ADHESIVES AND SEALANTS FOR MARINE APPLICATIONS

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Kapitel IX Interior finishing in general

Kapitel X Cleaner and Primer

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I. SEALING OF THE OUTDOOR AREA

In the boat and shipbuilding industry it is of importance to seal mounting parts on the deck or the hull permanently and safely. Defective sealings cause corrosion, leaks and damage to the GRP laminates. Fittings such as mouldings and fans are not subject to large mechnical stress and can be sealed with Körapop 950, Körapur 925*, Ködisil N, Ködiplast CS or Ködiplast CT 100. For mechanically highly stressed components such as pulleys or genoa tracks it is recommended to use Körapop 954, Körapur 940* or Körapur 940 FC*.
It is important to ensure that the adhesive is not compressed completely when tightening the screws.
A distance of at least 1 mm should be maintained.
*Körapop products have an increased UV stability to Körapur products. For polyurethane adhesives and sealants slight yellowing and cracking may occur after a long time.
Sealings below the water line are best to run with Körapur 925 or Körapur 940.

KÖRAPOP 950 MARINE

ELASTIC STP ADHESIVE AND SEALANT

Körapop 950 Marine is a one component, elastic, solvent-free adhesive and sealant for the outside application in the boat and shipbuilding industry.

Base	Silane terminated polymer, one component, curing by humidity
Colour	White, black, grey
Density	1,44 g/cm³
Viscosity	Paste, low slump
Skin formation time	25 minutes
Hardness Shore A	55
Elongation at tear	300 %
Tensile strength	2,6 N/mm²
Tear propagation strength	15 N/mm
Characteristics	Elastic, good resistance to humidity, weathering and temperatures from -40°C to +90°C (for short intervals up to +120°C) Körapop 950 Marine is overpaintable up to 5 days.

KÖRAPOP 950 MARINE

MS polymer, excellent mechanical properties

Packaging	310 ml PE-cartridge 600 ml sachet

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KÖRAPOP 954 MARINE

ELASTIC STP ADHESIVE AND SEALANT

Körapop 954 Marine is a one component, elastic, solvent-free adhesive and sealant, specifically designed for exterior applications in the marine and boat industry.

Base	Silane terminated polymer, one component, curing by humidity
Colour	White, black
Density	1,41 g/cm³
Viscosity	Paste, low slump
Skin formation time	10 minutes
Hardness Shore A	58
Elongation at tear	380 %
Tensile strength	3,2 N/mm²
Tear propagation strength	22 N/mm
Characteristics	Elastic, good resistance to humidity, weathering and temperatures from -40°C to +90°C (for short intervals up to +120°C) Overpaintable wet-on-wet. Isocyanate and silicone free. Adhesion to plastics and paints must be tested for compatibility by carrying out preliminary tests.

KÖRAPOP 954 MARINE

Good cataplasma properties, excellent mechanical properties

Packaging	310 ml PE-cartridge

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PRODUCT INFORMATION

KÖRAPOP 950 MARINE - KÖRAPOP 954 MARINE

Processing temperature	+5°C to +30°C
Preparation	The surfaces to be bonded must be clean, dry and free of dust and grease. Adhesion and compatibility must be individually tested when used on plastics or paint. Körapop 950 and Körapop 954 can be used on most materials without primer. Preliminary tests are required. In UV and moisture-stressed rooms, we recommend to clean the surfaces with Körasolv WL and pretreat with our primer Körabond HG 83.
Curing	Apply Körapop 950 and Körapop 954 with a gun onto the surface. The thickness of the layer depends on the types of material to be bonded and on the expected movement. Join the second material within the skin formation time and press. It is recommended to fix the bonded materials until the adhesive has cured. Curing time depends on the thickness of the adhesive layer, temperature and air humidity.
Storage	Do not store below +5°C or above +25°C. When stored in unopened containers usable for up to 12 months.
Cleaning	Clean tools immediately after use with Körasolv PU. Once cured the material can only be removed mechanically.

For safety information refer to the Material Safety Data Sheet

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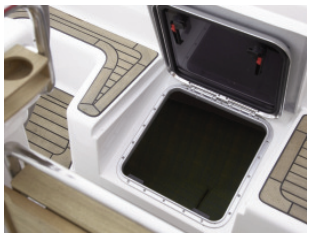
KÖDIPLAST CS - KÖDIPLAST CT 100

BUTYL SEALANTS

Ködiplast CS and Ködiplast CT 100 are one component plasty sealants for external joints, gaps and junctions on surfaces like concrete, wood, metal, glass, plastics and many other materials.
Sealants for caravans, camper, trucks, trailers, shipbuilding, apparatus construction. Not usable for high movement joints.

Base	Butyl rubber, one component
Colour	Grey
Density	1,44 g/cm³
Viscosity	Paste, spreadable
Weight loss	15 %
Characteristics	Temperature resistant from -30°C to +80°C. Good resistance to weathering, not usable in contact with oils, solvents and fuels.



Sealing of riveted profiles with Ködiplast CS

Sealing of screw connection with Ködiplast CT 100

KÖDIPLAST CS

Soft, plasty, low slump

KÖDIPLAST CT 100

Soft, plasty

Packaging	310 ml aluminium cartridge 600 ml sachet 25 kg hobbock	570 ml sachet

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PRODUCT INFORMATION

KÖDIPLAST CS - KÖDIPLAST CT 100

Processing temperature	+15°C to +25°C
Preparation	The surfaces to be bonded must be clean, dry and free from dust and grease. To degrease non porous surfaces like glass or metal use Körasolv GL. Please contact our technical service if the product is used with plastics such as polycarbonate or PMMA (stress cracking).
Jointing	Apply the material using a gun. Trapping of air bubbles have to be avoided. The final sealing condition is reached after the total emission of all volatile components. Evaporation time depends on the joint dimensions and the temperature. When using Ködiplast for the bonding of EPDM foils a trivial wrinkling of the foil can occur in particular cases. This effect is reversible after a short time.
Storage	Do not store below +5°C or above +25°C. When stored in unopened containers usable for up to 12 months.
Cleaning	Clean tools and remove fresh spots with Körasolv PU.

For safety information refer to the Material Safety Data Sheet

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KÖRAPUR 925 MARINE - KÖRAPUR 940 MARINE

ELASTIC PUR ADHESIVES AND SEALANTS

Körapur 925 Marine and Körapur 940 Marine are elastic moisture curing one component adhesives and sealants for the marine and boat industry.

Base	Polyurethane, one component, curing by humidity
Viscosity	Paste, low slump, spreadable, usable by sealant applicator gun
Characteristics	Elastic, good resistance to humidity, weathering and temperatures from -40°C to +90°C (for short intervals up to +120°C), overpaintable after curing

Sealing against water with Körapur 925 Marine

Bonding of outside applications with Körapur 940 Marine

KÖRAPUR 925

Elastic one component PUR sealant, which is also suitable for bonding applications

KÖRAPUR 940 / 940 FC

Elastic one component PUR adhesive

Density	1,3 g/cm³	1,2 g/cm³
Colour	White, grey, black, brown	White
Skin formation time	45 minutes	70-90 min / Körapur 940 FC approx. 45 min
Curing	3-4 mm (on the first day)	3 mm (on the first day)
Hardness Shore A	45	55
Change in volume	3 %	7 %
Tear propagation strength	11 N/mm	7 N/mm
Elongation at tear	650 %	400 %
Tensile strength	3 N/mm²	4 N/mm²
Packaging	310 ml aluminium cartridge 600 ml sachet	310 ml aluminium cartridge 600 ml sachet

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PRODUCT INFORMATION

KÖRAPUR 925 MARINE - KÖRAPUR 940 MARINE

Processing temperature	+5°C to +35°C
Preparation	The surfaces to be bonded must be clean, dry and free of dust and grease. Adhesion and compatibility must be individually tested when used on plastics or paint. For cleaning we recommend Körasolv PU or WL. In case of powder or gel coated substrates, Körasolv WL should be used. To increase adhesion of non-porous substrates such as glass, glass-fibre reinforced plastics, aluminium, stainless steel, etc. we recommend the use of Körabond HG 81. For porous substrates such as wood, Körabond HG 74 E is recommended. For certain plastics such as ABS or PVC we recommend the use of Körabond HG 77. Due to the diversity of substrates, preliminary tests are recommended.
Bonding	Apply Körapur 925 Marine and Körapur 940 Marine with a gun or a spatula onto the surface. The thickness of the layer depends on the expected mechanical movement. It ist recommended to fix the bonded materials until the adhesive has cured. Curing time depends on temperature, air humidity and dimension of the joint.
Storage	Do not store below +5°C or above +25°C. When stored in unopened containers usable for 9 - 12 months.
Cleaning	Clean tools immediately after use with Körasolv PU. Once cured material can only be removed mechanically.

For safety information refer to the Material Safety Data Sheet

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II. SEALING OF THE INTERIOR

For the interior it is important to achieve a permanent sealing of the mounting parts, sanitary facilities or engine compartments.
Defective sealings cause corrosion, leaks and damage to the GRP laminates.
Components without mechanical stress can be sealed with Körapur 925, Ködisil N, Ködiplast CS or Ködiplast CT 100.
For mechanically highly stressed components it is recommended to use Körapur 940 or Körapur 940 FC.
In the field of engines and at elevated temperature stress (> +150°C) it is recommended to use Köditec 114.

