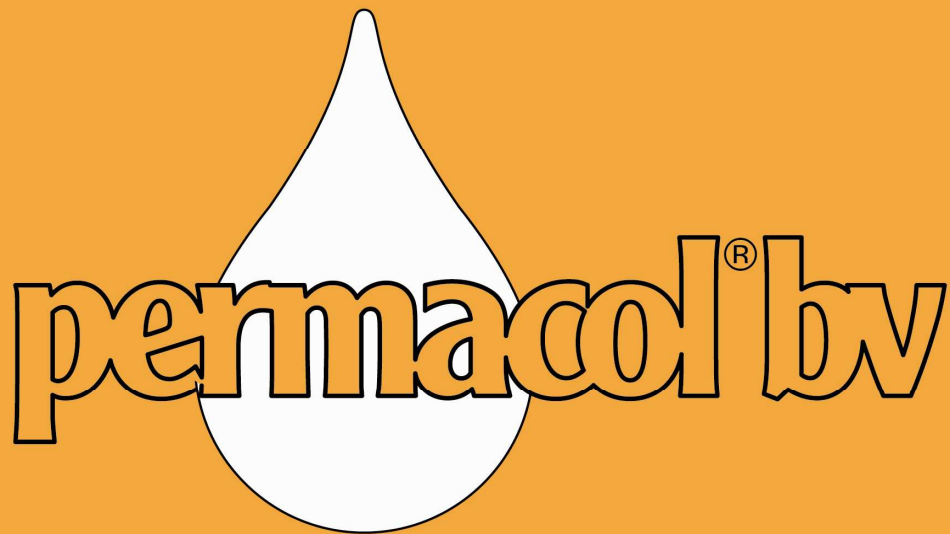


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1. 2- component Epoxy Adhesive

PERMACOL® 2- component epoxy adhesives cure at room temperature. Properties: cold curing ▪ very strong ▪ good resistance to moisture ▪ good chemical resistance ▪ temperature resistant - 50°C till + 130°C. Several possibilities regarding: ▪ colour ▪ viscosity ▪ pot life ▪ curing time ▪ different (big) packaging. Suitable for: ▪ metals powder coated also, zined or galvanized ▪ glass ▪ ceramic ▪ wood ▪ rigid plastics.

Product	Article.	Content	Packaging
2205 A/B STANDARD EPOXY	1110-0030	30 ml	Dual syringe
	1110-0050	50 ml	Dual syringe
	1110-0400	400 g	Dual syringe
	1110-1000	2 x 0,5kg	Set tins
	1110-2000	2 x 1,0kg	Set tins
2240 A/B FAST EPOXY	1115-0025	25 ml	Dual syringe
	1115-0030	30 ml	Dual syringe
	1115-0050	50 ml	Dual syringe
2242 A/B	1100-0050	50 ml	Dual syringe
	1100-0400	400 ml	Dual syringe
	1100-1000	2 x 0,5kg	Set tins
	1100-2000	2 x 1,0kg	Set tins
2245 A/B FILLED EPOXY	1117-0600	400 ml	Dual syringe
2230 A/B FLEXIBLE EPOXY	1114-0050	50 ml	Dual syringe
2250 A/B FILLED EPOXY	1120-0080	50 ml	Dual syringe
	1120-0400	400 ml	Dual syringe
	1120-1000	2 x 0,5kg	Set tins
	1120-2000	2 x 1,0kg	Set tins
AGOMET P 79 A/B	1165-0050	50 ml	Dual syringe
	1165-0080	80 ml	Dual syringe
	1165-0330	200 ml	Dual syringe
	1165-0660	400 ml	Dual syringe
TRA-BOND 2151	1195-0003	3g	Bi-Pax
	1195-0040	40g	Bi-Pax

Table 1: technical information PERMACOL[®] 2-component epoxy – adhesive:

Type	Application	Viscosity (23°C)	Colour (Mixture)	Pot life(20°C)	Curing time (20°C)
2205 A/B	Universal adhesive, repairing and filling or: metals, ceramics, stone ware, stone, crystal, stones and several rigid plastics.	10.000 mPa·S mixture	transparent yellow	2 – 3h	24 - 48 Std. (Setting time: ca. 12h)
2240 A/B	Very fast 5 min. epoxy. Materials: see type 2205.	13.000 mPa·S mixture	clear transparent	2 – 4min.	12h (Setting time: ca. 10min.)
2242 A/B	Fast 5min. epoxy. Materials: See type 2205.	10.000 mPa·S mixture	clear transparent	5 – 10min.	12h (Setting time: ca. 20min.)
2245 A/B	Filled, fast, strong adhesive. Hardness 80°Shore D, gap filling and shock resistant. Materials: See type 2205 A/B	20.000 mPa·s mixture	transparent	5 – 10min.	12 h (Setting time: Ca. 10min.)
2230 A/B	Fast Flexible Epoxy.	20.000 mPa·S Mixture	Yellow	5 - 10 Min.	24 h
2250 A/B	Filled, fast universal adhesive. Flexible, gap filling, and shock resistant. Materials: see type 2205.	80.000 mPa·S paste mixture	Light grey	5 – 10min.	12h (Setting time: ca. 20min.)
AGOMET P 79 A/B	Filling, thicker paste version of P 76 A/B. See type P 76 A/B.	120.000 mPa·S	Grey green	40 – 60min.	17h (Setting time: 5h)
TRA-BOND 2151	Meets NASA out gassing Specs. Heat conducting and electrical isolating.	Thixotrope – paste	Blue	45min.	24h(Setting time: 5h)

2.1 2- Component Polyurethane Adhesive

PERMACOL[®] 2- component adhesive for: plastics, metals and wood.

Properties: ▪ universal ▪ relatively flexible ▪ resistant to temperature shock ▪ good temperature resistance
▪ see water resistant (5133 & 5134) ▪ easy and in large quantities workable ▪ resistant to high differences in expansion coefficients.

Product	Article	Content	Packaging
5128 A/B FAST PU	2312-0025	25 ml	Dual syringe
	2312-0050	50 ml	Dual syringe
5133 A/B	2323-1250	1,25kg	Tin + flask
	2323-6000	6kg	Tin + flask
5134 A/B	2324-1200	1,2kg	Tin + flask
	2324-7500	7,5kg	2 tins
5192 A/B	2345-0050	50 ml	Dual syringe
5193 A/B	2346-0050	50 ml	Dual syringe
5196/7 A/B	2341-0200	200ml	Dual syringe
	2341-0400	400ml	Dual syringe
5198/7 A/B	2330-0200	200ml	Dual syringe
	2330-0400	400ml	Dual syringe

Table 2.1: technical information Permacol[®] 2-component Polyurethane adhesives

Type	Application	Viscosity (20°C)	Pot life	Curing time (20°C)
5128 A/B	Thixotrope, odourless transparent 2c- adhesive, which cures very quickly. Usable for structural connection of different materials like thermoplastics material, temperature cured plastics, steel, aluminium, cement wood, glass	50.000 mPa·s	5 min	3h
5133 A/B	Water resistant, solvent free construction adhesive. Usable as casting resin on to glue wood, plastics, concrete, metals, P.S. and polyurethane foam. Colour brown.	7.500 mPa·s	1h	24 h (Setting time ca. 4h)
5134 A/B	Filling thixotrope version of 5133 with high wet shear strength and therefore extra suitable for vertical applications like walls and sandwich panels. Colour brown.	Thixotrope	45 min	24h (Setting time: ca. 2 h)
5192 A/B	Fast clear adhesive for (also) clear plastics and wood. Also available in different colours, viscosity and packaging.	8.000 mPa·s	20 – 30min	24 h (Setting time: ca. 3h)
5193 A/B	Filled, thixotropic version of 5192 A/B	Thixotrope	See 5192	See type 5192
5196/7 A/B	Light filled system for structural connection of different materials as (natural) stone, metals, plastics, mineral surface, fire retardant construction plating.	9.000 mPa·s	7 min	24h (Setting time :ca. 30-45min)

Type	Application	Viscosity (20°C)	Pot life (20°C)	Curing time (20°C)
5196/7 A/B	The adhesive connection is weather and temperature resistant and therefore suitable for outside application. Cures fast, almost free of shrinkage, even thick layers, solvent free and paintable.	9.000 mPa.s	7 min	24h (Setting time :ca. 30-45min)
5198/7 A/B	Highly filled system, see type 5196/7. It is possible to speed up curing time.	Thixotrope	7 min	24 h (Setting time: ca. 30min)

2.2 1-Component Polyurethane Adhesive

PERMACOL® 1-component- adhesive cures with humidity at room temperature.

