H.B. Fuller | KÖMMERLING

Recreational Vehicles Product Selection Guide

Sandwich Elements | Assembly Bonding and Interior Finishing
Floor Finishing | Woodworking and Furniture | Window

Innovative adhesives to give your RV business the freedom to move on.

CONNECT YOUR BUSINESS WITH A COMPETITIVE EDGE

To bring in-demand products to market, manufacturers of durable goods and materials need a partner with technical expertise that understands today's challenging durable assembly industry. You need a partner that can help you deliver the products your customers want and provide the valuable support your business needs. We design adhesives, primers and cleaners to meet our customers' critical needs, such as lowering cost in use, increasing production output, and reduce waste and residues.

TABLE OF CONTENTS

SANDWICH ELEMENTS

2 – C PU

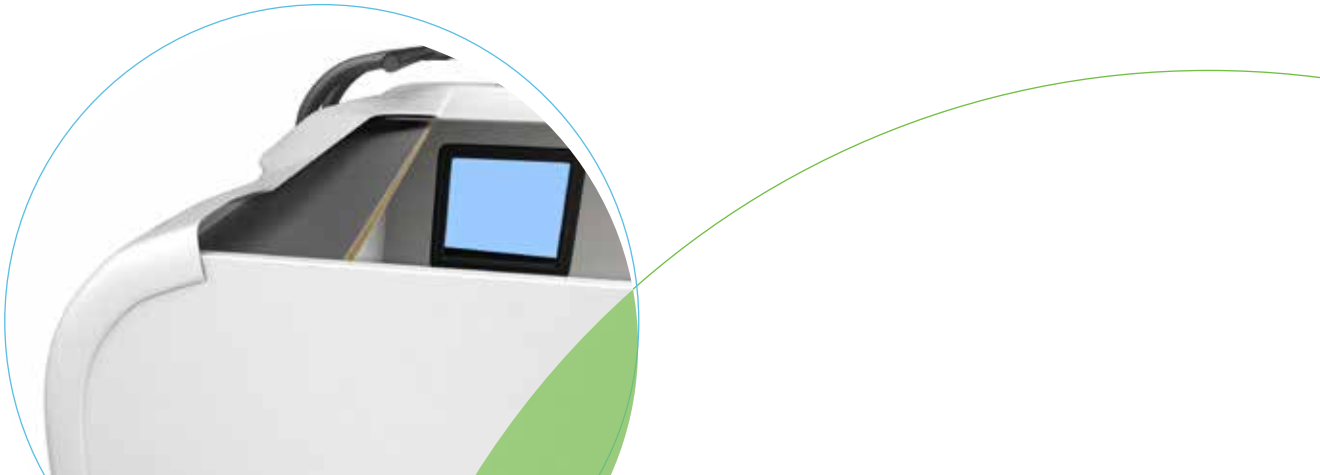
Product Name	Key Properties	Viscosity mPas at 20°C	Mixed viscosity	Pot life min. 20°C	Pressing Time min. 20°C	Hardener	Ratio by weight	Ratio by volume
Körapur 672	High humidity resistance	30.000	10.000	Various between 20 - 80	depending on pot life	Köracur TH 650	5 to 1	3,7 to 1
Körapur 666	Thixotropic, easy to spread with spatula, high humidity resistance, mixing cartridge available	paste	55.000	Various between 3 - 90	depending on pot life	Köracur TH 650	6 to 1	4,5 to 1

1 - C PU LIQUID

Product Name	Product Description	Viscosity mPas at 20°C	Open Time (min) at 20°C	Pressing Time (min) at 50°C
Icema™ R 145/59 D	Medium open time adhesives for a variety of substrates easy to apply that provides a reliable bonding strength	3.800	12	20
Icema™ R 145/75	Fast product high productivity lines with short open time and short pressing time required	5.100	3	4
Icema™ R 145/45	Short open time, versatile product, good adhesion grade in most of materials, including pre-treated metals	4.000	5	8
Icema™ 1456	Low foaming curing adhesive for close surface substrates	4.000	5	8
Icema™ R 145/12	Medium open time, versatile product, good adhesion grade in most of materials, including pre-treated metals	3.500	7	10

REACTIVE HM

Product Name	Product Description	Viscosity mPas at 120 °C	Open time min. 20°C
Rakoll® PUS 3500	Good green strength for bond security even on material with a certain spring back effect	25.000	4 min
Rakoll® PUS 3700	Provides good adhesion to plastic substrates, metals and fiber pressure laminates	17.000	2 min



ASSEMBLY BONDING AND INTERIOR FINISHING

1 - C PU PASTE*

Product Name	Properties	Viscosity mPas 20°C	Time for skin formation	Curing after 24hr	Shore A	Elongation at tear
Körapur 125	Universal sealant / adhesive PUR	paste, non-sag properties	45 min	3 mm	48	500%
Körapur 030	Label free according to GHS	paste, non-sag properties	45 min	3 mm	45	800%
Körapur 140	High strength elastic adhesive PUR	paste, non-sag properties	45 min	3 mm	55	400%

* All 1-C PU paste material can be worked as a second part material as well, by adding a water past as second component. Mixing ratio either 10:1 or 50:1 by volume. Working then is linked to machinery equipment only.