KÖRAPUR 925 MARINE - KÖRAPUR 940 MARINE

ELASTIC PUR ADHESIVES AND SEALANTS

Körapur 925 Marine and Körapur 940 Marine are elastic moisture curing one component adhesives and sealants for the marine and boat industry.

Base	Polyurethane, one component, curing by humidity
Viscosity	Paste, low slump, spreadable, usable by sealant applicator gun
Characteristics	Elastic, good resistance to humidity, weathering and temperatures from -40°C to +90°C (for short intervals up to +120°C), overpaintable after curing

Sealing in the interior with Körapur 925 Marine

Bonding in the interior with Körapur 940 Marine

	KÖRAPUR 925 MARINE *Elastic one component PUR sealant which is also suitable for bonding applications.*	KÖRAPUR 940 MARINE *Elastic one component PUR sealant which is also suitable for bonding applications.*
Density	1,3 g/cm³	1,2 g/cm³
Colour	White, grey, black, brown	White
Skin formation time	45 minutes	70 - 90 min / Körapur 940 FC approx. 45 min
Curing	3-4 mm (on the first day)	3 mm (on the first day)
Hardness Shore A	45	55
Change in volume	3 %	7 %
Tear propagation strength	11 N/mm	7 N/mm
Elongation at tear	650 %	400 %
Tear strength	3 N/mm²	4 N/mm²
Packaging	310 ml aluminium cartridge 600 ml sachet	310 ml aluminium cartridge 600 ml sachet

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PRODUCT INFORMATION

KÖRAPUR 925 MARINE - KÖRAPUR 940 MARINE

Processing temperature	+5°C to +35°C
Preparation	The surfaces to be bonded must be clean, dry and free of dust and grease. Adhesion and compatibility must be individually tested when used on plastics or paint. For cleaning we recommend Körasolv PU or WL. In case of powder or gel coated substrates, Körasolv WL should be used. To increase adhesion of non-porous substrates such as glass, glass-fibre reinforced plastics, aluminium, stainless steel, etc. we recommend the use of Körabond HG 81. For porous substrates such as wood, Körabond HG 74 E is recommended. For certain plastics such as ABS or PVC we recommend the use of Körabond HG 77. Due to the diversity of substrates, preliminary tests are recommended.
Bonding	Apply Körapur 925 Marine and Körapur 940 Marine with a gun or a spatula onto the surface. The thickness of the layer depends on the expected mechanical movement. It is recommended to fix the bonded materials until the adhesive has cured. Curing time depends on temperature, air humidity and dimension of the joint.
Storage	Do not store below +5°C or above +25°C. When stored in unopened containers usable for 9 - 12 months.
Cleaning	Clean tools immediately after use with Körasolv PU. Once cured material can only be removed mechanically.

For safety information refer to the Material Safety Data Sheet

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KÖDITEC 114 - KÖDISIL N

SILICONE SEALANTS

Köditec 114 and Ködisil N are solvent free silicone sealants for various applications for the marine and boat industry.

Base	Silicone rubber, one component, curing by humidity, solvent free
Viscosity	Paste, non sag properties
Skin formation time	5 minutes
Characteristics	Good resistance to weathering and aging, largely resistant to many solvents, oils, fuels, water, some acids, cleaning agents, etc.

Sealing of engine components Köditec 114

Bonding and sealing in sanitary facilities or kitchen with Ködisil N

	KÖDITEC 114 *High resistance to temperature from -40°C to +250°C*	KÖDISIL N *Neutral and odorless, set fungicidal*
Colour	Anthracite	White, transparent, black, grey
Density	1,03 g/cm³	1,27 g/cm³ (white) 1,02 g/cm³ (transparent)
Hardness Shore A	17	23 (white) 19 (transparent)
Movement capability	-	25 %
Packaging	310 ml PE-cartridge	310 ml PE-cartridge 600 ml sachets

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PRODUCT INFORMATION

KÖDITEC 114 - KÖDISIL N

Preparation	The joints must be dry and free of dust and grease, otherwise the adhesive strength may be reduced. Körasolv GL is suitable for degreasing non-porous surfaces such as glass and metal. Care must be taken with plastics which are susceptible to stress cracking.
Joint process	Inject Ködisil N into the gap using a skeleton gun. For better wetting, some pressure should be exerted on the edges of the joint when applying the material. Wider joints should be filled in several operations with Silikon N being applied first to the joint edges to ensure contact between the sealant and the complete surface of the edges of the joint.
Joint dimensions	The joints to be sealed should be at least 4mm wide and 4mm deep. For joint widths up to approx. 5mm, a joint with a square cross-section is most suitable. For wider joints the joint depth should possibly be convex, e.g. polyethylene foam is to be inserted in such a way that the adhesion surface on the joint flanks is as large as possible (see also German DIN standard 18 540). It is recommended to cover the edges of the gap with self-adhesive tape in order to ensure a clean and straight joint. Triple surface adhesion is to be avoided.
Storage	Do not store below +10°C or above +25°C. When stored in unopened containers usable for up to 9 months.
Cleaning	To clean tools and remove fresh spots use Körasolv GL.

For safety information refer to the Material Safety Data Sheet

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III. ELASTIC CURING

At modern yachts, out of GRP or aluminium, the deck-to-hull bonding and fastening of the Flybridge construction belong to the mechanically highly stressed components. Bolted or welded connections can lead to fatigue and damage under constant load. Elastic bonding with Körapur 940, 940 FC or Körapop 954 reduces voltage peaks and ensures a permanently good connection of the single components.
Due to the excellent stability of the products, large gaps can be easily bridged and equalize large tolerances caused by the manufacturing process of GRP components. The elastic character of the adhesives reduces vibrations (e.g. at base plates), equalizes different linear expansions and easily absorbes impact loads.
For faster curing speed Körapur 940 / 940 FC as 2-part adhesive can be processed with Köracur 110 (10 : 1) or Köracur 100 (50 : 1). Bonding of large surfaces, large gaps or at very low humidity in winter is thus faster and safer.
For strongly UV exposed components it is recommended to use Körapop 945.
If a high Position Tack is needed, e.g. for the bonding of Big Heads on ceilings, lightweight panels, cable channels or corner profiles, it is recommended to use Körapop 960.

KÖRAPUR 940 MARINE - KÖRAPUR 940 MARINE / 2-PART

ELASTIC PUR ADHESIVES AND SEALANTS

	Körapur 940 Marine and Körapur 940 Marine / 2-part are elastic, moisture curing adhesives and sealants suitable for the use in the marine and boat industry.
Base	Polyurethane, curing by humidity
Colour	White
Density	1,2 g/cm³
Viscosity	Paste, non-sag properties
Skin formation time	70-90 minutes
Elongation at tear	400 %
Tear strength	4 N/mm²
Shear strength	3 N/mm² (at a layer thickness of 2mm)
Tear propagation strength	7 N/mm
Change in Volume	7 %
Hardness Shore A	55
Characteristics	Elastic, good resistance to humidity, weathering and temperatures from -40°C to 90°C, for short intervals up to +120°C. Overpaintable after curing. For faster curing we recommend the use of Körapur 940 / 2-part plus hardener Köracur 110.

	KÖRAPUR 940 MARINE *Elastic one component PUR adhesive*	KÖRAPUR 940 MARINE 2-K *Elastic PUR adhesive with optimal strength*
Pot life	-	approx. 90 min (with Köracur 110) approx. 40 min (with Köracur 110RZ)
Curing	3 mm (on the first day)	24 hours
Packaging	600 ml sachet	23 kg hobbock 230 kg drum

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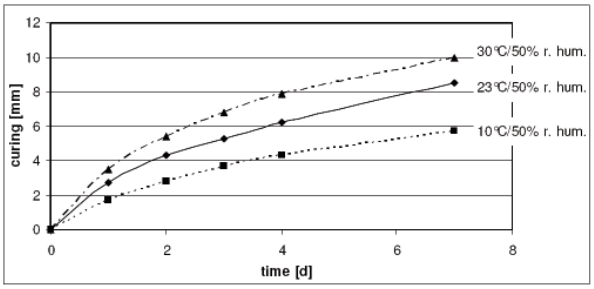
PRODUCT INFORMATION

KÖRAPUR 940 MARINE - KÖRAPUR 940 MARINE / 2-PART

Processing temperature	+5°C to +35°C
Preparation	The surfaces to be bonded must be clean, dry and free of dust and grease. Adhesion and compatibility must be individually tested when used on plastics or paint. For cleaning we recommend Körasolv PU or WL. In case of powder or gel coated substrates, Körasolv WL should be used. To increase adhesion of non-porous substrates such as glass, glass-fibre reinforced plastics, aluminium, stainless steel, etc. we recommend the use of Körabond HG 81. For porous substrates such as wood, Körabond HG 74 E is recommended. For certain plastics such as ABS and PVC we recommend the use of Körabond HG 77. Due to the diversity of substrates, preliminary tests are recommended.
Bonding	Apply Körapur 940 Marine and Körapur 940 Marine / 2-part with a gun or a spatula onto the surface. The thickness of the layer depends on the expected mechanical movement. Join the second material within the skin formation time and press. It is recommended to fix the bonded materials until the adhesive has cured. Curing time depends on temperature, air humidity and dimensions of the joint.
Storage	Do not store below +5°C or above +25°C. When stored in unopened containers usable up to 9 months.
Cleaning	Clean tools immediately after use with Körasolv PU. Once cured material can only be removed mechanically.



