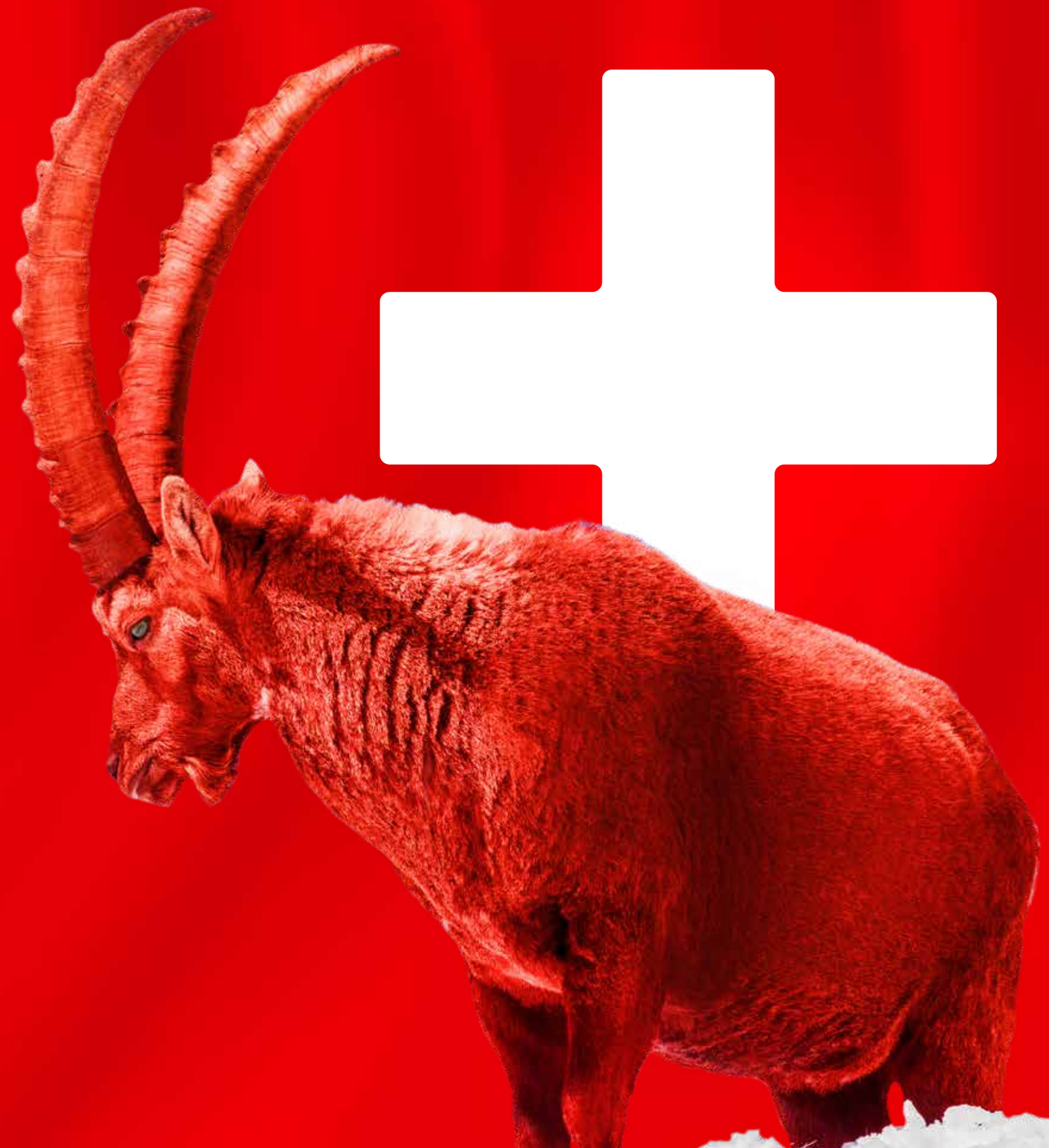
Overview of Adhesives, Sealants and Encapsulants

BONDING +
SEALING +
ENCAPSULATION

Kisling

MEMBER OF THE WÜRTH GROUP

Driving innovation with pioneering spirit.



Founded in Switzerland - operating internationally: We have been on the market since 1862 and today are one of the leading manufacturers of high-quality adhesives and sealants as well as encapsulants for almost all industries, OEM manufacturers and retailers.

Our product range comprises (meth)acrylate structural adhesives, epoxy structural adhesives, anaerobic adhesives, cyanoacrylate instant adhesives, silicones, hybrid polymers and encapsulants for a wide range of applications. We also develop application-specific product solutions at our customers' request.

Our customers are leading companies from sectors including:

- **Lightweight Materials & Composites**
- **E-Mobility & Electric Motors**
- **Electronics**
- **Fluid Technology**
- **Transportation**
- **Automotive**
- **Loudspeakers**
- **Maintenance, Repair and Overhaul (MRO)**

Resellers who market our products under their own brands have also trusted Kisling's solutions for many years. Highly professional application advice and extensive service are also part of our daily offer as well as the production of our products in-house.

BONDING +
SEALING +
ENCAPSULATION

Customer-specific adhesives and sealants without compromise.

Every demanding application has its own specific challenges for the adhesives, sealants and encapsulations used in it. With us you can be assured that your desired parameters are 100% fulfilled, thanks to products that are custom-made to your requirements.

Special solutions by professionals for professionals

These are developed by our specialists in close collaboration with your team – from adhesives development through to the processing chain, because we are more than just a supplier. We are your partner for individual adhesive and sealing solutions. And all of it with trusted and certified Kisling quality.

Innovation meets individuality

We have already developed more than 30 unique and innovative adhesive, sealant and encapsulation products for customers in industries such as IT, electronics, automotive and plumbing.

Environmental protection and safety.

Safety, quality and the judicious use of natural resources are all as central to our corporate philosophy as the Matterhorn is to Switzerland. For decades, therefore, we have developed and marketed many hazard label-free products, while complying with all international quality standards and guidelines.

The Kisling sustainability label

All hazard label-free adhesives and sealants are marked with the Kisling sustainability label. This label stands for highest quality, performance and sustainability throughout all stages of the product lifecycle – from procurement and production through processing to disposal.

Our path to sustainable development

Human – environment – business relationships: it is our responsibility of truly embodying sustainability at all these levels. Whether it is the constant protection and continuing training of our employees, the installation of solar panels on the roof of our headquarter in Wetzikon or by means of our code of compliance – to name just a few examples.

