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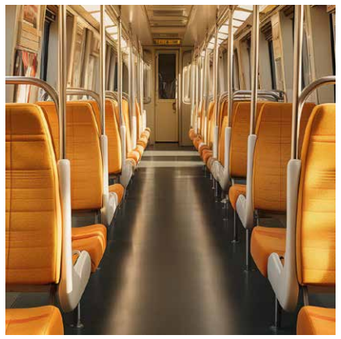
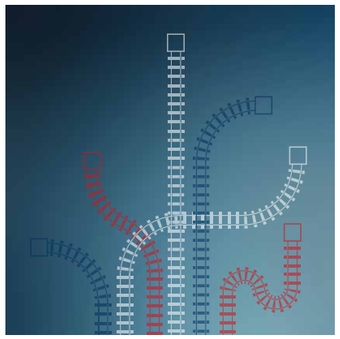
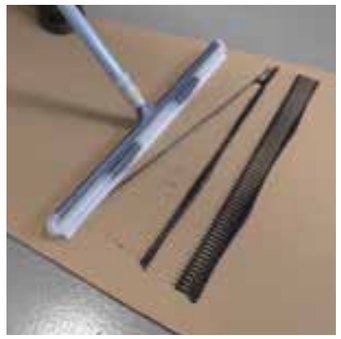
DINITROL 785 A/B

THE TIME- AND COST-SAVING SOLUTION FOR SOLVENT-FREE FLOOR BONDING

CONTENT







01.EMBARK ON NEW PATHS WITH DINITROL 785 A/B

The demands on adhesive joints are increasing – on the one hand, the use of ingredients that could be hazardous or even harmful for the processor and the environment (solvent balances) must be reduced and at the same time costs must be kept to a minimum. Of course, there is no one-size-fits-all package, but in this article we will present a product that meets almost all requirements, making it one of the most optimal solutions.

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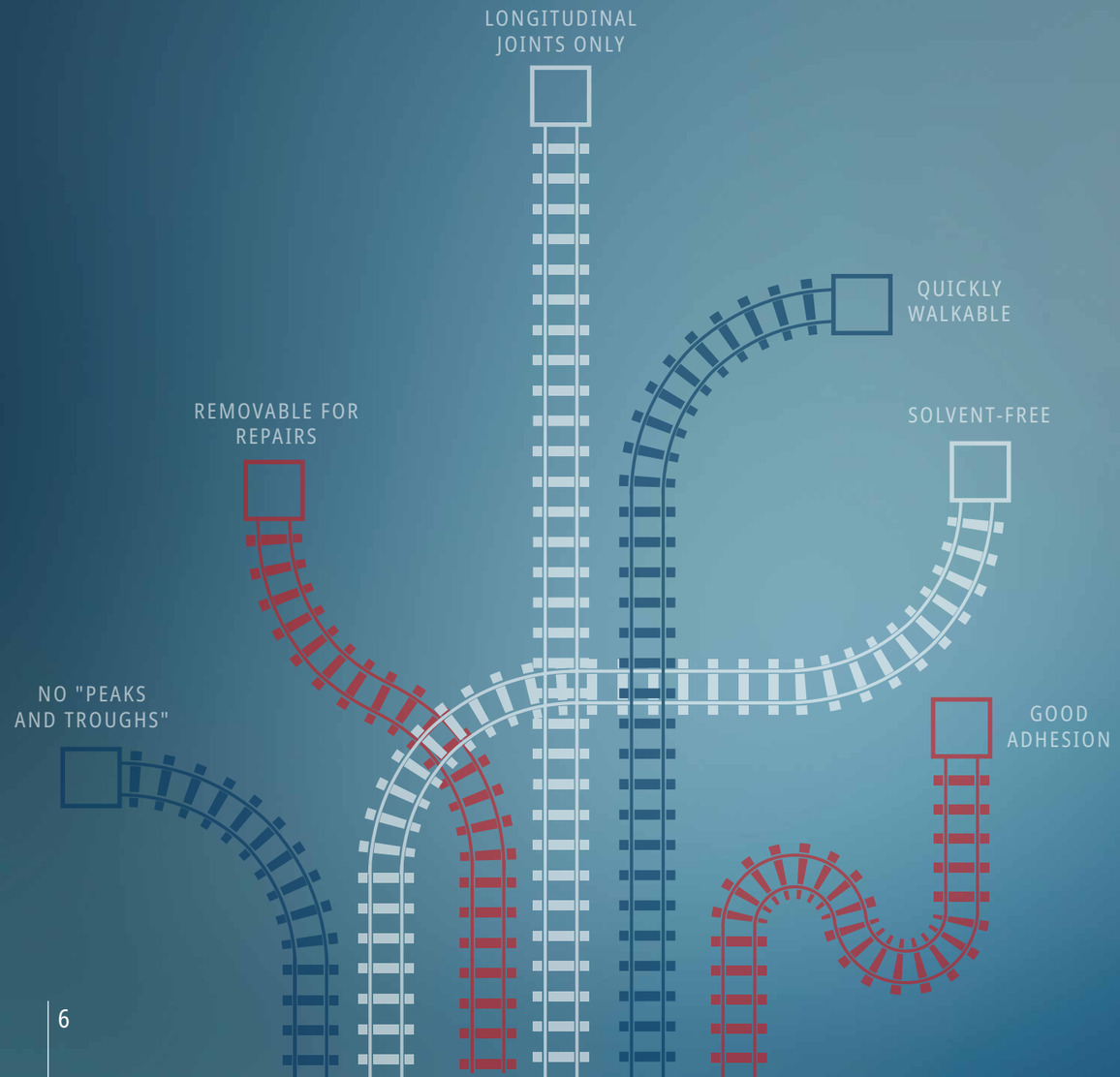
02. THE PROBLEM



