

Klüber TP 22, 27, 31-1310 A-B

Water-miscible, two-component bonded coatings for automotive body seals



Benefits for your application

- **Tried and tested universal product range**
 - Good noise reduction behaviour
- **Inclusion of solid lubricants provides excellent friction reducing effect particularly in contact with glass.**
- **The Klüber TP solution is geared to your method of seal processing**
 - one product concept, but several solid lubricant variants available
- **Less costs, time and space needed to complete application because**
 - no filter systems need to be installed due to low VOC content
 - no intermediate cooling required; can be applied onto the hot seals up to 180°C
 - quick drying allowing high production speeds
- **Quick quality inspection of the coating after application by integrated UV indicator (visible at 300 - 400 nm)**

Description

Klüber TP 22, 27 and 31-1310 A/B are air-hardening, black two-component bonded coatings with varying solid matter content plus an organic, water-miscible binding agent. The products offer good adhesion to e.g. EPDM, TPE, FPM, PUR.

Application

Klüber TP 22-1310 A/B products have been developed especially for reducing friction, wear and noise in automotive body seals in contact with glass, e.g.

- Window channel seals
- Window weatherstrips

Other applications are:

- Door seals
- Sunroof seals
- Folding top seals
- Front and rear window seals

Recommended application methods

Klüber TP 22-1310 A/B: Online application, injection

Klüber TP 27-1310 A/B: Offline application, injection

Klüber TP 31-1310 A/B: Online/ offline, brush

Application notes

Recommended injection of Klüber TP 22 and 27-1310 A/B:

Feed pressure: approx. 2 bar

Nozzle diameter: 0.5 mm to 0.8 mm

If, as might be the case, improved adhesion is required, we recommend using our primer Klüberplus G 02-104 or plasma treatment. Ensure that only oil- and water-free compressed air is used. The recommended coating thickness for tribological applications is approx. 5 to 10 µm.

Processing instructions for Klüber TP 22, 27, 31-1310 A/B

Application method: Injection (Information on other application methods are available on request)

Klüber TP 22, 27, and 31-1310 A/B are two-component systems!

As hardener use Klüber TP TH 01 component B.

Please follow these instructions when processing the bonded coatings:

- Stir component A well before use – if possible with an electric agitator.
- Place component A on a balance and add component B.

IMPORTANT! Observe the specified mixing ratio!

Parameters / dimensions of dispersion disc

- Peripheral speed of dispersion disc: min. 1 m/s, max. 25 m/s (recommended range 18 – 25 m/s)
- Diameter of vessel: 2 to 3 times the diameter of the dispersion disc
- Position of dispersion disc: in the lower third of the vessel

IMPORTANT: Immediately after adding the hardener component B, start mixing components A and B.

- Mix both components for approx. 5 to 10 min. by means of an electric agitator.

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- The product then has to be filtered, e.g. using a nylon filter with a mesh size of 150 µm.
- The product is ready for use after mixing. If the application requires the viscosity to be modified, use deionized water.
- When applying the mixture by means of spray system, we recommend installing an agitator in the storage container to prevent solid particles from settling.
- Cover the storage vessel containing the mixed product with a lid in order to prevent the formation of a solid top layer caused by air drafts.
- The maximum processing time (pot time) of the mixture is 8 hours at 23°C. After this period we recommend removing any residues from the spraying equipment, feed lines and storage container before filling it with fresh material.
- Clean the spraying equipment, storage container, etc. with tap water (see also “Special notes”).
- Open packs should be closed again immediately after use.
- As the bonded coatings are water-miscible they require a minimum temperature to form a coating layer. They should therefore not be processed at ambient temperatures below 10°C.
- The bonded coatings are dry to the touch after approx. 5 min. at 100°C. Information on shorter drying periods and pertinent temperature requirements is available on request. The product is completely hard after 24 hours at approx. 25°C.

Special notes

Converting a system from solvent-containing to water-miscible bonded coatings. Flammable coatings, adhesives, etc. usually contain organic solvents and binding agents which are not water-miscible.

Observe the following instructions when converting a system from solvent-containing to water-miscible bonded coatings in order to prevent incompatibility reactions or system clogging caused by precipitation:

- In case of short-term conversions (e.g. for testing purposes) it is indispensable to use a HYBRID SOLVENT as an INTERMEDIATE CLEANING AGENT. It is important for the solvent to be compatible with both the solvent-containing coating and the water-miscible coating.

The following INTERMEDIATE CLEANING AGENTS might be used:

1. Isopropanol
2. Butyl glycol
3. Acetone

Before using the intermediate cleaning agent, make sure it is compatible with the solvent-containing coating.