Kisling

Bonding capabilities to different materials

Category of plastics	Plastic types	Cyanoacrylate	Cyanoacrylate + primer	Anaerobics	Epoxies, 2K	Acrylates/MMAs, NoMix	Acrylates/MMAs, 2K	Hybrid polymers	RTV silicones	Surface pre-treatment, with cleaner 9190	Surface pre-treatment, with cleaner 9195	Optional methods, mechanical roughening	Optional methods, physically roughening (plasma, corona, ...)
Thermoplastics	ABS*	•••	••	–	••	–	••	••	••	–	•••	–	–
	ASA*	•••	••	–	•	–	••	••	••	–	•••	–	–
	LCP	•	•	–	•	•	•	–	–	•••	•••	•••	•••
	PA6	•••	–	•	•	•	•	••	••	•••	•••	•••	–
	PBT	••	•••	–	•	–	•	••	••	•••	•••	•••	•••
	PC*	•••	–	–	••	–	••	••	••	–	•••	–	–
	PE	–	•••	–	–	–	–	–	–	•••	•••	–	•••
	PEEK	•	•	–	•	•	•	•	•	•••	•••	•••	•••
	PEI	•••	–	–	••	•	•	•	••	•••	•••	•••	•••
	PES*	••	–	–	•	–	•	••	••	–	•••	–	•••
	PET	•••	•••	–	•	•	•	••	••	•••	•••	–	•••
	PI	•••	–	–	•••	••	••	••	••	•••	•••	–	•••
	PMMA*	•••	–	–	•	–	••	••	••	–	•••	–	–
	POM	–	••	–	–	–	–	–	–	•••	•••	–	–
	PP	–	•••	–	–	–	–	–	–	•••	•••	•••	•••
	PPO*	•••	••	–	•	–	–	••	••	–	•••	–	–
	PS*	••	–	–	•	–	•	••	••	–	•••	–	–
	PTFE	–	••	–	–	–	–	–	–	•••	•••	–	–
	PVC-P	•••	–	–	–	–	–	•	•	•••	•••	–	–
	PVC-U	•••	•••	–	••	–	••	•••	•••	–	•••	•••	–
	SAN	•••	–	–	•	–	••	••	•••	–	•••	–	–
	PU*	••	•••	–	••	–	•	–	–	•••	•••	•••	–
Thermoset-ting plastics	EP	•••	–	–	•••	••	••	•••	•••	•••	•••	•••	–
	MF	••	–	–	••	••	••	••	••	•••	•••	•••	–
	PF	••	–	–	•••	••	••	•••	•••	•••	•••	•••	–
	UP	•••	–	–	•••	••	••	•••	•••	•••	•••	•••	–
Elastomers	CR	•••	•••	–	•	–	–	•	•	•••	•••	•••	–
	EPDM	••	•••	–	•	–	–	–	–	•••	•••	•••	–
	IR	•••	•••	–	–	–	–	–	–	•••	•••	•••	–
	NBR	•••	•••	–	•	–	••	••	••	•••	•••	•••	–
	NR	•••	•••	–	–	–	–	–	–	•••	•••	•••	–
	PU	••	•••	–	–	–	–	–	–	•••	•••	•••	–
	SBR	•••	•••	–	–	–	–	–	–	•••	•••	•••	–
	SI	–	•	–	–	–	–	–	••	•••	•••	•••	••
	TPE	•••	•••	–	•	•	•	•	••		•••	•••	••
Other	Cardboard	•	–	–	–	–	–	••	•	–	–	–	–
	Wood	••	–	–	•••	–	••	••	•	–	–	•	–
	Leather	•	–	–	–	–	–	••	•	–	–	•	–
	Glass	•	–	•	•••	•••	••	•••	•••	•••	•••	•	–
	Ceramics	••	–	•	•••	•••	•••	•••	•••	•••	–	–	–
	Ferrite	••	–	•	•••	•••	•••	•••	•••	•••	–	–	–
	Metals	••	–	•••	•••	•••	•••	•••	•••	•••	–	•••	–

••• very well suited •• well suited • moderately suited – not suited

* Plastic tend to be sensitive to stress cracking

Structural Adhesives

Kisling

TYPICAL APPLICATIONS FOR STRUCTURAL ADHESIVES

E-MOBILITY / ELECTRIC MOTORS
High strength and durable connection of components under dynamic stress
+ Bonding of permanent magnets (surface and pocket magnets)
+ Joining of metal sheets to a laminated core, commutators and bearings
+ Encapsulation of windings and soldered joints

ELECTRICAL ENGINEERING AND ELECTRONICS
High abrasion resistance and fast curing for mass production
+ Bonding of electrical coils
+ Encapsulation of device housings and frames
+ Encapsulation of cables, plugs and sensors

TRANSPORTATION
High fatigue resistance for dynamically loaded structural components
+ Bonding of highly stressed components (metal and fibre composite)
+ Bonding of plastic/metal hybrid components
+ Vehicle repair and automotive aftermarket applications

LOUDSPEAKER CONSTRUCTION
Fatigue-resistant bonding
+ Bonding of passivated steel with ferrite
+ Bonding of plastics with metal
+ Joining of elastomers and impregnated boards

FIBRE-REINFORCED PLASTICS
High resistance to torsion, vibration and alternating climate
+ Bonding of honeycomb constructions for manufacture of sandwich components
+ Gluing of metallic joining elements (threaded bolts, threaded bushes etc.), clips and cable clips
+ Bonding of fibre composite-fibre composite components in outer shell/skin area with class A requirements

MAINTENANCE, REPAIR AND OVERHAUL (MRO)
Fatigue-resistant, composite and metal bonding, mechanically reworkable
+ Repairs of all types
+ Repair of cracks and leaks
+ Reinforcing and sealing of welds

BONDING +
SEALING +
ENCAPSULATION

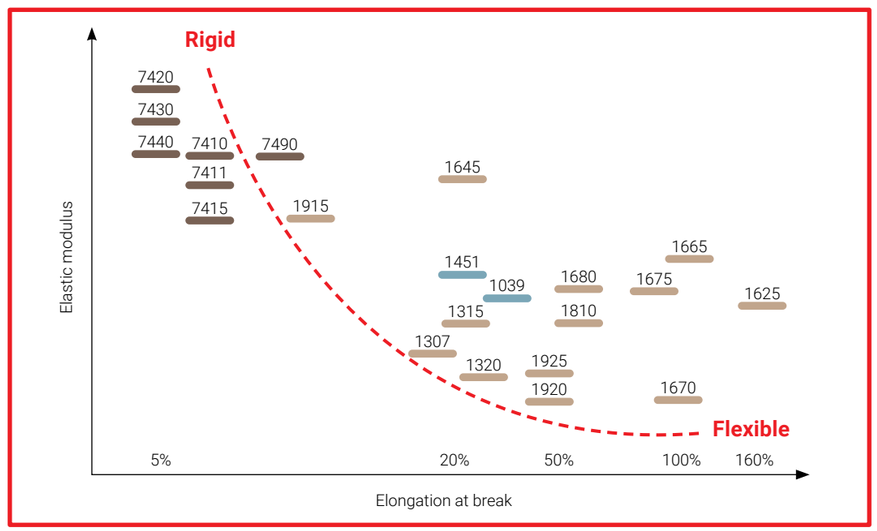
With its methacrylate and epoxy structural adhesives, Kisling offers a range of products with very different characteristics:

