

Product Data Sheet

Product Description

ICO-Guard 51™ is a three-part, flexibilized epoxy flooring material, normally applied over concrete, with excellent chemical and thermal shock resistance. It is a USDA approved product with low odor, zero VOC's, and excellent damp adhesion. As a "resin-rich" mix it can be applied by hand or power trowel in a single step in virtually any thickness down to 3/16" without need of any "grout" or "sealer" coats or as a two-step, slurry/topcoat application for open areas. As it is impervious throughout its entire thickness, it will far outlast conventional "sealed" floors, especially in heavy wear, wash-down areas.

Unlike most epoxies, ICO Guard 51 is formulated to withstand extreme thermal shock, including steam cleaning. Unlike more brittle, conventional epoxies, with compressive strengths typically exceeding 10,000 psi, or three times that of concrete, ICO Guard 51 is formulated to have properties closer to that of concrete with a compressive strength of about 5,200 psi. Such lower compressive strengths result in more flexible (tensile elongation of 10% resin only) material that is far less likely to crack under thermal shock and impact compared to the harder, more brittle epoxies.

ICO Guard 51 has excellent chemical resistance against CIP cleaners, most inorganic acids, caustics, lubricants and some solvents. It dries to a moderate glossy surface; texture can be provided by broadcasting aggregate into the still wet surface. ICO Guard 51 is available in a fast cure version for applications down to 40°F, at which temperature it cures hard in 24 hours.

There is also "Cold Cure" version for applying down to 32°F (see PDS ICO Guard Cold Cure). ICO Guard can be applied as a vertical coving material by ordering "ICO Guard Cove Mix".

Typical Application

ICO-Guard 51™ is particularly recommended for meat and plants, dairies, citrus, and bottling plants seeing heavy wet poultry, exposure to a broad pH range down to 1 and daily exposure to CIP sanitizing wash-downs up to 212°F. It is ideal for quick turnaround repairs in existing food and beverage plants, even if the plant remains in operation, or for new facilities where a long-lasting, low maintenance floor is desired.

ICO Guard 51 provides an easy-to-clean, seamless surface for institutional and commercial kitchens, even over old quarry tile or brick floors, provided the tile is well bonded. In its "fast Cure" and "Cold Cure" versions, it is well suited for application in coolers and cold rooms without contamination of sensitive food products.

Chemical Resistance

ICO-Guard 51™ is highly chemical resistance to most acids, including up to 80% sulfuric, 85% phosphoric, 30% nitric, concentrated HCl, 80% lactic and most CIP cleaners. See our Chemical Resistance Chart under "ICO Guard" for individual chemical resistances.

Physical Properties

Gardner Impact Strength (D-2794):	>160 in.-lbs.	Flexural Strength (C-580):	2550 psi
Tensile Strength (ASTM C-307):	2030 psi	Water Absorption (D-570):	.03% in 24 hours
Bond Strength to Quarry Tile:	>1000 psi	Hardness, Shore D (D-2240):	75
Tensile Elongation, Unfilled (D-638):	10%	Tensile Elongation, filled (C-307):	3%
Vapor Transmission Rate (E:96):	.03 perms	Compression Strength (C-579):	5170 psi
Flammability (D-635):	Self Extinguishing	Coefficient of Thermal Expansion (D-696):	1.7×10^{-5} per °F

Physical Characteristics

Density, lbs. /gal.	
Part A:	9.5
Part B:	8.6
A&B Mixed:	9.2

Viscosity @ 77°F, cps	
Part A:	700
Part B:	300
A&B Mixed:	630

Shelf Life 1 year at 77°F in unopened containers.

Mixing Ratios	ICO Guard 51		ICO Guard 51 FC	
	By Volume	By Weight	By Volume	By Weight
Part A:Part B	2:1	2.2:1	2.5:1	2.9:1
Aggregate:Liquid	3.3:1	5:1	3.3:1	5:1

Curing Times		40°F	50°F	70°F	90°F
ICO Guard 51	Pot Life:	---	60 min.	50 min.	25 min.
	Working Time:	---	2 hrs.	100 min.	80 min.
	Tack Free:	---	14 hrs.	6 hrs.	4 hrs.
	Hard, Foot Traffic	---	60 hrs.	20 hrs.	10 hrs.
	Hard, Truck Traffic	---	72 hrs.	28 hrs.	14 hrs.
ICO Guard 51 FC	Pot Life:	50 min.	45 min.	30 min.	---
	Working Time:	60 min.	50 min.	35 min.	---
	Tack Free:	12 hrs.	9 hrs.	4 hrs.	---
	Hard, Foot Traffic	26 hrs.	18 hrs.	8 hrs.	---
	Hard, Truck Traffic	32 hrs.	24 hrs.	12 hrs.	---

Color Availability

Standard colors: white, gray, dark gray, beige, yellow, red, green, blue, brown, black.

