Shieldfloor E400

Two-component, Solvent-free Epoxy Floor Coating

TECHNICAL DATA SHEET

Description

Shieldfloor E400 is a two-component, solvent-free epoxy floor coating, formulated to provide a hard-wearing, abrasion-resistant, and chemical-resistant surface that provides a long-term flooring solution. **Shieldfloor E400** is applied at 400 microns total thickness at two coats application and can achieve an anti-slip finish to give a slip-resistant floor system.

Uses

- Hospitals, laboratories, and other pharmaceutical facilities as well as production plants.
- Warehouses, car parks, basements, and showrooms.
- Where durability and excellent abrasion as well as chemical and mechanical resistance are required.
- Commercial, and residential facilities, as well as light industrial uses.
- Aircraft hangers, and facilities.

Characteristics / Advantages

- Solvent-free.
- Easy to apply and maintain.
- Durable and chemical resistant.
- Produces slip-resistant surface when broadcasted.
- Resistant to impact and heavy traffic.
- Provides a glossy seamless surface that prevents the growth of mold and mildew.
- Resistant to scratches, stains, and moisture.
- Available in a wide range of attractive colors.
- Environmentally friendly.

Standard Compliance

EN 13813- SR- B2.0- AR1.0- IR9.0

Packaging

Shieldfloor E400 is supplied in 15-L drums.

Typical Properties

Color / Appearance	Colored liquid
Solid Content	100%
Mixed Density (23 °C)	1.50 ± 0.05 g/ml
Pot Life	40 – 60 minutes @ 23 °C 20 – 30 minutes @ 40 °C
Wet Film Thickness	200 microns per coat*
Overcoating Time (23°C)	16 – 24 hours
Dry to Touch	4 – 6 hours @ 23 °C 2 – 3 hours @ 40 °C
Time for Foot Traffic (23°C)	24 hours
Time for Heavy Traffic (23°C)	48 hours
Full Cure (23°C)	7 days
Glossiness (ASTM D523) @60°	≥ 80
Compressive Strength (ASTM C579) @ 7 days	≥ 75 MPa
Flexural Strength (ASTM C580) @ 7 days	≥ 35 MPa
Tensile Strength (BS 6319-7) @ 7 days	≥ 20 MPa
Taber Abrasion (ASTM D4060) CS17 1000g, 1000 cycles @ 7 days	≤ 50 mg
Bond Strength (EN 1542) @ 7 days	> 3.0 MPa Concrete Failure
Shore D Hardness (ASTM D2240) @ 7 days	> 80
Impact Resistance (ISO 6272-2) @ 7 days	9 N.m

The thickness of one coat can be reduced to 150 microns if three coats of floor coating are applied in the system.

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Application Instructions

1. Surface Preparation

The substrate must be free from dust, loose materials, surface contamination, and any materials that may reduce bond between the coating and the substrate.

Surface defects such as cracks, blowholes, and voids must be repaired using **Shieldrep ER60**.

Concrete substrates should be 28 days, with a relative humidity of less than 80%. Application temperature is within the range of 10 – 40℃.

2. Priming

Priming is not normally necessary for sound, non-porous substrates. For porous substrates, it is recommended to apply **Shieldprime EP** prior to application, at the rate of 5 m^2/ kg using a brush or a roller and allowed to achieve a tack-free condition.

A second coat of the primer may be required for highly porous substrates.

3. Mixing

Components A and **B** should be stirred separately before being mixed to eliminate any case of settlement.

Component B (hardener pack) should be added to **Component A** (base pack) and mixed using a low-speed mixing drill for 3 minutes while reaching the walls and bottom of the container until a homogeneous and consistent material is obtained.

Avoid mixing too vigorously to eliminate introducing air bubbles. Once mixed, the material should be used within its specific pot life.

4. Application

Shieldfloor E400 is applied immediately onto the prepared and primed substrate.

Apply the first coat evenly using a brush or a roller and allow to dry before overcoating at 200 microns WFT.

A second coat can be applied once the first coat has achieved a tack-free condition (within the overcoating time), and perpendicular to the first coat to ensure full coverage and even depth of color.