For safety information refer to the Material Safety Data Sheet

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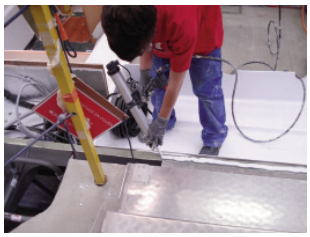
KÖRAPUR 940 FC MARINE - KÖRAPUR 940 FC MARINE / 2-PART

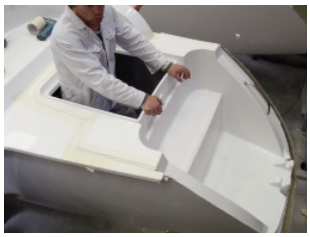
ELASTIC PUR ADHESIVES AND SEALANTS

Körapur 940 FC Marine and Körapur 940 FC Marine / 2-part are elastic, moisture curing adhesives and sealants suitable for the use in the marine and boat industry.

Base	Polyurethane, curing by humidity
Colour	White
Density	1,2 g/cm³
Viscosity	Paste, non-sag properties
Skin formation time	45 minutes
Elongation at tear	400 %
Tear strength	4 N/mm²
Shear strength	3 N/mm² (at a layer thickness of 2mm)
Tear propagation strength	7 N/mm
Change in volume	7 %
Hardness Shore A	55
Characteristics	Elastic, good resistance to humidity, weathering and temperatures from -40°C to +90°C, for short intervals up to +120°C. Overpaintable after curing. For faster curing we recommend the use of Körapur 940 / 2-part plus hardener Köracur 110.



Adhesive for deck-to-hull bonding



Bonding and sealing in sanitary facilities or kitchen with Ködisil N

	KÖRAPUR 940 FC MARINE *Elastic one component PUR adhesive*	KÖRAPUR 940 FC MARINE 2-K *Elastic PUR adhesive with optimal strength*
Pot life	-	approx. 20 min (with Köracur 110)
Curing	3 mm (on the first day)	12 hours
Packaging	600 ml sachet	23 kg hobbock 230 kg drum

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PRODUCT INFORMATION

KÖRAPUR 940 FC MARINE - KÖRAPUR 940 FC MARINE / 2-PART

Processing temperature	+5°C to +35°C
Preparation	The surfaces to be bonded must be clean, dry and free of dust and grease. Adhesion and compatibility must be individually tested when used on plastics or paint. For cleaning we recommend Körasolv PU and WL. In case of powder or gel coated substrates, Körasolv WL should be used. To increase adhesion of non-porous substrates such as glass, glass-fibre reinforced plastics, aluminium, stainless steel, etc. we recommend the use of Körabond HG 81. For porous substrates such as wood, Körabond HG 74 E is recommended. For certain plastics such as ABS or PVC we recommend the use of Körabond HG 77. Due to the diversity of substrates, preliminary tests are recommended.
Bonding	Apply Körapur 940 FC Marine and Körapur 940 FC Marine / 2-part with a gun or a spatula onto the surface. The thickness of the layer depends on the expected mechanical movement. Join the second material within the skin formation time and press. It is recommended to fix the bonded material until the adhesive has cured. Curing time depends on temperature, air humidity and dimensions of the joint.
Storage	Do not store below +5°C or above +25°C. When stored in unopened containers usable up to 9 months.
Cleaning	Clean tools immediately after use with Körasolv PU. Once cured material can only be removed mechanically.

For safety information refer to the Material Safety Data Sheet

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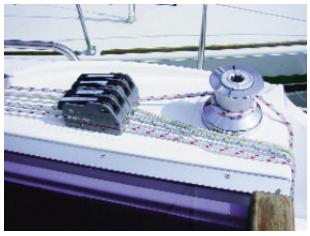
KÖRAPOP 954 MARINE - KÖRAPOP 960 MARINE

ELASTIC STP ADHESIVE

Körapop 954 Marine and Körapop 960 Marine are one component, elastic, solvent-free adhesives and sealants for the marine and boat industry.

Base	Silane terminated polymer, one component, curing by humidity
Viscosity	Paste, non-sag properties
Skin formation time	10 minutes
Characteristics	Elastic, good resistance to humidity, weathering and temperatures from -40°C to +80°C, for short intervals up to +120°C. Overpaintable after curing. Isocyanate-free and silicone-free. Adhesion and compatibility must be individually tested when used on plastics or paint.



KÖRAPOP 954 MARINE

Elastic sturctural adhesive e.g. for bonding hatches

KÖRAPOP 960 MARINE

Elastic structural adhesive with particularly high initial adhesion

Colour	White	Grey
Density	1,41 g/cm³	1,57 g/cm³
Hardness Shore A	58	56
Tear propagation strength	22 N/mm	-
Elongation at tear	380 %	200 %
Tear strength	3,2 N/mm²	2,1 N/mm²
Packaging	310 ml PE-cartridge	310 ml PE-cartridge

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PRODUCT INFORMATION

KÖRAPOP 954 MARINE - KÖRAPOP 960 MARINE

Processing temperature	+5°C to +30°C
Preparation	The surfaces to be bonded must be clean, dry and free of dust and grease. Adhesion and compatibility must be individually tested when used on plastics or paint. Körapop 954 and Körapop 960 can be used on most materials without primer. Preliminary tests are recommended. In UV- and moisture-stressed areas it is advisable to clean the surfaces to be bonded with Körasolv WL and pretreat with Körabond HG 83.
Bonding	Apply Körapop 954 and Körapop 960 with a gun onto the surface. The thickness of the layer depends on the expected mechanical movement. Join the second material within the skin formation time and press. It is recommended to fix the bonded materials until the adhesive has cured. Curing time depends on temperature, air humidity and dimensions of the joint.
Storage	Do not store below +5°C or above +25°C. When stored in unopened containers usable up to 12 months.
Cleaning	Clean tools immediately after use with Körasolv PU. Once cured material can only be removed mechanically.

For safety information refer to the Material Safety Data Sheet

IV. INSTALLATION OF DECK SURFACES

Deck coverings out of teak, PVC or polyurethane get increasingly popular from private boats up to cruise liners. Deck coverings are not only laid for aesthetic reasons, but also for ensuring the slip resistance of the deck, for insulating in winter and summer and for protecting the base against corrosion and sunlight. For these reasons, deck coverings have to be fully adhered to prevent cavaties where water can accumulate.
Depending on construction of the ship and type of deck coverings Kömmerling provides 4 systems. For the elastic embedding Körapur 928 or Körapop 959 can be used. For rigid bonding Körapur 666 as 2-part polyurethane or Körapox 565 are suitable.
Teak decks often consist of prefabricated, several m² wide elements.
To ensure a reliable bonding with Körapur 928 and Körapop 959, the adhesive needs enough moisture for the reaction.
Körapur 928 Marine / 928 FC Marine can also be processed as a 2-part product.

KÖRAPUR 928 MARINE - KÖRAPUR 928 FC MARINE

ELASTIC PUR ADHESIVES AND SEALANTS

Körapur 928 Marine and Körapur 928 FC Marine are elastic moisture curing one component adhesives and sealants for the marine and boat industry.

Base	Polyurethane, curing by humidity
Density	1,3 g/cm³
Viscosity	Paste, non-sag properties
Elongation at tear	800 %
Tear strength	3 N/mm²
Shear strength	3 N/mm² (at a layer thickness of 2mm)
Tear propagation strength	8 N/mm
Change in volume	5,5 %
Hardness Shore A	45
Characteristics	Elastic, good resistance to humidity, weathering and temperatures from -40°C to +90°C, for short intervals up to +120°C. Overpaintable after curing.

	KÖRAPOP 928 MARINE *Elastic, moisture curing surface adhesive*	KÖRAPOP 928 FC MARINE *Elastic, moisture curing surface adhesive as Bedding Compound*
Colour	White, black, brown	Brown
Skin formation time	75 minutes	45 minutes
Packaging	600 ml sachet 12 kg bucket	600 ml sachet 12 kg bucket

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PRODUCT INFORMATION

KÖRAPUR 928 MARINE - KÖRAPUR 928 FC MARINE

Processing temperature	+5°C to +35°C
Preparation	The surfaces to be bonded must be clean, dry and free of dust and grease. Adhesion and compatibility must be individually tested when used on plastics or paint. For cleaning we recommend Körasolv PU and WL. In case of powder or gel coated substrates, Körasolv WL should be used. To increase adhesion of non-porous substrates such as glass, glass-fibre reinforced plastics, aluminium, stainless steel, etc. we recommend the use of Körabond HG 81 or Körabond HG 91. For porous substrates such as wood, Körabond HG 74 E or Körabond HG 91 is recommended. For certain plastics such PVC we recommend the use of Körabond HG 77. Due to the diversity of substrates, preliminary tests are recommended.
Bonding	Apply Körapur 928 Marine and Körapur 928 FC Marine with a gun or a spatula onto the surface. The thickness of the layer depends on the expected mechanical movement. Join the second material within the skin formation time and press. It is recommended to fix the bonded material until the adhesive has cured. Curing time depends on temperature, air humidity and dimensions of the joint.
Storage	Do not store below +5°C or above +25°C. When stored in unopened containers usable up to 9 months.
Cleaning	Clean tools immediately after use with Körasolv PU. Once cured material can only be removed mechanically.

