

COATIX® EP 4565 Top Coat

Solvent-Free Epoxy Top Coat with High Chemical Resistance

Product Description

COATIX® EP 4565 Top Coat is a two-component, solvent-free, epoxy resin-based top coat material that forms a glossy film. Thanks to its special resin/hardener composition, it offers outstanding resistance to inorganic and organic acids, alkalis and many aggressive chemicals. Its distinctive features are high surface hardness, water and chemical resistance, high mechanical strength and an easy-to-clean, hygienic surface. Being impermeable to carbon dioxide, it protects concrete against carbonation and increases the corrosion resistance of metal surfaces.

Areas of Use

- Chemical and pharmaceutical industry facilities, acid/alkali filling, dosing and storage areas
- Treatment plants, wastewater structures, chemical tanks and plant rooms
- Battery, galvanising, surface finishing and metalworking facilities
- Food, beverage, dairy and paper industry facilities, laboratories
- Factories, warehouses, workshops, aircraft hangars and car parks
- Internal surfaces of water tanks, silos and storage tanks
- As a protective paint on machinery, equipment and building components made of metal
- On wall and floor surfaces; in horizontal and vertical applications
- Areas with heavy forklift traffic and corrosive chemicals

Applied as a top coat on concrete, screed and mineral-based surfaces, and on metal/steel surfaces after a suitable primer coat.

Advantages

- Outstanding resistance to inorganic and organic acids, alkalis, salt solutions and many aggressive chemicals
- Solvent-free; low-emission, can be applied safely in enclosed spaces
- High surface hardness, mechanical strength and abrasion resistance
- Resistant to wastewater, sea water and mineral oils
- Impermeable to carbon dioxide; protects concrete against carbonation
- Increases the corrosion resistance of metal surfaces
- Forms a seamless, hygienic and glossy surface; easy to clean, suitable for steam cleaning
- Can be applied on horizontal and vertical surfaces
- Applied by brush, roller or airless spray
- Can be produced in a wide range of RAL colours

Technical Properties

General Information	
Material structure	Two-component, solvent-free, epoxy resin-based (A: resin, B: hardener)
Colour / appearance	Component A (resin): Liquid – in RAL colour options* Component B (hardener): Light yellow, transparent liquid After application: Glossy surface with a slight roller texture
Gloss	Glossy
Density (mixture)	1.50–1.70 g/cm ³ / 23°C (EN ISO 2811-1)
Viscosity (mixture)	1,500–2,000 mPa·s / 23°C

Volatile organic compounds (VOC)	≤ 5.2 g/L
Solids content	100% (by weight)
Service temperature	-10°C / +60°C (dry conditions)
Mechanical Properties	
Compressive strength (ASTM D695 / EN ISO 604)	52–55 N/mm ²
Flexural strength (EN ISO 178)	24–26 N/mm ²
Tensile strength (EN ISO 527)	18–20 N/mm ²
Elongation at break (EN ISO 527)	0.8–1.0%
Modulus of elasticity (EN ISO 178)	1,800–2,000 N/mm ²
Shore D hardness (ASTM D 2240 / DIN 53505)	~ 85 (7 days / 23°C)
Abrasion resistance – Taber (ASTM D 4060-95)	~ 35 mg / 1,000 cycles
Pull-off adhesion strength (EN 1542 / EN 1504-2)	≥ 2.0 (1.5) ^b N/mm ² – concrete failure
Application Information	
Mixing ratio (A / B)	85 / 15 (by weight)
Thinner	Do not thin
Application method	Brush, roller or airless spray; stripe coat by brush at corners and edges
Application equipment	300–500 rpm mixer, brush, roller, airless spray gun
Pot life	30–40 min / 23°C, 200 g (DIN 16945)
Consumption	400 g/m ² (single coat) – approximately 2.5 m ² /kg
Dry film thickness	Single coat: 225–250 micron Recommended total: 400–500 micron (2 coats, depending on chemical load)
Application temperature (ambient and surface)	+10°C / +30°C
Permissible surface moisture	Max. 4% by weight
Ambient relative humidity	Max. 80%
Drying Times	
Dust-dry	60–90 minutes / 23°C (EN ISO 9117)
Touch-dry	5–7 hours / 23°C (EN ISO 9117)
Recoat interval	Min. 12 hours – max. 24 hours / 23°C (EN ISO 9117)
Foot traffic	24 hours / 23°C (EN ISO 9117)
Full cure	7 days / 23°C (EN ISO 9117)
Full mechanical and chemical load	7 days / 23°C
Safety Information	
Hazardous substances	Refer to SDS

** Excluding metallic, fluorescent and 4000 series colours. The colour shade may change under direct sunlight; this does not affect the performance of the coating.*

The technical values stated were obtained at +23°C ambient temperature and 50% relative humidity; times are extended as ambient and surface temperatures fall and shortened as they rise. As viscosity increases at low temperatures, consumption also increases. Consumption values are theoretical; they vary depending on the absorbency and roughness of the surface and the application method. For exact consumption, a controlled trial application must be carried out on site.