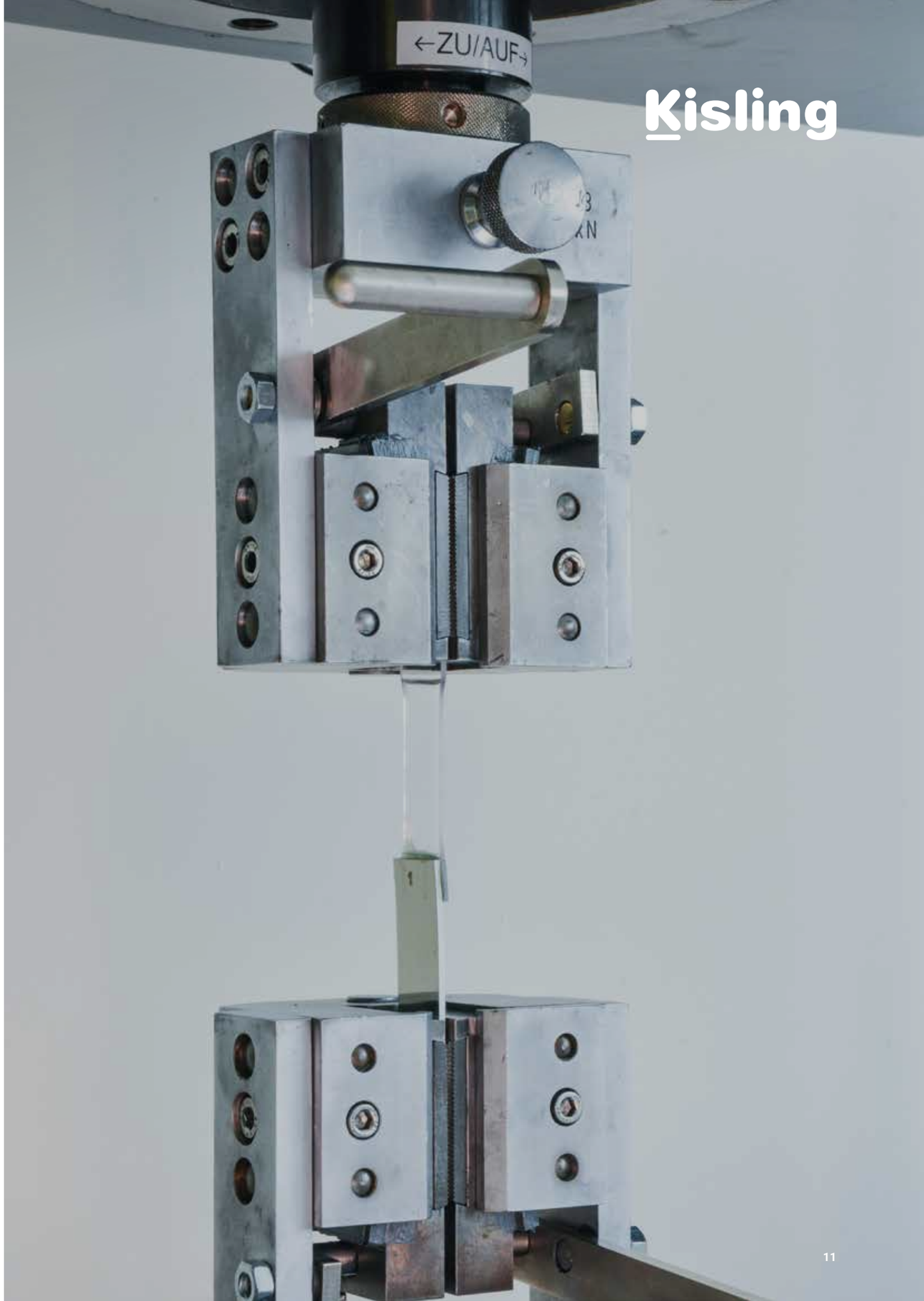
Our structural adhesives range includes:

No-mix Structural Adhesives
with the shortest curing times and outstanding adhesive results

Methacrylate Structural Adhesives
for rapid, high-performance bonding of a wide variety of materials with a balanced stiffness/toughness profile.

Epoxy Structural Adhesives
for highly rigid, ageing-resistant bonding of highly stressed components





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Structural Adhesives

Product number	Product Technology	Characteristics	Mixing ratio	Viscosity	Time to initial strength	Pot life	Final strength	Elongation at break	Tensile strength	Tensile shear strength	Temperature range
					Time to 1 N/mm²			ISO 527 / 1A	ISO 527 / 1A	Alu/Alu (DIN EN	
Unit				mPas	min.	min.	hrs.	%	N/mm²	N/mm²	°C
1039 **1090**	Urethane acrylate	No-mix system, medium viscosity/flexible, high peel & impact resistance	n.a.	Gel	~30 s	n.a.	n.a.	n.a.	n.a.	>15	−55 to +150
1451 **1093**	Urethane acrylate	No-mix system; medium viscosity/elasticised; glass-metal set	n.a.	Gel	~15 s	n.a.	n.a.	n.a.	n.a.	>18	−55 to +120
1470 **1471**	Methacrylate	No-mix system, low viscosity/excellent creeping properties, high-strength	n.a.	Thin	10–20 s	n.a.	n.a.	n.a.	n.a.	n.a.	-60 to +180
1315	Methacrylate	Medium viscosity, very fast, high-strength, impact resistant, high temperature stability	1:1	~6500	3–4	1–2	12	~20	~21	>20	−40 to +150
1320	Methacrylate	Black, medium viscosity, fast, high-strength, impact resistant	1:1	~5000	4–5	2–3	12	~20	~21	>20	−40 to +130
1675	Methacrylate	paste-like, stable, gap-filling up to 10 mm, excellent plastic bonding	10:1	~100,000 tx	4–5	2–3	12	~85	~17	>18	−55 to +120
1915	Methacrylate	Medium viscosity, thixotropic, fast, impact resistant, high-strength	1:1	~15,000 tx	4–5	2–3	12	~8	~36	>20	−50 to +150
1307	Methacrylate	UL-94 HB, medium viscosity, fast, high-strength, impact resistant	1:1	~5000	6–8	2–5	12	~20	~21	>20	−40 to +130
1810	Methacrylate	Thixotropic, very impact resistant, exceptional metal bonding	1:1	~150,000 tx	5–6	3–5	12	~50	n.a.	>25	−40 to +150
1665	Methacrylate	Paste-like, stable, excellent bonding, high flexural fatigue strength	10:1	~75,000 tx	8–13	3–6	24	~100	~15	>19	−55 to +120
1625	Methacrylate	Paste-like, universally applicable, high elongation at break	10:1	~100,000	14–16	6–8	24	~160	~10	~16	−40 to +100
1645	Methacrylate	Paste-like, stable, universally applicable, excellent tensile strength	10:1	~100,000 tx	14–16	6–8	24	~30	~15	>20	−40 to +100
1680	Methacrylate	Paste-like, stable, long open time, excellent plastic bonding	10:1	~100,000 tx	16–18	8–12	24	~65	~15	>17	−55 to +100
1670	Methacrylate	Paste-like, stable, long open time, excellent composite bonding	10:1	~75,000 tx	35–40	18–22	24	~75	–	>20	−55 to +120
7410	Epoxy	Medium viscosity, self-levelling, fast-curing, medium-strength, transparent	1:1	~8000–11,000	6–7	3–4	48	~6	~46	>13	−60 to +100
7411	Epoxy	Medium viscosity, self-levelling, fast-curing, medium-strength, black	1:1	~8000–11,000	6–7	3–4	48	~6	~46	>13	−60 to +100
7415	Epoxy	Paste-like, fast-curing, medium-strength, grey	1:1	Paste-like	6–7	3–4	48	n.a.	n.a.	>13	−60 to +100
7430	Epoxy	Paste-like, long processing time, high-strength	1:1	Paste-like	~4 h	40-50	96	n.a.	n.a.	>23	−60 to +100
7440	Epoxy	Paste-like, long processing time, high-strength/ very high temperature stability, black	2:1	Paste-like	~3 h	40–60	96	~5	~33	>20	−40 to +180
7420	Epoxy	Medium viscosity, long processing time, high-strength	1:1	40,000–45,000	~7 h	95–105	72	n.a.	n.a.	>25	−40 to +100
7490	Epoxy	Paste-like, stable, long open time, excellent composite bonding, black	2:1	Paste-like	~8.5 h	115–125	120	~7	~34	>33	−40 to +180