For safety information refer to the Material Safety Data Sheet

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KÖRAPOP 959 MARINE

ELASTIC STP ADHESIVE AND SEALANT

Körapop 959 Marine is a one component, elastic, solvent-free adhesive and sealant for the marine and boat industry.
Suitable as a bedding compound for deck coverings and parquet adhesive on the inside.

Base	Silane terminated polymer, one component, curing by humidity
Colour	Creme
Density	1,64 g/cm³
Viscosity	Paste, non-sag properties
Skin formation time	45 minutes
Hardness Shore A	57
Tear propagation strength	11 N/mm
Tear strength	2,1 N/mm²
Elongation at tear	170 %
Curing	3 mm (on the first day)
Characteristics	Elastic, good resistance to humidity, weathering and temperatures from -40°C to +90°C. Fast strength development. Adhesion and compatibility must be tested individually when used on plastics or paint.

KÖRAPOP 959 MARINE

Solvent-free, very low emission, easy to apply

Packaging	600 ml sachet

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PRODUCT INFORMATION

KÖRAPOP 959 MARINE

Processing temperature	+5°C to +30°C
Preparation	The surfaces to be bonded must be clean, dry and free of dust and grease. Adhesion and compatibility must be individually tested when used on plastics or paint. To increase adhesion of non-porous substrates such as glass, glass-fibre reinforced plastics, aluminium, stainless steel, etc. we recommend the use of Körabond HG 83 and for porous substrates such as TEAK or IROCO Körabond HG 91. For certain plastics such PVC we recommend a pretreatment with Körabond HG 91. Due to the diversity of substrates, preliminary tests are recommended.
Bonding	Apply Körapop 959 Marine with a gun or a spatula onto the surface. The thickness of the layer depends on the expected mechanical movement. Join the second material within the skin formation time and press. It is recommended to fix the bonded materials until the adhesive has cured. Curing time depends on temperature, air humidity and dimensions of the joint.
Storage	Do not store below +5°C or above +25°C. When stored in unopened containers usable up to 12 months.
Cleaning	Clean tools immediately after use with Körasolv PU. Once cured material can only be removed mechanically.

For safety information refer to the Material Safety Data Sheet

KÖMMERLING
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KÖRAPUR 666 - KÖRAPOX 565

2-PART REACTION ADHESIVES

Reaction adhesives for embedding deck coverings.
Good adhesion to TEAK, IROKO and wood, aluminium and steel, gelcoat and glass fibre-reinforced plastics

Colour	Beige
Characteristics	Good resistance to humidity and weathering.

	KÖRAPUR 666 *Solvent-free structural adhesive*	KÖRAPOX 565 *2-part structural adhesive for the marine and boat industry*
Base	Polyurethane, two component, solvent-free	Epoxy, two component, solvent-free
Pot life	Variable (3-90 min)	50 min
Density	1,70 g/cm³ (resin) 1,23 g/cm³ (hardener) 1,63 g/cm³ (mix)	1,45 g/cm³ (resin) 1,48 g/cm³ (hardener) 1,47 g/cm³ (mix)
Viscosity	50.000 mPas (mix)	Paste
Mixing ratio	Resin : Hardener 6 : 1 (by weight)	Resin : Hardener 1 : 1 (by weight)
Initial strength	12-16 h (at +20°C and TZ 90 min)	8 h (at +20°C)
Shear strength	Aluminium / Wood 17 N/mm² at -20°C 14 N/mm² at +20°C 3,5 N/mm² at +80°C	Aluminium / Aluminium 24 N/mm² at +20°C
Packaging	0,350 kg mixing cartridge 1 kg mixing unit 6 kg bucket 30 kg hobbock 300 kg drum	250 ml TAH-cartridge 25 kg hobbock

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PRODUCT INFORMATION

KÖRAPUR 666 - KÖRAPOX 565

Processing temperature	+15°C to +25°C
Preparation	The surfaces to be bonded must be clean, dry and free of dust and grease. We recommend that metal surfaces should be pretreated and sanded. For certain plastics such as PVC we recommend a pretreatment with Körabond HG 77. Thoroughly mix the components A + B intensively together until an even colour is obtained. Please notice the application instruction for mixing cartridges.
Bonding	Apply an even layer of adhesive to the surfaces to be bonded using a spatula and join them together. For Körapur 666 the bond can be exposed moderate after 12-16 hours. The final strength for Körapur 666 will be reached after 36 hours and for Körapox 565 after 24 hours.
Storage	Do not store below +10°C or above +25°C. When stored in unopened containers usable up to 12 months.
Cleaning	Clean tools immediately after use with Körasolv PU. Once cured material can only be removed mechanically. While working with Körapur 666 and Körapur 565 avoid direct contact of the uncured material with your skin. Use protective gloves.

For safety information refer to the Material Safety Data Sheet

V. TEAK-DECK CAULKING

With real wood deck coverings e.g. Teak or Iroco it is especially important to protect the joints permanently against water entry. For this application the adhesive and sealant have to fulfill highest demands on the resistance of UV, salt water and fresh water. As an additional burden Teak oil or tannic acid and different porosities come directly out of the timber.
As one of the leading companies in the field of Polysulfide, Kömmerling has used its expertise to revive the old familiar Thiokol sealant. With Köraflex 996, a new 2-part polysulfide, Kömmerling ushers in a new era in the teak-deck caulking.
Köraflex 996 can be used without primer on many Teak qualities and already after 6-8 hours it is possible to sand the deck.
Due to Köraflex 996 the intermediate storage for serial production can be substantially reduced and to this polysulfide belongs to the most durable sealants out there.

KÖRAFLEX 996 MARINE

ELASTIC 2-PART POLYSULPHIDE SEALANT

	Köraflex 996 Marine is an elastic, two component adhesive and sealant for teak-deck caulking for the marine and boat industry.
Base	Component A: Polysulphide Component B: Manganese dioxide
Colour	Component A: black Component B: beige Mix: black
Density	1,6 g/cm³
Mixing ratio	10 : 1 (by volume and weight)
Viscosity (Mix)	Slightly self-levelling, spreadable, useable with application gun
Pot life	70 minutes (with Köraflex 996 B-65) 35 minutes (with Köraflex 996 B-20)
Skin formation time	120 minutes (with Köraflex 996 B-65) 60 minutes (with Köraflex 996 B-20)
Hardness Shore A	33 (after 1 d) 37 (after 7 d)
Tear strength	1,1 N/mm²
Elongation at tear	500 %
Curing	cured after 24 h
Characteristics	Elastic, good resistance to humidity, weathering and temperature from -40°C to +70°C, for short intervals up to +90°C. Very good resistance to water, salt water and several chemicals.. Highly resistance to UV radiation. Also usable as Bedding Compound.
Packaging	490 ml Tandem Cartridge 4,5 kg Tin 19 l Hobbock 190 l Drum

KÖMMERLING

KÖMMERLING CHEMISCHE FABRIK GMBH

PRODUCT INFORMATION

KÖRAFLEX 996 MARINE

Processing temperature	+5°C to +30°C
Preparation	The surfaces to be bonded must be clean, dry and free of dust and grease. Adhesion and compatibility must be tested individually when used on plastics or paint. To increase adhesion of non-porous substrates such as glass-fibre reinforced plastics, aluminium, stainless steel, etc. we recommend the use of Körabond HG 92. For porous substrates such as TEAK or IROCO can be used on most materials without primer. In the remaining cases we recommend Körabond HG 92. Preliminary tests are recommended.
Deck caulking	Apply Köraflex 996 with a gun or an appropriate 2-part mixing and dosing machine into the joints. The joints are easy to fill. Set up the gun ideally at an angel of 50°-80° to the joint. Ensure that there is no bubble formation. The joint should be peeled off with an elastic spatula within the potlife. Surplus material should be removed to facilitate the subsequent grinding. Curing time depends on temperature. The grinding process can be carried out at about +23°C for 6-8 hours.
Storage	Do note store below +5°C or above +25°C. When stored in unopened containers usable up to 12 months.
Cleaning	Clean tool immediately after use with Körasolv PU. Once cured material can only be removed mechanically.

For safety information refer to the Material Safety Data Sheet

VI. HIGH STRENGTH ADHESIVE

In some areas high strength adhesives are needed to achieve the required strength.
When bonding the frame structures for the hull, Big Heads, bridge walls or in the interior high strength adhesives are used to improve the rigidity of the total construction and reduce time consuming laminating.
In combination with wood or wood materials, Körapur 666 is suitable up to a wood moisture of approximately 16% (may vary slightly by type and quality of the wood). Körapur 790 is a high strength, general applicable adhesive with good adhesion to many substrates. To complete the programme Körapur 840 and Körapur 842 are suitable for the use in areas where lower temperatures can occur. Especially Körapur 842 is appropriate for the execution of bondings where good damping properties are required.

