

# 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.





## **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.



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Overview of adhesives and sealants | [www.kisling.com](http://www.kisling.com)

\*\*\* very well suited    \*\* well suited    • moderately suited    — not suited    \* Plastic tend to be sensitive to stress cracking



## Structural Adhesives

### 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**

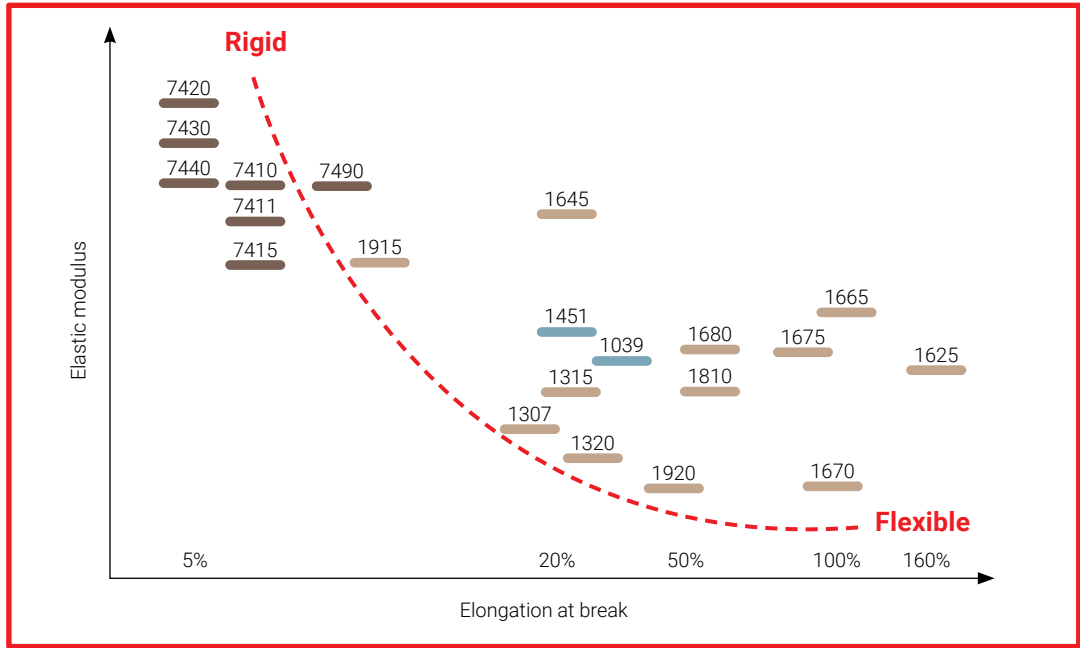
for rapid, high-performance bonding of a wide variety of materials with a balanced stiffness/toughness profile.



**Epoxy Structural Adhesives**

for highly rigid, ageing-resistant bonding of highly stressed components







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<br>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<br>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<br>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                 | ~18              | >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    | 8–10                     | 3–5      | 48             | n.a.                | n.a.             | >22                    | -60 to +145       |
| 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<br>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<br>10 ml, 50 ml                  |
| ...                    | ...       | ...           | –                                | –    | –               | –  | –             | –   | –    | ...              | ..       | –    | Yes       | n.a.           | 50 g, 10 ml<br>50 ml                         |
| ...                    | ...       | ..            | –                                | –    | –               | –  | –             | –   | –    | –                | –        | –    | Yes       | n.a.           | 1 kg<br>1 kg                                 |
| ...                    | ...       | ...           | ..                               | ..   | •               | –  | ..            | •   | ..   | ..               | ..       | ..   | Yes       | n.a.           | 50 ml                                        |
| ...                    | ...       | ...           | ..                               | ..   | •               | –  | ..            | •   | ..   | ..               | ..       | ..   | Yes       | n.a.           | 50 ml                                        |
| ...                    | ...       | ..            | ...                              | ...  | ...             | –  | ...           | ... | ...  | •                | •        | ..   | Yes       | DIN EN 45545-2 | 50 m, 250 ml<br>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,<br>490 ml                     |
| ...                    | ...       | ..            | ...                              | ...  | ...             | –  | ...           | ... | ...  | •                | ...      | •    | No        | n.a.           | 50 ml, 490 ml                                |
| ...                    | ...       | ..            | ...                              | ...  | ...             | –  | ...           | ... | ...  | •                | •        | ..   | Yes       | DIN EN 45545-2 | 50 ml, 250 ml<br>490 ml                      |
| ...                    | ...       | ...           | ...                              | ...  | ...             | –  | ...           | ... | ...  | •                | •        | ..   | No        | n.a.           | 50 ml, 250 ml<br>490 ml                      |
| ...                    | ..        | ..            | ..                               | ..   | •               | •  | •             | •   | •    | ...              | ...      | ..   | No        | n.a.           | 50 ml, 200 ml<br>400 ml                      |
| ...                    | ..        | ..            | •                                | •    | •               | •  | •             | •   | •    | ...              | ...      | ..   | No        | n.a.           | 50 ml, 200 ml,<br>400 ml                     |
| ...                    | ...       | ..            | ...                              | ..   | •               | •  | •             | •   | •    | ...              | ...      | ..   | Yes       | DIN EN 45545-2 | 50 ml, 200 ml<br>400 ml                      |
| ...                    | ...       | ..            | ...                              | ...  | •               | •  | •             | •   | •    | ...              | ...      | ..   | Yes       | DIN EN 45545-2 | 50 ml, 200 ml<br>400 ml                      |
| ...                    | ...       | ..            | ...                              | ..   | •               | •  | •             | •   | •    | ...              | ...      | ..   | Yes       | NSF – S2–S6    | 50 ml, 200 ml<br>400 ml                      |
| ...                    | ...       | ..            | ...                              | ...  | •               | •  | ..            | •   | •    | ...              | ...      | ..   | Yes       | DIN EN 45545-2 | 50 ml, 200 ml<br>400 ml                      |