Antislip Application

Apply the first coat of **Shieldfloor E400** to a well-prepared surface and ensure the coating is spread evenly over the entire area. While the first coat is still wet, spread the non-slip aggregates evenly over the surface at the recommended rate of 0.5 – 2.0 kg/m^2, depending on the desired slip resistance.

Allow the first coat to become tack-free and use a vacuum cleaner to remove any excess aggregates that have not adhered to the surface. Apply the second coat of **Shieldfloor E400** using a roller to the vacuumed area to seal in the aggregates.

Depending on the required finish and slip resistance, a third coat may be required if the final coat has a coarse surface.

Antislip Aggregates	Total system thickness
Aggregate no. 1 (Fine Texture)	0.40 – 0.70 mm
Aggregate no. 2 (Fine-Medium Texture)	0.50 – 1.00 mm
Aggregate no. 3 (Medium Texture)	0.90 – 1.40 mm
Aggregate no. 4 (Coarse Texture)	1.40 – 2.40 mm

Consumption Rate

- **Standard Application (500 – 600 microns)**

Shieldprime EP: 0.10 L/m^2 per 100 microns of thickness

Shieldfloor E400 (first coat): 0.20 L /m^2

Shieldfloor E400 (secondd coat): 0.20 L /m^2

- **Antislip Application (500 – 2400 microns)**

Shieldprime EP: 0.10 L/m^2 per 100 microns of thickness

Shieldfloor E400 (first coat): 0.20 L /m^2

Antislip Aggregates (#1, 2, 3, 4): 0.50 – 2.00 kg /m^2

Shieldfloor E400 (second coat): 0.23 L /m^2

The consumption rates are given for guidance only. Actual rates depend on substrate porosity, and roughness as well as aggregates.

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5. Cleaning

Clean the tools and any uncured material using a suitable solvent. Hardened material should be removed mechanically.

6. Curing

Allow the final topcoat to cure completely before subjecting the surface to heavy use or traffic.

Chemical Resistance

Citric Acid (25%)	Resistant
Acetic Acid (5%)	Slight softening
Sulfuric Acid (25%)	Resistant with color change
Sulfuric Acid (50%)	Resistant with color change + slight softening
Sodium Hydroxide (50%)	Resistant
Ammonia Solution (10%)	Resistant
Potassium Hydroxide (50%)	Resistant
Hydrochloric Acid (10, 30%)	Resistant with color change + slight softening
Nitric Acid (10%)	Resistant
Nitric Acid (25%)	Resistant with color change + slight softening
Phosphoric Acid (20, 50%)	Resistant with color change + slight softening
Xylene	Resistant
White Spirit	Resistant
Diesel	Resistant
Gasoline	Resistant
Engine Oils	Resistant
Detergents	Resistant

ASTM D1308 / 7 days curing (Spot test @ 1 hour)

Shelf Life and Storage

Shieldfloor E400 has a shelf life of 12 months when stored in its original unopened packaging in cool and dry conditions, protected from direct sunlight, heat, and moisture.

Shelf life may be reduced if the recommended storage conditions are not followed.

Safety Instructions

The application should be done in a well-ventilated area with adequate air circulation, away from any heat source, and ensure having gloves, eye protection, masks, and protective clothing.

Avoid contact with the eyes and skin. In case of direct contact with the skin, wash the affected area immediately with water for several minutes. If it comes into contact with the eyes, rinse immediately with lukewarm water for at least 15 minutes and get medical advice or treatment if any emergency warning signs appear. Dispose of any leftover epoxy and waste materials according to local regulations. For further information, refer to the Material Safety Data Sheet.

Limitations

- Do not apply the product if the ambient temperature is less than 10°C.
- Hot weather practices should be adopted during application and curing if the temperature is above 35°C. In hot conditions, store the material in a cool environment 24 hours prior to mixing and application.
- Do not change the mixing ratio and ensure fully timed mixing is carried out as detailed to obtain proper performance and curing.
- To ensure uniform color and shade, use material with the same batch number. If using different batch numbers, mix their contents before use.
- Avoid disturbing the coated surface during the curing process, to prevent imperfections.
- **Shieldfloor E400** is designed to be used internally and should not be exposed to direct sunlight or intense UV to avoid discoloration.
- Do not overapply the Antislip aggregates to avoid leaving the surface overly textured.

Technical Support

Refer to technical information, method statement, or technical support team for any inquiry.

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