Metals			Thermo-sets/ composite materials		Thermo-plastics					Other substrates			Low odour	Approvals	Container size Bulk containers on request
Steel, stainless steel	Aluminium	Copper, brass	GFRP	CFRP	PVC	PA	ABS, ASA, SAN	PC	PMMA	Glass	Ceramics	Wood			
•••	•••	••	–	–	–	–	–	–	–	•	•	–	Yes	n.a.	50 g, 300 g 10 ml, 50 ml
•••	•••	•••	–	–	–	–	–	–	–	•••	••	–	Yes	n.a.	50 g, 10 ml 50 ml
•••	•••	••	–	–	–	–	–	–	–	–	–	–	Yes	n.a.	1 kg 1 kg
•••	•••	•••	••	••	•	–	••	•	••	••	••	••	Yes	n.a.	50 ml
•••	•••	•••	••	••	•	–	••	•	••	••	••	••	Yes	n.a.	50 ml
•••	•••	••	•••	•••	•••	–	•••	•••	•••	•	•	••	Yes	DIN EN 45545-2	50 m, 250 ml 490 ml
•••	•••	•••	••	••	••	–	••	••	••	••	••	••	No	n.a.	50 ml
•••	•••	•••	••	••	•	•	••	•	••	••	••	••	Yes	NSF – S2–S6	50 ml
•••	•••	•••	•	–	–	–	–	–	–	••	••	–	Yes	n.a.	50 ml
•••	•••	••	•••	•••	•••	–	•••	•••	•••	•	•	••	No	n.a.	50 ml, 490 ml
•••	•••	••	•••	•••	•••	–	•••	•••	•••	•	•••	•	No	n.a.	50 ml, 200 ml, 490 ml
•••	•••	••	•••	•••	•••	–	•••	•••	•••	•	•••	•	No	n.a.	50 ml, 490 ml
•••	•••	••	•••	•••	•••	–	•••	•••	•••	•	•	••	Yes	DIN EN 45545-2	50 ml, 250 ml 490 ml
•••	•••	•••	•••	•••	•••	–	•••	•••	•••	•	•	••	No	n.a.	50 ml, 250 ml 490 ml
•••	••	••	••	••	•	•	•	•	•	•••	•••	••	No	n.a.	50 ml, 200 ml 400 ml
•••	••	••	••	••	•	•	•	•	•	•••	•••	••	No	n.a.	50 ml, 200 ml 400 ml
•••	••	••	•	•	•	•	•	•	•	•••	•••	••	No	n.a.	50 ml
•••	•••	••	•••	••	•	•	•	•	•	•••	•••	••	Yes	DIN EN 45545-2	50 ml, 200 ml 400 ml
•••	•••	••	•••	•••	•	•	•	•	•	•••	•••	••	Yes	DIN EN 45545-2	50 ml, 200 ml 400 ml
•••	•••	••	•••	••	•	•	•	•	•	•••	•••	••	Yes	NSF – S2–S6	50 ml, 200 ml 400 ml
•••	•••	••	•••	•••	•	•	••	•	•	•••	•••	••	Yes	DIN EN 45545-2	50 ml, 200 ml 400 ml

Anaerobic Adhesives

Kisling

TYPICAL APPLICATIONS FOR ANAEROBIC ADHESIVES

SCREW LOCKING

For securing and sealing bolts, studs, nuts, thread inserts and screw plugs against impact, vibration and corrosion.

+ Complete form and material closure
+ No damage to component surfaces
+ Constant friction coefficients

SHAFT-HUB CONNECTION

For fixing cylindrical joints, with high resistance to acids, lyes etc.

+ Complete form and material closure
+ No tension peaks
+ Replaces feather keys, wedges, pins and similar aids

PIPE THREAD SEALS

Gap filling sealants for sealing pipe thread seals against fluids, gases and solvents.

+ For fine and coarse threads
+ Seals against common gases and fluids
+ Prevents corrosion in the seal area

HYDRAULIC SEALS

For sealing pneumatic and hydraulic screw connections up to a diameter of 2 inches

+ Vibration-resistant sealing compound
+ Seals and secures simultaneously (against twisting)
+ Jamming when joining stainless steel elements is ruled out

SURFACE SEALANTS

Suitable as replacement for solid sealants in flange joints on pumps, gearboxes etc.

+ No settling effects
+ Universal application regardless of component geometry
+ Seals against common industrial media

Kisling

Anaerobic Adhesives

	Designation	Colour	Viscosity [mPas]	Breakaway torque [Nm] (As per DIN 54454)	Prevailing torque [Nm]	Compressive shear strength [N/mm²]	Max. gap [mm]	Max. thread size	Temperature range [°C]	Final strength at 25°C [h]	Approvals, registrations	Container size Bulk containers on request
4003	Screw lock low-strength	Purple	~1000	>10	>2	>10	0.2	M 36	−55 to +150	10	5	50 g
4050	Screw locking medium-strength	Blue	~150	>15	>7	>8	0.15	M 12	−55 to +150	10	5	5 g, 50 g
4052	Screw locking medium-strength	Blue	~2200 tx	>21	>10	>20	0.25	M 36	−55 to +150	3	1, 2, 3, 4, 5	10 g, 25 g, 50 g, 250 g, 1 kg
4100	Screw lock high-strength	Red	~1500 tx	>20	>35	>20	0.25	M 36	−55 to +150	6	1, 2, 5	50 g, 250 g
4101	Screw lock high-strength	Green	~700	>25	>40	>20	0.15	M 25	−55 to +150	10	1, 2, 5	10 g, 50 g, 250 g
4115	Screw lock heat-resistant and high-strength	Red	~10,000 tx	>23	>23	>25	0.2	M 36	−55 to +200	24	–	50 g, 250 g
4202	Hydraulic seal medium-strength	Brown	~600	>14	>16	>8	0.15	¾"	−55 to +150	6	5	50 g, 250 g
4203	Hydraulic seal low-strength	Violet	~17,000 tx	>2	>1	>1	0.15	¾"	−55 to +150	24	5	50 g, 250 g
4205	Pipe thread sealing with PTFE, low-strength	White	~17500 tx	>5	>4	>5	0.3	3"	−55 to +200	12	1, 2, 3, 5, 6	50 g, 250 g
4207	Pipe thread sealing universal, medium-strength	Yellow	~23,000 tx	>10	>10	>6	0.5	2"	−55 to +150	6	1, 2, 3, 4, 5, 6	50 g, 250 g
4209	Pipe thread seal high-strength	Red	~6500	>25	>35	>20	0.3	2"	−55 to +150	24	2, 5	50 g, 250 g
4212	Pipe thread sealing with PTFE, low-strength	White	~240,000 tx	>4	>1	>2	0.5	3"	−55 to +150	24	1, 2, 3, 5	50 g