## 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



Anaerobic Adhesives

|      | Designation                                            | Colour | Viscosity<br>[mPas] | Breakaway torque [Nm]<br>(As per DIN 54454) | Prevailing torque [Nm] | Compressive shear strength [N/<br>mm <sup>2</sup> ] | Max. gap [mm] | Max. thread size | Temperature range [°C] | Final strength at 25°C [h] | Approvals, registrations | Container size<br>Bulk containers on request |
|------|--------------------------------------------------------|--------|---------------------|---------------------------------------------|------------------------|-----------------------------------------------------|---------------|------------------|------------------------|----------------------------|--------------------------|----------------------------------------------|
| 4003 | Screw lock<br>low-strength                             | Purple | ~1000               | >10                                         | >2                     | >10                                                 | 0.2           | M 36             | −55 to +150            | 10                         | 5                        | 50 g                                         |
| 4050 | Screw locking<br>medium-strength                       | Blue   | ~150                | >15                                         | >7                     | >8                                                  | 0.15          | M 12             | −55 to +150            | 10                         | 5                        | 5 g, 50 g                                    |
| 4052 | Screw locking<br>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,<br>250 g, 1 kg             |
| 4100 | Screw lock<br>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<br>high-strength                            | Green  | ~700                | >25                                         | >40                    | >20                                                 | 0.15          | M 25             | −55 to +150            | 10                         | 1, 2, 5                  | 10 g, 50 g,<br>250 g                         |
| 4115 | Screw lock<br>heat-resistant and<br>high-strength      | Red    | ~10,000 tx          | >23                                         | >23                    | >25                                                 | 0.2           | M 36             | −55 to +200            | 24                         | —                        | 50 g, 250 g                                  |
| 4202 | Hydraulic seal<br>medium-strength                      | Brown  | ~600                | >14                                         | >16                    | >8                                                  | 0.15          | ¾"               | −55 to +150            | 6                          | 5                        | 50 g, 250 g                                  |
| 4203 | Hydraulic seal<br>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<br>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<br>universal, medi-<br>um-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<br>high-strength                      | Red    | ~6500               | >25                                         | >35                    | >20                                                 | 0.3           | 2"               | −55 to +150            | 24                         | 1, 2, 5                  | 50 g, 250 g                                  |
| 4212 | Pipe thread sealing<br>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<br>[mPas] | Breakaway torque<br>[Nm] (as per DIN 54454) | Prevailing torque [Nm] | Compressive shear strength<br>[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<br>Bulk containers on request |
|------|------------------------------------------------------------|------------------|---------------------|---------------------------------------------|------------------------|---------------------------------------------------|--------------------------|---------------|------------------|------------------------|----------------------------|--------------------------|----------------------------------------------|
| 4252 | Surface seal<br>low-strength                               | Green            | ~20,000 tx          | >6                                          | >3                     | >4                                                | >2                       | 0.30          | —                | −55 to +150            | 24                         | 1, 2, 5                  | 50g, 250g                                    |
| 4253 | Surface seal<br>universal, medi-<br>um-strength            | Orange           | ~34,000 tx          | >8                                          | >5                     | >5                                                | —                        | 0.50          | —                | −55 to +150            | 24                         | 1, 2, 5                  | 50g, 250g                                    |
| 4254 | Surface seal<br>flexible, medi-<br>um-strength             | Red              | ~250,000 tx         | >18                                         | >10                    | >18                                               | >14                      | 0.50          | —                | −55 to +150            | 72                         | —                        | 50g, 250g                                    |
| 4280 | Surface seal<br>heat-resistant and<br>high-strength        | Red              | ~80,000 tx          | —                                           | —                      | >12                                               | >10                      | 0.50          | —                | −55 to +200            | 12                         | 1, 2                     | 50 g                                         |
| 4430 | Joint<br>high-strength                                     | Green            | ~150                | >25                                         | >40                    | >25                                               | —                        | 0.15          | M 12             | −55 to +150            | 6                          | 1, 2                     | 50g, 250g                                    |
| 4451 | Joint<br>high-strength                                     | Green            | ~2500               | >25                                         | >40                    | >27                                               | —                        | 0.20          | M 36             | −55 to +150            | 4                          | 1, 2                     | 50g, 250g                                    |
| 4453 | Joint<br>heat-resistant and<br>high-strength               | Green            | ~550                | >25                                         | >40                    | >27                                               | —                        | 0.15          | M 20             | −55 to +175            | 4                          | 1, 2, 3,<br>4, 6         | 50g, 250g                                    |
| 4460 | Joint<br>heat-resistant and<br>high-strength               | Green            | ~13,000             | >25                                         | >25                    | >25                                               | —                        | 0.20          | M 36             | −55 to +200            | 24                         | 4                        | 50g, 250g                                    |
| 2453 | UV/Anaerobic<br>joint, heat-resistant and<br>high-strength | Transpar-<br>ent | ~550                | >25                                         | >40                    | >27                                               | —                        | 0.15          | M 20             | −55 to +175            | 4                          | —                        | 50 g                                         |

