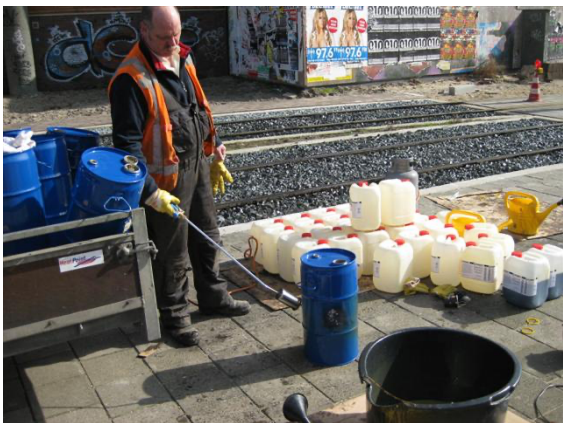


BALLAST BONDING

Method of application (smaller surfaces) and specifications



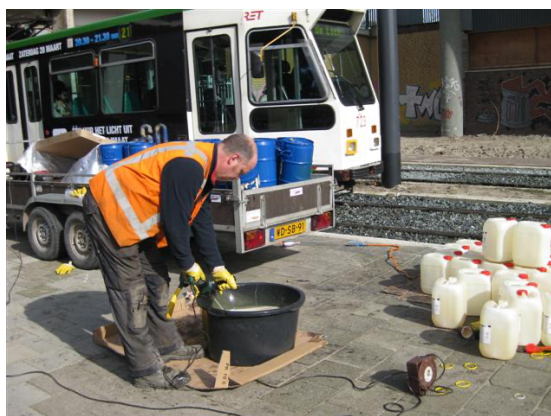
1 - Heating polyurethane in case temperature <20°C



2 – After heating, pour PUR into mixing container



3 – Adding the hardener to PUR



4 – Mixing PUR with hardener



5 – Distribute mixture with watering can over ballast



6 – End result reinforced ballast

The following information relates to the bonding of ballast:

General

Bonding manufacturer	: Adhesive chemistry from Germany
Product Name	: Termaren TM29
General Release	: EBA (Railway Federal Office) DBAG with date 24-06-2002
References	: A.o. Railways and metro in Germany, Austria, France, Great Britain, Japan etc.
Specific field of application	: In particular Ballast for railways and metro companies

Characteristics:

Material / Trade Name	: Kleiberit 2K-Polyurethane TM29 component A and B (hardener)
Safety datasheet	: 91/155/EWG (2002)
Fire safety	: According to EN13501-1 Klasse A-2 (non-combustible) (certificate available)
Danger to people and environment	: Not applicable (After curing)
Waste treatment	: Treat residual material as household waste (after curing)
Transport hazard	: Not applicable

Practical features:

Shape	: Liquid
Color	: Beige
Processing Temperature	: Between +5 and +30°C
Moisture	: Do not use during rain, but possible with damp ballast
Lifespan	: Approx. 20 years if the bond is not broken by a stopping machine
Ambient temperature influence	: No influence between -20 and +80°C
Consumption	: Depending on the application
Minimum quantity	: 44,8kg
Electrical conductivity	: Similar to moist ballast
Processing	: Bonded ballast can be recycled or disposed of with other ballast
Stopping machine	: Stopping machine is not hindered by glued ballast
Curing time	: Ranging between a few seconds to several days, depending on the application
Noise reduction	: Bonded ballast significantly reduces the noise level caused by trains

Application Features:

Bonded ballast:	<ul style="list-style-type: none"> - is water permeable because only the contact points are bonded - has a high load capacity and elasticity - has a very high adhesive strength - environmentally friendly (non-toxic), reacts with water - provides a firm base over which the forces are distributed (deferred maintenance) - stopping machine or other track machines do not need to be cleaned after ballast processing - broken bonded layer by stopped machine can easily be bonded again afterwards - noise-reducing because of change (nuisance-causing) frequency
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Usage:

- The usual layer thickness is between approx. 10 and 40cm between (depending on the application).
- The ballast is bonded firmly to the sleeper.
- The adhesive is applied manually with a watering can or is applied by the machine.
- Termaren PUR has been specially developed for use in ballast track