

FK 100 FOODGRADE

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®

Material type



2-component ultra-high-solid epoxy resin coating, certified for direct contact with food in accordance with Regulation (EU) 1935/2004, Regulation (EU) 10/2011, Regulation (EU) 1895/2005, EC 2023/2006, Regulation (EU) 2018/213 and FDA 21 CFR 175.300 (see Declaration of Conformity 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 for tank, silo and container coatings. But also in many other applications where a highly resilient surface coating tested to EU and US standards is required.

Properties



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



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

- Certified according to Regulation (EC) 1935/2004, Regulation (EU) 10/2011 and FDA 21 CFR 175.300 for direct contact with food.
- Surface protection against virus and bacterial infestation thanks to tested GREEN-BIO.FILM.STOP technology (ISO 21702:2019-05, ISO 22196:2011-08)
- Certified cleanroom coating. Tested by the 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 resin coating. High coverage.
Wet film thickness = dry film thickness (undiluted)
- Low odor during processing
- Full CE marking and tests in accordance with UNE-EN 1504-2:2005
- Impermeable to water. After drying, FK 100 FOODGRADE forms a water-impermeable film that is easy to clean.
- No water absorption/non-swellable (prevention 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 deep primer, FK 100 FOODGRADE is suitable for coating mineral substrates, metals, tiles, plastics, fiberglass and intact old coatings (e.g. epoxy coatings, emulsion paints). A 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 substances creates a colored film with high qualitative and quantitative resistance to viruses and bacteria. The tests were carried out in accordance with 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 subtilis, Pseudomonas aeruginosa). The 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 the BioFilmStop prophylaxis.

Areas of application

FK100 FOODGRADE is particularly recommended for the coating of tanks, silos, basins, tubs and other containers in which foodstuffs are 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 coating, coating for transport elements, tub and transport containers that are in direct contact with food for short or long periods.

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

Legal requirements and certification

FK 100 FOODGRADE complies with all European regulations for materials that come into direct contact with food in accordance with Regulation (EC) 852/2004 and with FDA 21 CFR 175.300 in the USA.

Further regulations for the certification of FK 100 FOODGRADE: Regulation (EC) 1935/2004, Regulation (EC) 2023/2006, Commission Regulation (EU) 10/2011 and its subsequent amendments (EC) No. 1282/2011 with regard to plastic materials and articles in contact with food. Regulation (EC) 1895/2005, Regulation (EC) 2018/213 on the use of bisphenol A in paints and coatings intended to come into contact with food. The implementation of the European regulations standardizes criteria for the European market. Among other things, the standards define 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 carrying out the tests with all simulants A, B, C, D1, D2, E.

Organoleptic tests were carried out 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 carried out, we confirm that FK 100 is approved under European and US law for use in direct contact with all foodstuffs. Detailed information on the tests carried out 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 generally chemically and physically suitable for permanent contact with all foodstuffs. Please contact our application technology department to clarify the specific suitability of FK 100 FOODGRADE for the intended application, especially in the case of highly acidic/alkaline liquids.

Categories / criteria of the test simulants	
Contact Food	Simulance
Aqueous foods only	Simulant A
Acidic foods only	Simulant B
Alcoholic foods only	Simulant C
Only fatty foods	Simulance D
All aqueous and acidic foods	Simulant B
All alcoholic and aqueous foods	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 the CNTA and a participating partner in official R&D projects relating to technically advanced coatings for the food industry and the healthcare sector.

FAKOLITH Chemical Systems is registered both in the health register for 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 registration system for the food industry (Registro General Sanitario de Empresas Alimentarias y Alimentos, RGSEAA) under the number ES-39.005259/T. FAKOLITH Chemical Systems guarantees the manufacture of products of impeccable quality as part of the implementation of the internal HACCP concept. Production traceability is guaranteed in accordance with Regulation (EU) 1935/2004/EC.