Properties: ▪ slightly foaming ▪ good resistance to moisture ▪ relatively fast curing ▪ suitable for small surfaces or large surfaces if they are moist enough ▪ temperature resistant -40°C till +90°C. Suitable for: ▪ wood ▪ rubber ▪ plastics ▪ metal ▪ stone.

Product	Article	Content	Packaging
---------	---------	---------	-----------

5663	2103-0330	310 ml	Cartridge
	2103-0750	750 ml	Flask
	2103-1000	1 kg	Tin
	2103-9913	10 liter	Can

Table 2.2: technical information PERMACOL® 1-component polyurethane adhesive

Type	Application	Viscosity (23°C)	Pot life (55%r.h.)	Curing time (55%r.h.)
5663	Water resistant, for wood, several constructional applications.	7.000 mPa.s	20 – 60 min.	24 – 48 h

3.1 Polyurethane- Casting resin

PERMACOL® - casting resins to cast electrical systems, curing at room temperature.

Properties ▪ excellent electric isolating ▪ to be coloured ▪ easy to use ▪ suitable for dosage installation ▪ temperature resistant -40°C till +110°C ▪ good moist resistant..

Available with different hardness.

<u>Product</u>	<u>Article</u>	<u>Content</u>	<u>Packaging</u>
5260/2 A/B	2380-1300	1,3kg	Bucket + Flask
UNIVERSAL	2380-9913	13kg	Bucket + Flask
	2380-9939	39kg	Bucket + Can
5260/3 A/B	2382-1200	1,2kg	Tin + Flask
5277 A/B	2386-1200	1,2kg	Tin + Flask
Flame retardant	2386-9912	12kg	Bucket + Flask
5280 A/B	2389-1300	1,3kg	Tin + Flask
Coloured black	2389-9913	13kg	Bucket + Can
	2389-9939	39kg	Bucket + Can
5290 A/B	2391-1300	1,3kg	Tin + Flask

CRYSTAL CLEAR, UV-RESISTANT!

5450 A/B	2467-0400	400 ml	Dual syringe
SOFT	2467-5000	5000 ml	Jerrycan
5435 A/B	2466-5000	5000 ml	Jerrycan
MIDDLE			

Table 3.1: technical information PERMACOL® Polyurethane casting resin

Type	Application	Viscosity (23°C)	Ratio A : B	Hardness (Shore)	Pot life (20°C)	Curing time (20°C)
5260/2 A/B	Universal casting resin for electrical and mechanical components. Colour: grey green.	2.500 mPa·s	100:30	55 D	30 min	24 h
5260/3 A/B	See type 5260/2	3.000 mPa·s	100:20	80 A	60 min	48 h
5280 A/B	Black casting resin See type 5260/2.	2.500 mPa·s	100:30	85 A	30 min	24 h
5290 A/B	Black, thixotrope reading of type 5260/2.	Thixotrope	100:30	55 D	30 min	24 h
5450 A/B	Crystal clear casting resin UV- and see water++ resistant Soft	600 mPa·s	100:100	70 A	15 min	24 h
5435 A/B	See 5450 A/B. Middle	550 mPa·s	100:150	45 D	30 min	24 h
<p>PERMACOL® polyurethane casting resins are:</p> <ul style="list-style-type: none"> • FLEXIBLE and therefore good resistant to vibration and shock. • Available in different COLORS, VISCOSITY, POT LIFE, CURING TIME and HARDNESS. 						

3.2 Epoxy Casting Resin

PERMACOL® Casting resins are casting resins to fill / protect optical and /or electric technical systems, which cure at room temperature. Properties: ▪ optical clear ▪ also available in different colours ▪ excellent electrical properties ▪ available in different hardness ▪ easy to use ▪ suitable for dosage machine ▪ harder than polyurethane ▪ temperature resistant - 40°C till + 130°C.

Product	Article	Content	Packaging
2163 A/B	1822-0225	210 ml	Dual syringe
	1822-1500	1,5kg	Tin + Flask
2175 A/B	1830-1300	1,3kg	Tin + Flask
2177 A/B	1832-1150	1,15kg	Tin + Flask
2180 A/B	1834-1125	1,125kg	Tin + Flask

Table 3.2: technical information PERMACOL® Epoxy casting resin

Type	Application	Viscosity (23°C)	Ratio A : B	Hardness (Shore)	Pot life (20°C)	Curing time (20°C)
2163 A/B	Slightly yellowish transparent not filled thin casting resin, also to inject.	400 mPa·s	100:50	80 D	Ca. 30min.	24h
2175 A/B	Flexible, transparent casting resin.	600 mPa·s	100:30	90 A	Ca. 2h	24h
2177 A/B	Filled tough elastic casting resin	1.400 mPa.s	100:15	95 A 50 D	Ca. 2h	Ca. 24h
2180 A/B	Heat conductive casting resin.	10 Pa.s	100:15	87 D	30 min.	24-48h

PERMACOL® Epoxy casting resins are:

- **EXOTHERM**, therefore the quantity to be mixed can not be more than 2kg
- Available in several COLOURS, VISCOSITY, HARDNESS, POT LIFE and CURING TIME.

3.3 Silicon Casting Resin

Permacol[®] silicon casting resin cures at room temperature (RTV). Applications: producing of casting mould, cast different components. Properties: ▪ very flexible ▪ high standard rubber ▪ good pourable ▪ very slow curing ▪ fast curing with high temperature ▪ temperature resistant -60°C till + 250°C ▪ available in different colours.

Product	Article	Content	Packaging
615 A/B FDA <i>Transparent or red or white</i>	3560-0035	37 ml	Dual syringe
	3560-1100	1,1 kg	Tin + flask
	3560-5000	5 kg	Tins
630 A/B	3590-0044	37 ml	Dual syringe
	3590-1100	1,1 kg	
664 A/B	3620-0044	37 ml	Dual syringe
	3620-1100	1,1 kg	Tin + Flask

Table 3.3: technical information Silicon casting resin

Type	Application	Viscosity (23°C)	Ratio A : B	Hardness (SHORE)	Pot life (20°C)	Curing time (20°C)
615 A/B	Transparent casting resin to cast solar cells and electro technical applications, if component identification is desired. FDA approved	3.500 mPa·s	100:10	50 °A	Ca. 4h	6 days
630 A/B	Moulds for reproduction of small components. Casting of electronics. (Colour: blue)	150 Pa·s	100:10	70 °A	Ca. 4h	6 days
664 A/B	See type 630.	110 Pa·s	100:10	60 °A	Ca. 3h	6 days
<p>Silicone casting resins are</p> <ul style="list-style-type: none"> • FLEXIBE, therefore they own good resistance to vibration and shock. • Fast curing with temperature: <ul style="list-style-type: none"> 25°C : 6 days 65°C : 4 h 100°C : 1 h 125°C : 45 min 150°C : 15 min 						

4.1 SMD - Adhesives

PERMACOL® SMD (Surface Mount Device) Adhesive: thixotrope, 1-component epoxy adhesive to set SMD components to print boards. Properties: ▪ easy to dispense and print ▪ fast curing
 ▪ good rheological properties ▪ no threat drawing. Curing at 125°C in 6-7 min. ('X'- series) or 2-3 min. ('Z'- series). Adhesives of the Z-series change colour during curing. Different packaging and cartridge possible.

Product	Article	Content	Packaging
2032X1/5W	1013-0005	5ml	Syringe
	1013-0010	10ml	Syringe
	1013-0030	30ml	Syringe
2032X1/15W	1016-0005	5ml	Syringe
	1016-0010	10ml	Syringe
	1016-0030	30ml	Syringe
2032X1/25W	1019-0100	100g	Pot
	1019-0360	360g	EURO cartridge
	1019-0500	500g	Pot
2035E/5R	1040-0005	5ml	Syringe
	1040-0010	10ml	Syringe
	1040-0030	30ml	Syringe
2035Z/10R	1035-0005	5ml	Syringe
	1035-0010	10ml	Syringe
	1035-0030	30ml	Syringe
2035Z/15R	1036-0005	5ml	Syringe
	1036-0010	10ml	Syringe
	1036-0030	30ml	Syringe
2035Z/25R	1037-0005	5ml	Syringe
	1037-0010	10ml	Syringe
	1037-0030	30ml	Syringe
2035Z/30G	1038-0360	360g	EURO cartridge
2035Z/40G	1041-0360	360g	EURO cartridge

4.2 1-Komponent Epoxy Adhesives

PERMACOL® 1-component Epoxy Adhesive is a system which includes a latent hardener in the resin. The hardener gets active by heat and curing takes place in a short amount of time. Properties: ▪ fast curing ▪ very strong ▪ long pot life ▪ possible to make modifications regarding viscosity, colour ▪ resistant to moisture ▪ temperature resistance - 50°C tot + 180°C. Better temperature resistance (up to 250°) possible for a short time. Suitable: ▪ steel ▪ aluminium ▪ ceramics ▪ stone ▪ glass ▪ rigid plastics.