Auxiliary Products

|      | Designation               | Colour           | Container size<br>Bulk containers<br>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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5 Products without hazard pictograms as per (EC) No. 1272/2008 in section 2.2  
6 WRAS (Water Regulations Advisory Scheme (UK))

# Cyanoacrylate Instant Adhesives

## 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.

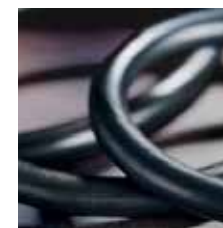
- + Bonding of metal or plastic holders
- + Bonds wood, e.g. for model construction
- + Bonds cork and cardboard



### 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.

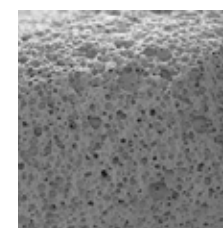
- + Bonding of corner angle and round cord seals
- + Attaching of elastomer seals
- + Bonding of seal profiles of all types



### 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 |
|------|---------------|------------|------------------|-------------------------------------------------------------|------------------------|---------------------|-----|------|--------------------------|-------------------------------------------|
|      |               |            |                  |                                                             |                        | Aluminium           | 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

### 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 engine



#### 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<br>(shear rate 10 s <sup>-1</sup> )<br>[mPas] | Viscosity<br>(shear rate 100 s <sup>-1</sup> )<br>[mPas] | Tensile strength<br>(as per ISO 527-2) | Elongation at break [%]<br>(as per ISO 527-2) | Temperature range [°C] | Skin formation [min] | Density [g/cm3] | Through-curing 24 h<br>at 23°C/50% rH [mm] | Shore A hardness<br>(DIN EN ISO 868) | Approvals, registrations | Container size<br>Bulk containers on request |
|------|------------|------------------------|---------------------------------------------------------|----------------------------------------------------------|----------------------------------------|-----------------------------------------------|------------------------|----------------------|-----------------|--------------------------------------------|--------------------------------------|--------------------------|----------------------------------------------|
| 3110 | black      | Mod. oxime<br>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<br>silicone | 70,000                                                  | 20,000                                                   | 2.0                                    | ~500                                          | -60 to +315            | ~7                   | 1.27            | 2-3                                        | 26                                   | 2                        | 200 ml, 310 ml                               |
| 3130 | Blue       | Mod. oxime<br>silicone | 70,000                                                  | 20,000                                                   | 2.0                                    | ~500                                          | -60 to +260            | ~7                   | 1.27            | 2-3                                        | 30                                   |                          | 200 ml                                       |
| 3140 | Colourless | Mod. oxime<br>silicone | 20,000                                                  | 8000                                                     | 1.0                                    | ~400                                          | -60 to +260            | ~7                   | 1.00            | 2-3                                        | 15                                   |                          | 200 ml                                       |
| 3160 | Grey       | Mod. oxime<br>silicone | 70,000                                                  | 20,000                                                   | 2.0                                    | ~500                                          | -60 to +260            | ~7                   | 1.22            | 2-3                                        | 30                                   |                          | 200 ml, 310 ml                               |