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

Substrates

Substrate pre-treatment according to VOB. The substrates must be dry, free of dirt and separating substances. Observe VOB, Part C, DIN 18363, Para. 3. The substrate pre-treatment depends on the substrate:

- **Concrete:**
If necessary, remove release agent residues with FAKOLITH FK 11 Cleaner. Remove sanding substances. Pre-treat chalking substrates with DISPERLITH PRIMER. Apply FK 100 FOODGRADE directly to non-chalking substrates 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 to the mineral substrate.
- **Sheetrock / Aquapanel:**
Prime with DISPERLITH PRIMER or FAKOLITH FK 16 Deep Primer.
- **2K epoxy resin coatings:**
It is always necessary to lay a sample. Clean and sand the surface (>100 grit sandpaper). Direct coating with FK 100 FOODGRADE.
- **Powder-coated substrates:**
It is always necessary to lay a sample. Clean and sand the surface. If necessary, coat directly with FK 100 FOODGRADE.
- **Plastic and fiberglass-reinforced plastic (GRP) substrates:**
It is always necessary to lay a sample. Clean and sand the surface. If necessary, coat directly with FK 100 FOODGRADE.
- **Substrates infested with mold and bacteria:**
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.
- **Surfaces soiled with grease, oil, soot:**
Clean with FAKOLITH FK 11, diluted 1:20 with water.
- **Non-load-bearing coatings:**
Remove and clean the substrate. Prime with DISPERLITH PRIMER.
- **Sustainable emulsion paints:**

Clean the 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 types of wood/surfaces.
- **Rust protection primer and adhesion promoter for aluminum, copper, stainless steel with signs of wear/rust spots:**

Prepare the 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 methods for surface preparation can be found in DIN EN ISO 12944-4.

Apply FAKOLITH FK 44-POX rust protection primer and adhesion promoter in 1-2 coats. FAKOLITH FK 44-Pox is odorless and can be applied at temperatures from +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 and sand the tiles. 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 (at least 24 hours), coat at least twice with FK 100 FOODGRADE.
- **Container coatings:**
Prime steel containers that are 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 µm² (= 125-250ml/m²). Subsequently apply FK 100 FOODGRADE with a total layer thickness of 450-500µm (dry) in several coats. This type of coating should only be applied by specialized companies.

Please read the technical information and safety data sheets before application. Note the substrate moisture, check the strength of the old coating using a cross-cut and clarify the spatial/temporal conditions at the property.

Carrying out renovation and maintenance work in rooms used for industrial purposes requires sound planning. We recommend asking about the individual coating requirements and clarifying the conditions on site before starting work:

- Which cleaning agents are used in which concentration, at which temperature and how often during the daily production process?
- How high are the temperatures/humidity during the renovation work?

We recommend coordinating the work in detail, taking into account the processing conditions and the expected drying times. When will production start 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 sound. The room and substrate temperature must not fall below +12°C or 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%.

Mixture: Stir components A and B separately. This process is important as both components are highly viscous at rest. Then slowly stir component B into component A. Stir manually or at the lowest speed for approx. 2-3 minutes and then leave 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 the viscosity, high temperatures reduce it. Accordingly, we recommend adjusting the product on site with FAKOLITH FK 45 THINNER. Addition for manual application up to max. 4%. With dilutions >4%, there is a risk of the coating running when applied manually, especially on non-absorbent substrates.

Important: Pour the mixture into a clean bucket for processing. Any residue of component A from the edge of the container 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 a short pile roller (<= 5mm) or brush. Apply in at least 2 coats. The use of special paint rollers for solvent-based 2K epoxy resin paints is expressly recommended. Wash out roller well and dry before application.

Airless spraying: Application by spraying should be well planned due to the short pot life. Optimum spraying results were achieved with the Wagner SF23 Plus airless unit using the AirCoat method. Nozzle 15/50 flat jet, spraying pressure 180 bar, spraying 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: 60° C, nozzle Rax X PAA619 Autoclean size 0.019 inch

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 an exposed area.

Pot life

A + B (2.5 kg)	10°C	20°C	30°C
Pot life *	1:30 h	35 min	15 min

A + B (7.5 kg)	10°C	20°C	30°C
Pot life *	1:10 h	25 min	12.5 min

* These "pot life values" (mix usage time) are indicative as they depend on the ambient temperature, relative humidity and possible air flow. The addition of solvent to the mixture lowers the viscosity and extends the pot life and drying time, depending on the amount added. Carry out 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 + 0.53 kg B
By volume: 1 l. A + 0.68 l. B

Gloss level

Shiny

Opacity
(UNE-EN 13300)

Dry film thickness 300 µm = class 1

Shade

Standard color: Pearl white RAL 1013.**Additional colors in FOODGRADE quality:**

From an order quantity of **100 kg**: Signal gray RAL 7004, light gray (approx. RAL 7035), dark green (approx. RAL 6002), blue (approx. RAL 5012), oxide red (approx. RAL 3009). Please note that delivery times may vary for these colors.

