

Micro-emission and bio-based adhesives for the **automotive industry**



Sustainable adhesives for interior lamination and retainers



Sustainable adhesives for automotive interiors

The automotive industry is regarded worldwide as one of the industrial sectors that constantly develops and drives technological innovations. This also applies to adhesives used for automotive interior applications. KLEIBERIT has been offering reactive polyurethane hotmelts and dispersions for interior automotive applications for many years.

As a future-oriented adhesive developer, KLEIBERIT has expanded its product portfolio with corresponding micro emission adhesives. The EU Regulation 2020/1149, which requires training for employees using products with a monomeric isocyanate content $> 0.1\%$, has additionally accelerated the development of monomer-reduced PUR hotmelts.

Micro-emission (ME) adhesives have a monomeric isocyanate content of $< 0.1\%$. This reduces potential risk to a minimum in the event that employees operate processing equipment with inadequate occupational safety equipment. Furthermore, the training obligation required by EU Regulation 2020/1149 and the hazardous substance labeling of the adhesive are not applicable. Anyone who thinks that ME hotmelts are lower performance than conventional polyurethane hotmelts, is mistaken. KLEIBERIT ME PUR hotmelts are absolute high-performance adhesives that are optimally adapted to the respective process-

ing methods. Production processes can thus be improved to the maximum in terms of occupational safety and productivity.

In addition, KLEIBERIT is expanding its portfolio with adhesives based on renewable, bio-based raw materials. This means: **the greatest possible independence from petrochemical raw materials through the use of sustainable, ecological base materials.**



KLEIBERIT 713.784

KLEIBERIT 713.784 is an absolute high performer among the standard automotive adhesives. With a 38 % content of bio-based, renewable raw materials, KLEIBERIT 713.784 achieves unique properties that are not yet available on the market for polyurethane hotmelts. The adhesive features an extremely short tack-free time in combination with a low reactivation temperature of 60 °C. Components coated with adhesive can thus be stacked and handled within a very short time. In the subsequent reactivation process, a large part of the reactivation energy and cycle time can be saved due to the lower reactivation temperature and the very high initial strength. Due to the moderate viscosity, it can be processed excellently by nozzle, roller or spray application. This makes it possible to process the adhesive using a wide variety of production equipment. The product thus stands for smart sustainability not only through its ingredients, but also through its processing properties.

ADVANTAGES

- 38 % proportion of biobased raw materials
- excellent processing by roller, spray nozzle or slot nozzle
- extremely short tack-free time, extremely high initial strength
- low reactivation temperature

KLEIBERIT 713.754

The ME adhesive KLEIBERIT 713.754 is a further development of our proven adhesive KLEIBERIT 713.704. All positive properties are retained in this product without compromise! KLEIBERIT 713.754 can be applied by roller, spray or nozzle. An optimum application pattern is always achieved with each application method. Due to its short tack-free time in combination with the very high initial strength, the product is also suitable for processes and components that are difficult to bond due to high restoring forces. As with its bio-based equivalent KLEIBERIT 713.784 and KLEIBERIT 713.785, the low reactivation temperature and short tack-free time of KLEIBERIT 713.754 can also make production processes smarter and more sustainable. The minimal residual content of monomeric isocyanate also maximizes employee protection.

ADVANTAGES

- ME adhesive
- universal processing
- very high initial strength in combination with low reactivation temperature
- positively tested according to VW50180 (emission measurement)

KLEIBERIT 713.785

KLEIBERIT 713.785 represents an absolute novelty in the field of polyurethane hotmelts for automotive applications. Approx. 42 % of the raw materials contained in the adhesive are on a bio-based, renewable basis. In addition, KLEIBERIT 713.785 is a micro emission adhesive. Therefore KLEIBERIT 713.785 stands for maximum occupational safety combined with sustainable production processes. KLEIBERIT 713.785 is also impressive in terms of its processing properties. The adhesive can be applied effortlessly by roller, nozzle or spray application. The overall package is rounded off by a short tack-free time combined with maximum initial strength. Similar to KLEIBERIT 713.784, the Micro Emission variant KLEIBERIT 713.785 can also reduce cycle time and energy consumption thanks to its relatively low reactivation temperature.

ADVANTAGES

- ME adhesive
- approx. 42 % proportion of biobased raw materials
- universal processing
- very high initial strength combined with low reactivation temperature

KLEIBERIT 713.4.54

KLEIBERIT 713.4.54 is unique in automotive interiors. It has the perfect combination of a relatively long open time with pronounced tack, 100 % tack-free after a short time and suitability for all common application methods. Whether applied by roller, spray or nozzle, it always shows an excellent application pattern. The versatile processing properties make the product an absolute all-rounder. Whether in the trunk area, the interior or a hidden assembly bonding behind a trim: KLEIBERIT 713.4.54 can show its strengths through its high individuality for every application.

ADVANTAGES

- ME adhesive
- excellent processing by roller, spray nozzle or slot nozzle
- relatively long open time
- distinctly tacky within the open time
- 100 % tack-free after cooling
- ideally suited for direct lamination and also for reactivation processes



cockpit



clips/retainer



trunk



trim

KLEIBERIT 703.3.50

KLEIBERIT 703.3.50 is the benchmark when it comes to very high initial and creep strength immediately after joining the substrates. The high-performance hotmelt is optimized for nozzle application and shows absolutely no dripping or stringing at the application head. This enables extremely fast, precise and clean adhesive application. But KLEIBERIT 703.3.50 is not only convincing for assembly applications by nozzle application. The adhesive is also suitable for the precoating of decorative foils or carpet blanks by roller application. Due to the very short open time and the short tack-free time, the coated substrates can be rewound or stacked on top of each other after a very short time without sticking.

ADVANTAGES

- ME adhesive
- very high and above all quickly achieved creep resistance
- optimized flow, there is practically no dripping or stringing at the nozzle
- universally applicable, also for roller application and reactivation processes
- high temperature resistance, even in the uncured state








KLEIBERIT 713.5.50

KLEIBERIT 713.5.50 has been specially optimized for laminating textile materials to PUR rigid foam panels in the trunk area. More and more frequently, ready-made blanks are precoated with adhesive by roller application. This is not always easy in terms of process technology. Particularly in the case of thin and lightweight textiles, the substrate can be pulled upwards into the gap at the application roller. This is the worst case scenario in an automated production process. The viscosity of KLEIBERIT 713.5.50 has been adjusted so that the corresponding carpet blanks can be coated reliably with an optimum application pattern. In addition, the product shows excellent roller stability. This means that the adhesive can remain on the roller for shorter interruptions and breaks and then be further processed without production risks. Due to the low reactivation temperature, the reactivation time, the applied reactivation temperature and the cooling time can be significantly reduced. The result: **lower energy consumption and a shorter cycle time.**

ADVANTAGES

- ME adhesive
- optimized for the production of trunk floors by roller application
- significant energy savings possible due to low reactivation temperature
- cycle time can be shortened because reactivation time and cooling time can be reduced
- also suitable for nozzle and spray application

Sustainable reactive PUR hotmelt adhesives for the automotive industry

Product		Viscosity 120 °C [mPa·s]	Viscosity 140 °C [mPa·s]	Open time 100 g/m ² [s]	Tack-free time [s]	Reactivation temperature [°C]
703.3.50		30,000	17,000	5	30	75
713.4.54		35,000	17,000	30	120	50-55
713.5.50		50,000	30,000	10	35	60
713.7.54		50,000	30,000	10	35	60
713.7.84		50,000	30,000	5	20	60
713.7.85	 	50,000	30,000	10	35	65

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