Product	Article	Content	Packaging
2032	1003-0500	500g	Tin
	1003-1000	1kg	Tin
2032/651	1004-0500	500g	Tin
	1004-1000	1kg	Tin
2032BT/2	1005-0010	10g	EFD syringe
	1005-0030	30g	EFD syringe
	1005-0500	500g	Tin
	1005-1000	1kg	Tin

Table 4.2: technical information PERMACOL® SMD- and 1- component Epoxy adhesives

Type	Application	Viscosity Pa.S (23°C) Shear rate 30/sec.	Colour	Colour after curing	Green strength(Pa Bingham)	Curing time (min at 125°C)
2032X1/5	Generally usable. SMD adhesive. Dispensing	35	White	White	650	6 – 7
2032X1/15	Adhesive for bigger components as IC's, flat pack and so on. Dispensing / screen-printing	50	White	White	1.150	6 – 7
2032X1/25	Screen printing / flood printing	65	White	White	1.350	6 – 7
2035E/5	Dosage at room temperature. High speed dispensing	45	Red	Dark brown	900	2 – 3
2035Z/10	Universally usable for dispensing	45	Red	Dark brown	750	2 – 3
2035Z/15	Adhesive for large components as ICs, flat pack and so on. Dispensing / screen-printing	65	Red	Dark brown	1.200	2 – 3
2035Z/25	Screen printing	80	Red	Dark brown	1.500	2 – 3
2035Z/30	Screen and floodprinting	130	Yellow	Orange brown	1.000	2 – 3
2035Z/40	Screen printing	90	Yellow	Orange brown	1.900	2 - 3

PERMACOL® 1-component epoxy- and SMD adhesives need to be stored cold: 5°C

5 Electric- and heat conductive Lacquers and Adhesives

PERMACOL® electric conductive lacquer.

Properties: ▪ silver filled ▪ good resistance to temperature and chemicals. Applications:

▪ apply thin layers to earthen / discharge of statically energy ▪ graphite kernel ▪ repair of printed electric path.

PERMACOL® electrical and heat conductive adhesives and casting resins.

The 1-component systems need to be cured thermally.

Application: replacing solder ▪ applications where fast curing is wanted ▪ mounting components.

2-component systems are cold curing and may be cured faster with higher temperatures.

Application: ▪ Replacing solder on foil ▪ flexible applications ▪ all applications where high temperatures are unwanted.

Electric conductive adhesives are heat conductive as well.

<u>Product</u>	<u>Article</u>	<u>Content</u>	<u>Packaging</u>
1815/2	0401-0050	50g	Glass pot
1828 A/B	0405-0130	130g	Flask + pot
2369/2	0431-0035	35g	10 ml EFD syringe
	0431-0050	50g	Glass pot
	0431-0100	100g	Pot
2369/10	0435-0035	35g	10 ml EFD syringe
	0435-0050	50g	Glass pot
	0435-0100	100g	Pot
8845/3	0440-0017	17g	5 ml EFD syringe
	0440-0035	35g	10ml EFD syringe
	0440-0050	50g	30ml Glass pot
8860	0450-0035	35g	10ml EFD syringe
2805 A/B	0470-0040	40g	2 pots
2810 A/B	0472-0040	2x20g	2 pots
	0472-0100	2x50g	2 pots
2835 A/B	0476-0100	2x50 g	2 pots
2855 A/B	0480-0040	2x20g	2 pots
	0480-0200	2x100g	2 pots
2860 A/B	0485-0150	150g	2 pots
2505	0489-0030	30 ml	EFD syringe
2510 A/B	0490-0104	50 ml	Dual syringe
2520 A/B	0491-1300	1,3 kg	2x Can

Table 5: technical information PERMACOL® electric- and heat conductive lacquer & adhesives

Type	Basic	1 or 2 component	Viscosity Pa.s / 23°C	Spec. resistance	Pot life	Curing time
1815/2 (LACQUER)	Alkyd	1	4	<10x10 ⁻⁴ Ω.cm	15min/23°C	24h / 20°C
1828 A/B (LACQUER)	Epoxy	2 (100:55)	0,2	< 5x10 ⁻⁴ Ω.cm	1-2 h/23°C	48h / 20°C
2369/2	Epoxy	1	30	< 3x10 ⁻⁴ Ω.cm	n. a.	6min./125°C
2369/10	Epoxy	1	90	< 3x10 ⁻⁴ Ω.cm	n. a.	6min./125°C
8845/3	Acrylat	1	5 – 7	< 3x10 ⁻⁴ Ω.cm	n. a.	20min./150°C
8860	Acrylic	1	30	< 3x10 ⁻⁴ Ω.cm	n. a.	2h / 95°C
2805 A/B	Epoxy	2 (100:40)	60	<10x10 ⁻⁴ Ω.cm	2 h/23°C	48h / 20°C
2810 A/B	Epoxy	2 (100:100)	20	< 5x10 ⁻⁴ Ω.cm	2 h/23°C	48h / 20°C
2835 A/B	Epoxy	2 (100:100)	20	< 3x10 ⁻³ Ω.cm	2 h/23°C	48 h / 20°C
2855 A/B Graphite	Epoxy	2 (100:100)	80	< 4 Ω.cm	2 h/23°C	48h / 20°C
2860 A/B	Epoxy	2 (100:50)	20	< 5x10 ⁻⁴ Ω.cm	8 h/23°C	72h / 20°C

Heat conductive adhesives and casting resin

Type	Basic	1 of 2 component	Viscosity Pa.s / 23°C	Spec resistance	Heat conductivity W/m.K	Curing time
2505	Epoxy	1	100	> 1x10 ¹⁴ Ω.cm	1,20	3min/150°C or 15min/100°C
2510	Epoxy	2	22 / 170	> 1x10 ¹⁴ Ω.cm	> 1	60 minutes Use 4 hours Cure
2520	Epoxy	2	2,5	> 1x10 ¹⁴ Ω.cm	> 1	30 minutes Use 24 hours cure

6 U.V. (Ultra Violet)-Adhesives

PERMACOL® UV- adhesives cure under influence of ultraviolet light (320-400 nm), UVA light. At least one of the two materials has to transmit UV light. Properties: ▪ 1-component ▪ cures very fast after positioning ▪ transparent ▪ solvent free ▪ temperature resistant -20°C till +100°C.

UV-389-serie is also suitable as coating or casting resin.

Application: ▪ Glass ▪ Acrylic glass ▪ metals ▪ clear plastics.

Product	Article	Content	Packaging
UV 310	0331-0030	30 ml	EFD syringe
	0331-0100	100g	Flask
UV 325	0300-0100	100g	Flask
	0300-0500	500g	Flask
UV 328/11	0301-0100	100g	Flask
UV 370/2	0315-0100	100g	Flask
UV 370/5	0320-0100	100g	Flask
	0320-0500	500g	Flask
UV 389/3	0345-0100	100g	Flask
	0345-0500	500g	Flask
UV 389/4	0347-0100	100g	Flask
	0347-0500	500g	Flask
UV 389/10	0350-0100	100g	Flask
	0350-0500	500g	Flask
UV 389/21	0351-0100	100g	Flask
UV 424	0383-0030	30ml	EFD syringe
	0383-0100	100g	Flask
UV 422	0382-0030	30ml	EFD syringe
	0382-0100	100g	Flask

Permacol® UV-adhesives are available in several syringes / cartridges and large packaging!

UV-apparatus for our UV adhesives is available. Information regarding products and prices will be given by our co-workers.

