2K ultra-high-solid epoxy resin coating, certified according to VO (EU) 1935/2004, VO (EU) 10/2011 and FDA 21 CFR 175.300 for direct contact with food

FAKOLITH®

Type of material

2-component ultra-high-solid epoxy resin coating, certified for direct food contact according to VO (EU) 1935/2004, VO (EU) 10/2011, VO (EU) 1895/2005, EC 2023/2006, VO (EU) 2018/213) and FDA 21 CFR 175.300 (see declaration of compliance and CE marking).

100% solids content, low VOC content, low odor and extremely high physical and chemical resistance. FK 100 FOODGRADE is particularly suitable for industrial applications in the food industry, especially in the field of tank, silo and container coatings. But also in many other applications where a highly durable surface coating, tested according to EU and US standards, is required.

Properties

Due to its sealing properties, FK 100 FOODGRADE is particularly suitable for concrete sealing and as corrosion protection for sandblasted metals.

- Certified according to VO (EC) 1935/2004, VO (EU) 10/2011 and FDA 21 CFR 175.300 for direct contact with food.
- Surface protection against virus and bacteria infestation by tested GREEN-BIO.FILM.STOP technology (ISO 21702:2019-05, ISO 22196:2011-08).
- Certified cleanroom coating. Tested by IPA Fraunhofer Institute, chemical resistance according to ISO 2812-1; ISO 4628-1, VDI 2083 Part 17). Result: Very good.
- Recommended by the Federal Association of Food Inspectors of Germany e.V.
- Ultra-high solid epoxy coating. High yield.
  Wet film thickness = dry film thickness (undiluted)
- Low odor during processing
- Full CE marking and testing according to UNE-EN 1504-2:2005
- Water impermeable. FK 100 FOODGRADE forms a water-impermeable film after drying, which is easy to clean.
- No water absorption/non-swellable (avoidance of microbial infestation).

In combination with the system primers FK 44-POX (primer / corrosion protection), DISPERLITH PRIMER (deep primer for microbially contaminated substrates) and FK 16 Water-based deep primer, FK 100 FOODGRADE is suitable for coating mineral substrates, metals, tiles, plastics, glass fiber as well as intact old coatings (e.g. epoxy coatings, emulsion paints). Sample application with positive cross-cut test of category 0-1 UNE DIN EN ISO 2409:2007 is expressly recommended.

GREEN-BIO.FILM.STOP technology
The selected combination of active ingredient substances creates a color film with high qualitative and quantitative resistance to viruses and bacteria. The tests were performed in application of ISO 21702:2019-05 (Measurement of antiviral activity on plastics - Feline coronavirus, Strain Munich) and ISO 22196:2011-08 (Measurement of antibacterial activity on plastics - Escherichia coli, Listeria monocytogenes, Bacillus subtillis, Pseudonomas aeruginosa). BIO.FILM.STOP technology has a preventive effect in the reversible phase. The formation of a biofilm on the surface of the coating is demonstrably inhibited by BioFilmStop prophylaxis.

Recommended by the Federal Association of the food inspectors Germany e.V.

Areas of application

FK100 FOODGRADE is especially recommended for coatings of tanks, silos, basins, tubs and other containers in which food is transported or stored.

Further application recommendations: Highly durable, extremely cleaning and abrasion resistant ceiling and wall coating in food processing plants and industry in general, machine painting, coating for transport elements, tub and transport containers that are in short or long term direct contact with food.

Double certification: The 2C epoxy resin coating is certified according to VO (EU) 10/2011 and FDA 21 CFR 175.300 for direct contact with all foodstuffs. The extremely high chemical resistance allows the 2C epoxy resin coating to be used almost indefinitely in all areas of the food industry.

Legal provisions and certification

FK 100 FOODGRADE complies with all European regulations according to VO (EC) 852/2004 and with US regulations according to FDA 21 CFR 175.300 for materials in direct contact with food.