1 – C PU LIQUID (HIGH VISCOUS)

Product Name	Product Description	Viscosity mPas 20°C (mixed)	Open Time 20°C min	Pressing Time 50°C
Icema™ 145/44	Thixotropic non-sagging adhesive with low foaming curing characteristics for assembly operation that need medium open time	140.000	5	15

1 - C PU PASTE*

Product Name	Key Properties	Viscosity mPas 20°C	Time for skin formation	Curing after 24hr	Shore A	Elongation at tear
Körapop 225	Universal sealant / adhesive MS	paste,non-sag properties	25 min	3 mm	42	500%
Körapop 240	High strength elastic adhesive, short termed high temperature resistance	paste,non-sag properties	10 min	3 mm	50	400%

* All 1-C MS paste material can be worked as a second part material, as well by adding a water past as second component. Mixing ratio either 10:1 or 50:1 by volume, different reaction speed possible. Working then is linked either to side-by-side tandem cartridges or machinery equipment.

2 – C PU

Product Name	Key Properties	Viscosity mPas at 20°C	Mixed viscosity	Pot life min. 20°C	Pressing Time min. 20°C	Hardener	Ratio by weight	Shore D
Körapur 840	Good impact resistance, good adhesion to powder coating, mixing and tandem cartridge available	structural viscosity	45.000 (thixo-tropic)	various between 2 and 45	depending on pot life*	Köracur TH 650	4 to 1	65
Körapur 790	Repair solution, uTAH cartridge, 1:1 ratio	no slump	no slump	30	240	Köracur TH 717	1 to 1	76

*Pressing time as a rule of thumb can be calculated pot life multiplied by 8 to achieve a strength of roughly 1MPa – named handling strength.

2 – C PU

Product Name	Key Properties	Viscosity mPas 20°C (mixed)	Open time min 20°C	Pressing time 50°C	Hardener	Hardener Ratio
Icema™ R 101	Hard adhesive, non-sagging with high viscosity and filling properties. Recommended for assembly of vertical surfaces.	250.000	120	not applicable	harter 414	100:15

BUTYL

Product Name	Key Properties	Density	Extrusion rate	Skin formation
Ködiplast CT 100	Solvent containing butyl sealant, removable	1,44	30g/cm^3	3 min

Product Name	Key Properties	Density	Diameter	Force to compress	Elongation
Köratape BC 1061/1081	Butyl coated foam	0,11	6 or 8 mm	3,2 N/mm^2	80%

SILICONE

Product Name	Key Properties	Viscosity mPas 20°C	Time for skin formation	Curing after 24hr	Shore A	Movement capability
Ködisil N	Neutral curing silicone, fungicide, DIN 18545 T.2 group E, approved according EN 15651 part 1 and 2	paste, non-sag properties	5 min	3 mm	25	25%

SOLVENT-BASED

Product Name	Key Properties	Viscosity mPas 20°C	Solid content	Heat resistance	Open time min
Körapren FU 35	Universal neoprene contact adhesive, high temperature resistance	400	20%	130°C	30 min
Köraplast SF	Universal PUR adhesive	2.700	19%	55°C	20 min

FLOOR FINISHING BONDING

WATER-BASED

Product Name	Value Proposition	Viscosity mPas at 20°C	Open Time	Typical substrates
Rakoll® DK 10020	For floor bonding application, flows very well, Provides an economical spread with good adhesion properties	10.500	3-5 min	PVC film on wood or wood materials

WOODWORKING & FURNITURE

WATER-BASED

Product Name	Value Proposition	Viscosity mPas at 20°C	Open Time	Typical substrates
Rakoll® GXL3	For furniture applications, easy to apply and suitable for many processing conditions, provides a very strong bonding. D3 certified. IMO certified for marine applications	13.000	8-12	3

WINDOW BONDING

1 - C PU PASTE

Product Name	Key Properties	Viscosity mPas 20°C	Time for skin formation	Curing after 24hr	Shore A	Elongation at tear
Körapur 177	Glazing product PUR, drive away time 6-8 hours	paste, non-sag properties	35 min	3 mm	55	600%