During a visit to a customer who is involved in the manufacture of rail vehicles – specifically local trains – we were asked about the following problem:

The customer was looking for an adhesive to bond flooring to the aluminium floor of local trains.

The adhesive used must not contain solvents.

In summary, the following product requirements were communicated to us:

- Solvent-free
- Processing location for interior fitting without extraction option
- The customer wants only two longitudinal joints and no transverse joints in the vehicle, i.e. 25 metres (lane width 1.2 m) glued in one piece
- The surface is made of rubber, the base plate is made of aluminium
- The floor should be quickly walkable again so that work can continue in the next shift
- The covering should adhere well, but be removable for repairs
- No "visual impression", i.e. no visible peaks and troughs, when viewed along the entire floor
- No use of solvent-based activators and primers (excessive exposure)

Fig. 1: Floor of entire carriage body approx. 25 m

Until now, a solvent-based contact adhesive was used, which is applied to both joining parts and must be joined and pressed on after flash-off. The first contact pressure is key here and correction is no longer possible after pressing.

03. SOLUTIONS & PRELIMINARY TESTS

Preliminary tests were carried out to identify the suitable product and initial solutions were examined in more detail.

The following considerations were taken into account: Since the joining parts are impermeable to air and moisture – i.e. diffusion-tight – a *water-based dispersion* can be ruled out as an adhesive because the water cannot evaporate.

A *2K epoxy resin adhesive* must not be processed in these quantities due to work safety.

Another approach was the use of a *hot-melt*, which is applied by spray application. However, this idea was quickly discarded because the material was applied unevenly, which could be seen in the surface in the form of visible peaks and troughs. Furthermore, there is a risk that the covering will come loose due to constant walking.

With *spray application*, the material was not applied evenly enough. Spraying with 2-components is also more complicated from a plant engineering perspective.

Fig. 2: Adhesive application using adhesive comb

In the next step, an application comb with DINITROL 771 A IQ LOT/515 B was used. DINITROL 771 A IQ LOT/515 B is an accelerated MS polymer with a water paste in the B component. The advantage of this product, compared to accelerated polyurethanes, is that no CO_2 is formed during the reaction, which must be avoided at all costs when glueing floor coverings.