Packaging and Coverage Rates

Basic Kit	27 SF at 1/4" depth
Bulk Pack	270 SF at 1/4" depth
Drum Kit	2700 SF at 1/4" depth

Installation

Please refer to our Application Specs for detailed instructions. Particular care must be taken to follow those instructions precisely to assure proper installation.

1. New concrete should be allowed to cure for 28 days; however, if shorter times are necessary, a plastic sheet test and calcium chloride test should be taken. Call ICO Tech Service when data obtained.
2. Floor must be free of grease, oils and other contaminants and should be mechanically abraded, by shot-blasting, scarifying or diamond grinding to remove old poorly bonded coatings and obtain a minimum texture of 30 to 40 grit.
3. ICO Guard 51 is a self-priming floor; however, particularly on porous substrates, a prime coat of ICO Primer LV is highly recommended to minimize out-gassing. Allow to dry tack free.
4. The three ingredients should be mixed in the prescribed ratios using a low speed (<700rpm) paddle style mixer, first with A & B components for at least 30 seconds followed by addition of aggregate and tint and mixed for another 30 seconds or until uniform in color and consistency.
5. Do not mix less than the prescribed amount of each component and do not add any solvent.

6. The prepared mix may be applied by a screed box or bar to 1/4" thickness and allowed to set for several minutes, before finish trowelling with a power trowel or by hand. Do not over trowel. Trowelling may be enhanced by using isopropyl alcohol (IPA) sprayed lightly on the trowel.

7. After finish trowelling the surface may be back-rolled with a short nap roller dipped in IPA to remove light trowel marks and to bring the resin to the surface, followed by broadcasting in with a suitable grit to achieve the desired texture. No top coat necessary.

NOTE: Failure to follow the above instructions, unless expressly authorized by a Milamar Technical Service Representative, will void our material warranty.

Precautions

1. Do not apply fast cure version, ICO Guard 51 FC, much above 65° to 70°F as it is very fast reacting.
2. For application temperatures between 32° and 40°F, use ICO Guard Cold Cure instead.

Product Specification

The specified area shall receive an application of ICO Guard 51™ as manufactured by Milamar Coatings, LLC. of Oklahoma City, Oklahoma. The system shall be installed by precisely following the manufactures published recommendations pertaining to surface preparation, mixing and application. The material shall be a low odor, three part, solvent-free 100% solid, epoxy system with moderate resilience to resist thermal and mechanical shock. It should be trowel applied normally at 1/4" thickness in one application without needing a top coat. It shall be a resin-rich mix ratio of 3.3:1, ICO-Fill™ aggregate to resin and hardener. It shall have an elongation of 10% when tested using ASTM D-638 and a Gardner Impact greater than 160- inch pounds when tested under ASTM D-2794. The compressive strength when tested in accordance with ASTM C-579 shall not exceed 5200 psi and tensile strength not to exceed 2030 psi as measured against ASTM C-307. The system shall be useable at temperatures down to 40°F by specifying ICO-Guard 51FC™. It shall be water wipe-able and have excellent adhesion to wood, metal tile, brick and damp as well as dry concrete. It shall be self-priming except on surfaces with extreme porosity. The system shall be unaffected by oils and greases and have high chemical resistance against such acids as 36% hydrochloric, 30% nitric, 80% sulfuric, concentrated lactic and 10% acetic. It shall resists such caustics as sodium hydroxide and ammonium hydroxide.

The data statements and recommendations set forth in this product information sheet are based on testing, research and other development work which has been carefully conducted by us, and we believe such data. Statements and recommendations will serve as reliable guidelines. However, this product is subject to numerable uses under varying conditions over which we have no control, and accordingly we do NOT warrant that this product is suitable for any particular use. Users are advised to test the product in advance to make certain it is suitable for their particular production conditions and particular use or uses.

LIMITED WARRANTY

Milamar Coatings products are manufactured to be free of defects in material and workmanship in meeting the properties specified on its individual Product Data Sheets.

Users and installers of Milamar Coatings products are solely responsible for determining the suitability of the products for specific product applications. Milamar Coatings makes no Warranty or Guarantee, express or implied, including warranties of fitness, design compatibility or merchantability, for any particular use and shall have no responsibility or liability, including direct, indirect or consequential damages, due to injury, delay or third party claims for installation or repair. Likewise, Milamar Coatings assumes no liability of any nature for products that are adjusted in the field or that do not utilize all specified Milamar Coatings components. Should any Milamar Coatings product be proved to be defective within one year from the date of shipment, Milamar Coatings will, at its sole discretion, replace the material; issue a credit to the customer's account; or provide a cash refund for the initial, paid purchase price of the material. Potential claims regarding product quality must be received in writing by Milamar Coatings within 30 days of the discovery of such potential defect. This Warranty is exclusive of all other warranties, expressed or implied, and may only be adjusted in writing, signed by an officer of Milamar Coatings, L.L.C.

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