ANNEX: RECOMMENDED TECHNOLOGIES DESCRIPTION

2-COMPONENT POLYURETHANE REACTION ADHESIVES | KÖRAPUR

Solvent-free, 2-component polyurethane-based reaction adhesives that will harden at room temperature for bonding a great variety of surfaces such as wood, GFRP, steel, aluminium, many plastics and hard foams based on PUR, PS or PVC. Körapur 2-component products consist of a resin and a hardening component that are mixed at a fixed ratio, whereupon they will harden into structural or semi-structural adhesives, irrespective of the humidity, that are also particularly suitable for applications involving large surfaces.

1-COMPONENT POLYURETHANE REACTION ADHESIVES | KÖRAPUR

Polyurethane-based 1-component reaction adhesives that will harden at room temperature for bonding and sealing a great variety of materials such as wood, GFRP, metals, as well as many plastics. Körapur 1-component products react with moisture to form elastic adhesives and sealants that are in particular applied where different thermal length expansions require permanent compensation.

1-COMPONENT SILANE-TERMINATED (POLYMER) REACTION ADHESIVES | KÖRAPOP

Solvent-free 1-component reaction adhesives that are based on silane-terminated polymers and will harden at room temperature for bonding and sealing a great variety of components such as wood, GFRP, metals as well as many plastics. Körapop 1-component products react with moisture to form elastic adhesives and sealants that are in particular applied where different thermal length expansions require permanent compensation.

SOLVENT ADHESIVES | KÖRAPREN AND KÖRAPLAST

Solvent-containing, polychloroprene- or polyurethane-based adhesives that will harden at room temperature for gluing a great variety of different materials such as wood-based materials, steel, aluminium, textiles, plastics like PVC, leather or foams. Solvent-based adhesives offer good wetting properties and can be easily applied with many different methods. The evaporation of the solvents helps to achieve fast initial strengths.

DISPERSION ADHESIVES | KÖRACOLL

Water-based adhesives based on various polymer systems such as polyurethane or acrylate for gluing a great variety of different materials such as wood-based materials, steel, aluminium, textiles, plastics like PVC, leather or foams. In comparison to solvent-based adhesives, dispersion adhesives are distinguished by a longer wet life. An aspect that is highly beneficial for gluing large areas.

BUTYL SEALANTS | KÖDIPLAST

Solvent-containing, butyl rubber-based sealants for sealing joints, cracks and transitions in wood, metal, glass, many thermosetting plastics and other materials. Butyl sealants show their ultimate properties immediately upon application. They are distinguished by a broad adhesion spectrum and their excellent imperviousness to water vapour. Their high weathering stability also lends them a very good anti-corrosive effect on metals.

SILICONE SEALANTS | KÖDISIL

Silicone-based sealants for sealing, filling and grouting joints, cracks and transitions in ceramics, glass, steel, aluminium, wood, thermosetting and many thermoplastic materials.

REACTIVE HOTMELT ADHESIVES | RAKOLL

Hotmelt Adhesives based on Polyurethane for bonding of painted sheet, Aluminium, wooden material, cardboard, PUR- and PVC-rigid foam, Leather, Textiles and various plastic material. Reactive Hotmelt Adhesives combine properties of physical and chemical curing adhesive systems. Applied melted they achieve initial positioning by cooling down. Afterwards chemical curing results to an elastomer with higher strenght and durability.

1-COMPONENT LIQUID POLYURETHANE REACTION ADHESIVES | ICEMA

Solvent-free 1-component reaction adhesives on basis Polyurethane especially for sandwich element production for bonding of pretreated sheet, Aluminium, wooden material, PUR- and PS-rigid foam (XPS, EPS), and various plastics. 1-component Polyurethanes applied liquid and react with moisture to form an elastic adhesive film. Normally moisture to spray up with defined water consumption. Higher temperature possible to increase reaction speed. And, our promise to our people connects them with opportunities to innovate and thrive.

ABOUT H.B. FULLER

Since 1887, H.B. Fuller has been a leading global adhesives provider focusing on perfecting adhesives, sealants and other specialty chemical products to improve products and lives. H.B. Fuller's commitment to innovation brings together people, products and processes that answer and solve some of the world's biggest challenges. Our reliable, responsive service creates lasting, rewarding connections with customers in electronics, disposable hygiene, medical, transportation, aerospace, clean energy, packaging, construction, woodworking, general industries and other consumer businesses. And, our promise to our people connects them with opportunities to innovate and thrive.

H.B. Fuller

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