APPROVALS:  
2 NSF – S2-S6 Non-direct food contact (NSF-Registered Proprietary Substances and Nonfood Compounds)

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 1:2         | Type 4472300 |
| 250 ml                                                                                                                             | Double cartidges 10:1                  | Type 4472302 |
| 400 ml                                                                                                                             | Double cartridges 1:1 and 2:1          | 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 |



BONDING +  
SEALING +  
ENCAPSULATION

| 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 |



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

**Kisling**

## 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

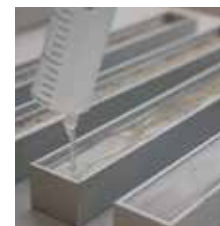
- + Charging handle
- + Power electronics in charging station
- + Cable and connector



### 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



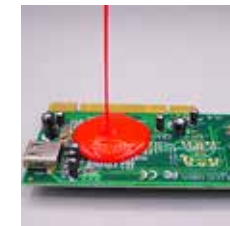
### PASSIVE COMPONENTS

- + 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

| Product family                      | Product number                   | Product Technology         | Description                                                                        | Colour                     | Mixing ratio | Viscosity @ 22°C     |
|-------------------------------------|----------------------------------|----------------------------|------------------------------------------------------------------------------------|----------------------------|--------------|----------------------|
|                                     |                                  |                            |                                                                                    |                            | W:W          | mPas                 |
| Insulation /<br>Flame<br>protection | <b>CMR free*</b><br>7390         | Epoxy                      | Transparent, low viscosity, high Tg, low CTE, CMR-free*                            | transparent                | 100 : 25     | 450 - 550            |
|                                     | <b>CMR free*</b><br>7610         | Epoxy                      | transparent, medium viscosity, fast curing, CMR-free*                              | transparent /<br>yellowish | 100 : 96.3   | 8.000 - 11.000       |
|                                     | <b>CMR free*</b><br>7611         | Epoxy                      | black, medium viscosity, fast curing, CMR-free*                                    | black                      | 100 : 96.2   | 8.000 - 11.000       |
|                                     | 8600 + 8901                      | Polyurethane               | low TG, low viscosity, low hardness                                                | brown transparent          | 100 : 26     | 300 - 700            |
|                                     | 8601 + 8973                      | Polyurethane               | very low TG, temperature range up to +130 °C,<br>rubber elastic, low viscosity     | black                      | 100 : 20     | 1.800 - 2.400        |
|                                     | 8605 + 8973                      | Polyurethane               | low viscosity, UL94-V0, low hardness                                               | natural (beige)            | 100 : 15     | 900 - 1.300          |
|                                     | 8610 + 8901                      | Polyurethane               | high temperature range, medium hardness, UL94 V0                                   | black                      | 100 : 14     | 3.500 - 4.500        |
|                                     | <b>CMR free*</b><br>8610C + 8930 | Polyurethane               | wide temperature range, medium hardness, UL94-V0, CMR-free*                        | black                      | 100 : 20     | 2.500 - 4.500        |
|                                     | 8612 + 8901                      | Polyurethane               | allrounder, low viscosity, medium hardness, UL94-V0                                | natural (beige)            | 100 : 20     | 1.200 - 1.800        |