For tinting FAKOLITH FK 100 in FOODGRADE quality, we only use powder pigments approved for food contact. There may be slight deviations from the defined RAL shades.

It is generally possible to tint FAKOLITH FK 100 with suitable liquid color concentrates. However, FAKOLITH FK 100 then does not meet the requirements of Regulation (EC) 1935/2004, Regulation (EU) 10/2011, Regulation (EC) 1895/2005 for products in direct contact with food. A declaration of conformity cannot be issued in this case. Possible compatibility problems should be excluded by prior sampling.

Consumption

Layer 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- 23°C - 50% HR)				
Layer thickness	Dry	Wet (µm=ml/m²)	Wet (gr./m²)	Yield
Low	200 µm	200 µm ± 2%	252 gr/m²	4 m²/kg 5 m²/l
Medium	300 µm	300 µm ± 2%	378 gr/m²	2.7 m²/kg 3.3 m²/l
Medium	350 µm	350 µm ± 2%	448 gr/m²	2.2 m²/kg 2.9 m²/l
High	400 µm	400 µm ± 2%	504 gr/m²	2 m²/kg 2.5 m²/l
Very high	500 µm	500 µm ± 2%	630 gr/m²	1.6 m²/kg 2 m²/l
With net	795 µm	795 µm ± 2%	Desde 1000 gr/m²	1 m²/kg 1.26 m²/l

The material consumption depends on the type of application, the ambient conditions, the shape and nature of the substrate and the technical requirements of the surface.

A medium layer thickness is sufficient for coating ceilings, walls, plinths and sandwich panels.

A high to very high layer thickness is recommended for coating containers, tanks, silos and highly resilient surfaces. This means that the coating is applied in several layers, with a total layer thickness of 450-500µm dry (550 - 630g/m² wet).

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

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

The recommended dry film thickness per application when using FK 100 FOODGRADE for 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 THINNER. With dilutions >5%, there is a risk of the coating running when applied manually, 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
Can be painted over 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

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

Use of forced drying: Technically forced drying (warm air and ventilation) can significantly reduce the drying, curing and commissioning 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 liquids or high humidity during the first 72 hours of drying. This can fundamentally impair the curing of the coating and create an "amine blush".

Application temperature

The ambient and base temperature should be $\geq 12^{\circ}\text{C}$ and preferably not exceed 30°C or 80% relative humidity. The lower the temperature and / or humidity and the layer thickness, the longer the curing time can 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 processing and drying temperature is $+23^{\circ}\text{C}$ and 50% relative humidity. Suitable ambient conditions must be maintained during application and curing. If the ambient conditions are not sufficient for application and curing, these should be artificially adjusted (as may be the case in confined spaces, places with poor 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 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 correct handling, read the safety data sheet, use your personal protective equipment and take the necessary measures.
Waste disposal	The local official regulations must be observed for disposal. Liquid materials must be subjected to special treatment in accordance with official regulations.
Note	White and colorless epoxy coatings can turn yellow in the medium to long term due to UV light, high temperatures or chemical exposure. A successful renovation requires professional planning and detailed documentation. We offer you the "FAKOLITH checklists" and property-related "renovation concepts" for this purpose. The documents are available on the Internet at www.fakolith.de. Our application technology team will be happy to provide you with personal advice.
Safety data sheet	Please observe the instructions in the safety data sheets.

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. 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 on the use of the product within its shelf life. This information does not release the purchaser and/or user from the obligation to determine whether our offer, our recommendation or the technical quality and properties of our products meet their specific requirements. FAKOLITH reserves the right to update the properties and specifications of the products. Updated editions will be published at www.fakolith.de. An updated version of this document invalidates the previous version (see date of issue).



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