KÖRAPUR 666 - KÖRAPUR 790

2-PART PUR REACTION ADHESIVES

	Reaction adhesives for various bondings within the container, boat and ship-building industry. Good adhesion to wood, aluminium, steel, glass fibre-reinforced plastics, thermosetes and several thermoplastics.
Base	Polyurethane, two component, solvent-free
Characteristics	Good resistance to humidity and weathering. Different pot life settings.
Pot life	Variable

	KÖRAPUR 666	KÖRAPUR 790
Colour	Beige	Grey
Density	1,7 g/cm³ (resin) 1,2 g/cm³ (hardener) 1,6 g/cm³ (mix)	1,2 g/cm³ (resin) 1,6 g/cm³ (hardener) 1,4 g/cm³ (mix)
Viscosity	50.000 mPas (mix)	no slump
Mixing ratio	Resin : Hardener 6 : 1 (by weight)	Resin : Hardener 0,8 : 1 (by weight)
Hardness Shore D	55	76
Initial strength	12-16 h (at +20°C and TZ 90 min)	5-6 h (at +20°C and TZ 30 min)
Shear strength	Aluminium / Wood 17 N/mm² at +23°C 4 N/mm² at +80°C	Aluminium / Wood 18 N/mm² at +20°C
Packaging	0,350 kg mixing cartridge 1 kg mixing units 6 kg bucket 30 kg hobbock 300 kg drum	220 ml cartridge

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KÖMMERLING CHEMISCHE FABRIK GMBH

PRODUCT INFORMATION

KÖRAPUR 666 - KÖRAPUR 790

Processing temperature	+5°C to +25°C
Preparation	The surfaces to be bonded must be clean, dry and free of dust and grease. We recommend that metal surfaces should be pretreated and sanded. For certain plastics such as PVC we recommend a pretreatment with Körabond HG 77. Thoroughly mix the components A + B intensively together until an even colour is obtained. Please notice the application instruction for mixing cartridges.
Bonding	Apply an even layer of adhesive to the surfaces to be bonded using a spatula and join them together. For Körapur 666 the bond can be exposed moderate after 12-16 hours. The final strength for Körapur 666 will be reached after 36 hours and for Körapur 790 after 24 hours.
Storage	Do not store below +10°C or above +25°C. When stored in unopened containers usable up to 12 months.
Cleaning	Clean tools immediately after use with Körasolv PU. Once cured material can only be removed mechanically. While working with Körapur 666 and Körapur 790 avoid direct contact of the uncured material with your skin. Use protective gloves.

For safety information refer to the Material Safety Data Sheet

KÖMMERLING
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KÖRAPUR 840 - KÖRAPUR 842

2-PART PUR REACTION ADHESIVES

Körapur 840 and Körapur 842 are reaction adhesives for various bondings within the container and shipbuilding industry.
Good adhesion to aluminium and steel, glass fibre-reinforced plastics, thermosets and several thermoplastics.

Base	Polyurethane, two component, solvent-free
Colour	Beige
Characteristics	non-sag at a thin layer, good impact resistance, good resistance to humidity and weathering
Pot life	Variable
Density	1,5 g/cm³ (resin) 1,2 g/cm³ (hardener) 1,5 g/cm³ (mix)
Viscosity	Structural viscosity (resin)
Mixing ratio	Resin : Hardener 5 : 1 (by weight)

	KÖRAPUR 840	KÖRAPUR 842
Hardness Shore D	73	45
Tear strength	12 MPa at +23°C	11 MPa at +23°C
Elongation at tear	40 % at +23°C	70 % at +23°C
Initial strength	40min - 8h (at +20°C, depending on TZ)	3 - 12h (at +20°C, depending on TZ)
Shear strength	Aluminium / Aluminium 24 N/mm² at -20°C 16 N/mm² at +20°C 4,4 N/mm² at +80°C	Aluminium / Aluminium 13 N/mm² at -20°C 9 N/mm² at +20°C 3 N/mm² at +80°C
Packaging	360 g mixing cartidge 540 g tandem cartridge 5 kg bucket 300 kg drum	360 g mixing cartridge 5 kg Bucket 300 kg Drum

KÖMMERLING
KÖMMERLING CHEMISCHE FABRIK GMBH

PRODUCT INFORMATION

KÖRAPUR 840 - KÖRAPUR 842

Processing temperature	+5°C to +25°C
Preparation	The surfaces to be bonded must be clean, dry and free of dust and grease. We recommend that metal surfaces should be pretreated and sanded. For certain plastics such as PVC we recommend a pretreatment with Körabond HG 77. Thoroughly mix the components A + B intensively together until an even colour is obtained. Please notice the application instruction for mixing cartridges.
Bonding	Apply an even layer of adhesive to the surfaces to be bonded using a spatula and join them together. For Körapur 840 the bond can be exposed moderate after 6-8 hours. The final strength for Körapur 840 will be reached after 24 hours and for Körapur 790 after 48 hours.
Storage	Do not store below +10°C or above +25°C. When stored in unopened containers usable up to 12 months.
Cleaning	Clean tools immediately after use with Körasolv PU. Once cured material can only be removed mechanically. While working with Körapur 840 and Körapur 842 avoid direct contact of the uncured material with your skin. Use protective gloves.

For safety information refer to the Material Safety Data Sheet

VII. MANUFACTURE OF SANDWICH ELEMENTS

In many areas sandwich elements are required to manufacture walls, doors, decoration panels, base plate or ceilings. Especially in the large shipbuilding industry, whole sections are prefabricated and subsequently installed with sandwich elements.
Insulation materials are bonded permanently on tanks or walls. KÖMMERLING offers with Körapur 643 and Körapur 672 two approved 2-part polyurethane systems for several years now.
Körapur 672 is especially for elements with wood, up to a wood moisture of 16% (may vary slightly by type and quality of the wood) applicable without foaming.
Körapur 928 Marine or Körapop 959 Marine are an excellent one component solution for the manufacture of permanently stable sandwich elements.

KÖRAPUR 643 - KÖRAPUR 672

2-PART PUR REACTION ADHESIVES

Körapur 643 and Körapur 672 are 2-part PUR reaction adhesives for the manufacture of sandwich elements for the container and shipbuilding industry.

Base	Polyurethane, two component, solvent-free
Colour	Beige
Characteristics	Good resistance to humidity and weathering
Pot life	60 min

	KÖRAPUR 643	KÖRAPUR 672
Density	1,4 g/cm³ (resin) 1,2 g/cm³ (hardener) 1,4 g/cm³ (mix)	1,2 g/cm³ (resin) 1,6 g/cm³ (hardener) 1,4 g/cm³ (mix)
Viscosity	2.500 mPas (mix)	8.000 mPas (mix)
Mixing ratio	Resin : hardener 3 : 1 (by weight)	Resin : hardener 5 : 1 (by weight)
Packaging	30 kg hobbock 270 kg drum 1300 kg container	30 kg hobbock 270 kg drum 1300 kg container

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PRODUCT INFORMATION

KÖRAPUR 643 - KÖRAPUR 672

Processing temperature	+15°C to +25°C
Preparation	The surfaces to be bonded must be clean, dry and free of dust and grease. Adhesion must be tested for compatibility by carrying out preliminary trials. We recommend that metal surfaces should be pretreated and sanded. Surfaces of glass fibre-reinforced plastics must also be sanded. Thoroughly mix the components A + B intensively together until an even colour os obtained. Please notice the application instruction for mixing cartridges.
Bonding	Apply an even layer of adhesive to the surfaces to be bonded using a spatula and join them together. For Körapur 643 the bond can be exposed moderate after 8-12 hours. The final strength will be reached after 24 hours. High temperatures will shorten the curing time, low ones will lengthen them. Beim Auftrag ist darauf zu achten, dass beide Flächen vollständig benetzt werden und Einschluss von Luft möglichst vermieden wird.
Storage	Do not store below +10°C or above +25°C. When stored in unopened containers usable up to 12 months.
Cleaning	Clean tools immediately after use with Körasolv PU. Once cured the material can be removed mechanically.

For safety information refer to the Material Safety Data Sheet

KÖMMERLING
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KÖRAPUR 928 MARINE - KÖRAPUR 928 FC MARINE

ELASTIC PUR ADHESIVES AND SEALANTS

Körapur 928 Marine and Körapur 928 FC Marine are elastic, moisture curing one component adhesives and sealants for the marine and boat industry.

Base	Polyurethane, curing by humidity
Colour	Black, brown, white
Density	1,3 g/cm³
Viscosity	Paste, non-sag properties
Skin formation time	45 minutes
Elongation at tear	800 %
Tear strength	3 N/mm²
Tear propagation strength	8 N/mm
Change in volume	5,5 %
Hardness Shore A	45
Characteristics	Elastic, good resistance to humidity, weathering and temperature from -40°C to +90°C, for short intervals up to +120°C. Overpaintable after curing.

	KÖRAPOP 928 MARINE *Elastic structural adhesive e.g. for bonding hatches*	KÖRAPOP 928 FC MARINE *Elastic structural adhesive with very high initial strength*
Colour	White, black, brown	Brown
Skin formation time	75 minutes	45 minutes
Packaging	600 ml sachet 12 kg hobbock	600 ml sachet 12 kg hobbock

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PRODUCT INFORMATION

KÖRAPUR 928 MARINE - KÖRAPUR 928 FC MARINE

Processing temperature	+5°C to +35°C
Preparation	The surfaces to be bonded must be clean, dry and free of dust and grease. Adhesion and compatibility must be individually tested when used on plastics or paint. For cleaning we recommend Körasolv PU and WL. In case of powder or gel coated substrates, Körasolv WL should be used. To increase adhesion of non-porous substrates such as glass, glass-fibre reinforced plastics, aluminium, stainless steel, etc. we recommend the use of Körabond HG 81. For porous substrates such as wood, Körabond HG 74 E is recommended. For certain plastics such ABS or PVC we recommend the use of Körabond HG 77. Due to the diversity of substrates, preliminary tests are recommended.
Bonding	Apply Körapur 928 Marine and Körapur 928 FC Marine with a gun or a spatula onto the surface. The thickness of the layer depends on the expected mechanical movement. Join the second material within the skin formation time and press. It is recommended to fix the bonded materials until the adhesive has cured. Curing time depends on temperature, air humidity and dimensions of the joint.
Storage	Do not store below +5°C or above +25°C. When stored in unopened containers usable up to 9 months.
Cleaning	Clean tools immediately after use with Körasolv PU. Once cured material can only be removed mechanically.