APPROVALS:
1 **NSF – ANSI 61** Drinking Water System Components
2 **NSF – S2–S6** Non-direct food contact (NSF-Registered Proprietary Substances and Nonfood Compounds)
3 **DVGW/DIN EN751-1** Use in threaded joints for gas-carrying components. Not permitted in Germany under DVGW-TRGI 2008 for domestic gas installations
4 **KTW** corresponds to the guide formulation of the German Federal Environment Agency (Umweltbundesamt) of 11/02/2016 for use in the drinking water sector.
5 **Products without hazard pictograms** as per (EC) No. 1272/2008 in section 2.2
6 **WRAS (Water Regulations Advisory Scheme (UK))**

	Designation	Colour	Viscosity [mPas]	Breakaway torque [Nm] (as per DIN 54454)	Prevailing torque [Nm]	Compressive shear strength [N/mm2] (DIN 54452)	Tensile strength [N/mm²]	Max. gap [mm]	Max. thread size	Temperature range [°C]	Final strength at 25°C [h]	Approvals, registrations	Container size Bulk containers on request
4252	Surface seal low-strength	Green	~20,000 tx	>6	>3	>4	>2	0.30	–	−55 to +150	24	1, 2, 5	50g, 250g
4253	Surface seal universal, low-strength	Orange	~34,000 tx	>8	>5	>5	–	0.50	–	−55 to +150	24	1, 2, 5	50g, 250g
4254	Surface seal flexible, medium-strength	Red	~250,000 tx	>18	>10	>18	>14	0.50	–	−55 to +150	72	–	50g, 250g
4280	Surface seal heat-resistant and high-strength	Red	~80,000 tx	–	–	>12	>10	0.50	–	−55 to +200	12	1, 2	50 g
4430	Joint high-strength	Green	~150	>25	>40	>25	–	0.15	M 12	−55 to +150	6	1, 2	50g, 250g
4451	Joint high-strength	Green	~2500	>25	>40	>27	–	0.20	M 36	−55 to +150	4	1, 2	50g, 250g
4453	Joint heat-resistant and high-strength	Green	~550	>25	>40	>27	–	0.15	M 20	−55 to +175	4	1, 2, 3, 4, 6	50g, 250g
4460	Joint heat-resistant and high-strength	Green	~13,000	>25	>25	>25	–	0.20	M 36	−55 to +200	24	4	50g, 250g
2453	UV/Anaerobic joint, heat-resistant and high-strength	Transparent	~550	>25	>40	>27	–	0.15	M 20	−55 to +175	4	–	50 g

Auxiliary Products

	Designation	Colour	Container size Bulk containers on request
4900	Activator (solvent-based)	Turquoise	100 ml, 1000 ml
4910	Activator (monomer-based)	Light blue-green	100 ml, 1000 ml

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6 **WRAS (Water Regulations Advisory Scheme (UK))**

Cyanoacrylate Instant Adhesives

Kisling

TYPICAL APPLICATIONS FOR CYANOACRYLATE INSTANT ADHESIVES

UNIVERSAL ADHESIVES

Trusted workhorses – a tidy solution for many standard applications with different materials. Highly valued in window and furniture construction, DIY activities and for repair tasks.

+ Bonding of metal or plastic holders
+ Bonds wood, e.g. for model construction
+ Bonds cork and cardboard

PLASTIC ADHESIVES

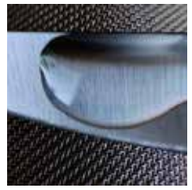
Your result in just a few seconds: these adhesives allow you to join the similar materials as well as combinations of different plastics in very little time.

+ Attach elastomer seals in moulded plastic parts
+ Repair plastic parts
+ Join plastic housings

ELASTOMER ADHESIVES

Flexible assistants that provide a perfect, strong joint. Advantages include outstanding weather resistance and processing by fully automated dosing systems.

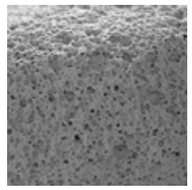
+ Bonding of corner angle and round cord seals
+ Attaching of elastomer seals
+ Bonding of seal profiles of all types



METAL ADHESIVES

Even ‘hard on hard’ is not a problem with our product range, which has proved itself over many years in very difficult conditions, including

+ Bonding of ball bearings
+ Setting of gemstones
+ Bonding of micromagnets



SPECIAL ADHESIVES

One of them will always fit. One of our special adhesives will help you to bond, for example, porous materials, applications in the loudspeaker industry or materials that are difficult to join (POM, PE, PP, PTFE, silicones)

+ Bonding of composite rods (e.g. trekking poles)
+ Bonding of loudspeaker components (e.g. dust cap with 5923)
+ Bonding of plastic washers (e.g. in PP with the aid of 5150 primer)

Cyanoacrylate Instant Adhesives

	Designation	Colour	Viscosity [mPas]	Tensile shear strength on steel/steel [N/mm²] (DIN EN 1465)	Temperature range [°C]	Setting time (sec.)			Approvals, registrations	Container size Bulk containers on request
						Alumini-um	CBR	EPDM		
5011	Universal	Colourless	100	20	–30 to +80	50	5	10	1, 2	20 g, 30 g, 50 g, 500 g
5012	Universal	Colourless	90	15	–30 to +80	65	7	25		5 g
5014	Universal	Colourless	2000	15	–30 to +80	60	8	10		20 g, 30 g, 50 g, 500 g
5039	Universal Gel	Colourless	Gel, thixotropic	24	–30 to +80	100	21	30		3 g, 20 g
5300	Elastomer	Colourless	30	–	–30 to +80	25	3	2	1, 2	20 g, 30 g, 50 g, 500 g
5925	Elastomer	Colourless	30	–	–30 to +80	60	5	7	1, 2	20 g, 30 g, 50 g, 500 g
5950	Plastic	Colourless	5	–	–30 to +80	28	5	6		20 g, 50 g, 500 g
5400	Plastic	Colourless	30	–	–30 to +80	35	3	2	1, 2	20 g, 30 g, 50 g
5713	Plastic	Colourless	1200	–	–30 to +80	60	6	10		20 g, 50 g, 500 g
5200	Metal	Colourless	5	18	–55 to +80	20	–	–		20 g
5210	Metal	Colourless	400	14	–55 to +105	35	–	–		20 g, 500 g
5634	Metal	Colourless	2800	18	–55 to +120	90	–	–		20 g, 50 g, 500 g
5861	Porous	Colourless	100	17	–55 to +85	35	5	10	1, 2	20 g, 500 g
5880	Black	black	150	20	–55 to +120	35	25	25		20 g, 50 g, 500 g
5889	Special	Colourless	400	14	–55 to +105	30	12	17		20 g, 50 g, 500 g
5901	Low odour	Colourless	6	12	–30 to +100	100	15	65	5	20 g, 500 g
5922	Low odour	Colourless	60	12	–30 to +100	100	25	18	5	500 g
5923	Low odour	Colourless	1000	12	–30 to +100	100	32	28	5	20 g, 500 g
5370	2K Repair	Colourless	Gel, thixotropic	16	–55 to +80	10	10	10		10 g
5380	2K Flexible	Colourless	Gel, thixotropic	7	–55 to +80	90	20	20	2, 5	10 g