Table 6: technical information Permacol® UV- adhesives

Type	Application	Base	Viscosity (23° C)	Refractive index n^D_{20}
UV 310	Very thin adhesive with capillary effect.	Urethane-acrylic	75mPa·s	1,4723
UV 325	Temp. resistant – 40°C till + 180°C. Very low viscous adhesive for metals, glass and plastics.	Epoxy, cationic	400mPa·s	1,502
UV 328/11	“Flash light” adhesive cures with one flash.	Epoxy acrylic	5.000mPa·s	-
UV 370/2	Glass – Glass joints Glass – Metal joints Water resistant construction adhesive.	Urethane – acrylic	750mPa·s	1,471
UV 370/5	See type UV 370/2	See UV 370/2	5.000mPa·s	1,475
UV 389/3	Flexible adhesive layer. Suitable for flexible foils and LED (glass fibre), glass, ceramics, metals and plastics.	Urethane – acrylic	1.000mPa·s	1,474
UV 389/4	See UV 389/3	See UV 389/3	3.000mPa·s	1,477
UV 389/10	See UV 389/3.	S. UV 389/3	± 4.000mPa·s	1,478
UV 389/21	Positioning, coating and fasten electric components and wires. Gluing of ferrite, glass, metals, ceramics and more.	S. UV 389/3	Thixotrope	-
UV 424	Crystal clear layer. Suitable for glass, Perspex and polystyrene. With each other or combinations of metals.	Epoxy, cationic	3.500mPa·s	> 1,500
UV 422	See UV 424, milky instead of clear and thixotrope.	Epoxy, cationic	Thixotrope	-

7 Silicon Adhesives

PERMACOL[®] silicone based adhesives and sealants. Properties: ▪ 1- and 2-component ▪ available in different viscosity ▪ cures at room temperature (RTV) ▪ very good chemical and moisture resistance ▪ high green strength ▪ temperature resistant -40°C till +180 / 260°C.

Suitable for: ▪ metals ▪ glass ▪ plastics ▪ rubber ▪ polyester foils.

Product	Article	Content	Packaging
E 43	3001-0090	90ml	Tube
	3001-0310	310ml	Cartridge
E 41	3003-0310	310ml	Cartridge
3601	3005-1000	1000g	Pot
SILGRIP 529	3020-0250	250g	Glass bottle
	3020-1000	1000g	Glass bottle
Catalyst SRC 18	3021-0045	45g	Flask
SILGRIP 529 Catalyst SRC 18	3022-1045	1045g	Glass bottle + flask
106	3100-0090	82,8ml	Tube
108	3110-0090	82,8ml	Tube
133	3120-0310	310ml	Cartridge
159	3130-0090	82,8ml	Tube
160	3140-0300	300ml	Cartridge
162	3141-0090	82,8ml	Tube
	3141-0300	300ml	Cartridge
230 A/B	3010-0380	380ml	Cartridge

Table 7: technical information PERMACOL[®] Silicon adhesives and sealants

Type	Application	Viscosity (mPa.s 23°C)	Hardness (Shore)	Colour	Temperature-Resistance
E 43	Very good fastening adhesive for compensators, car shields, refrigerator- and freezer installations, cable, resistors, fibre, glass and sanitary. Also usable as coating.	300.000	30 °A	Transparent	-50 till +180°C
E 41	See E 43	65.000	30°A	Transparent	-50 till +180°C
3601	Heat conductive, electric isolating. For heat- and icing elements. Excellent bonding to silicon, ceramics, metals, glass and several plastics.	45.000	55 °A	Grey	-50 till +220°C
SILGRIP 529	PSA adhesive for silicon, metals, Teflon, PE, PP and polyester foils. Can be used with catalyst SRC 18.	1.000 - 5.000	Flexible adhesive layer	Transparent	-70 till +260°C
106	Sealing of heating elements, gaskets, electric isolating and sealing. FDA certification.	Paste	30 °A	Red	-60 till +260°C
108	Universal adhesive, for gaskets and electric isolation. FDA certification	Paste	30 °A	Transparent	-60 till +204°C
133	One part, non-corrosive, non-halogenated, flame retardant neutral cure. UL94 V0	Paste	45 °A	Black	
159	High strength and temperature resistance. Good electric isolation and chemical resistance	Paste	28 °A	Red	-60 till +260°C
160	Sealing, potting, gluing in electronics, aviation, electric apparatus and transportation Not corrosive. Does not affect sensitive metals and joints.	Fluid	25 °A	White	-60 till +205°C
162	See type 160.	Paste	35 °A	White	-60 till +205°C
230 A/B	Wide range of application when fast curing is desired, but decreased temperature not possible. Replacement for two-sided tape, mechanical joints and clamps.	Paste	36 °A	White	-50 till +205°C

8 Cyancrylate Adhesives

PERMACOL[®] cyancrylate. Properties: ▪ 1-component ▪ high strength ▪ thin adhesive layer ▪ mounting small surfaces ▪ precision work ▪ in-line application ▪ fast curing ▪ temperature resistant -40°C till + 90°C ▪ good fitting surfaces. Suitable: ▪ rubber ▪ metals ▪ plastics ▪ ceramics ▪ wood.

Product	Article	Content	Packaging
DISPENS PEN PX-3 One of a kind dosage system	0018 0003	3g	Pen
DISPENS PEN PX-10 One of a kind dosage system	0019 0010	10g	Pen
CONTACT CEMENT 301	0006 0002	2g	Pipette
	0006 0020	20g	Flask
	0006 0050	50g	Flask
CONTACT CEMENT 302FS	0003 0002	2g	Pipette
	0003 0020	20g	Flask
	0003 0050	50g	Flask
CONTACT CEMENT 3030	0043 0050	50g	Flask
	0043 0500	500g	Flask
CONTACT CEMENT 305	0005 0020	20g	Tube
CONTACT CEMENT 503	0013 0020	20g	Flask
	0013 0050	50g	Flask
CA-3001	0035 0020	20g	Flask
	0035 0050	50g	Flask
CA-3006 (Non-Blooming)	0037 0020	20g	Flask
	0037 0050	50g	Flask
CA-3015	0041 0020	20g	Flask
	0041 0050	50g	Flask
CA-3040	0045 0020	20g	Flask
CA-31738 Temp. Resistant: -40 till +150°C	0060 0050	50g	Flask
POWERGLUE Si 3-100	0022 0050	50g	Flask
POWERGLUE EX-40	0056 0020	20g	Flask
ACTIVATOR QFS Avoids blooming Accelerates curing	0097 0100	100 ml	Flask
	0097-1000	1000 ml	Glass bottle

9.1 2-Component Acrylate Adhesives

PERMACOL® Acrylate 2-componenten adhesives.

These adhesives are excellently suitable for rigid plastics and metals without preparation.

Properties: ▪ very strong ▪ long pot life ▪ short time till strength ▪ good resistance to chemicals.

Suitable: ▪ metals ▪ wood ▪ plastic ▪ glass ▪ ceramic.

Product	Article no.	Content	Packaging
AGOMET U3	0503-0700	700g	Tin
AGOMET F349	0525-0800	800g	Tin
ARALDITE 2047 (<i>Minim. quantity 12p.</i>)	0530-0055 0530-0550	50ml 550ml	Dual syringe Dual syringe
AGOVIT STANDARD	0540-0250 0540-0900	250g 900g	Bottle Tin
AGOVIT 1900	0544-0250 0544-0900	250g 900g	Bottle Tin
HARDENER PASTE White	0570-0030 0570-0050	30g 50g	Tube Tube
HARDENER PASTE RED	0571-0028	28g	Tube
HARDENER D	0578-0400	400g	Tin
HARDENER AGOVIT	0582-0020 0582-0100 0582-1000	20g 100g 1kg	Drop-bottle Drop -bottle Bottle
MMA THINNER AGOVIT	0549-1000	1l	Bottle

How much hardener is to be used for AGOMET & AGOVIT?

800gr AGOMET, U3, F349	: 28gr Hardener Paste white
800gr AGOMET, U3, F349	: 28gr Hardener Paste red
800gr AGOMET, U3, F349	: 100gr Hardener D
250gr AGOVIT STD, 1900	: 20gr Hardener AGOVIT
900gr AGOVIT STD, 1900	: 100gr Hardener AGOVIT

Table 9.1: technical information PERMACOL[®] 2-component Acrylate adhesives

Type	Application	Viscosity (at 23°C)	Colour	Temp. Resistance	Hand strength
AGOMET U3	Connect: metal, glass, wood, rigid plastics, marble.	16.000 mPa·s	White – transparent	-30 till +80°C	2h
AGOMET F349	Connect: rigid PVC, ABS, epoxy, acrylic glass with metal, like.: steel and aluminium	15.000 mPa·s	White - yellowish - transparent	-30 till +80°C	90min
ARALDITE 2047	Suitable for material that has been treated with powder coating or chromium	70.000 mPa·s	Yellow green	-40 till +90°C	20min
AGOVIT STANDARD	Connect acrylic -glass (Perspex, PMMA), acrylic glass -metal and other plastics	2.000 mPa·s	Clear!	-30 till +80°C	30min
AGOVIT 1900	See Agovit Standard	500 mPa·s	Clear!	-30 till +80°C	Ca. 30min

9.2 S.G.A. (Second Generation Acrylate)- Adhesives

PERMACOL[®] Second Generation Acrylic- adhesives.

