Disboxid 963 EP-Multi

Unfilled, transparent, pigmentable 2-component liquid epoxy resin for production of heavy-duty floor coatings.

Product Description

Field of Application

Multi-purpose resin suitable for versatile applications:
Primer or scratch-filler on mineral substrates and as smooth or slip-resistant seal. Mooreover Disboxid 963 EP-Multi can be used as binder for producing textured coatings, flow mortars, sprinkled coatings, grooves (concave fillets), for the reprofiling of spallings and the filling of cracks.

May be pigmented with Disboxid 980 NEFA®POX colour paste or in the ColorExpress stations.

Disboxid 963 EP-Multi is emission-minimised and tested for harmful substances by the Technical Control Board TÜV and therefore s particularly suitable for sensitive areas such as lounges, hospitals, kindergartens and daycare centers, schools, etc.

Tested & approved according to AgBB testing criteria for VOC emissions from building material that is used for interior work. The criteria of AgBB (Ausschuss zur gesundheitlichen Bewertung von Bauprodukten; Commission for the sanitary evaluation of building material) are elaborated by the ecological and sanitary authorities for the use of building material in „delicate/sensitive“ areas, as e.g. lounges.

Product Properties

- Emission-minimised
- Tested for harmful substances by Technical Control Board (TÜV)
- Highly resistant to mechanical loads, depending on coating structure
- The cured material offers a chemical resistance against aqueous solutions of salts, leaches, thinned acids as well as fuels, oils, and fats/greases.
- Economic, universally applicable
- Resistant to permanent humidity
- Approved for use in the food sector

Product Base / Vehicle

Low-viscous, 2-component liquid epoxy resin, total solid according to German Construction Chemistry

Packaging/Package Size

25 kg packaging (base material 16.67 kg hobbock, hardener 8.33 kg bucket)
Barrels (base material 200 kg, hardener 200 kg)

Colours

- Transparent
- May be pigmented with colour paste Disboxid 980 NEFA®POX-Farbpasten
- ColorExpress: Can be tinted on ColorExpress stations on site. Exclusive shadess by the colors of the collection plus FloorColor possible.

Discolouration and chalking effects may occur with weathering and UV light exposure. The pigmentation in e.g. coffee, red wine or leaves (organic dyestuffs) and various chemicals, e.g. disinfectants, acids, etc., may cause discolouration. Proper functioning of the coating will not be affected by these changes.

Gloss Level

Glossy

Storage

Keep in a cool, dry, and frost-free place.
Shelf life of the original, tightly closed packaging: minimum 1 year. If temperatures are low, the material should be stored at 20 °C before application.

Technical Data

- Density: approx. 1.1 g/cm^3
- Dry film thickness: approx. 95 µm /100 g/m^2 unfilled
- Abrasion to Taber (CS 10/1000 U/1000 g): approx. 30 mg/30 cm^2
- Pendulum hardness to König: approx. 190 s
- Shore hardness (A/D): approx. D 80

Chemical resistance

Chemical resistance in accordance with DIN EN ISO 2812-3:2007 at 20 °C	
	7 days
Acetic acid 10% sol.	+ (V)
Sulphuric acid 20% sol.	+ (V)
Citric acid 10% sol.	+ (V)
Hydrochloric acid 37% sol.	+ (V)
Phosphoric acid 85% sol.	+ (V)
Aqueous solutions of organic acids (test fluid 9) *	+ (V)
Mineral acids up to 20%	
(Test fluid 10) *	+ (V)
Caustic soda solution 20 % sol.	+
Inorganic bases (test fluid 11) *	+
Ammonia solution 25% sol.	+
Common salt solution, saturated	+
Sugar solution, saturated	+
Sagrotan 2 % sol.	+ (V)
Benzine acc. to DIN 51 600 (fuel/petrol/gasoline)	+
Gasoline (test fluid 1) *	+
Biodiesel	+
Motor oil	+
Alcohols (test fluid 5) *	+
All hydrocarbons (test fluid 4) *	+
Ethanol 40 % sol.	+
Aromatic esters and ketones	
(Test fluid 7a) *	+
Coffee	+
Coca Cola	+
Beer	+
Apple juice	+
Red wine	+
Skydrol (hydraulic fluid/medium/oil)	+
Transformer coolants	+

Legend: + = Resistant, (V) = Discolouration
*Meets the construction and testing principles for the protection of waters set by the German Institute for Structural Engineering.