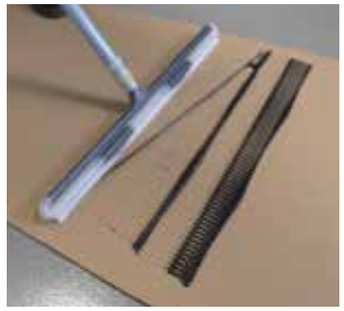


Fig. 3: Adhesive comb

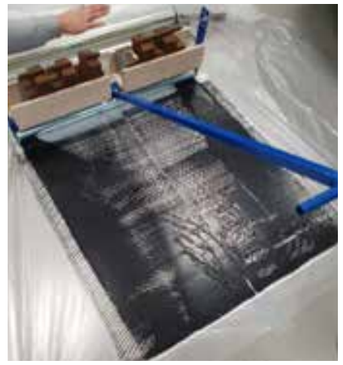


Fig. 4: Adhesive distribution with roller

As shown in Fig. 4, the individual adhesive beads cannot be pressed over the entire surface. The adhesive must therefore be spread with a toothed trowel (A1). The coating is then rolled and pressed down with a pressing board so that the product is evenly distributed. An adhesion test after this procedure showed good results.

Fig. 5: Adhesive distributed with toothed trowel

However, spreading with a toothed trowel is very strenuous for the processor in the long term with this material.

So adhesives had to be found that do not have a high viscosity and cure without moisture from the environment. DINITROL 700, which received the moisture required for the reaction via a B component, made it to the shortlist. Product alternatives that are processed with a high concentration of isocyanate during interior fitting without extraction cannot be approved from the point of view of occupational safety. Another advantage of DINITRL 700 is that it is diisocyanate-free. Bonding with DINITROL 700 showed that the adhesion built up after several days.

So we needed an adhesive that remained processible for long enough to work with, but then quickly built up adhesion and strength so that the floor could be walked on again. The viscosity must be set so that the adhesive does not flow away, but can be spread easily with a toothed trowel.

Fig. 6: Toothed trowel and pressing board

04. THE SOLUTION

With the findings from the preliminary tests, we concluded that DINITROL 785 A/B is a promising option that we had not previously considered.

This product is a pure 2K-MS polymer which has the desired properties:

- Processing time of 30 minutes
- Good strength after 1 hour
- Very easy to spread with the toothed trowel
- Good adhesion to the floor covering and base plate after just 1 hour
- No activators or primers required for this application

The adhesive is applied as a bead with a glue machine for this large application and then distributed with the toothed trowel. The adhesive is also available in a cartridge, so it can be used in the repair area easily and cost-effectively. In the event of a repair, the covering can simply be scraped off with a ceramic panel scraper and the adhesive applied directly to the old adhesive. The following illustrations show the procedure for covering bonding.

Fig. 7: Adhesive is distributed with the machine

Fig. 9: Even distribution of the adhesive with a trowel

Fig. 9: The floor covering is carefully laid and rolled on

Fig. 10: Pressing the covering with the help of a roller

05. SUMMARY AND CONCLUSIONS

It is possible to bond diffusion-tight floor coverings with DINITROL 785 A/B according to the requirements. The solvent-based contact adhesive used to date appears to be cheaper when you consider the price per kilogramme. However, you pay for the evaporating solvent and only 40% of the adhesive remains.

Another disadvantage is that a contact adhesive must be applied to both joining parts and additional time must be allowed for flash-off.

Both time and costs can be saved using DINITROL 785 AB. In contrast to contact adhesive, the covering can also be corrected.

The advantages at a glance

- No solvents, better for people and the environment, can be used for interior fitting
- Single-sided adhesive application
- No flash-off times
- Correction options
- Easy to work with the toothed trowel
- No bubble formation due to curing adhesive

Possible further applications with DINITROL 785 AB

- Roof lining bonding
- Surface bonding
- Thin-film and thick-film bonding

06. ADVANTAGES & TECHNICAL DATA OF DINITROL 785 A/B

2-component MS polymer

DINITROL 785 is an elastic 2-component adhesive based on MS polymer.
It is used in applications where fast curing and processing time is required. DINITROL 785 is a fast-curing adhesive and sealant for reducing throughput/standstill times and thus for reducing process times with the following properties:

- **Humidity-independent**
- **Long open time with fast curing**
- **Broad range of adhesion**
- **Very good UV and ageing resistance**
- **Solvent and isocyanate free**
- **Cartridge fits into standard cartridge gun**
- **Large applications with dosing machine**

DINITROL 785

Item no.	Size	Packaging	Colour
12651	250 ml	Cartridge	Grey
12612	20 L	Hobbock	Grey
12613	20 L	Hobbock	Grey

Equipment

DINITROL MASTER TOOL
310 ml cartridge & 600 ml foil bag
Art. no. 1736500

DINITROL MASTER TOOL
310 ml cartridge & 400 ml foil bag
Art. no. 1736600

INDUSTRIAL NITRILE GLOVES XL 10-P
Art. no. 1734100

Product description
DINITROL 785 is an elastic 2-component adhesive based on MS polymer. It is used in applications where fast curing and processing time is required. DINITROL 785 is a fast-curing adhesive and sealant for reducing cycle/standstill times and shortening process times with the following properties:

- Independent of humidity
- Long open time of 30 minutes and fast curing
- Cartridge fits into standard cartridge gun
- Very good bonding range, often also without adhesion promoter
- Very good UV and ageing resistance
- Solvent, isocyanate, silicone and PVC free
- Low viscosity, easy to spread with toothed trowel
- No formation of CO_2

Application area
- Elastic bonding and sealing in buses, trains, caravans, motorhomes, trucks and trailers.
- Bonding of moisture- and gas-impermeable joining parts, in particular floor bonds that can be walked on quickly.
- DINITROL 785 is well suited for use on diffusion-tight and open joining parts, as well as for flat, thick and thin-layer bonds that reliably define the service life, displacement and drive-away time with guaranteed curing and a known increase in strength.

Application examples
- Joining of moisture- and gas-impermeable joining parts ➞ Rubber covering on aluminium floor, applied on one side with toothed trowel. Can be removed with a scraper and repaired.
- Full-surface bonding with guaranteed curing over time, achievement of shorter drive-away times and safety ➞ Side panel
- Thin-layer bondings, i.e. structural application, enables the transmission of greater forces, achievement of shorter drive-away times and safety ➞ Brackets on roofs, such as solar spoilers, antennas, cable holders
- Thick-layer bonding with shorter fixing time ➞ Roof lining bonding, trim parts

All in all, this adhesive is well suited for diffusion-tight joining parts (of course also open to diffusion), flat, thick-layer and thin-layer bonds with safety guarantee (guaranteed curing with known increase in strength), thus clear definition of downtime, shift and drive-away times.

Pretreatment of the surfaces
The surfaces to be bonded must be clean, dry and free of dust and grease. In many cases, pre-treatment with an adhesion promoter is not necessary, such as for aluminium, steel, glass, lacquered wood, etc. We recommend carrying out preliminary tests.

Use
DINITROL 785 is applied with commercially available 1 K dispensers or 2 K adhesive dispensers at temperatures between +15°C and 35°C. It can be spread over a large area with a toothed trowel or with a brush for sealing applications. For sealing work, DINITROL 785 should be removed within 20 minutes (at 23°C/50% RH) and smoothed with a soap solution if necessary. Join parts within the open time (<30 min at RT), for higher temperatures shorten the open time.

Technical data

Appearance	A comp.: white B comp.: grey
Mixing ratio	100 : 100
Density (DIN 53217-4)	approx. 1,400 kg/m³
Stability characteristics	good
Application temperature	10°C – 35°C
Open time[1]	< 30 min
Shore A hardness (DIN 53505)	approx. 45
Tensile strength (DIN 53504)	approx. 2.4 MPa
Elongation at break (DIN 53504)	approx. 300%
Temperature resistance: Short term (approx. 1 hour)	-40°C to 80°C < 120°C
Shelf life (storage at < 25°C)	15 months
Available in	250 ml 2 in 1 cartridge, 20 L Hobbock

*At 23°C/50% r.h.

For safety information, refer to the safety data sheet or the label on the packaging.

QUESTIONS?

GET ADVICE FROM OUR EXPERTS NOW

We don't just have the best product for your requirements, but also competent contact persons for you – direct and in person.

For advice, please send an e-mail to **info@dinol.com.**

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