For safety information refer to the Material Safety Data Sheet

KÖMMERLING
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KÖRAPOP 959 MARINE

ELASTIC STP ADHESIVE AND SEALANT

Körapop 959 Marine is a one component, elastic, solvent-free adhesive for the marine and boat industry.

Base	Silane terminated polymer, one component, curing by humidity
Colour	Creme
Density	1,64 g/cm³
Viscosity	Paste, non-sag properties
Skin formation time	45 minutes
Hardness Shore A	57
Tear propagation strength	11 N/mm
Tear strength	2,1 N/mm²
Elongation at tear	170 %
Curing	3 mm (on the first day)
Characteristics	Elastic, good resistance to humidity, weathering and temperature from -40°C to +90°C. Fast strength development. Adhesion and compatibility must be individually tested when used on plastics or paint. Solvent-free, very low emission, easy to apply.

Packaging	600 ml sachet 25 kg hobbock	600 ml sachet 25 kg hobbock

KÖMMERLING
KÖMMERLING CHEMISCHE FABRIK GMBH

PRODUCT INFORMATION

KÖRAPOP 959 MARINE

Processing temperature	+5°C to +30°C
Preparation	The surfaces to be bonded must be clean, dry and free of dust, grease, cracks and release agents. Depending on type and condition of the substrate a mechanical treatment (e.g. mechanical brushing, grinding or ball blasting) is necessary. Adhesion must be tested for compatibility by carrying out preliminary tests. The following primers are suitable: Körabond HG 91 for porous substrates and Körabond HG 83 for non-porous substrates. Due to the diversity of the substrates in the market preliminary tests are necessary.
Bonding	Apply Körapop 959 Marine with a spatula or a gun onto the surface. The thickness of the layer depends on the properties of the materials to be bonded. Join the second material within the skin formation time and press. It is recommended to fix the bonded materials until the adhesive has cured. Curing time depends on temperature, air humidity and dimensions of the joint.
Storage	Do not store below +5°C or above +25°C. When stored in unopened containers usable up to 12 months.
Cleaning	Clean tools immediately after use with Körasolv PU. Once cured material can only be removed mechanically.

For safety information refer to the Material Safety Data Sheet

VIII. SLIP RESISTANT FLOOR COATINGS

In many areas on transporting ships, ferries, cruise liners, etc. anti-slip floor coating is required to gain a firm foothold for the staff and passengers. To meet those requirements Körapur 690 or Körapox BS 90 can be used for engine rooms, kitchens, cold storage rooms, containers, car decks and on the gangway. Körapur 689 with the sealing Körapox BS 85 are suitable for compensating bumps or scattering paint chips or corundum. All products come with a food certificate and can therefore easily be used in kitchens or food cargo compartements.

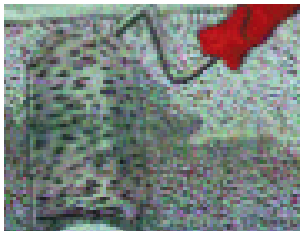
KÖRAPUR 689 - KÖRAPUR 690

PUR COATING COMPOUND

Körapur 689 and Körapur 690 are PUR coating compounds for coating floors for transporting ships, containers, ferries, etc. on polyester, aluminium, primed steel sheets and timber.
Particularly suitable for fresh food vehicles, meat and fish vehicles as well as refrigerating vehicles (tested up to -30°C). Permitted to come into contact with foodstuff, physiologically unobjectionable. Test certificate available!

Base	Polyurethane, two component	
Colour	Grey, approx. RAL 7037	
Characteristics	Good adhesion to a wide variety of substrates, good abrasion resistance, test according to EN 438	

Floor coating with Körapur 689



Floor coating with Körapur 690

	KÖRAPUR 689 *Self levelling*	KÖRAPUR 690 *Paste, structural viscosity*
Density	1,40 g/cm³ (mix)	1,5 g/cm³ (mix)
Viscosity	3.600 mPas (mix)	25.000 mPas (mix)
Mix ratio	4 : 1 by weight	3 : 1 by weight
Consumption	5 kg/m² (3-4 mm)	600-800 g/m²
Pot life	40 minutes at +20°C	120 minutes at +20°C
Packaging	15 kg mixing units in stacked container	6 kg mixing units in stacked container

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PRODUCT INFORMATION

KÖRAPUR 689 - KÖRAPUR 690

Processing temperature	+20°C to +22°C
Beschichtung	Please notice the application instruction!
Storage	Do not store below +5°C or above +25°C. When stored in unopened containers usable up to 12 months.
Cleaning	Clean tools immediately after use with Körasolv PU. Once cured material can only be removed mechanically.

	KÖRAPUR 689	KÖRAPUR 690
Preparation	The surfaces to be coated must be disposed horizontally, dry and free of dust and grease. The substrates must be prepared in order to assure a good adhesion. Uncoated wooden sheets must not exceed 8-12% of humidity. Coats on wooden sheets must be removed completely by grinding. Sheet joints are to be bended by tongue and groove and by frictional connection. If necessary, a glass fibre cloth strip must be inserted in order to avoid the formation of tearings and marks. Fill holes and sinkings, e.g. with Körapur 666. Polyester must be thoroughly grinded. Polyester surfaces which may contain release agents, such as paraffine, must be sand blasted. Degrease and grind stainless steel and aluminium surfaces. When repairing older floors, particular care must be given to the pretreatment of the substrate. Good results are achieved with sand blasting.	The surfaces must be clean, dry and free of dust and grease. The substrates must be prepared in order to assure a good adhesion. This includes, where appropriate mechanical and / or chemical pretreatment. When repairing older floors, particular care must be given to the pretreatment of the substrate. Good results are achieved with sand blasting.

For safety information refer to the Material Safety Data Sheet

KÖMMERLING
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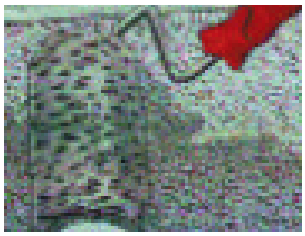
KÖRAPOX BS 85 - KÖRAPOX BS 90

EPOXY RESIN SEALINGS

Körapox BS 85 and Körapox BS 90 are epoxy resin sealings for non-slipping sealings of coated floors for transporting ships, containers, ferries, etc. on polyester aluminium, primed steel sheets and timber. Particularly suitable for fresh food vehicles, meat and fish vehicles as well as refrigerating vehicles (tested up to -30°C). Permitted to come into contact with foodstuff, physiologically unobjectionable. Test certificate available.

Base	Epoxy, two component
Characteristics	Good adhesion to a wide variety of substrates, good resistance to water, salt water and yellowing.
Open time	30 minutes
Colour	Grey



Sealing of the bedding materials with Körapox BS 85

Coating of the hydraulic platform with Körapox BS 90

	KÖRAPOX BS 85 *Good resistance to yellowing*	KÖRAPOX BS 90 *Good adhesion to metal*
Density	1,2 g/cm³ (mix)	1,55 g/cm³ (mix)
Viscosity	Low viscosity	18.000 mPas (mix)
Mixing ratio	4 : 1 by weight	7 : 1 by weight
Consumption	250 g/m²	800-1.000 g/m²
Pot life	8 hours at +20°C	24 hours at +20°C
Packaging	5 kg mixing units in stacked container	8 kg mixing units in stacked container

KÖMMERLING
KÖMMERLING CHEMISCHE FABRIK GMBH

PRODUCT INFORMATION

KÖRAPOX BS 85 - KÖRAPOX BS 90

Processing temperature	+15°C to +25°C
Coating	Please notice application instruction!
Storage	Do not store below +5°C or above +25°C. When stored in unopened containers usable up to 12 months.
Cleaning	Clean tools immediately after use with Körasolv PU. Once cured material can only be removed mechanically.

	KÖRAPOX BS 85	KÖRAPOX BS 90
Processing temperature	+15°C to +25°C	+15°C to +25°C
Preparation	The surfaces must be solid, clean, dry (no more than 15% humidity) and free of grease. Concrete slush, oil, colour-residues etc. must be removed thoroughly, if necessary by using a flame or sand jet. The substrate and pretreatment must be appropriate for final purpose. Mix components A and B (mixing ratio 4:1) thoroughly with a stirrer (approx. 400rpm), then pour the mixture in a clean pot and mix again. 1. Application step (priming coat): Dilute Körapox BS 85 with up to 20% Körasolv PU. 2. Application step (finishing coat): Use Körapox BS 85 without solvent or add up to a maximum of 10% Körasolv PR.	The surfaces must be clean, dry and free of dust and grease. The substrates must be prepared in order to assure a good adhesion. This includes, where appropriate mechanical and / or chemical pretreatment. Glass fibre-reinforced plastics and aluminium substrates should be pretreated by grinding or sanding. Aluminium surfaces must be sanded (sandpaper grit 60). Not suitable for sealing pliable substrates such as wood. When repairing older floors, particular care must be given to the pretreatment of the substrate. Good results are achieved with sand blasting.