Application

Suitable Substrates

All types of mineral substrates. The substrates must be sound, dimensionally stable, solid and free from all materials that may prevent good adhesion, e.g. loose/brittle materials, dust, oils, fats/greases or abraded rubber contamination (scuff/skid marks). Cementitious flow mortars, ameliorated with synthetic resin, must be checked for compatibility by trial application, if necessary.
The adhesive tensile (pull-off) strength of substrates must be 1.5 N/mm² on an average, with a minimum individual value of 1.0 N/mm².

Substrates must have achieved their equilibrium humidity:
Concrete and cement-based composition floor (screed): max. 4 % by weight
Anhydrite screed: max. 0.5 % by weight
Magnesite screed: 2 – 4 % by weight
Xylolithe (Magnesium Oxychloride) screed: 4 – 8 % by weight
Rising damp/moisture must be avoided. In case of anhydrite and magnesite screeds, complete sealing from contact with ground is essential.

Substrate Preparation

Prepare substrates by suitable means, e.g. grit blasting (shot peening) or milling, in order to meet the above mentioned requirements. Repair spallings and defects with Disbocret®-PCC mortars or Disboxid EP mortars, filling defects flush with the surface.

Preparation of Material

Add the hardener to the base material and stir intensively with a low-speed electric paddle (agitator; max. 400 rpm). Pour the mixture into another clean container and continue stirring.
For pigmentation add the pigmented paste to the base material (1 plastic bag of Disboxid 963 EP-Multi) and stir up.

Mixing Ratio

Base material : hardener = 2 : 1 parts by weight
Base material : hardener = 1.8 : 1 parts by volume

Method of Application

Apply with hard rubber wiper, sealer brush, medium pile roller or smoothing trowel, depending on intended use.

Surface Coating System

Priming Coat
Pour the mixed material onto the surface to be primed and spread uniformly with a rubber wiper/scraper. If necessary, treat the surface with a medium-fibre roller or sealer brush to avoid the forming of glossy spots.
Sand/strew the whole surface of the freshly applied coating if necessary.
For roller applied slip-resistant coatings sand/strew the whole surface of the freshly applied coating with quartz sand of desired grain size. For flow mortar Disboxid 943 Einstreuquarz and for mortar coatings sand/strew with Disboxid 944 Einstreuquarz.
For subsequent scraper applied textured coatings do not sand. Priming coats, untreated with sand, must be recoated within 8 to 24 hours.

Sealing
Apply the material in 1 to 2 work steps as described above (see “Priming Coat”).
For slip-resistant sealings cover the first freshly applied coat, depending on the desired roughness, with Disboxid 943/944 Einstreuquarz or other suitable materials, e.g. Durop, granite chippings or silicium carbide.

Scratch Filler Application
Even/planar, semi-rough substrates
Prepare a filler mixture consisting of:

Disboxid 963 EP-Multi: 1 part by weight
Disboxid 942 Mischquarz: 1.5 parts by weight

Uneven, rough-textured substrates
Prepare a filler mixture consisting of:
Disboxid 963 EP-Multi: 1 part by weight
Quartz sand: 1.5 parts by weight (Disboxid 942 and Disboxid 943, mixed in a 1:1 ratio).
Pour the filler mixture onto the primed surface and spread evenly with a smoothing trowel, then deaerate with a spiked roller. Sand/strew the the finished scratch-filler surface according to the requirement.
Prime highly porous and rough-textured substrates with Disboxid 963 EP-Multi before applying the scratch filler.

Textured Coating
After repotting, add max. 3% by weight of set-up agent Disboxid 952 Stellmittel, while stirring. Pour the thixotropic material onto the primed or filler treated surface and spread uniformly with a notched rubber wiper (approx. 2 mm V-notch*). Then roll over the surface crosswise, using a rough-porous Moltoprene roller with pores of approx. 2 mm in diameter.

Note: The primed or filler treated surface must be tinted in the same shade to achieve a uniform colour.

Flow mortar
After repotting add quartz sand according to the consumption table, while stirring. Pour the prepared flow mortar onto the primed or filler treated surface and spread uniformly and speedy with a hard rubber wiper (approx. 5 mm V-notch*). After approx. 10 minutes deaerate the fresh flow mortar coating using a spiked roller. At temperatures under 15 °C the quantity of quartz sand must possibly be diminished.