|                                     | <b>CMR free*</b><br>8612C + 8930 | Polyurethane               | low viscosity, medium hardness, UL94-V0, CMR-free*                                 | natural (creme)            | 100 : 25     | 1.200 - 1.800        |
|                                     | 8615 + 8901                      | Polyurethane               | high TG, low viscosity, excellent chemical resistance, low density                 | natural (beige)            | 100 : 50     | 600 - 800            |
|                                     | 8616 + 8973                      | Polyurethane               | high TG, fast curing time, low viscosity,<br>excellent chemical resistance         | natural (beige)            | 100 : 43     | 350 - 450            |
| Transparency                        | <b>CMR free*</b><br>8800 + 8930  | Polyurethane               | high transparency, UV resistant,<br>low hardness, high elongation, CMR-free*       | crystal clear              | 100 : 60     | 700 - 900            |
|                                     | <b>CMR free*</b><br>8804 + 8930  | Polyurethane               | 1:1 mixing ratio, high transparency,<br>low viscosity, UV resistance, CMR-free*    | crystal clear              | 100 : 100    | 650 - 850            |
|                                     | 8808 + 8930                      | Polyurethane               | high transparency, UL94-V0, low viscosity, UV resistant                            | transparent                | 100 : 140    | 200 - 400            |
|                                     | 8812 + 8930                      | Polyurethane               | high transparency, high hardness, low viscosity, UV resistant                      | transparent                | 100 : 166    | 850 - 1.250          |
| Thermal<br>conductivity             | 8500 + 8973                      | Polyurethane               | thermal conductivity 1,0W/mK, low viscosity, UL94-V0, low hardness                 | natural (beige)            | 100 : 12     | 1.400 - 2.400        |
|                                     | 8503 + 8901                      | Polyurethane               | thermal conductivity 1,5W/mK, low viscosity, UL94-V0, medium<br>hardness           | natural (beige)            | 100 : 8      | 8.500 - 12.500       |
|                                     | <b>CMR free*</b><br>8504 + 8930  | Polyurethane               | thermal conductivity 1.5 W/mK, CMR-free*                                           | natural (cream)            | 100 : 12     | 12.000 - 18.000      |
|                                     | 8513 + 8973                      | Polyurethane               | thermal conductivity 2,6W/mK, self-levelling, UL94-V0                              | natural (beige)            | 100 : 8      | 15.000 - 35.000      |
|                                     | <b>CMR free*</b><br>8514 + 8930  | Polyurethane               | thermal conductivity 2.6 W/mK, CMR-free*                                           | natural (cream)            | 100 : 9      | 60.000 - 70.000      |
|                                     | 8519 + 8973                      | Polyurethane               | thermal conductivity 3,5W/mK, self-levelling, UL94-V0                              | natural (beige)            | 100 : 7      | 60.000 - 100.000     |
|                                     | <b>CMR free*</b><br>8520 + 8930  | Polyurethane               | thermal conductivity3.5 W/mK, CMR-free*                                            | natural (cream)            | 100 : 9      | 110.000 -<br>130.000 |
| Thermal pastes<br>+<br>GapFiller    | <b>CMR free*</b><br>8701         | Polyurethane<br>(1K Paste) | thermal conductivity 1,2W/mK, electrically insulating,<br>silicone-free, CMR-free* | natural (cream)            | -            | 100.000 -<br>150.000 |
|                                     | <b>CMR free*</b><br>8702         | Polyurethane<br>(1K Paste) | thixotropic, not drying,<br>thermal conductivity 2,0W/mK, silicone-free, CMR-free* | natural (cream)            | -            | 150.000 -<br>200.000 |
|                                     | <b>CMR free*</b><br>8704         | Polyurethane<br>(1K Paste) | thermal conductivity 3,5W/mK,<br>high temperature range, silicone-free, CMR-free*  | natural (cream)            | -            | 200.000 -<br>250.000 |