Steps of conversion to a water-miscible coating:

1. Clean the equipment with a solvent/cleaner compatible with the flammable coating
 2. Use an intermediate cleaner (as described above)
 3. Secondary cleaning with water
 4. Apply the water-miscible coating
- For a permanent conversion to water-miscible coatings we recommend replacing all hoses, control valves and feed lines.

Material safety data sheets

Material safety data sheets can be requested via our website www.klueber.com. You may also obtain them through your contact person at Klüber Lubrication.

Pack sizes	Klüber TP 22-1310 N A/B Komp. A	Klüber TP 31-1310A/B Komp.A	Klüber TP 27-1310A/B Komp.A
Can 1 l	+	+	+
Bucket 15 l	+	+	+



Product data	Klüber TP 22-1310 N A/B Komp. A	Klüber TP 27-1310A/B Komp.A	Klüber TP 31-1310A/B Komp.A
Article number	099219	099162	099167
Upper service temperature	100 °C / 212 °F	100 °C / 212 °F	100 °C / 212 °F
Lower service temperature	-40 °C / -40 °F	-40 °C / -40 °F	-40 °C / -40 °F
Density, DIN EN ISO 2811 pt. 3, 20 °C	approx. 1.07 g/cm ³	approx. 1.09 g/cm ³	
Density, DIN EN ISO 2811, at 20 °C			approx. 1.1 g/cm ³
Flexibility of coating at ambient temperature, 150 % elongation	no crack formation	no crack formation	no crack formation
Runout time, DIN EN ISO 2431, with flow cups, 4 mm nozzle	approx. 35 s	approx. 52 s	
Runout time, DIN EN ISO 2431, with flow cups, 6 mm nozzles			approx. 25 s
Cross-cut adhesion (EPDM), PA-063 based on DIN EN ISO 2409, value	0 Gt	0 Gt	0 Gt
Flexibility of coating after exposure to thermal stress, 96 h at -40 °C, after 100 % elongation	no crack formation	no crack formation	no crack formation
Adhesion in a humid atmosphere, DIN EN ISO 6270-2, 240 h, no removal of the bonded coating		0 Gt	0 Gt
Friction coefficient DIN 53375, against glass, sliding friction (µd)	approx. 0.22	approx. 0.22	approx. 0.22
Friction coefficient DIN 53375 against glass, static friction (µs)	approx. 0.23	approx. 0.23	approx. 0.23
Friction coefficient DIN 53375 against painted sheet metal, sliding friction (µd)		approx. 0.48	approx. 0.48
Friction coefficient DIN 53375 against painted sheet metal, static friction (µs)		approx. 0.49	approx. 0.49
Wear resistance on textil fabric, testing path: 100 mm, testing speed: 200 mm/s, frequency: 60 storks/min, layer thickness: approx. 10 µm, load : 0.5 kg, material cellular rubber; cycles		10 000 cycles	10 000 cycles
Wear resistance on textil fabric, test path: 100 mm, testing speed: 200 mm/s, frequency: 60 strokes/min, layer thickness: approx. 10 µm, load: 1 kg, material compact rubber; cycles		10 000 cycles	10 000 cycles
Mixing ratio of components (standard mixture)	100:3	100:9	100:10
Yield with a tribo-film thickness of 10 micrometer	approx. 22 m ² /l	approx. 25.4 m ² /l	approx. 33 m ² /l
Chemical resistance to special car shampoo (commercial product), duration of exposure 22 h		resistant	resistant
Chemical resistance to ethanol/water (1:1), duration of exposure 1 h		resistant	resistant
Chemical resistance to FAM test fuel, DIN 51604, duration of exposure 10 min.	resistant	resistant	resistant
Chemical resistance to hard gloss preserving agent (commercial product), duration of exposure 22 h		resistant	resistant
Chemical resistance to isopropanol, duration of exposure 1 h		resistant	resistant
Chemical resistance to window cleaner (commercial product), duration of exposure 1 h		resistant	resistant
Chemical resistance to white spirit (145/200), duration of exposure 1 h		resistant	resistant



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Flexibility of coating after exposure to thermal stress, 96 h at 90 °C, after 100 % elongation		no crack formation	no crack formation
Colour space	black	black	black
Minimum shelf life from the date of manufacture - in a dry, frost-free place and in the unopened original container, approx.	12 months	6 months	6 months

Klüber Lubrication – your global specialist

Innovative tribological solutions are our passion. Through personal contact and consultation, we help our customers to be successful worldwide, in all industries and markets. With our ambitious technical concepts and experienced, competent staff we have been fulfilling increasingly demanding requirements by manufacturing efficient high-performance lubricants for more than 80 years.

Klüber Lubrication München SE & Co. KG / Geisenhausenerstraße 7 / 81379 München / Germany / phone +49 89 7876-0 / fax +49 89 7876-333.

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