Application Instructions

Surface Preparation

Concrete and mineral-based surfaces: The surface to be coated must be fully cured (at least 28 days), sound, dry and load-bearing. The concrete surface must have a compressive strength of at least 25 N/mm² and a surface tensile (pull-off) strength of at least 1.5 N/mm². Weak parts, laitance and loose particles on the surface must be removed by scarifying, sand/shot blasting or sanding; a rough, open-pored surface must be obtained. The surface must be free of adhesion-impairing substances such as dust, oil, tar, paint, silicone, curing compounds, detergent and formwork release oil; dirt and dust must be removed with an industrial vacuum cleaner. Cracks, blowholes and damaged areas must be repaired with an epoxy-based repair mortar/putty. The prepared surface must be primed with COATIX® EP 1180 Primer solvent-free epoxy primer in accordance with the instructions in its technical data sheet.

Metal and steel surfaces: The surface must be free of rust, mill scale, old paint, oil, grease and all adhesion-impairing contaminants. The most suitable pre-treatment is abrasive blasting (grit blasting) to Sa 2½ in accordance with ISO 8501-1. After blasting, the surface must be primed as soon as possible, before rusting can occur, with COATIX® Steelcoat EP 1810 Primer solvent-based epoxy primer. The top coat must be applied within the recoat interval of the primer coat.

Moisture Control

Before application, the moisture content of the concrete must be measured with a moisture meter; the permissible moisture limit is max. 4% by weight. If no moisture meter is available, a 1 m x 1 m plastic sheet is taped to the surface and left for 24 hours; if there is no condensation under the sheet when checked in the morning, application may proceed. Attention must also be paid to the dew point before application; the surface temperature must be at least 3°C above the dew point. At low temperatures and high humidity, amine blush (blushing) may occur on the surface.

Mixing

Components A and B are each stirred separately in their own containers for approximately 30 seconds with a low-speed (300–500 rpm) mechanical mixer. All of component B (hardener) is poured into component A (resin) and mixed for 2–3 minutes until a homogeneous mixture is obtained. The mixture is transferred to a clean container and mixed for a further 1 minute; ensure that no unmixed material remains on the sides and bottom of the container. To minimise air entrainment, avoid over-mixing and mixing at high speed; after mixing, wait briefly to allow entrained air to escape.

The mixing ratio A/B is 85/15 by weight and must never be altered. If partial mixing is carried out, the ratio must be maintained by weighing. No water, solvent or thinner may be added to the mixture, and the product must not be thinned. With large batches, the pot life is shortened and insufficient time remains for application. Materials must be brought to the application area at least 24 hours before application so that they adapt to ambient conditions. Application must be carried out when the ambient and surface temperatures are in the range of +10°C to +30°C.

Application of the Coating

- The prepared mixture is applied uniformly to the primed surface by roller or airless spray at a consumption of approximately 400 g/m² per coat (225–250 micron dry film).
- Corners, edges and repair areas are completed by applying a stripe coat by brush.
- In areas exposed to high chemical loads, it is recommended that the product be applied in at least two coats to give a total dry film thickness of 400–500 micron.
- The second coat is applied at right angles to the first coat to achieve full coverage.
- The waiting time between coats must be observed and the recoat interval (max. 24 hours at 23°C) must not be exceeded; if it is exceeded, the underlying coat must be roughened by mechanical methods.
- To avoid differences in colour shade, product with the same batch number must be used in the same area, and application must be continued without interruption, maintaining a wet edge.

The surface must not be walked on for at least 24 hours after application. Contact of the surface with water must be prevented for 48 hours after application. The product reaches full cure after 7 days at 23°C, attaining its final resistance to mechanical loads and chemical attack.

Chemical Resistance

Chemical	Concentration	Resistance
Resistance to acids		
Sulphuric acid (H ₂ SO ₄)	10%	3
Sulphuric acid (H ₂ SO ₄)	20%	3
Sulphuric acid (H ₂ SO ₄)	30%	2
Hydrochloric acid (HCl)	10%	3
Hydrochloric acid (HCl)	20%	3
Hydrochloric acid (HCl)	35%	3~2
Phosphoric acid (H ₃ PO ₄)	15%	3
Phosphoric acid (H ₃ PO ₄)	30%	2
Phosphoric acid (H ₃ PO ₄)	45%	2
Citric acid (C ₆ H ₈ O ₇)	25%	3
Citric acid (C ₆ H ₈ O ₇)	50%	2
Citric acid (C ₆ H ₈ O ₇)	75%	2~1 (loss of gloss)
Nitric acid (HNO ₃)	10%	3
Nitric acid (HNO ₃)	20%	3
Nitric acid (HNO ₃)	50%	3~2
Acetic acid (CH ₃ COOH)	10%	2
Acetic acid (CH ₃ COOH)	20%	1 (loss of gloss)
Formic acid (HCOOH)	10%	2~1
Formic acid (HCOOH)	20%	1
Lactic acid (CH ₃ CHOH-COOH)	15%	3
Lactic acid (CH ₃ CHOH-COOH)	30%	2 (loss of gloss)
Resistance to alkalis		
Sodium hydroxide (NaOH)	10%	3
Sodium hydroxide (NaOH)	50%	3
Ammonia (NH ₃)	10%	3
Ammonia (NH ₃)	20%	3
Ammonia (NH ₃)	35%	2
Resistance to solvents and others		
Xylene	–	3
Solvent naphtha	–	2
Ethyl alcohol	–	2
Butanol	–	3
White spirit	–	3
Petroleum / mineral oils / fuels (diesel, petrol)	–	3