Apply adhesive to one surface, hardener lacquer to the other surface and join after 5min.

After the connection has been made, the adhesive cures in 2 till 4 minutes or 15 till 20min, depending of type of adhesive. S.G.A.- adhesive often are used for in line assembly. Materials, pre-treated with hardener lacquer may be stored for max.3 weeks (dust free and clean) before curing takes place.

Properties: ▪ easy to work with ▪ no mixing ▪ short assembly time ▪ very strong ▪ good resistance to chemicals ▪ resistant to temperature - 40°C till + 130°C.

Suitable for: ▪ metal ▪ wood ▪ plastics ▪ glass ▪ ceramic.

Product	Article no.	Content	Packaging
AGOMET F 300	0601-0800	800g	Tin
AGOMET F 305	0605-0075	75g	Set
	0605-0150	150g	Set
	0605-0800	800g	Tin
AGOMET F 310	0610-0075	75g	Set
	0610-0150	150g	Set
	0610-0800	800g	Tin
HARDENER LACQUER 2	0585-0100	100g	Flask
	0585-0250	250g	Bottle
	0585-0500	500g	Bottle
	0585-1000	1kg	Bottle

Table 9.2: technical information PERMACOL[®] acrylate adhesives S.G.A.-systems

Type	Application	Viscosity (at 23°C)	Colour	Assembly time
AGOMET F 300	Materials: steel, aluminium, copper, brass, titan, ferrite, ABS, polystyrol, rigid PVC, polycarbonate, polyester forms and trespas	20.000 mPa·s	Crème	2 – 4 min
AGOMET F 305	See Agomet F 300	5.000 mPa·s	Transparent	2 – 4min
AGOMET F 310	See Agomet F 300	20.000 mPa·s	Crème	15 – 20min

How much Hardener is to be used for AGOMET S.G.A. - adhesives?

800gr F300, F305, F310 : 100gr Hardener lacquer 2

9.3 A.B.- Systems

PERMACOL[®] Acrylic- adhesives A-B-Systems.

Apply the **A- component** (resin) to one side, **B- component** (hardener) first has to be mixed with powder or paste, apply to the other side. Curing takes place influenced by pressure. Suitable: ▪ metal ▪ wood ▪ plastics ▪ glass ▪ ceramic. Properties: ▪ long pot life ▪ short curing time ▪ very strong system ▪ applicable for dispense installation ▪ good resistance to humidity and chemicals ▪ temperature resistance -40°C till +130°C.

Product	Article no.	Content	Packaging
AGOMET F 300 A/B	0653-1680	2x 800g	Set tins + Bag 80gr. Hardener powder
3000 A/B	0730-0056	2x 28g	Dual syringe
6010 A/B	0740-0040	38ml	Dual syringe

Table 9.3: technical information PERMACOL[®] Acrylate adhesives A.B.- Systems

Type	Application	Viscosity (at 23°C)	Assembly time (at 20°C)
AGOMET F 300 A/B	Materials: metals, porcelain, marble, stone, glass, ceramic, rood, rigid plastics.	20.000 mPa·s	2 – 4min
3000 A/B	Materials: metals, porcelain, marble, stone, glass, ceramic, wood, rigid plastics without long preparation. Results in tough - strong impact resistant joints.	slightly thixotropic	5 – 10min
6010 A/B	For difficult materials as PP and PE, also without preparation. Presents tough-strong, impact resistant joints.	22.000 mPa·s	10min

10 Rubber- Contact Adhesives

PERMACOL[®] rubber contact adhesives.

Properties: ▪ 1-component system easy to use ▪ 2-component system for difficult combinations with high demands regarding temperature resistance and green strength.

Usage: ▪ apply adhesive to both sides, let dry for ca. 5-10min and press afterwards.

Suitable: ▪ rubber ▪ metal ▪ wood ▪ textile ▪ fibre ▪ foam ▪ soft plastics.

Product	Article no.	Content	Packaging
144	4200-1000	1l	Tin
	4200-4000	4l	Tin
	4200-9925	25l	Can

Table 10: technical information Permacol[®] Rubber- Contact adhesives

Type	Application	Viscosity (at 20°C)	Colour	Temperature- resistance
144	Universal type with good adhesion to rubber, foam rubber, leather, lino, felt, cork, chipboard, stone en metals. Resistant to frost and humidity.	3.500 mPa·s	yellow – brown	-15 till +70°C

11 Lock Agents

PERMACOL® Locking products are 1-component products which produce strong combinations when air is excluded. At least one surface has to be a metallic.

Properties: ▪ good chemical resistance ▪ temperature resistant - 55°C till + 150°C ▪ fast curing.

Application: ▪ Replacing lock-ring, lock-nut and other mechanical locking for gas and fluid tight joints.

▪ prevents from breaking by vibration ▪ sealant efficacy.

Product	Article no.	Content	Packaging
743	0243-0050	50g	Flask
700 M	0181-0050	50g	Flask
	0181-0250	250g	Flask
738	0240-0050	50g	Flask
	0240-0250	250g	Flask
LOCK AGENT transparent	0231-0100	100g	Flask
LOCK AGENT yellow	0232-0100	100g	Flask

Table 11: technical information PERMACOL® Lock agents.

Type	Application	Init.brakaw. mom. Nm	Viscosity (at 20°C)	Colour
743	To lock screws, fastening and sealing of bung, pen and bolt.	17 – 22 Nm	2.000 – 7.000 mPa·s	Blue
700 M	Universal screw retainer	18 – 25 Nm	700 – 1.000 mPa·s	Red
738	Screw retainer protects screws and stay bolts from loosening due to vibrations. Supports bearings and rollers. With activator 31 suitable for ABS, polycarbonate, POM and PVC.	30 – 40 Nm	3.000 mPa·s	Green
Lock Agent transparent	Self drying Lock Agent	n. a.	700 mPa·s	Transparent
Lock Agent yellow	Self drying Lock Agent	n. a.	500 mPa·s	Transparent yellow

12 Ceramic Adhesives

SAUEREISEN- series consists of organic cement based on metal oxide and hardener.

These adhesives are used when and ceramic materials have to be glued or protected (filament). Properties:

▪ curing time 24 h ▪ very high temperature resistance ▪ unlimited store ability ▪ tough ceramic layer ▪ good resistance to chemicals ▪ odourless.

Suitable: ▪ glass ▪ ceramic ▪ stone ▪ metals

Product	Article no	Content	Packaging
SAUEREISEN no. 8	5008-1000	1kg	Tin
SAUEREISEN no. 29 A/B	5029-2000	2kg	Tin + flask
SAUEREISEN no. DW 30	5030-1000	1kg	Tin
SAUEREISEN no. 31 A/B	5031-2000	2kg	Tin + flask
SAUEREISEN no. 33 S	5033-1000	1kg	Tin
SAUEREISEN no. 78	5078-1000	1kg	Tin
SAUEREISEN liq. no. 14	5014-1000	1kg	Flask

Table 12: technical information SAUEREISEN ceramic adhesives

Type	Application	Temperature-resistance	Pot life	Shrinkage
NO. 8	Adhere and coating of heater elements.	1.426°C	45 – 90min	0,3 %
NO. 29 A/B	Coating of materials that need to be protected against electricity, chemicals and thermal shock.	843°C	30 – 60min	0,5 %
NO. DW 30	Coating of heater elements and wires	482°C	3 – 6h	0,1 %
NO. 31 A/B	Adhere and coating of porcelain, ceramic, metals and glass. Resistant to fire, gas and acid.	954°C	15 – 60min	0,4 %
NO. 33S	Mounting of lamps. Adhere and isolation of heater elements.	827°C	3 – 4h	0,4 %
NO. 78	Adhere and isolation of heater elements. Processing in ovens and thermal apparatus.	1.427°C	60 – 90min	0,3 %

13 Hot melts & Adhesives, water - based

PERMACOL® hot melts are thermal plastically hot melts. Properties: 1- component ▪ easy to use ▪ solvent free ▪ very fast curing ▪ water resistant ▪ almost unlimited storability ▪ modifying with long or short pot life ▪ temperature resistant -40°C till +80°C. By cooling down curing takes place. Suitable: ▪ wood ▪ carton ▪ paper ▪ metal ▪ rubber components ▪ plastics (PE and PP also).