Note: Traces of the spiked roller may be visible in the finished coating in adverse lighting conditions (sidelight), depending on temperature and filling degree.

Flow mortar, covered with quartz sand
After repotting add 150% by weight of Disboxid 942 (0.1 – 0.4 mm), while stirring. Pour the prepared flow mortar onto the sand-treated primed or filler treated substrate and spread uniformly and with a hard rubber wiper.
Then sand/strew the whole surface of the freshly applied coating with Disboxid 943 Einstreuquarz (0.3 - 0.8 mm) or Disboxid 944 Einstreuquarz (0.7–1.2 mm). Allow the coating to harden and remove all excess quartz sand.
Roller apply Disboxid 963 EP-Multi in desired color on the finished coating. Consumption value depends on the desired degree of slip-resistance.

Mortar Coating
Prime the floor as described under “Priming Coat”.
Prepare a mortar mixture consisting of:

Disboxid 963 EP-Multi: 1 part by weight
Disboxid 946 Mörtelquarz: 10 parts by weight
Fill the mortar quartz in a compulsory mixer and add the premixed binder into the running mixer. Mix intensively for 3 minutes.
The mortar should be applied wet-on-wet on the fresh priming coat or on the hardened, sand-treated priming coat, then compressed and finally smoothened with plastic or steel trowel.
Before applying a pavement the mortar must be levelled with a gauge.
To achieve a fluid-sealing or slip-resistant surface, the coating should be sealed, as described under "Sealing". Before recoating, the mortar coating requires a pore filling or priming coat with Disboxid 963 EP-Multi (add approx. 2% by weight of set-up agent Disboxid 952 Stellmittel).

** Reference value. Size of V-notches is depending on abrasion resistance of wipers/scrapers, temperature, filling degree, and substrate conditions. The exact rate of consumption should be determined by a trial coating on site.*

Consumption

Priming coat	approx. 200–400 g/m²
Sealing coat **	approx. 250–350 g/m² per coat
Scratch-filler application ** for planar, semi-rough substrates: Disboxid 963 EP-Multi Disboxid 942 Mischquarz	 approx. 660 g/mm/m² approx. 1,000 g/mm/m²
For uneven, rough-textured substrates: Disboxid 963 EP-Multi Disboxid 942 Mischquarzapprox. Disboxid 943 Einstreuquarz	 approx. 660 g/mm/m² approx. 500 g/mm/m² approx. 500 g/mm/m²
Textured coating ** Disboxid 963 EP-Multi Disboxid 952 Stellmittel	 approx. 500–600 g/m² approx. 15–18 g/m²
Flow mortar ** *Layer thickness: 1 mm* Disboxid 963 EP-Multi Quartz sand Geba	 approx. 900 g/mm/m² approx. 360 g/mm/m²
Layer thickness: 1.5–3 mm Disboxid 963 EP-Multi Disboxid 942 Mischquarz	 approx. 900 g/mm/m² approx. 900-1,350 g/mm/m²
For a more formidable visual appearance Disboxid 963 EP-Multi Disboxid 942 Mischquarz Quartz sand Geba	 approx. 900 g/mm/m² approx. 450 g/mm/m² approx. 450 g/mm/m²
Layer thicknesses above 3 mm Disboxid 963 EP-Multi Disboxid 942 Mischquarz	 approx. 900 g/mm/m² approx. 1,350 g/mm/m²
Flow mortar for Disboxid MultiColor-System - interior use	see System Data Sheet MultiColor-System - innen
Flow mortar, covered with quartz sand Layer thickness: 2 mm Disboxid 963 EP-Multi Disboxid 942 Mischquarz	 approx. 900 g/mm/m² approx. 1,350 g/mm/m²
Covering with quartz sand Disboxid 943/944 Einstreuquarz	 5–6 kg/m²
Sealing of slip-resistant surfaces* Disboxid 963 EP-Multi	 approx. 500–800 g/m²
Mortar layer/ grooves** Disboxid 963 EP-Multi Disboxid 946 Mörtelquarz	 approx. 190 g/mm/m² approx. 1.9 kg/mm/m²

* The exact rate of consumption is best established by a trial coating on site. Consumption of the top-sealing on sprinkled coatings varies due to temperature effects, way of application, tools and different sprinkling materials.
** Add pigments via CaparolExpress station or one plastic bag of colour paste Disboxid 980 NEFA® POX (800 g) per 25 kg of binder. Variations of basic colour tints may occur due to different fillers and filler quantities.

