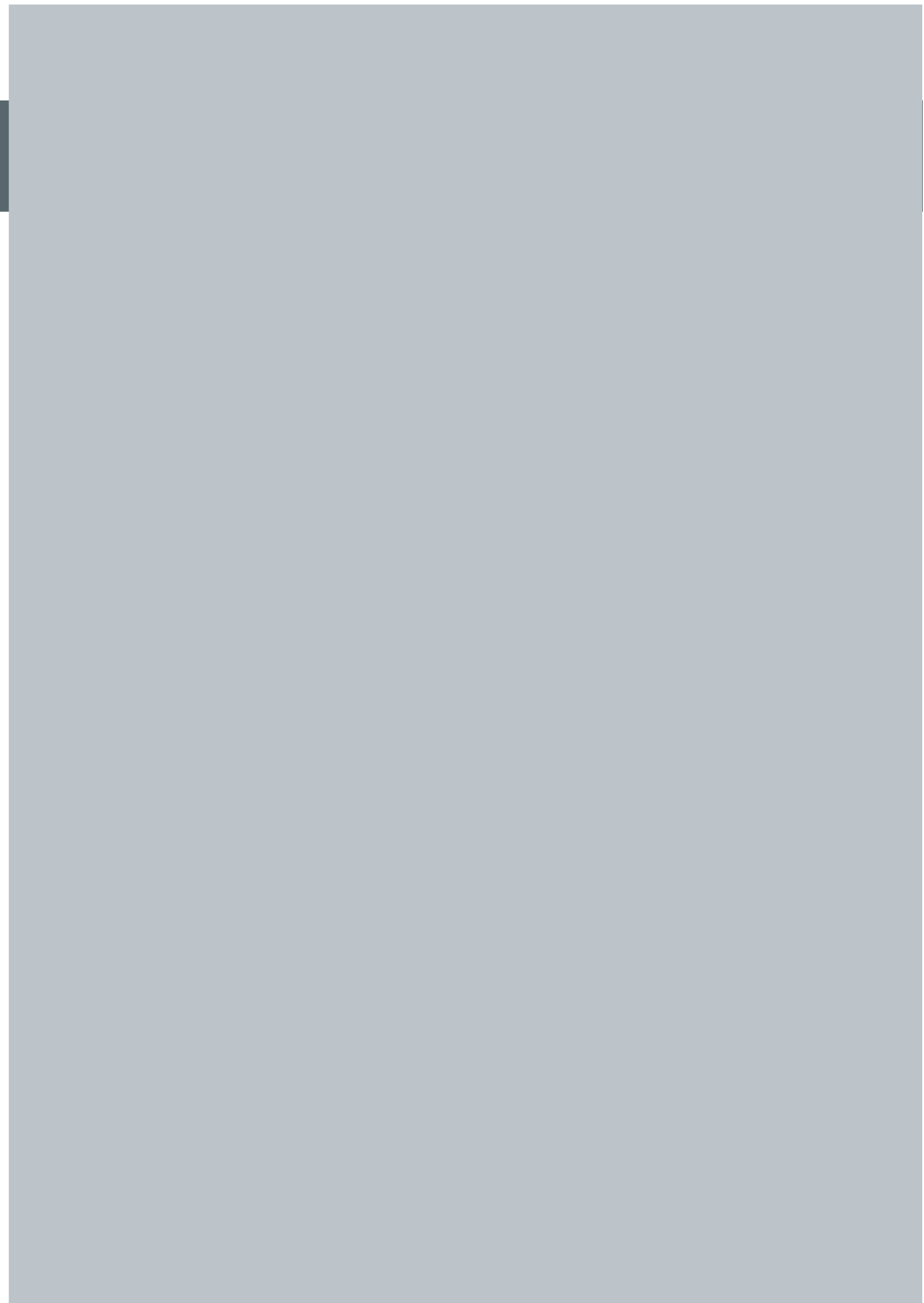
INDEX

Product Solutions	
Product Name	Page No.
TECHNOMELT AS 3267	37, 41
TECHNOMELT AS 4161	25
TECHNOMELT AS 5303	25
TECHNOMELT AS 5368	25
TECHNOMELT AS 5375	23
TECHNOMELT AS 8448	37, 41
TECHNOMELT AS 8848	25
TECHNOMELT AS 8890	25
TECHNOMELT AS 9268	37, 41
TECHNOMELT AS 9268Y	37, 41
TECHNOMELT AS 9270	37, 41
TECHNOMELT AS TK 779	24
TECHNOMELT CoolMelt	37, 41
TECHNOMELT DM 200E	37
TECHNOMELT EM 357	25
TECHNOMELT EM 725	25
TECHNOMELT GA 003A	32, 40
TECHNOMELT PA 7809FR	33
TECHNOMELT PS 703	27
TECHNOMELT PS 1530	27
TECHNOMELT PS 1573	27
TECHNOMELT PS 1573E	27
TECHNOMELT PS 8557	25
TECHNOMELT PS 8668	32, 40
TECHNOMELT PS 8701	25
TECHNOMELT PS 8707	25, 26, 27, 32, 40
TECHNOMELT PS 8746	25, 26
TECHNOMELT PS 8772	25

Product Solutions	
Product Name	Page No.
TECHNOMELT PS 8791	25
TECHNOMELT PS 8797	25
TECHNOMELT PS 8845	32, 40
TECHNOMELT PS 977EX	27
TECHNOMELT PUR 310	23
TECHNOMELT PUR 3460	23
TECHNOMELT PUR 3533 - 22	23, 33
TECHNOMELT PUR 3631	33
TECHNOMELT PUR 4661	23
TECHNOMELT PUR 4663	23
TEROSON EP 5089	29
TEROSON MS 650	21
TEROSON MS 660	21
TEROSON MS 930	21, 31
TEROSON MS 935	21
TEROSON MS 939	21, 31
TEROSON MS 5590	21
TEROSON MS 9120	31
TEROSON MS 9360	21, 31
TEROSON MS 9399	21
TEROSON RB 82	26
TEROSON RB 301	26
TEROSON RB 9718	26
TEROSON RB IX	25
TEROSON RB XI L	25
TEROSON SB 450	20

Equipment Solutions		
Product Name	IDH No.	Page No.
LOCTITE 50 ml Dual Cartridge Manual Applicator	720228	57
LOCTITE 50 ml Dual Cartridge Manual Applicator	1034026	57