APPROVALS:
1 **NSF – ANSI 61** Drinking Water System Components
2 **NSF – S2–S6** Non-direct food contact (NSF-Registered Proprietary Substances and Nonfood Compounds)
5 **Products without hazard pictogram** as per (EC) No. 1272/2008 in section 2.2 from MSDS

Auxiliary products for cyanoacrylate instant adhesives

	Designation	Colour	Application	Container size Bulk containers on request
5150	Primer	Colourless	Product to improve adhesion in difficult-to-bond materials e.g. PA12, PE, PETP, PI, POM, PP, PTFE, MVQ, TPE etc.	10 ml, 50 ml, 1l
5100	Activator	Colourless	Product to increase curing speed of instant adhesives	150 ml, 1l
5000	Filler	White	Mineral filler for cyanoacrylate instant adhesives	30 g

Auxiliary products (general)

	Designation	Colour	Application	Container size Bulk containers on request
9153	Adhesive remover	Colourless	Adhesive remover that absorbs liquid adhesives and detaches and removes cured excess or residues	20 ml, 1l
9190	Metal cleaner	Colourless	Product for cleaning and de-greasing metals, ferrite, ceramics and glass	500 ml
9195	Plastic cleaner	Colourless	Product for cleaning and de-greasing plastics	500 ml

Elastic Adhesives and Sealants

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TYPICAL APPLICATIONS FOR SILICONES AND MS POLYMER (ELASTIC ADHESIVES/SEALANTS)

SILICONE FOR AUTOMOTIVE

+ High temperature resistance
+ Excellent resistance to chemicals (e.g. engine oil, gear oil and coolants)
+ Application examples: Sealing of oil sumps and gearboxes in the enginge

SILICONE FOR ELECTRONICS

+ Non-corrosive, no aggressive cleavage products
+ No fogging on optical elements
+ Application examples: Fuel injection systems; corrosion protection of circuit boards

SILICONE AS GENERAL PURPOSE SEALANT

+ Hazard label and isocyanate free
+ Available in pressure cans
+ Application example: Groove-type sealing for wheel housings, etc.

SILICONE FOR ELASTIC BONDING

+ Bonding and sealing in a single step
+ Wide adhesion spectrum and can absorb large differences in thermal expansion
+ Application example: Display sealing and bonding

Overview of elastic adhesives and sealants

1K RTV silicones

	Colour	Chemical base	Viscosity (shear rate (10 s-1) [mPas]	Viscosity (shear rate (100 s-1) [mPas]	Tensile strength (as per DIN 53504 S2)	Elongation at break [%] (DIN 53504 S2)	Temperature range [°C]	Skin formation [min]	Density [g/cm3]	Through-curing 24 h at 23°C/50% rH [mm]	Shore A hardness (DIN 53505)	Container size Bulk containers on request
3110	black	Mod. oxime silicone	70,000	20,000	2.0	~500	–60 to +260	~7	1.21	2–3	30	200 ml, 310 ml
3120	Red	Mod. oxime silicone	70,000	20,000	2.0	~500	–60 to +315	~7	1.27	2–3	26	200 ml, 310 ml
3130	Blue	Mod. oxime silicone	70,000	20,000	2.0	~500	–60 to +260	~7	1.27	2–3	30	200 ml
3140	Colourless	Mod. oxime silicone	20,000	8000	1.0	~400	–60 to +260	~7	1.00	2–3	15	200 ml
3160	Grey	Mod. oxime silicone	70,000	20,000	2.0	~500	–60 to +260	~7	1.22	2–3	30	200 ml, 310 ml

ADHESIVES AND SEALANTS WITHOUT HAZARD LABELS

The use of adhesives and sealants may bear some risks for human health and the environment. Reactive adhesives and sealants often contain substances that can cause skin irritation and allergies. The use of such adhesives therefore requires special health and safety precautions. Employers in all countries are obliged by national legislation to implement health and safety measures. Article 6 of European directive 89/391/EEC sets out these obligations.

Starting the development of label-free adhesives and sealants 20 years ago, Kisling early focused on work safety and sustainability. With its comprehensive range, today Kisling is the leading manufacturer of adhesives with a ‘white’ safety information data sheet. These products do not need any hazard symbols.

THE KISLING SUSTAINABILITY LABEL

All hazard label-free adhesives and sealants are marked with the Kisling sustainability label. This label stands for highest quality, performance and sustainability throughout all stages of the product lifecycle – from procurement and production through processing to disposal.

TRUSTED ADHESIVES AND SEALANTS FOR TOUGH APPLICATIONS

Kisling’s commitment to sustainable products contributes to a healthy balance between functionality, health and safety in your business. Hazard label-free adhesives and sealants by Kisling have been used successfully by our customers for more than two decades. Our more than 20 established products with ‘white’ datasheets hold up in every comparison of quality and performance.

GOOD REASONS FOR USING ADHESIVES WITH A ‘WHITE’ SAFETY DATASHEET

+ Enhanced health and safety at work
+ Skin irritations and allergies are minimised
+ Less loss of work due to illness
+ Reduced environmental burden
+ Very wide selection for diverse applications
+ The right solution even for demanding applications

Auxiliary products

Overview

Quadro + Helix mixer		
We offer a wide selection of suitable mixers. We will be happy to advise you, or why not request our summary of available options.		
Screw nozzles (set of 10)		
310 ml	Hybrid polymer Euro cartridges	Type 4472039
310 ml	Hybrid polymer triangular screw nozzle	Type 4472051
310 ml	Hybrid polymer Rika screw nozzle	Type 4472052
200 ml	Replacement pressurised can	Type 4432012
Manual dispensing guns for two-component adhesives		
50 ml	Double cartridges 1:1 and 2:1	Type 4472101
50 ml	Double cartridges 10:1	Type 4472105
200 ml	Double cartridges .1:1 and 2:1	Type 4472300
400 ml	Double cartridges 1:1	Type 4472303
490 ml	Double cartridges 10:1	Type 4472320