Further regulations for the certification of FK 100 FOODGRADE: VO (EC) 1935/2004, VO (EC) 2023/2006, VO (EU) 10/2011 of the Commission and its subsequent amendments (EC) No. 1282/2011 concerning plastic materials and articles intended to come into contact with foodstuffs. Regulation (EC) 1895/2005, Regulation (EC) 2018/213 on the use of bishpenol A in paints and coatings intended to come into contact with food. With the implementation of the European regulations, criteria for the European market are standardized. The standards specify, among other things, various test simulants, as well as global and specific migration tests for each food and beverage group. As defined in Annex 3 point 4 of Regulation EU 10/2011, the combination of simulants A, B + D2 is equivalent to performing the tests with all simulants A, B, C, D1, D2, E.

Organoleptic tests were performed with drinking water *(UNE-ISO 13302, ISO 4120, ISO 8586-1)* and milk chocolate (*UNE-ISO 13302, ISO 4120, ISO 8586-1).*

Based on the tests performed, we confirm that FK 100 is approved under European and US law for use in direct contact with all foods. Detailed information on the tests performed can be found in our detailed manufacturer's declaration of conformity.

Please note: The **migration tests** carried out do not confirm that FK 100 FOODGRADE is chemically and physically suitable in principle for permanent contact with all foods. Please contact our application engineering department, particularly in the case of strongly acidic/alkaline liquids, to clarify the specific suitability of FK 100 FOODGRADE for the intended application.

Categories / criteria of the test simulators	
Contact food	**Simulacrum**
Aqueous food only	Simulant A
Acidic food only	Simulant B
Alcoholic food only	Simulant C
Only fatty foods	Simulant D
All aqueous and acidic foods	Simulant B
All alcoholic and aqueous food	Simulant C
All alcoholic and acidic foods	Simulants C + B
All fatty and watery foods	Simulants D + A
All fatty and acidic foods	Simulants D + B

HACCP

FAKOLITH Chemical Systems is an associate member of CNTA and a participating partner in official R&D projects related to technically advanced coatings for the food industry and the healthcare sector.

FAKOLITH Chemical Systems is registered both in the Health Registry of the Food Industry of the Spanish Province of Catalonia (Registro Sanitario de Industrias y Productos Alimenticios de Cataluña, RSIPAC) under the number 39.05377/CAT and in the Spanish Health Registry of the Food Industry (Registro General Sanitario de Empresas Alimentarias y Alimentos, RGSEAA) under the number ES-39.005259/T. FAKOLITH Chemical Systems guarantees the production of products of impeccable quality as part of the implementation of the company's internal HACCP concept. According to VO (EU) 1935/2004/EG the traceability of the production is guaranteed.

FAKOLITH Farben GmbH and FAKOLITH Chemical Systems are certified according to the quality management system DIN EN ISO 9001:2008 since 2006. Cert. no. 01100071679/01.

Substrates

Substrate preparation in accordance with the German Construction Contract Guidelines (VOB). Substrates must be dry and free from contamination and separating substances. Observe German Construction Contract Guidelines (VOB), Section C, DIN 18363, part 3. The Substrate pre-treatment depends on the substrate:

- **Concrete:**
  Remove release agent residues with FAKOLITH FK 11 Cleaner, if necessary. Remove sanding substances. Pretreat chalking substrates with DISPERLITH PRIMER. On non-chalking substrates apply FK 100 FOODGRADE directly with approx. 2-4% thinner in the first coat.

- **Mineral substrates:**
  Check the strength and absorbency of the substrate. Prime highly to moderately absorbent or chalking substrates with DISPERLITH PRIMER. Otherwise apply FK 100 FOODGRADE directly onto the mineral substrate.

- **Sheetrock / Aquapanels:**
  Prime with DISPERLITH PRIMER or FAKOLITH FK 16 Deep Primer.

- **2K epoxy coatings:**
  A sample laying is always required. Clean and sand the surface (>100 grit sandpaper). Direct coating with FK 100 FOODGRADE.

- **Powder-coated substrates**:
  A sample laying is always required. Clean and sand the surface. If necessary, direct coating with FK 100 FOODGRADE.

- **Substrates made of plastic / GRP:**
  A sample laying is always required. Clean and sand the surface. If necessary, direct coating with FK 100 FOODGRADE.