LOCTITE 400 ml "F" Dual Cartridge – Manual	218312	57
LOCTITE 50 ml-F Tube Squeeze Dispenser	1083845	56
LOCTITE 50 ml Hand Pump	608966	56
LOCTITE 250 ml Hand Pump	88631	56
LOCTITE Bond-A-Matic 3000 Dispenser	209685	56
LOCTITE Bond-A-Matic 3000 Dispenser	218323	56
LOCTITE Dual Cartridge Manual Applicator	218483	57
LOCTITE Dual Cartridge Manual Applicator	478600	57
LOCTITE Dual Cartridge Pneumatic Applicator	218315	57
LOCTITE Dual Cartridge Pneumatic Applicator	218311	57
LOCTITE Dual Cartridge Pneumatic Applicator	470572	57
LOCTITE DuraPump Programmable Meter Mix System	1041635	57
LOCTITE HD10 300 ml Pneumatic Cartridge Dispenser	1714379	56
LOCTITE Integrated Semi-automatic Dispenser	1390321	56
LOCTITE Integrated Semi-automatic Dispenser	1390322	56
LOCTITE Pump-A-Bead II Dispenser	209687	56
LOCTITE Rotospray 9000 Applicator		56
LOCTITE Soft Press Handheld Pneumatic Applicator	250052	56
TEROSON Multipress Telescopic Dispenser	142241	56
TEROSON Powerline II 300 ml Dispenser	960304	56

NOTES



LOCTITE
BONDERITE
TECHNOMELT
TEROSON
AQUENCE

Henkel products are designed to meet the specifications and testing standards of a variety of agencies. Because such standards change or may be modified, no warranty is given regarding such compliance. The information provided may be used as a quick reference tool to aid in design or application. For up-to-the-minute information on agency approvals, or to inquire about additional agency approvals, please contact Henkel Product Management team or local Technical Support team.