Workability

At 20 °C and 60 % relative humidity approx. 20 minutes.
Higher temperatures shorten and lower temperatures extend the pot life.

Application Conditions

Material, Atmospheric, and Substrate Temperature:
Min. 10 °C, max. 30 °C during application and drying.
Relative humidity must not exceed 80 %. Substrate temperature should always be min. 3 °C above the dew point temperature.

Waiting Time

The waiting time between work steps should be at least 8 and max. 24 hours at 20 °C. After longer breaks, the surface of the preceding coat must be roughened/grinded, if it has not been sand-treated. Higher temperatures shorten and lower temperatures extend this time period.

Drying/Drying Time

At 20 °C and 60% relative humidity, walkable after approx. 8 hrs. Ready for mechanical loads after approx. 3 days and completely cured after approx. 7 days.

At lower temperatures drying times extend. Protect the coat from moisture during the hardening process (approx. 8 hours at 20 °C) to avoid irregularities in the surface and diminished adhesion.

Tool Cleaning

Immediately after use or during longer breaks with thinner Disboxid 419.

Advice

German Certificates

- 1-1177 Evaluation to food law requirement aspects Hygiene Institute Gelsenkirchen
- 1-1183 Testing of anti-slip property R12 V6
  Berufsgenossenschaftliches Insititut (Institue of Professional Association), St. Augustin
- 1-1184 Testing of anti-slip property R12 V8
  Berufsgenossenschaftliches Insititut (Institute of Professional Association), St. Augustin
- 1-1194 Testing the ease of decontamination to DIN 25415, part 1 university of applied science
- 1-1197 Test of the fire behaviour to DIN EN 13501-1, C_{fl}-s1
  Test Institute Hoch, Faldungen
- 1-1253 TÜV Certification "Emission-minimised" TÜV Nord

Special Risks (Hazard Note) / Safety Advice (Status as at Date of Publication)

Material Safety data sheet available for professional user on request.

Base material: Irritating to eyes and skin. May cause sensitisation by skin contact. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Avoid contact with skin. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water and soap. Do not empty into drains. Wear suitable gloves and eye/face protection. Use only in well-ventilated areas.
Contains epoxy constituents. Follow information supplied by the manufacturer (Material Safety Data Sheet/MSDS).

Hardener: Harmful by inhalation, in contact with skin and if swallowed. Causes burns. May cause sensitisation by skin contact. Keep locked up and out of the reach of children. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell seek medical advice immediately (show the label where possible). Use only in well-ventilated areas.

Disposal

Materials and all related packaging must be disposed of in a safe way in accordance with the full requirements of the local authorities. Particular attention should be paid to removing wastage from site in compliance with standard construction site procedures.
In Germany: Only completely emptied containers should be given for recycling.
Residues of material: Allow base material with hardener (catalyst) to cure and dispose as paints waste.

EU limit value for the VOC content

of this product (category A/j): 500 g/l (2010). This product contains max. 170 g/l VOC.

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Further Details

See Material Safety Data Sheets (MSDS).
Follow the application recommendation and advice for care and maintenance while applying our products.

CE Labelling

EN 13813
CE labelling is based on EN 13813 “Screed mortars, screed compounds and screeds – screed mortars and screed compounds – Properties and Requirements" defining the requirements for screed mortars being used for floor constructions in the interiors. The standard also include synthetic resin coatings and sealing.

Products matching the above mentioned standards are to be labelled with the CE mark. Additional engineer standards are effective for the use in Germany in structural safety relevant areas. Conformity is documented by the Ü sign (Überwachung = supervision) on the container. Established by documented evidence of conformity 2+ with controls and tests on the part of the manufacturer and notified bodys.

Technical Assistance

As it is impossible to list herein the wide variety of substrates and their specific problems, please request our technical assistance in case of queries. We will describe appropriate working methods, if a substrate not specified above is to be coated.

Customer Service Centre

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International Distribution: Please see www.caparol.com

All suggestions and application instructions herein are based on our latest technical experience. Due to the wide variety of individual project conditions, we cannot be held responsible for their content. These instructions do not release the purchaser/applicator from his responsibility to determine the suitability of the product in consideration of the project characteristics. These instructions are to be considered void when a new edition is released. Our general conditions of sale and delivery in their latest edition apply. This document is a translation of our German Technical Information No. 963 · Disboxid 963 EP-Multi · Issued: May 2011

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