- **Mold and bacteria infested substrates:**
  Clean with FAKOLITH FK 12 diluted 1:4 with water. Then prime with DISPERLITH PRIMER.

- **Yeast and bacteria infested substrates:**
  Clean with FAKOLITH FK 39. Then prime with DISPERLITH PRIMER.

- Substrates with **soiling due to grease, oil, soot:**
  Clean with FAKOLITH FK 11 diluted 1:20 with water.

- **Coatings that are not load-bearing:**
  Remove and clean substrate. Prime with DISPERLITH PRIMER.

- **Load-bearing emulsion paints:**
  Clean substrate. It is essential to check the strength and suitability of the old coating(s) by laying samples. Direct coating with FK 100 FOODGRADE.

- **Wood:** Sand, thoroughly clean off residues, apply FK 100 FOODGRADE undiluted. A sample application is absolutely necessary due to the different wood types/surfaces.

- **Rust protection primer and adhesion promoter for, aluminum, copper, stainless steel with signs of use/rust marks:**

  Prepare surface and remove residues of oil, grease, salt or dirt. Recommendation: Apply FAKOLITH FK 11 Cleaner diluted 1:20 with water and clean off immediately. Wipe with solvent to prevent corrosion.

  Information on surface preparation methods can be found in DIN EN ISO 12944-4.

  Apply FAKOLITH FK 44-POX rust protection primer and adhesion promoter in 1-2 working steps. FAKOLITH FK 44-Pox is odourless and can be applied at temperatures up to +4° C.

- **Iron, steel, stainless steel:**
  Surface preparation according to DIN EN ISO 12944-4. Direct coating with a minimum layer thickness of 250µm dry.

- **Tiles:**
  Clean the tiles and sand them. Remove dust, repair joints if necessary. Apply a thin overlapping coat of FK 100 FOODGRADE + 5% FK 45 Thinner to highly absorbent joints. After drying (min. 24 h), coat at least 2x with FK 100 FOODGRADE.

- **Vessel coatings:**
  Prime steel containers filled with liquid foodstuffs with FAKOLITH FK 44-POX. For drying times FK 44-POX see technical data sheet. Recommended dry film thickness FK 44-Pox 40-80 µ/m² (= 225-250ml/m²). Subsequently apply FK 100 FOODGRADE with 450-500µm total layer thickness (dry) in several work steps. This type of coating should only be applied by specialized companies.

Please read the technical information and safety data sheets before application. Observe substrate moisture, check the strength of the old coatings by means of cross-cutting and clarify the spatial/temporal conditions on the object.

Carrying out renovation and maintenance work in industrially used spaces requires sound planning. We recommend inquiring about the individual requirements for the coating and clarifying the conditions on site before starting the work:

- Which cleaning agents are used in which concentration, at which temperature and how often during the daily production process?

- What are the temperatures/humidity during the execution of the renovation works?

We recommend detailed coordination of the work, taking into account the processing conditions and the expected drying times. When will production start up again? What moisture load is to be expected and when will the first cleaning of the renovated section take place?

Processing

The substrate must be clean, dry and load-bearing. The room and substrate temperature must not fall below +12°C and not exceed +30°C during application and drying. The surface temperature of the substrate to be coated should always be 3°C above the dew point. Maximum relative humidity during application: 70%.

Mixing: Stir components A and B separately. This process is important, as both components are highly viscous at rest. Subsequently, slowly stir component B into component A. Stir manually or at lowest speed for approx. 2-3 minutes and then allow to rest for 2 minutes. Avoid mixing in air.

Dilution: The viscosity of the 2K epoxy resin coating varies, depending on the storage and ambient temperatures. Low temperatures increase, high temperatures decrease the viscosity. Accordingly, we recommend to adjust the product on site with FAKOLITH FK 45 DILUTION. Addition for manual application up to max. 4%. At dilutions >4%, there is a risk of running of the coating during manual application, especially on non-absorbent substrates.

Important: Transfer the mixture into a clean bucket for processing. Any residues of component A from the binder can lead to filming problems. Only mix the amount of material that can be processed within 25 minutes (see pot life).