Manual dispensing guns for Euro cartridges		
310 ml	Euro cartridges (pneumatic)	Type 4472307
310 ml	Jetflow (pneumatic)	Type 4472311
310 ml	Manual dispensing guns	Type 4472304
Pneumatic dispensing guns for two-component adhesives		
50 ml	Double cartridges 1:1 and 2:1	Type 4472111
200 ml	Double cartridges 1:1 and 2:1	Type 4472200
200 ml	Double cartridges 10:1	Type 4472305
400 ml	Double cartridges 1:1	Type 4472306
490 ml	Double cartridges 10:1	Type 4472321
Pneumatic dispensing guns for Euro cartridges		
310 ml	Euro cartridges	Type 4472307
310 ml	Euro cartridges	Type 4472311
Pneumatic dispensing guns with spray function for tubular flow bags		
400 ml and 600 ml flow bags		Type 4472309
Nylon/stainless steel disposable needles, Luer Lock, fits on closure and cartridge dosing unit, 12 mm long (set of 25)		
Internal 0.16 mm, lavender		Type 4492101
Internal 0.21 mm, transparent		Type 4492111
Internal 0.25 mm, red		Type 4492121
Internal 0.34 mm, orange		Type 4492131
Internal 0.41 mm, blue		Type 4492141
Internal 0.51 mm, violet		Type 4492151
Internal 0.60 mm, pink		Type 4492161
Internal 0.84 mm, green		Type 4492171
Internal 1.37 mm, peach		Type 4492181
Internal 1.55 mm, olive		Type 4492191

Polyethylene dosing tips, Luer Lock, fit on closure and cartridge dosing unit (set of 25)		
Internal 0.26 mm, red		Type 4492561
Internal 0.41 mm, blue		Type 4492501
Internal 0.58 mm, pink		Type 4492511
Internal 0.84 mm, green		Type 4492521
Internal 1.20 mm, grey		Type 4492531
Internal 1.55 mm, olive		Type 4492541
Polyethylene dosing tips, Luer Slip, fit on closure and cartridge dosing unit (set of 50)		
Internal 0.50 mm, transparent		Type 4492011
Internal 1.00 mm, transparent		Type 4492022
Dosing system and accessories		
5 cc	Polypropylene cartridges, transparent	Type 4496001
10 cc	Polypropylene cartridges, transparent	Type 4496002
30 cc	Polypropylene cartridges, transparent	Type 4496003
55 cc	Polypropylene cartridges, transparent	Type 4496007
5 cc	Cartridge connection with hose, filter and quick coupling	Type 4496011
10 cc	Cartridge connection with hose, filter and quick coupling	Type 4496012
30/55 cc	Cartridge connection with hose, filter and quick coupling	Type 4496013
5 cc	Cartridge end closure	Type 4496031
10 cc	Cartridge end closure	Type 4496032
30/55 cc	Cartridge end closure	Type 4496033
5 cc	Cartridge piston, polyethylene	Type 4496041
10 cc	Cartridge piston, polyethylene	Type 4496042
30/55 cc	Cartridge piston, polyethylene	Type 4496043
	Cartridge valve gate	Type 4496061
	Filter to protect dosing equipment	Type 4496062
Special application accessories		
Dosing tip with PTFE insert, internal 0.26mm, pink		Type 4496070
Dosing tip with PTFE insert, internal 0.60mm, grey		Type 4496071
Dosing brush tip for thin media, soft bristles		Type 4496063
Dosing brush tip for thin media, hard bristles		Type 4496064

When using a new cartridge, proceed as follows:

1. Push the safety lever of the pistol upwards and pull the piston rod all the way backwards
2. Insert the cartridge into the gun and snap it into place (Fig. 1)
3. Push the piston rod into the cartridge until it stops
4. Remove the cartridge seal
5. Carefully pull the trigger until adhesive emerges from both openings. The cartridges are overfilled so that no loss occurs (Fig. 2)
6. Attach the mixing tube and lock it in place either by turning it 90° or by screwing on the union nut (Fig. 3)
7. Before use, press out and discard one mixing tube content (Fig. 4)
8. The adhesive is usually only applied to one component. However, it is also possible to apply on both sides, depending on the application. After the adhesive has been applied, the joining process and any fixing must be carried out under consideration of the pot life
9. If the processing interruptions are shorter than the pot life of the respective product, the same mixing tube can be used again
10. When work is finished or after long interruptions, the mixing tube can be left on the cartridge as a seal
11. Before further processing, remove the old mixing tube and replace it with a new one

For further information, please refer to the technical data sheets.

Encapsulants

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TYPICAL APPLICATIONS FOR ENCAPSULANTS E-MOBILITY

ELECTRIC MOTOR
+ Stator encapsulation
+ Rotor encapsulation
+ End-turn winding encapsulation

POWER ELECTRONICS
+ Inverter
+ Converter
+ Shifting ring
+ On-Board charging device

CHARGING STATIONS
+ Charging handle
+ Power electronics in charging station
+ Cable and connector

HIGH VOLTAGE BATTERY
+ Battery cell encapsulants
+ Battery management system (BMS)

TYPICAL APPLICATIONS FOR ENCAPSULANTS ELECTRONICS

LED LIGHTING
+ Exterior lighting of buildings
+ LED arrays, strips, spotlights, lamps
+ Pool lighting

PASSIVE COMPONENTS
+ Capacitors
+ Transformers
+ RFIDs
+ Induction coils

CABLES, PLUGS & SENSORS
+ Sensor e.g. pressure sensors
+ Cable bushing
+ Plug connector

CIRCUIT BOARD TECHNOLOGY
+ Control devices (ECU)
+ Measuring devices
+ Measurement technology