PERMACOL® adhesives on water basis a.k.a **PVA- Dispersion adhesives**. Properties: ▪ 1-component ▪ universally applicable ▪ solvent free ▪ does not give out vapours ▪ flexible after curing ▪ temperature resistant -30°C till +80°C. Suitable: ▪ wood ▪ foils ▪ leather ▪ paper ▪ carton ▪ textile and more.

Product	Article no.	Content	Packaging
30.250	6050-9910	10kg	Box
30.288	6030-9912	12kg	Box
HM PISTOLE MS 80	8001-0080		
HM PISTOLE MS 150	8002-0150		
7545 B₃	7011-1000	1kg	Pot
Glue for wood	7011-9930	30kg	Bucket
7557	7030-1000	1kg	Pot
Glue for plastics	7030-9930	30kg	Bucket
7612	7035-1000	1kg	Pot
Self-adhesive	7035-9930	30kg	Bucket

Table 13.1: technical information Permacol® Hot melts

Type	Application	Pot life	Colour	Viscosity
30.250	Hot melt to mount and close cartons, cardboard container, trays.	Very short	Clear-yellow	1.820 mPa·s / 150°C 925 mPa·s / 175°C
30.288	Hot melt for plastics, ceramic, glass, aluminium, glass fibre, rigid wood, paper and carton. Wood constructions.	Ca. 20 sec. / 180°C	White-yellow	1.950 mPa·s / 180°C

Table 13.2: technical information Permacol® Adhesives, water based

Type	Application	Viscosity
Glue f. wood 7545 B ₃	Wood construction. Water proof conform DIN -Norm 68602 B3. Colour: white, transparent after curing. Press time on wood is 5min.	12.500 mPa·s / 21°C
Plastic adhesive 7557	Foils as PE, PE, PVC, PA, PS to paper, carton, chip board, wood and leather.	7.000 mPa·s / 20°C
Self adhesive 7612	Plastic foams, wood, plastics and textile.	4.000 mPa·s / 20°C

14 Miscellaneous

PERMACOL®

Product	Article no	Content	Packaging
HPL 328 1-component solvent base	0502-0100	100ml	Flask
	0502-0250	250ml	Flask
	0502-1000	1000 ml	Bottle
	0502-5000	5000ml	Can
860 A/B-X Synthetic resin cement	0701-1500	1,5kg	Set
842 A/B Synthetic resin cement	0710-0100	2x 50g	2 Sets Pot + syringe
5706 MSP (White/black/grey/brown/transparent)	2160-0290	290ml	Cartridge
Solder paste	0910-0650	650gr	SEMCO cartridge
	0910-0750	750gr	Pro Flow casket
Solder paste Lead free	0915-0500	500gr	SEMCO cartridge
	0915-0700	700gr	Pro Flow casket

Table 14: technical information Remaining Adhesives PERMACOL®

Type	Basis	Application	Viscosity	Curing
HPL 328	PVC Co polymer and Solvent.	Rigid plastic, ABS, Polycarbonate (Lexan), PMMA and rigid PVC.	600mPa·s/20°C	24h
860 A/B-X	Acrylate	Synthetic resin cement to fill and glue concrete, wood, stone, metal and plastic. Hoof repair treatment.	Thick fluid	5min
842 A/B	Epoxy	See type 860 A/B-X.	Thick fluid	15min
5706	Silane modified Polymer	Elastic sealant lute: metals, plastics (ABS), Polyester, glass, Wood and (natural-) stone. Available in different colours: black, grey, white, transparent.	Transparent	24h
Solder paste	Metal powder with flux	Reflow soldering	Paste	Evaporation time 2min at 150-180°C
Solder paste Lead free	Synthetic powder with flux (lead free)	Reflow soldering (fine pitch application)	Paste	Evaporation time 1min at 140-170°C

15 APPARATUS & ACCESSORIES

<u>Product</u>	<u>Article no</u>
HM PISTOLE MS 80	8001-0080
HM PISTOLE MS 150	8002-0150
HANDHELD ADHESIVE PISTOLE	
FOR 310 ml CARTRIDGE	8020-0330
FOR 50ml DUAL SYRINGE	8030-0050
FOR 2x 100ml DUAL SYRINGE	8040-0200
FOR 2x 200ml DUAL SYRINGE	8040-0400
FOR 2x 310ml DUAL CARTRIDGE	8040-0620
PNEUMATIC ADHESIVE PISTOLE	
FOR 50ml DUAL SYRINGE	8031-0050
FÜR 2x 100ml DUAL SYRINGE	8041-0200
FÜR 2x 200ml DUAL SYRINGE	8041-0400
FÜR 2x 310ml DUAL CARTRIDGE	8041-0620

Mixing Tips for all syringes and dual syringes are available.
Just ask our co-workers.

Also Spare parts of Hot melt pistols are available.

16 Sundries

<u>Product</u>	<u>Article no.</u>	<u>Content</u>	<u>Packaging</u>
ETHANOL	9010-0100	100ml	Bottle
	9010-1000	1l	Bottle
	9010-5000	5l	Can
	9010-9910	10l	Can
HAND PROTECTIVE CREME no. 10	9020-1000	1kg	Pot
AFTER TREATMENT- CREME W3	9040-1000	1kg	Pot

17 Etch- & stripper products

<u>Product</u>	<u>Article no.</u>	<u>Content</u>	<u>Packaging</u>
TETRA-ETCH PC 18	9105-0500	500ml	Flask
PC 24	9110-0100	100ml	Bottle
PC 28	9130-0100	100ml	Bottle
	9130-1000	1000ml	Bottle
PC 32	9140-0100	100ml	Bottle

18 Primer & Cleaner

<u>Product</u>	<u>Article no.</u>	<u>Content</u>	<u>Packaging</u>
PC 12	9205-0250	250ml	Bottle
	9205-1000	1000ml	Liquid can
PC 14	9210-0100	100ml	Bottle
PC 66	9230-0100	100ml	Bottle
	9230-0500	500ml	Flask
	9230-1000	1000ml	Liquid can

Table 16: technical information miscellaneous

Type	Product	Application
Ethanol	Solvent and cleaner, degreases	Metals, plastics and rubber.
Crème Nr. 10	Hand protective crème	Protective: epoxy and acrylate
Crème Nr. W3	Pre treatment crème	Soothing crème
PC 61	Solvent based on Methylpyrrolidon	Cured epoxy resin
PC 66	Solvent based on Gammabutyrolacton	Un-cured epoxy resin and SMD-adhesives, cleaning of print boards

Table 17: technical information Etch- and stripper products PERMACOL®

Type	Product	Application
PC 18/TETRA-ETCH	Etch product	Teflon, Kel F(PCTFE), Fluor containing polymer
PC 24	Toluene sulfonic acid	POM and Delran
PC 28	Ammonia (etches)	Natural rubber and SBR-rubber.
PC 32	Chromium acid (etches)	Aluminium and Magnesium

Table 18: technical information PERMACOL® Primer and Cleaner

PC 12	Silan Primer	Ceramic material, glass and stone
PC 14	Silan Primer	Polyamide, Polyacetal and Silicone
PC 66	Solvent based on Gammabutyrol-actone	Un-cured epoxy resin

Table 19 Pre- treatment

Material	Cleaning	Scouring / chemical treatment
ABS	Degrease with cleanser Isopropyl alcohol	-
Aluminium	Degrease with solvent acetone, ethanol	Etch with PC 32
Cellulose plastics	Degrease with methanol	Scour surface with fine sandpaper. Degrease. Epoxy resin needs to be heat up for 1h at 93°C.
Chromium	Degrease with solvent acetone ethanol.	Etch with chromium acid. Solvent needs to be heat up. Dip chromium for ca. 1-5min. Flush with cold distillate water, dry.
Epoxy plastics	Degrease with cleaner Isopropyl alcohol.	Scour with middle – rough sandpaper (Grain 240). Repeat degreasing.
Extruded plastics	Do not use solvents.	Scour surface with sandpaper. Remove dirt and dust.
Cast iron	Degrease with solvent acetone, ethanol.	Sand blast or scour. Repeat degreasing
Glass and quartz	Degrease with solvent ethanol	Pre-treat with PC 12.
Glass fibre plastics	Degrease with cleanser isopropyl alcohol.	Scour with middle rough sand paper (Grain 240). Repeat degreasing.
Graphite	Degrease with solvent ethanol.	Scour with fine sand paper. Repeat degreasing. Let rest for a short time, so the solvent evaporates.
Wood	If there is more than 20% humidity, dry in oven first; 10-12% humidity is acceptable.	Remove dirt with sander, plane or chisel. Scour the surface smooth. Remove dust with air.
Ceramic	Degrease in vapour	Sander blast or scour to remove glaze. Remove degreasing. Solvent needs to evaporate completely before adhesive may be applied.