Manual application: Apply with short-floor roller (<= 5mm) or brush. Application in at least 2 layers. The use of special paint rollers for solvent-based 2C epoxy resin paints is strongly recommended. Wash out and dry roller well before application.

Airless spraying: Application by spraying should be well planned because of the short pot life. Optimum spraying results were achieved with the Airless unit SF23 Plus from Wagner in the AirCoat process. Nozzle 15/50 flat jet, spray pressure 180bar, spray temperature FK 100 FOODGRADE= 20°C. AirCoat data: Gun AC 4500, air cap red, gun filter white, air pressure 5 bar, 10% FAKOLITH FK 45 thinner.

Other sprayers that were tested: Airless Graco Classic, ST MAX with CMAX heated hoses: Airless system with heated hose, pressure: 200 - 220 bar, heating temperature: 60º C, nozzle Rax X PAA619 Autoclean size 0.019 in.

After the pot life has expired, a temperature of up to +80°C may form in the unused mixture (only applies to containers >5kg). Do not leave these containers unattended in exposed areas.

Pot life

A + B (2,5 Kg)	10ºC	20ºC	30ºC
Pot life *	1:30 h	35 min	15 min

A + B (7,5 Kg.)	10ºC	20ºC	30ºC
Pot life *	1:10 h	25 min	12,5 min

* These "pot life" values (mixture useful life) are indicative, as they depend on the ambient temperature, relative humidity and possible air flow. The addition of solvent to the mixture decreases the viscosity and increases the pot life and drying time, depending on the amount added. Perform some preliminary tests before application.

VOC content

Category: j (BD-SB)
Max. 500 g/l VOC (2004/42/CE).
The mixture of Comp. A + B contains 0 g/l. (Low VOC)

Specific weight

Specific weights of the finished mixture (component A+B):
FK 100 FOODGRADE white: 1kg = ~ 0,75 L

Mixing ratio:
By weight: 1 Kg A + 0.537 Kg B
By volume: 1 l. A + 0.68 l. B

Gloss level	Glossy
Opacity (UNE-EN 13300)	Dry film thickness 300 µm = Class 1
Colour shade	Pearl white RAL 1013, signal-grey RAL 7004, light-grey RAL 7035 up to 100L.

Consumption

Film thickness and theoretical yield of FK 100 FOODGRADE:

The following table serves as a guide for dry film thicknesses and consumption quantities:

FK 100 FoodGrade (7 days- 23ºC - 50% HR)				
Layer thickness	**Dry**	**Wet (µm=ml/m²)**	**Wet (gr./m²)**	**Yield**
Low	**200 µm**	200 µm ± 2%	252 gr/m ²	4 m²/kg 5 m²/l
Medium	**300 µm**	300 µm ± 2%	378 gr/m ²	2.7 m²/kg 3,3 m²/l
Medium	**350 µm**	350 µm ± 2%	448 gr/m ²	2.2 m²/kg 2,9 m²/l
High	**400 µm**	400 µm ± 2%	504 gr/m ²	2 m²/kg 2,5 m²/l
Very high	**500 µm**	500 µm ± 2%	630 gr/m ²	1.6 m²/kg 2 m²/l
With net	**795 µm**	795 µm ± 2%	Desde 1000 gr/m ²	1 m²/kg 1,26 m²/l

Material consumption depends on the type of application, environmental conditions, shape and nature of the substrate, as well as technical requirements for the surface.

For coating ceilings, walls, plinths, sandwich panels, a medium layer thickness is sufficient.

For the coating of containers, tanks, silos and heavy-duty surfaces, a high to very high film thickness is recommended. I.e. the application is carried out in several layers, with a total layer thickness of 450-500µm dry (550 - 630g/m² wet).

The number of coats to be applied depends on the desired film thickness, the type of processing and the respective requirements for the subsequent application.

The average dry film thickness per working step when applying FK 100 with the microfiber roller is approx. 150µm dry (=150µm wet), but can vary considerably depending on the condition of the substrate.