For safety information refer to the Material Safety Data Sheet

IX. INTERIOR FINISHING IN GENERAL

The interior of yachts and cruise liners have ingreasingly higher demands on design, materials and quality. In order to process genuine leather and textile into wall materials, to lay floor coverings, to install sound and thermal insulation or to bond decorative layer plates, KÖMMERLING offers its own range of dispersions, solvent adhesives, double sided tapes and cyanoacrylates.

KÖRAPREN FU 35 - KÖRAPREN FU 36

POLYCHLOROPRENE CONTACT ADHESIVE

	Körapren FU 35 and Körapren FU 36 are polychloroprene adhesives for the universal contact bonding in the boat and shipbuilding industry. Suitable for bonding of wall and floor coverings, and all decorative plastic layer on wooden boards (particle board, plywood panels), PVC and rubber profiles. Not suitable for bonding polystyrene foam.
Base	Polychloroprene, containing solvent
Density	0,86 g/cm³
Consumption	250-300 g/cm³ (depending on substrate)

	KÖRAPREN FU 35 *Sprayable, for lager surfaces*	KÖRAPREN FU 36 *Adhesive fo universal contact bonding, spreadable; also suitable for bonding to mineral surfaces and metal*
Colour	Light yellow, transparent	Amber
Viscosity	400 mPas	3.200 mPas
Solid content	21 %	25 %
Characteristics	High contact adhesion, good resistance to humidity and heat	Partially resistant to moisture
Packaging	10 kg hobbock 170 kg drum	750 g tin 5 kg bucket 12,5 kg hobbock 25 kg hobbock

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PRODUCT INFORMATION

KÖRAPREN FU 35 - KÖRAPREN FU 36

Processing temperature	+12°C to +25°C
Preparation	The surfaces to be bonded must be clean, dry and free of dust and grease.
Storage	When stored in unopened containers between +10°C and +25°C usable up to 12 months.
Cleaning	Clean tools with Körasolv PU.

	KÖRAPREN FU 35	KÖRAPREN FU 36
Bonding	Apply adhesive with spray jet application on the two parts to be bonded large and regularly. Injection pressure and diameter of the spray jets are dependent on the particular application. After a waiting time (ventilation time) of 10 to 15 minutes place the parts accurately together and press firmly or joint them together. The waiting time depends on the room temperature, thickness of the adhesive film and absorbency of the base surface. The surfaces to be bonded should be placed together when the adhesive film is still slightly sticky but does not stick to the finger when it is pressed lightly.	Apply adhesive with a brush or a slightly serrated spatula on the two parts to be bonded large and regularly. After a waiting time (ventilation time) of approx. 15 minutes place the parts accurately together and briefly and firmly press or join them together. The parts have to be bonded together at least approx. 60 minutes after the application of the adhesive. The waiting time depends on room temperature, thickness of the adhesive film and absorbency of the base surface.

For safety information refer to the Material Safety Data Sheet

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KÖRATAC C 3 - KÖRATAC C 12

POLYMER ADHESIVE

Köratac C 3 and Köratac C 12 are polymer adhesives for bonding rubber (EPDM, SBR, CR) to a variety of other materials such as wood, metal, thermosets or for bonding soft PVC, foils and sealings with each other.

Base	Cyanacrylate, solvent-free	
Colour	Transparent	
Consistency	Easy to spread	
Density	1,0 g/cm³	
	KÖRATAC C 3 *Fast curing, solvent-free, for small surfaces*	**KÖRATAC C 12** *For bonding of soft and rigid PVC parts and for sealing in the boat and shipbuilding industry.*
Consumption	100-250 g/m²	100-250 g/m²
Open time	Approx. 10-30 sec.	Less than 30 sec.
Characteristics	Extremely fast curing, good climatic and tropics resistance, swellable by long storage in ester solvents	High contact adhesion, high initial strength, good adhesion to humidity and heat
Packaging	20 g bottle 50 g bottle	20 g bottle 50 g bottle 100 g bottle

KÖMMERLING
KÖMMERLING CHEMISCHE FABRIK GMBH

PRODUCT INFORMATION

KÖRATAC C 3 - KÖRATAC C 12

Processing temperature	not below +12°C	
Storage	Do not store below +12°C. When stored in unopened containers usable up to 12 months.	
Cleaning	Körasolv PU	
	KÖRATAC C 3	KÖRATAC C 12
Preparation	The surfaces to be bonded must be very well cleaned and they must be free of grease. Acetone and other grease solvents are suitable. If possible, the surfaces should be roughened by sanding or sandblasting to achieve a good fixation for the adhesive.	The surfaces to be bonded must be dry, clean and free of dust and grease. The cure is initiated by humidity. This must be between 40-70% rel. humidity.
Bonding	In practice, point of bonding has proven to be best suited where, depending on the size of the surfaces, one or more drops of Köratac C 3 are put on one surface and after applying the other surface, the adhesive is pressed into a thin film. The joined pieces have to be fixed under pressure for approx. 10-30 seconds.	Exact dosage is achieved by using the applicator nozzle. Drops of the adhesive are applied to one surface; the other surface is then pressed to it thus spreading the adhesive into a thin film. The two pieces should be held together under pressure for approx. 10-12 seconds, depending on the substrates. During this time, the adhesive is only partially cured, but the two pieces will nonetheless be firmly bonded together, so that no adjustment is possible and processing can continue immediately. The curing progress will normally be complete after 24 hours.

For safety information refer to the Material Safety Data Sheet

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KÖRATAPE AT 1 - KÖRATAPE AT 2 - KÖRATAPE AT 3

ACRYLATE ADHESIVE TAPE

Köratape can be used in a variety of applications including container, metal and shipbuilding industry.
Example applications: Side protection strips, logos, emblems, etc.

Base	Acrylate, solvent-free
Thickness	0,25 mm to 2,03 mm
Width	10 mm to 457 mm
Temperature range	-35°C to +90°C

	KÖRATAPE AT 1 *Acrylate adhesive tape with acrylate foam core*	KÖRATAPE AT 2 *Acrylate adhesive tape with acrylate hard resin core*	KÖRATAPE AT 3 *Acrylate adhesive tape with acrylate hard resin core*
Colour	Clear	Grey	Translucent
Tear strength	1,05 MPa	0,95 MPa	1,4 MPa
Elongation	1000%	900%	500%
Peel adhesion	1,75 N/mm	1,75 N/mm	2,63 N/mm
Packaging	on request	on request	on request

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KÖMMERLING CHEMISCHE FABRIK GMBH

PRODUCT INFORMATION

KÖRATAPE AT 1 - KÖRATAPE AT 2 - KÖRATAPE AT 3

Processing temperature	+10°C to +35°C
Preparation	The surfaces to be bonded must be dry, clean and free of dust and grease. Clean substrates at the earliest 15 minutes before bonding with Körasolv CR, GL, WL and then let it dry. To ensure removal of all contaminants without leaving any residue, use a clean, lint-free wiping cloth or disposable wipe (never recycled rags). Insure optimum substrate temperature, never below +15°C at application time.
Application instructions	1. Apply the part to be bonded without entrapping air between the tape and the substrate with a recommended minimum application pressure of 2.5 kg/cm of tape width to achieve adhesive to substrate contact and maximum bond strength. The strength of the bond depends on the contact between the glue with the surface to be bonded. 2. To connect with a second substrate remove the protective release and proceed as in step 1.
Storage	Two years minimum from date of manufacture (at +20°C and 50% rel. humidity).
Cleaning	Körasolv CR, GL or WL

For safety information refer to the Material Safety Data Sheet

KÖMMERLING
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KÖRACOLL WB 12 - KÖRACOLL 3350

SOLVENT-FREE DISPERSION ADHESIVES

Köracoll WB 12 and Köracoll 3350 are solvent-free dispersion adhesives. For bonding floor coverings, sound and thermal insulation, decorative laminates with each other and with wood, sheet metal, glass-fibre reinforced plastics and PUR elements, as well as painted surfaces. Universal adhesive for various applications.

Colour	White
Density	1,0 g/cm³
Characteristics	Filling, viscoplastic, largely resistant to moisture, good temperature resistance up to +110°C.

	KÖRACOLL WB 12 *Universal adhesive for various applications;* *WL-Nr. 430101*	KÖRACOLL 3350 *For laminating PVC foam foils and ABS foils by heat sealing method*
Base	EVA / acrylic ester copolymer with self-cross-linking properties	Polyurethane thermal activated
Viscosity	9.000 - 13.000 mPas, can be applied by spray gun, roll-coater, spatula and brush	5.000 mPas
Solid content	68 %	49 %
Amplifier	-	Köracur D
Mixing ratio	-	100 : 5
Pot life	-	8 hours
Activation temperature	-	approx. +45°C (depending on intermediate storage)
Consumption	250-400 g/m² (depending on substrate)	60-120 g/m² (depending on substrate)
Packaging	10 kg plastic bucket	5 kg bucket

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PRODUCT INFORMATION

KÖRACOLL WB 12 - KÖRACOLL 3350

Processing temperature	+15°C to +35°C
Preparation	The surfaces to be bonded must be clean, dry and free of dust and grease. Please notice application instructions!