CONTINUING TABLE 19: PRE-TREATMENT

Material	Cleaning	Scouring / chemical treatment
Copper	Degrease with solvent ethanol.	Etch with ammonium persulphate solution; dip for 30sec (20°C). Rinse thoroughly with cold distillate water. Dry with air immediately.
Lead and tin	Degrease with solvent acetone.	Scour with middle rough sandpaper (Grain 240). Degrease again.
Leather	Degrease with solvent ethanol	Scour surface with sandpaper, Degrease again. Solvent has to evaporate completely before adhesive may be applied.
Nylon	Degrease with solvent acetone.	Scour surface with sandpaper. Degrease again.
Phenol and Polyurethane	Degrease with solvent.	Scour with sandpaper middle rough (Grain 240). Degrease again.
Placental	Degrease with cleaner.	Etch with PC 24.
Polycarbonate and Polystyrene	Degrease with methanol.	Scour with sandpaper middle rough (Grain 240). Degrease again.
Polyethylene and Polypropylene	Degrease with solvent.	
Polyester plastic	Degrease with solvent.	Scour with emery sponge or etch in washing soda solution. After scouring: degrease again. After etching: rinse with cold distillate water.
PVC (rigid)	Degrease with solvent	Scour if possible, needs to get dry.
Rubber	Degrease with methanol.	Etch with PC 28.
RVS	Degrease with solvent. Remove residue. Degrease again. Degrease with vapour for ca. 30sec. Wash with cleanser. Flush with tap water and distillate water. Dry in oven at ca. 90°C.	
Steel and iron	Degrease with vapour	Sand blast or scour with sandpaper middle rough (Grain 240). Degrease again.
Teflon	Degrease with solvent	Etch with PC 18.
Tin	Degrease with solvent	Scour with sandpaper middle rough (Grain 240).

TERMS OF PAYMENT & DELIVERY PERMACOL® B.V.

2014 V1

EN

- Ordering:**
- By phone : +31 (0) 318-640740
 - By fax : +31 (0) 318-635099
 - E-Mail : adhesives@permacol.nl
- Price:**
- Extra charge " 15,00 for small orders value under " 250,00.
 - Large quantities or retailing: prices on request.
 - Price changes under reservation.
- Payment:**
- In EURO to bank account 69.26.65.897
 - Within 30 days of invoice date, without any discount, mentioning invoice- and customers number.
 - Immediately after passing due date the legal fee (article 6:119a BW (The Netherlands) is indebted. See also the General Terms of Delivery.
- Delivery time:**
- Numerous products are on stock. In case it is not, delivery takes place after deliberation.
- Delivery:**
- Freight costs will be charged
 - Pallet, express parcel and courier as well as transportation abroad The Netherlands will always be charged.
 - Permacol® BV owns the right to charge storage costs for order sdelivery on call%they are not called in time. This will be depending on volume.
- Claims:**
- Claims of purchaser are accepted in writing within 10 days after the goods are delivered.
 - Return is allowed only after permission; the goods must be in our possession within 21 days after delivery, accompanied by a return letter.

On all our contracts, quotations, services, conditions of payment and delivery are our General Sales Conditions relevant. These will be sent on request.

PERMACOL® is a trade mark of PERMACOL® B.V. Ede / the Netherlands, registered at the Chamber of Commerce no 09040364, Arnhem Ë VAT No. NL-003178845B01

GENERAL TERMS AND SALES CONDITIONS

of the private company with limited liability PERMACOL B.V. with registered office in Ede – filed in Dutch at the Chamber of Commerce in Arnhem under no. 09040364