The recommended dry film thickness per pass when applying FK 100 FOODGRADE by spray application is approx. 200µm dry (200 µm wet).

Dilution

The viscosity of the 2K epoxy resin coating varies, depending on the storage and ambient temperatures. Addition for manual application up to max. 5 with FK 45 DILUTION. At dilutions >5%, there is a risk of the coating running off during manual application, especially on non-absorbent substrates.

Drying time

Thickness approx. 200µm	10°C 50±5%Hr	23±2°C 50±5%Hr	30±2°C/ 50±5%Hr
Paintable with FK 100 FOODGRADE	After 15-20 h	After 8-10 h	After 5-6 h
Non-slip	After 24-36 h	After 12-24 h	After 8-12 h

Drying and recoating times depend on film thickness, air temperature, relative humidity, painted surface and ventilation. Between coats of FK 100 FOODGRADE, a drying time of 48 hours should not be exceeded. For drying times >48h, sand the surface well. Remove dust thoroughly. For industrial applications, check whether separating substances from production processes are present on the surface. If necessary, clean the surface before applying the next coat.

Use of forced drying: Technically forced drying (warm air and ventilation) can significantly reduce drying, curing and start-up time.

Under ideal curing conditions (23 ° C and 50% relative humidity) FK 100 FOODGRADE is easily loadable after 72 hours drying time. After 7 days, the coating offers very good physical and chemical resistance. Fully cured after 14 days. FK 100 FOODGRADE should not be exposed to liquid or high humidity during the first 72 hours of drying. This can fundamentally affect the curing of the coating and create an "Amine Blush".

Application temperature

The ambient and base temperature should be ≥ 12 ° C and preferably not exceed 30 ° C or 80% relative humidity. The lower the temperature and / or humidity and film thickness, the longer the curing time may be and vice versa. The surface temperature of the substrate to be painted should always be at least 3 ° C above the dew point. The optimum application and drying temperature is +23 ° C and 50% relative humidity. Suitable environmental conditions must be maintained during application and curing. If the ambient conditions for application and curing are not sufficient, they should be artificially adjusted (as may be the case in confined spaces, places with low ventilation, etc.)....

Test criteria

VO (EC) 1935/2004, VO(EC) 10/2011, VO (EC) 2023/2006, VO (EU) 1282/2011, VO (EU) 2016/1416, VO EU) 2017/752, VO (EU) 2018/213, FDA 21 CFR 175.300.

Declaration of Conformity

Please request the declaration of conformity from the factory.

Storage

Up to 24 months from the date of manufacture in well-sealed and frost-protected original containers. It is recommended to store and temper the product at a temperature between 15 and 20 ° C before application.

Container

2.5 kg and 6.5 kg containers. Other formats in the contract sector on request.

Occupational safety

Exclusive product for professional use. For proper handling, read the safety data sheet, use your personal protective equipment and take the necessary measures.

Disposal

For disposal, the local official regulations must be observed. Liquid materials must be given special treatment in compliance with the official regulations.

Note

White and colorless epoxy coatings may experience yellow discoloration in the medium to long term due to UV light, high temperatures or chemical exposure.

A successful renovation requires professional planning and detailed documentation. For this purpose, we offer you the "FAKOLITH Checklists" as well

	as object-related "Renovation Concepts". The documents are available on the Internet at www.fakolith.de. Our application technology department will be happy to provide you with personal advice.
Safety Datasheet	Please follow the instructions in the safety datasheets.

LEGAL NOTICE:

The companies FAKOLITH Farben GmbH and FAKOLITH Chemical Systems S.L.U. are certified according to the quality management system DIN EN ISO 9001:2015 by TÜV Rheinland Cert, Cert. No. 01100071679/01.

This technical information and recommendation regarding the processing and use of the product is based on our current knowledge and experience using standard situations and the use of the product within the shelf life. This information does not release the buyer and/or user from the obligation to determine whether our offer, recommendation or the technical quality and characteristics of our products meet their specific requirements. FAKOLITH reserves the right to update the characteristics and specifications of the products. Updated editions will be published at www.fakolith.de. An updated edition of this document invalidates the previous version (see date of creation).

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