| Pot life           | Curing conditions | Density<br>(calculated) | Shore hardness | Operational<br>temperature range | Thermal<br>conductivity | Glass<br>transition<br>temperature | CTE < Tg | CTE > Tg | UL94       |
|--------------------|-------------------|-------------------------|----------------|----------------------------------|-------------------------|------------------------------------|----------|----------|------------|
| min.               |                   | g/cm3                   |                | °C                               | W/mK                    | °C                                 | ppm/K    | ppm/K    |            |
| 45                 | cold curing       | 1.13                    | D85            | -40 / +180                       | 0.2                     | 97                                 | 50       | 80       | N.A.       |
| 3.5                | cold curing       | 1.15                    | D75            | -60 / +100                       | 0.18                    | 52                                 | 52       | 215      | N.A.       |
| 3.5                | cold curing       | 1.15                    | D75            | -60 / +100                       | 0.2                     | 52                                 | 52       | 215      | N.A.       |
| 25 - 35            | cold curing       | 1.00 - 1.10             | A20 - 30       | -60 / +110                       | 0.2                     | 0.2                                | 274.3    | 244.6    | HB         |
| 25 - 35            | cold curing       | 0.95 - 1.00             | A25 - 35       | -80 / +130                       | 0.3                     | -69.1                              | 101.4    | 222.4    | HB         |
| 25 - 35            | cold curing       | 1.40 - 1.50             | A65 - 75       | -40 / +130                       | 0.5                     | -29.4                              | 96.9     | 188.9    | V0, 4.0 mm |
| 18 - 25            | cold curing       | 1.50 - 1.60             | D45 - 55       | -55 / +165                       | 0.6                     | -2                                 | 97.5     | 167.0    | V0, 1.5 mm |
| 15 - 25            | cold curing       | 1.45 - 1.50             | D35 - 45       | -55 / +165                       | 0.6                     | -26                                | 78.6     | 136.3    | V0, 1.5 mm |
| 15 - 25            | cold curing       | 1.60 -1.70              | D50 - 60       | -40 / +130                       | 0.6                     | 12                                 | 63.9     | 155.8    | V0, 1.5 mm |
| 15 - 25            | cold curing       | 1.45 - 1.55             | D30-40         | -40 / +130                       | 0.6                     | -25                                | 135.4    | 153.4    | V0, 4.0 mm |
| 25 - 35            | cold curing       | 1.20 - 1.25             | D80 - 85       | -40 / +130                       | 0.3                     | 50                                 | 81.9     | 188.3    | HB         |
| 7 - 12             | cold curing       | 1.35 - 1.40             | D85 - 90       | -40 / +130                       | 0.7                     | 56                                 | 47.1     | 143.4    | V0, 4.0 mm |
| 30 - 45            | cold curing       | 1.05 - 1.10             | A25 - 40       | -40 / +130<br>-40 / +90 **       | 0.2                     | -30                                | 101.1    | 199.8    | HB         |
| 30 - 45            | cold curing       | 1.05 - 1.10             | A58 - 68       | -40 / +130<br>-40 / +90 **       | 0.2                     | -2                                 | 135.3    | 199.5    | HB         |
| 30 - 45            | cold curing       | 1.05 - 1.10             | A75 - 85       | -40 / +130<br>-40 / +90 **       | 0.2                     | 8                                  | 124.1    | 197.5    | V0, 4.0 mm |
| 30 - 45            | cold curing       | 1.05 - 1.10             | D68 - 72       | -40 / +130<br>-40 / +90 **       | 0.2                     | 32.2                               | 95.1     | 188.8    | HB         |
| 25 - 40            | cold curing       | 1.40 - 1.50             | A45 - 55       | -40 / +130                       | 1.0                     | -23                                | 141.5    | 174.4    | V0, 4.0 mm |
| 25 - 35            | cold curing       | 2.20 - 2.30             | D50 - 60       | -50 / +160                       | 1.5                     | 10                                 | 72.5     | 141.7    | V0, 4.0 mm |
| 10 - 30            | cold curing       | 2.30 - 2.40             | D40 - 50       | -40 / +130                       | 1.5                     | 17                                 | 128.6    | 160.3    | HB         |
| 10 - 30            | cold curing       | 2.20 - 2.30             | D40 - 50       | -40 / +130                       | 2.6                     | -23                                | 91.4     | 129.1    | V0, 4.0 mm |
| 20 - 40            | cold curing       | 2.20 - 2.30             | D40 - 50       | -40 / +130                       | 2.6                     | -23                                | 137.9    | 162.0    | V0, 4.0 mm |
| 17 - 25            | cold curing       | 2.10 - 2.20             | D20 - 30       | -40 / +130                       | 3.5                     | -8                                 | 131.5    | 157.4    | V0, 4.0 mm |
| 15 - 25 at<br>40°C | cold curing       | 2.05 - 2.15             | D35 - 45       | -40 / +130                       | 3.5                     | -23                                | 156.2    | 187.9    | HB         |
| -                  | -                 | 2.25 - 2.55             | -              | -60 / +140                       | 1.2                     | -                                  | -        | -        | -          |
| -                  | -                 | 2.20 - 2.50             | -              | -60 / +200                       | 2.0                     | -                                  | -        | -        | -          |
| -                  | -                 | 2.10 - 2.30             | -              | -60 / +200                       | 3.6                     | -                                  | -        | -        | -          |



# 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](http://www.kisling.com)

**Are you a design engineer or technician and responsible for using adhesives?**

We are happy to assist

Contact us on

**+41 58 272 02 72** or

**+49 7940 50961 61** or via

**[info@kisling.com](mailto:info@kisling.com)**

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Before using or processing any product, always consult the latest technical data sheet and safety data sheet.

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