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Product family	Product number	Product Technology	Description	Colour	Mixing ratio	Viscosity @ 22°C	Pot life	Curing conditions	Density (calculated)	Shore hardness	Operational temperature range	Thermal conductivity	Glass transition temperature	CTE < Tg	CTE > Tg	UL94
					W:W	mPas	min.		g/cm3		°C	W/mK	°C	ppm/K	ppm/K	
Insulation / Flame protection	7610	Epoxy	transparent, medium viscosity, fast curing	transparent	1:1 (Vol)	8.000 - 11.000	3 - 4	cold curing	1.05 - 1.15	D75	+100°C	0.2	52	5.2	215	HB
	7611	Epoxy	black, medium viscosity, fast curing	black	1:1 (Vol)	8.000 - 11.000	3 - 4	cold curing	1.05 - 1.15	D75	+100°C	0.2	52	5.2	215	HB
	8600 + 8901	Polyurethane	low TG, low viscosity, low hardness	brown transparent	100 : 26	300 - 700	25 - 35	cold curing	1.00 - 1.10	A20 - 30	-60 / +110	0.2	0.2	274.3	244.6	HB
	8601 + 8973	Polyurethane	very low TG, temperature range up to +130 °C, rubber elastic, low viscosity	black	100 : 20	1.800 - 2.400	30 - 45	cold curing	0.95 - 1.00	A25 - 30	-80 / +130	0.3	-76	90.9	221.2	HB
	8605 + 8973	Polyurethane	low viscosity, UL94-V0, low hardness	natural (beige)	100 : 15	900 - 1.300	25 - 35	cold curing	1.40 - 1.50	A65 - 75	-40 / +130	0.5	-29	96.9	188.9	V0, 4.0 mm
	8610 + 8901	Polyurethane	high temperature range, medium hardness, UL94 V0	black	100 : 14	4.000 - 5.000	15 - 25	cold curing	1.50 - 1.60	D45 - 55	-55 / +165	0.6	-2	97.5	167.0	V0, 1.5 mm
	CMR free 8610 + 8930	Polyurethane	wide temperature range, medium hardness, UL94-V0, CMR-free	black	100 : 20	2.500 - 4.500	15 - 25	cold curing	1.45 - 1.50	D35 - 45	-55 / +165	0.6	-24	73.5	122.5	V0, 1.5 mm
	8612 + 8901	Polyurethane	allrounder, low viscosity, medium hardness, UL94-V0	natural (beige)	100 : 20	1.200 - 1.800	15 - 25	cold curing	1.60 -1.70	D50 - 60	-40 / +130	0.6	12	63.9	155.8	V0, 1.5 mm
	CMR free 8612 + 8930	Polyurethane	low viscosity, medium hardness, UL94-V0, CMR-free	natural (creme)	100 : 25	1.500 - 2.000	15 - 25	cold curing	1.45 - 1.55	D30-40	-40 / +130	0.6	-25	135.4	153.4	V0, 4.0 mm
	8615 + 8901	Polyurethane	high TG, low viscosity, excellent chemical resistance, low density	natural (beige)	100 : 50	600 - 800	25 - 35	cold curing	1.20 - 1.25	D80 - 90	-40 / +130	0.3	50	81.9	188.3	HB
	8616 + 8973	Polyurethane	high TG, fast curing time, low viscosity, excellent chemical resistance	natural (beige)	100 : 43	350 - 450	10 - 15	cold curing	1.35 - 1.40	D85 - 90	-80 / +130	0.7	56	47.1	143.4	V0, 3.0 mm
Transparency	CMR free 8800 + 8930	Polyurethane	high transparency, UV resistant, low hardness, high elongation, CMR-free	transparent	100 : 60	700 - 900	30 - 45	cold curing	1.05 - 1.10	A25 - 40	-40 / +130 -40 / +90 **	0.2	-30	101.1	199.8	HB
	CMR free 8804 + 8930	Polyurethane	1:1 mixing ratio, high transparency, low viscosity, UV resistance, CMR-free	transparent	100 : 100	650 - 850	30 - 45	cold curing	1.05 - 1.10	A65 - 75	-40 / +130 -40 / +90 **	0.2	-2	135.3	199.5	HB
	CMR free 8808 + 8930	Polyurethane	high transparency, UL94-V0, low viscosity, UV resistant, CMR-free	transparent	100 : 140	200 - 400	30 - 45	cold curing	1.05 - 1.10	A75 - 85	-40 / +130 -40 / +90 **	0.2	8	124.1	197.5	V0, 4.0 mm
	CMR free 8812 + 8930	Polyurethane	high transparency, high hardness, low viscosity, UV resistant, CMR-free	transparent	100 : 166	850 - 1.250	30 - 45	cold curing	1.05 - 1.10	D68 - 72	-40 / +130 -40 / +90 **	0.2	32	95.1	188.8	HB
Thermal conductivity	7500 + 7920	Epoxy	high thermal conductivity of 1,2W/mK, self-levelling, good chemical resistance, cold curing	black	100 : 8.5	3.000 - 4.000	100	cold curing	1.75 - 1.85	D80	-40 / +165	1.2	70	45	100	V0
	8500 + 8973	Polyurethane	thermal conductivity 1,0W/mK, low viscosity, UL94-V0, low hardness	natural (beige)	100 : 12	1.400 - 2.400	25 - 40	cold curing	1.40 - 1.50	A45 - 55	-40 / +130	1.0	-23	141.5	174.4	V0, 4.0 mm
	8503 + 8901	Polyurethane	thermal conductivity 1,5W/mK, low viscosity, UL94-V0, medium hardness	natural (beige)	100 : 8	5.800 - 6.500	25 - 35	cold curing	2.20 - 2.30	D40 - 50	-50 / +165	1.5	10	72.5	141.7	V0, 1.5 mm
	CMR free 8504 + 8930	Polyurethane	CMR-free, thermal conductivity 1.5 W/mK	natural (cream)	100 : 12	12.000 - 18.000	25 - 35	cold curing	2.30 - 2.40	D40 - 50	-40 / +165	1.5	17	128.6	160.3	HB
	8513 + 8973	Polyurethane	thermal conductivity 2,6W/mK, self-levelling, UL94-V0	natural (beige)	100 : 8	15.000 - 20.000	20 - 40	cold curing	2.20 - 2.30	D30 - 40	-40 / +130	2.6	-23	91.4	129.1	V0, 4.0 mm
	CMR free 8514 + 8930	Polyurethane	CMR-free, thermal conductivity 2.6 W/mK	natural (cream)	100 : 9	60.000 - 75.000	20 - 40	cold curing	2.20 - 2.30	D40 - 50	-40 / +130	2.6	-23	137.9	162.0	HB
	8519 + 8973	Polyurethane	thermal conductivity 3,5W/mK, self-levelling, UL94-V0	natural (beige)	100 : 7	55.000 - 75.000	17 - 25	cold curing	2.10 - 2.20	D20 - 30	-40 / +130	3.5	-8	116.1	157.4	V0, 4.0 mm
	CMR free 8520 + 8930	Polyurethane	CMR-free, thermal conductivity3.5 W/mK	natural (cream)	100 : 9	110.000 - 130.000	25 - 35	cold curing	2.05 - 2.15	D35 - 45	-40 / +130	3.5	-23	156.2	187.9	HB
Thermal pastes + GapFiller	CMR free 8701	1K Paste	thermal conductivity 1,2W/mK, electrically insulating, silicone-free	natural (cream)	-	100.000 - 150.000	-	-	2.20 - 2.40	-	-60 / +140	1.2	-	-	-	-
	CMR free 8702	1K Paste	thixotropic, not drying, thermal conductivity 2,0W/mK, silicone-free, CMR-free	natural (cream)	-	150.000 - 200.000	-	-	2.20 - 2.50	-	-60 / +200	2	-	-	-	-
	CMR free 8704	1K Paste	thermal conductivity 3,5W/mK, high temperature range, silicone-free, CMR-free	natural (cream)	-	200.000 - 250.000	-	-	2.10 - 2.30	-	-60 / +200	3.6	-	-	-	-
	8791 + 8991	Polyurethan	1:1 mixing ratio, good flowability, high thermal conductivity	natural (beige)	100 : 100	40.000 - 55.000	20 - 30	cold curing	1.65 - 1.70	D55 - 60	-40 / +130	1	-22	46.5	141.1	N.A.
	8792 + 8992	Polyurethan	1:1 mixing ratio, gap filling, excellent thermal conductivity	natural (beige)	100 : 100	90.000 - 120.000	20 - 30	cold curing	2.40 - 2.50	A15 - 25	-40 / +130	2.4	-62	29.6	183.4	V0, 4.0mm
	8793 + 8993	Polyurethan	1:1 mixing ratio, easy applicable, unique thermal conductivity	natural (beige)	100 : 100	70.000 - 100.000	20 - 30	cold curing	2.20 - 2.30	A60 - 70	-40 / +130	3	-66	47.2	158.3	V0, 4.0mm

Process and application advice: we are here to support

Application details, technical information and all certificates and specific approvals can be found at **www.kisling.com**

Are you a design engineer or technician and responsible for using adhesives?
We are happy to assist

Contact us on
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Our current terms and conditions apply.
Before using or processing any product, always consult the latest technical data sheet and safety data sheet.

BONDING +
SEALING +
ENCAPSULATION

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08-2022, 4491319