	KÖRACOLL WB 12	KÖRACOLL 3350
Bonding	For unilateral bonding, apply the adhesive evenly to the substrate using a toothed spatula. Immediately, not later than 10 minutes after application, join the covering, brush or roll on thoroughly. Immediately remove excess adhesive with water. Open assembly time is approx. 20 minutes. For contact bonds, apply adhesive to the materials to be bonded using a fine toothed spatula (toothing A4) or a brush. Allow to ventilate for about 20 to 40 minutes. Then join the materials and press intensively. During the first phase of curing (3-8 hours) the bonding must not be exposed a tensile shear.	The adhesive is applicated by spraying equipment gun with a pressure of 3 - 5 bar and a nozzle of 1,5 mm diameter. After curing (approx. 60 min at room temperature, can be accelerated by heat) the adhesion follows in a vacuum drawing process. The sealing time depends on heat conductance of the materials. Sealing time and heat conductance have to be determined in pre-tests. The maximum temperature resistance is reached after 3 - 4 days.

Cleaning	Clean tools immediately after use with Körasolv PU. Once cured material can only be removed mechanically. While working with Köracoll WB 12 and Köracoll 3350 avoid direct contact of the uncured material with your skin. Use protective gloves.

For safety information refer to the Material Safety Data Sheet

X. PRIMERS AND CLEANERS

To improve the adhesion of KÖMMERLING adhesives and sealants to different materials and to secure permanently against environmental influences, it is necessary to use the appropriate cleaners and primers.

KÖRASOLV PR - KÖRASOLV PU - KÖRASOLV WL - KÖRASOLV CR

CLEANER AND THINNER

	KÖRASOLV PR	KÖRASOLV PU	KÖRASOLV WL	KÖRASOLV CR
Application	Very powerful cleaner for old floors. Also for PVC foiled sheets	Very effective cleaner for removing with adhesive soiled areas	Mild cleaner based on gasoline for removing waxen surfaces etc.	Cleaner and thinner for Körapur, Körapox and Köratac adhesive
Base	Mixture of organic solvents, free of toluene	Mixture of organic solvents, free of toluene	Mixture of organic solvents	Mixture of organic solvents, free of toluene
Density	0,90 g/cm³	0,81 g/cm³	0,80 g/cm³	0,77 g/cm³
Packaging	12,5 liter	1 liter 5 liter 12 liter	1 liter 12 liter	1 liter 5 liter 12 liter

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KÖRABOND HG 74 E - HG 77

PRIMERS AND CLEANERS

Körabond HG 74 E and Körabond HG 77 are primers for pretreatment of the substrates for subsequent bonding with 1-part PUR and 1-part POP adhesives and sealants. The use of the primer improves the adhesion and moisture resistance of the adhesive bond. The suitability has to be clarified by preliminary tests.

Base	Synthetic resin, containing solvent
Viscosity	Low Viscosity

	KÖRABOND HG 74 E *Moisture curing primer*	KÖRABOND HG 77 *Primer*
Colour	Yellowish transparent, red	Colourless, transparent
Density	1,0 g/cm³	0,92 g/cm³
Consumption	100 g/m²	40-80 g/m²
Drying time	20 minutes	30 minutes
Application	For pretreatment of absorbant substrates like wood or concrete. For subsequent bonding of 1-part PUR or 1-part POP adhesives and sealants.	Primer for pretreatment of rigid PVC and ABS for subsequent bonding. Full cure must be attained before overpainting with Körapop.
Packaging	1 liter	1 liter

KÖMMERLING
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PRODUCT INFORMATION

KÖRABOND HG 74 E - HG 77

Processing temperature	+10 to +25°C
Preparation	The surfaces to be bonded must be clean, dry and free of dust and grease.
Storage	Store well sealed and dry, do not store below +10°C and no longer than 12 months.

	KÖRABOND HG 74 E	KÖRABOND HG 77
Preparation	Apply Körabond HG 74 E with a brush or a roller onto the surfaces to be bonded and let it dry for at least 45 minutes. The subsequent bonding must be done within 24 hours to achieve maximum adhesion. Otherwise, the primer must be applied again. For unknown and new materials suitability and compatibility tests are essential.	Apply Körabond HG 77 with a brush or a roller onto the surfaces to be bonded and let it dry for at least 30 minutes. The subsequent bonding must be done within 24 hours to achieve maximum adhesion. Otherwise, the primer must be applied again. For unknown and new materials suitability and compatibility tests are essential.

For safety information refer to the Material Safety Data Sheet

KÖMMERLING
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KÖRABOND HG 81 - KÖRABOND HG 83

PRIMER

Körabond HG 81 and Körabond HG 83 are bonding agents for pretreatment of non-absorbent substrates such as metals (aluminium, steel, VA-steel, brass, copper, zinc, tin), plastics (ABS, rigid PVC, PA, GRP SMC, PUR), painted surfaces, gelcoat, enamel, ceramic and coated glass for the subsequent bonding with elastic adhesives and sealants.

Base	Synthetic resin, containing solvent
Viscosity	Low Viscosity
Consumption	20-40 g/m²
Drying time	> 2 minutes
Application	For the pretreatment of non-absorbent substrates such as metals (aluminium, steel, VA-steel, brass, copper, zinc, tin), plastics (ABS, rigid PVC, PA, GRP SMC, PUR), painted surfaces, gelcoat, enamel, ceramic and coated glass for the subsequent bonding with elastic adhesives and sealants.

	KÖRABOND HG 81 *Activator*	KÖRABOND HG 83
Colour	Brownish, transparent	Colourless, transparent
Density	0,8 g/cm³	0,77 g/cm³
Packaging	1 liter tin	0,5 liter tin 1 liter tin

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PRODUCT INFORMATION

KÖRABOND HG 81 - HG 83

Processing temperature	+10 to +35°C
Preparation	The surfaces to be bonded must be clean, dry and free of dust and grease.
Storage	Store well sealed and dry, do not store below +10°C or and no longer than 12 months.
Bonding	Apply Körabond HG 81 and HG 83 onto the surfaces to be bonded and let it dry. Apply only in one direction using a non-fibre cloth which should be changed frequently. Drying time will be approx. 10 minutes. The subsequent bonding must be done within 24 hours to achieve maximum adhesion. Otherwise the primer must be applied again. Allow proper drying time and do not use Körabond HG 81 or HG 83 on non-absorbent and porous surfaces. For unknown and new materials suitability and compatibility tests are essential.

For safety information refer to the Material Safety Data Sheet

KÖMMERLING
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KÖRABOND HG 91 - KÖRABOND HG 92

PRIMER

Körabond HG 91 rot and Körabond HG 92 are bonding agents for the pretreatment of non-absorbent substrates such as metals (aluminium, steel, VA-steel, brass, copper, zinc, tin), plastics (ABS, rigid PVC, PA, GRP SMC, PUR), painted surfaces, gelcoat, enamel, ceramic and coated glass for the subsequent bonding with elastic adhesives and sealants.

Base	Synthetic resin, containing solvent
Density	0,9 g/cm³
Viscosity	Low viscosity
Consumption	80-100 g/m²
Drying time	> 2 minutes
Application	For the pretreatment of non-absorbent substrates such as metals (aluminium, steel, VA-steel, brass, copper, zinc, tin), plastics (ABS, rigid PVC, PA, GRP SMC, PUR), painted surfaces, gelcoat, enamel, ceramic and coated glass for the subsequent bonding with elastic adhesives and sealants.

	KÖRABOND HG 91 *Activator*	KÖRABOND HG 92
Colour	Red	Colourless, fluorescent (blue)
Packaging	1 liter tin	1 liter tin

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KÖMMERLING CHEMISCHE FABRIK GMBH

PRODUCT INFORMATION

KÖRABOND HG 91 - HG 92

Processing temperature	+10 to +35°C
Preparation	The surfaces to be bonded must be clean, dry and free of dust and grease.
Storage	When stored dry and in well sealed original containers between +10°C and +25°C usable up to 6 months.
Bonding	Apply Körabond HG 91 and HG 91 onto the surfaces to be bonded and let it dry. Drying time must be at least 5 minutes. The subsequent bonding must be done within 24 hours. Otherwise, the primer must be applied again. Due to the variety of substrates preliminary tests are necessary.

For safety information refer to the Material Safety Data Sheet

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KÖMMERLING - MORE THAN JUST A PRODUCT

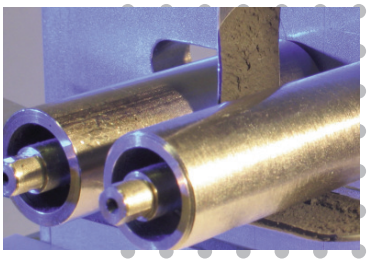
Our philosophy...

... more research and development!

We have the solutions for tomorrow's requirements today.

... more products!

We have the widest product-range in the market.



... more logistics!

We help to save your time.

... more consulting and training!

We increase your benefit, your certainty and your income return.

... more service!

We are there when you need us.

... more communication!

We are active in building-up your market.

... more quality!

We offer you high performance products.

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