Chemical	Concentration	Resistance
Bleach (NaOCl)	–	2 (loss of gloss)
Sugar solutions	–	3
Urea	–	3
Sea water / salt solutions	–	3
Printing inks	–	Staining
Concentrated fruit juices	–	Staining

3 Highly resistant to the listed chemicals.

2 Resistant to the listed chemicals.

1 Not resistant to the listed chemicals.

~ Tendency between the two values.

For environments with chemicals not listed in the table, please consult our company. Values were obtained at +23°C under laboratory conditions after 7 days of curing.

Limitations

- The product must be applied when the surface and ambient temperatures are between +10°C and +30°C.
- The surface temperature must be at least 3°C above the dew point.
- On wet or damp floors or floors with rising damp, technical service must be consulted before application.
- The concrete floor must have cured for at least 28 days and have a compressive strength of at least 25 N/mm² and a tensile strength of at least 1.5 N/mm².
- The product must not be applied directly to concrete or metal surfaces without a primer.
- On metal surfaces, blasting to Sa 2½ and application of a suitable epoxy primer are mandatory.
- No water, solvent or thinner may be added to the product; it must not be mixed with unapproved chemicals.
- Once prepared, the mixture must be used within the specified pot life; mixture that has exceeded its pot life must not be used.
- If the 24-hour interval between coats is exceeded, the surface must be roughened by sanding before the new coat is applied.
- The material must be brought to the application area at least 24 hours before application so that it adapts to ambient conditions.
- The surface must not be walked on for at least 24 hours after application; it must not be exposed to heavy mechanical and chemical loads before full cure (7 days) is complete.
- Contact of the surface with water must be prevented for 48 hours after application; otherwise loss of gloss and carbonation may occur on the surface.
- Avoid application in areas that are frozen, at risk of frost within 24 hours, or exposed to direct sunlight and wind; if heating is required, use only electric hot-air blowers.
- To avoid differences in colour shade, product with the same batch number must be used in the same area.
- Epoxy-based products may yellow and lose gloss under UV exposure; in applications continuously exposed to UV, protection with an aliphatic polyurethane top coat is recommended.
- Chemical resistance values were obtained at 23°C under laboratory conditions on fully cured coating; for continuous contact, elevated temperatures and mixed chemical environments, technical service must be consulted before application. Staining, loss of gloss and discolouration may occur with all chemicals; this does not affect the performance of the coating.
- For applications involving drinking water or direct food contact, technical service must be consulted.

Cleaning of Tools

All tools and equipment used must be cleaned with COATIX® T 9100 Epoxy Thinner before the material cures. Cured material can only be removed mechanically.

Storage Conditions and Shelf Life

Container lids must be kept closed and label information complete. Follow the first-in, first-out rule and monitor expiry dates. The storage area must be dry, cool and well ventilated. The product must be protected from direct sunlight and frost; if crystallisation is observed in component A, the crystals can be dissolved by heating the

container in a controlled manner to between +60°C and +70°C. When stored between +15°C and +25°C in a dry, enclosed warehouse in unopened original packaging, the product has a shelf life of 12 months from the date of manufacture.

Safety Precautions

Observe the hazard and precautionary statements, safety signs and warnings on the packaging. Comply with the health and safety information contained in the Safety Data Sheet (SDS) for the product, prepared in accordance with the legislation in force (1907/2006/EC – REACH, Annex II and Regulation (EU) 2020/878).

The product is solvent-free; however, epoxy resins and amine hardeners may cause skin and eye irritation and allergic reactions. Ensure adequate ventilation during application; wear protective goggles, chemical-resistant gloves and work clothing, and a mask where necessary. The product must not come into contact with foodstuffs; food and drink must not be brought into the application area. Avoid direct contact with the product and do not inhale vapours; in case of skin contact, wash with plenty of soap and water; in case of eye contact, rinse with plenty of water and seek medical advice. If swallowed, do not induce vomiting and seek medical advice immediately. Keep sources of ignition away from storage and application areas. Store the product out of the reach of children and pets. The product and its packaging must be disposed of in accordance with the local regulations in force.

Liability

Our company is responsible only for the quality of the product. Any use of the product outside the scope of the written technical recommendations, including incorrect application or use under unsuitable conditions, is entirely the responsibility of the user. For more detailed technical information, please refer to the product catalogue or contact our representatives.

Packaging

Component A 17 kg + component B 3 kg = 20 kg set

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