- 1. General**
 - 1.1 These terms and conditions are part of all of Permacol B.V. (supplier) quotations and contracts, both in respect of the delivery of products and the performance of work.
 - 1.2 Supplementary and/or different conditions of a buyer or third parties, which also include any terms and conditions of purchase, shall not be binding, unless they have been accepted by Permacol B.V. (supplier) in writing.
 - 1.3 In the event of conflicts between these terms and conditions of supplier and those of any customer (buyer) and/or third party, the terms and conditions of supplier shall take precedence.
- 2. Offer and contract**
 - 2.1 All offers, including illustrations, drawings, stated capacities, diagrams, price lists, material lists and other documents, shall be without obligation, unless these contain a term for acceptance.
 - 2.2 In the event that a quotation without obligation is accepted by the buyer, supplier will be entitled to withdraw this offer within two working days after receipt of this acceptance. All mentioned illustrations, drawings, diagrams and other documents remain our property and need to be returned to us; they may not be copied or handed over to Third party without our explicit or paper consent, such on penalty of a directly claimable fine of € 10.000,00 (in words ten thousand Euro) per contravention. Furthermore, we preserve all intellectual and industrial ownership of all existing legal rights.
 - 2.3 Descriptions in offers shall be as accurate as possible, but shall not be binding on supplier. We reserve the right of technical changes.
 - 2.4 Supplier is entitled to charge costs made in order to quote products or performance of labour, even if it does not result in a purchase order or agreement.
- 3. Prices**
 - 3.1 Prices stated on order acknowledgment refer to product and amount of the delivery. Additional or special performance shall be calculated separately.
 - 3.2 The prices quoted by supplier are based on delivery ex works, warehouse or storage at another location and exclude VAT and the costs of packaging and shipping.
 - 3.3 We reserve the right to invoice all increased costs even if they arise after date of agreement, but before the delivery date. Furthermore we are entitled to undo the agreement partially or entirely, without judicial interference. The same entitlement has the buyer, but only if we take the position within 3 months after the agreement that through changed costs a raise of confirmed prices arises. If the buyer uses this right, we have to be notified by registered letter within 5 days after receive of the announcement.
- 4. Delivery and delivery time**
 - 4.1 Delivery time starts the day that the agreement is closed, provided that all information we need to execute the order are in our possession. The delivery time stated by us shall never be considered to be deadlines, unless explicitly agreed otherwise. Delivery time will extend with the amount of time during which the buyer has not fulfilled payment obligations. If delivery is not made in time we have to be notified in writing. In case of, in contravention with the above, the agreement includes a penalty on exceeding the delivery time, it is not indebted if the overstay is caused by cases of superior forces as mentioned in article 5 of these General Terms.
 - 4.2 We are entitled to execute partial delivery, this in the sense that delivery toward the buyer takes place when goods are ready. In that case we are entitled to invoice delivered goods to the buyer.
 - 4.3 Buyer has to take the product within the agreed time. If buyer fails, based on Article 6:60 Civil Law, we are entitled to claim that the a judge releases us from the agreement, than without preceding notification, demand payment of undelivered goods. If buyer does not meet his obligation of payment, we are entitled to dissolve the agreement without judicial intervention.
 - 4.4 If buyer fails to accept the goods at the agreed time span and we are claiming the purchase-money, the goods are respected as to be delivered, but will be stored for 30 days on account and risk of the buyer and his cost; after that may sell and deliver the goods to a third party without any claim for goods, compensation or restitution for the buyer.
 - 4.5 If no time span has been agreed on, we are entitled to act as mentioned in this article, if buyer does not accept the goods in between 1 month after readiness has been communicated.
 - 4.6 Delivery shall take place ex warehouse. Shipments with goods value of at least € 750,00 shall be delivered carriage paid to the address indicated by the buyer within the Netherlands. Costs for shipments / deliveries abroad will always be passed on to the buyer, unless agreed otherwise.
 - 4.7 In the event of shipments with goods value less than € 750,00 the costs of freight and / or postage shall be charged to the buyer. Purchase orders with goods value less than € 250,00 will be charged with an additional administration fee. Shipping costs of any nature whatsoever incurred at the request of the buyer shall be charged.
 - 4.8 The products to be supplied will be shipped at the risk of the buyer. Supplier chooses the method of transport. The products to be transported on behalf of the buyer shall not be insured by supplier, unless expressly required by buyer; in that case the buyer will be charged for the costs.
 - 4.9 If a part of an order is not at stock, then the second part of this order will be invoiced after delivery. However, if the first shipments covers more than 50% of the order, the whole order will be invoiced.
 - 4.10 If products have to be ordered by third party, on request of the buyer, they may be charged at the time of the order. Products, which cannot be supplied from stock, shall be delivered in consultation with the buyer.
 - 4.11 Partial shipment like deliveries on call, each delivery shall be considered as a separate delivery.
 - 4.12 If the buyer fails to call a call-order on time, supplier will be entitled to demand immediate and advance payment for all goods still to be delivered to cancel the order for the goods not yet delivered. At the same time supplier is entitled to charge warehousing costs, dependent of volume.
- 5. Circumstances beyond our control**
 - 5.1 Circumstances beyond one's control mean all circumstances beyond our control which makes it impossible for us to perform the contract as agreed (so called not responsible shortcoming of fulfillment).
 - 5.2 Circumstances beyond our control also includes: war, riots and hostilities of any kind, blockades, embargos, strikes, catastrophes, epidemics, shortage of raw materials, hindrance and interruption of transportation, intrusion in our company or the company of a supplier, import- and export restrictions caused by measures, laws of decisions of international, national or regional governmental authorities.
 - 5.3 If circumstances beyond our control prevent us from (in-time) delivery, we are entitled to either fulfill the agreement at another date or to consider the agreement to be dissolved.
 - 5.4 In cases of circumstances beyond our control we cannot be hold responsible for compensation by the buyer.
- 6. Right of retention**
 - 6.1 Supplier has the right of retention on all goods of the buyer held by us if the buyer has not paid in time for goods supplied or work performed by supplier, whether this relates to the goods concerned or not.
- 7. Reservation of title**
 - 7.1 Goods delivered by us, remain our property until the amount of the invoice has been paid completely. Delivery took place under suspension of terms of complete payment by the buyer. With complete payment, the ownership of the delivered goods will be passed to the buyer, legally.
 - 7.2 In case buyer processes or manufactures the product in a way that our ownership is lost, the buyer is obligated to place non-possessory pledge onto the goods in our behave.
- 7.3 Buyer is entitled to sell or use the goods as his conduct of business requirements; then he has to transfer the money or if not sold against money, pass the claim to us. Buyer is not entitled to alienate the goods in any way, to put them under bail or remove them from our influence.
 - 7.4 Buyer is obligated to inform us immediately about claims or attempts to get the goods, which are in our possession, by a third party. The buyer is obligated to do his best to protect our property or claims.
 - 7.5 If buyer does not fulfil his obligations or breaking lid 4 of this article, we are entitled, after notice of default, but without legal mediation demanded, to take back the goods which are by retention of title or otherwise still in our possession. Buyer has to indicate the place where the goods are stored, to identify them as our property and already grants us permission to enter the premises and buildings in order to get back the product.
 - 7.6 At all times we are entitled to seize goods which are at the buyer's but still belonging to us, as soon as we can assume with good reason that buyer will not meet his obligations. This does not influence the right which results from common law: in particular we reserve the right to appeal for damages after getting the product under our possession.
 - 7.7 Buyer is obliged to insure the risk of fire and theft of not yet paid goods and show us the documentation if requested.
- 8. Complaint**
 - 8.1 The buyer has to inform us in writing of any complaints about delivered goods or work performed within ten days of delivery and/or completion of the work. In the event that this term is exceeded, all claims against Supplier in respect of defects and/or errors will depose.
 - 8.2 In case of a complaint about delivered products which we consider to be well-founded, we are entitled to repair the goods concerned or to replace them with similar goods. We will not be liable to compensate for any loss or damage, except in case that loss or damage can be blamed on intent or gross negligence on our part.
 - 8.3 In case of a complaint about work performance which we consider to be well-founded, we are entitled to perform this work correctly within a reasonable term. We shall not be liable to compensate for any loss or damage, except if loss or damage can be blamed on intent or gross negligence on our part.
 - 8.4 The obligation to pay in respect of the products under dispute are not to be suspended by filling a complaint.
 - 8.5 Return of goods is not permitted without our prior permission. Goods which are going to be returned have to be in possession of Permacol in between 21 days after delivery at buyer's site, including return form and signed delivery form.
 - 8.6 If nature and/or composition of the delivered goods has been changed by the recipient, the goods have been processed, repacked or delivered wholly or in part in any form whatsoever, including so-called private labelling, all rights to claim shall lapse.
- 9. Liability**
 - 9.1 The products delivered by Supplier must be used and/or processed in accordance with the directions and/or the instructions for use, processing instructions, manuals, data sheets and prescribed and required instructions for specific applications required by the buyer indicated on or in the packaging.
 - 9.2 Supplier cannot be held liable by the buyer(s) and/or the buyer(s) of the buyer for damage suffered by this buyer(s) and/or this(these) buyer(s) regarding the condition, (side) effects and/or other shortcomings in the broadest sense, of goods produced by us and/or (end) products procured by us from third parties but delivered by us, unless the law expressly states that the manufacturer and/or supplier is liable in this respect.
 - 9.3 Any further liability for loss or damage other than referred to in this article shall be excluded, unless the buyer proves that the damage was caused by supplier's gross fault or negligence of the supplier.
 - 9.4 The information in documentation, data sheets and recommendations should be considered as guidelines based on research and experience on our part or based on data from third parties. The data published in our documentation sheets are solely issued as information and cannot be considered as a guarantee.
 - 9.5 Supplier shall not be liable for any loss or damage that results from mistakes or failures of third parties that have been charged by us with the delivery of materials or the performance of work with the permission of the buyer, unless we are liable by virtue or legal liability.
 - 9.6 The buyer is obliged to inspect the products. The buyer states that he received the goods, free of any defects, unless we are informed of defects in writing by the buyer within ten days after delivery. The buyer is deemed to be familiar with effect of the products and shall be obliged to instruct its users accordingly.
 - 9.7 Supplier will not be liable for any defects in products that could not have been detected on the basis of the scientific and technical knowledge at the time the products were put on the market.
- 10. Payment**
 - 10.1 Payment must be made within thirty days after the invoice date stating our invoice number and any other relevant information, without any discount. Offsetting is not permitted.
 - 10.2 Supplier is entitled at all times to demand advance payment, payment in cash or security for the payment.
 - 10.3 Payments shall always serve first to pay all interest and (partial or extrajudicial) costs owed and then shall be deducted from the oldest outstanding invoice amounts, even if the buyer indicates that the payment relates to other invoices.
 - 10.4 Immediately after passing the due date, according to article 11.1, the buyer owes the legal interest as mentioned in article 6:119a Civil Code. This interest equals the interest for refinancing, which was set by the European Central Bank, starting first day of related half year, multiplied by 7 percent points.
 - 10.5 If the buyer fails to pay in time or fails to fulfil any of the other obligations, Supplier is entitled to charge the extrajudicial costs of collection if we have to bring in a third party to assist in the settlement of the matter. These costs shall be 15% of the amounts owed by the buyer but shall in any case be calculate in accordance with the regressive fee rates for solicitors.
 - 10.6 If buyer does not complete the payment in time, he is in default with further notice of default is required and all receivables immediately due and payable.
 - 10.7 Then we have the right to postpone the fulfillment of all our commitments towards buyer, if and in so far as sufficiently coherent non-fulfillment by buyer, without prejudice to any other rights arising from the common law.
 - 10.8 We are entitled to ask for cash payment in advance or a guaranteed on time payment for all deliveries to be made. Furthermore, we have the right to dissolve the agreement without judicial intervention, with obligation by the buyer of restitution of delivered goods and the obligation to undo all by us delivered item, without prejudice to our right of compensation.
- 11. Intellectual ownership**
 - 11.1 Supplier owes the right to label with own name and brand. The buyer recognizes the intellectual ownership (copyright, patent-right, trade-mark) regarding the purchased and delivered goods and work, as technical datasheets, shall remain at Supplier.
 - 11.2 The buyer shall honour these rights and will act in accordance with instructions given by Supplier.
 - 11.3 If the buyer notices any invasion the proprietary rights of Permacol B.V by third party, he is obliged to inform Supplier immediately.
 - 11.4 It is forbidden to use brand or other distinguishing mark without explicit permission given by Supplier in writing.
- 12. Applicable law and disputes**
 - 12.1 Exclusively Dutch law shall govern each contract between buyer and Supplier Applicability of the Vienna Commercial Treaty (SICG) and the Uniform Law of International Sales Treaty (ULIS) shall be excluded.
 - 12.2 All disputes between buyer and supplier shall be submitted to the district court in Arnhem, if there is no legal provision to prevent this.