Contact us at: www.loctite.com

**Henkel Asia-Pacific
China Headquarters**

No. 928 Zhangheng Road
Zhangjiang High-Tech Park
Pudong New District
Shanghai 201203, P.R. China
Tel: +86-21-2891 8000
Fax: +86-21-2891 8971

**Henkel AG & Co. KGaA
(Headquarters)**

Henkelstraße 67
40589 Düsseldorf
Germany
Tel: +49-211 7970
Fax: +49-211 798 4008

Henkel Taiwan Ltd.

10/F, 866 Zhongzheng Road
Zhonghe District
New Taipei City 235, Taiwan
Tel: +886-2-2227 1988
Fax: +886-2-2226 8699

® Except as otherwise noted,
all marks used above in this
brochure/leaflet, report/data
sheet etc. are trademarks and/
or registered trademarks of
Henkel and/or its affiliates in
the US and elsewhere.
© Copyright 2016, Henkel Asia-
Pacific and China Headquarters.
All rights reserved.
AP-IA-P123 SEA(03/2017)

Henkel Hong Kong Ltd.

Units 807-810
8/F Island Place Tower
510 King's Road, North Point
Hong Kong
Tel: +852-2233 0000
Fax: +852-2802 9995

Henkel Korea Ltd.

8/F, Henkel Tower
418 Mapo-dong, Mapo-gu
Seoul 121-734, South Korea
Tel: +82-2-3279 1700
Fax: +82-2-3273 4663

Henkel (Thailand) Ltd.

35/F, Centralworld Tower
999/9 Rama I Road
Khwaeng Pathumwan
Khet Pathumwan
Bangkok 10330, Thailand
Tel: +66-2-209 8000
Fax: +66-2-209 8078

**Henkel Adhesives
Technologies India Pvt. Ltd.**

11/F Kesar Solitaire
Plot No. 5, Sector 19
Palm Beach Road
Sanpada, Navi Mumbai
Maharashtra 400 705, India
Tel: +91-22-3929 6600
Fax: +91-22-3929 6602

Henkel (Malaysia) Sdn. Bhd.

46/F, Menara TM
Jalan Pantai Baharu
Kuala Lumpur 59200
Malaysia
Tel: +60-3-2246 1000
Fax: +60-3-2246 1188

**Henkel Adhesive Technologies
Vietnam Co., Ltd.**

No. 7, Road 9A
Bien Hoa II Industrial Park
Bien Hoa, Dong Nai Province
Vietnam
Tel: +84-61-3835 461
Fax: +84-61-3835 463

PT. Henkel Indonesien

21/F, Talavera Office Park
Jl. Letjen TB. Simatupang
Kav. 22-26 Jakarta 12430
Indonesia
Tel: +62-21-2758 6900
Fax: +62-21-7592 4625

Henkel Philippines Inc.

LSL Building 2, Diode St.,
LISPP, Brgy. Diezmo, Cabuyao
Laguna 4025, Philippines
Tel: +63-49-543 1088
Fax: +63-2-325 0031

Henkel Japan Ltd.

27-7 Shin Isogo-cho
Isogo-ku, Yokohama-shi
Kanagawa 235-0017, Japan
Tel: +81-45-758 1800
Fax: +81-45-758 1851

Henkel Singapore Pte Ltd.

#03-01/02
Haw Par Technocentre
401 Commonwealth Drive
Singapore 149598
Tel: +65-6266 0100
Fax: +65-6266 1161