

Fire Resistant Ceramic Coating is a two-pack epoxy coating system used as concrete and metal protective as well as composite repair. The product is ideally suitable for resurfacing applications with refractory properties. Fire Resistant Ceramic Coating is a latest composite technology with refractory properties (resistant to high temperatures). Formulated to avoid fire risks like burning, smoking, and toxic fumes common with traditional materials.

Designed for superior adhesion, chemical resistance, and abrasion protection, this material is ideal for coating, repairing, resurfacing, and protecting concrete, stone, and metallic substrates from chemicals, organic/inorganic solvents, environmental and industrial damages. It provides outstanding durability and can be used in high-temperature applications without burning, smoking, or releasing harmful fumes. Various filler materials can be incorporated in HT 1000 to achieve a three-part protective system of epoxy composite. These three parts are resin, hardener, and specialized graded aggregate, allowing for adjustable viscosity and optimal application flexibility. The composite exhibits no shrinkage, excellent mechanical strength, and long-term resistance to chemical and physical wear. Cures into a tough, chemically resistant, non-melting (infusible) material.



#### FEATUURES

- High heat resistance
- Fire and molten metal spill resistant
- High durability
- Strong adhesion
- Chemical resistance
- Abrasion resistance
- High Mechanical & Impact Strength
- Outstanding Abrasion Resistance
- Excellent Chemical Resistance
- Fast Curing & Reduced Downtime
- Refractory Properties
- Resists Burns, Smoke and Fume
- No Shrinkage
- Excellent Substrate Adhesion
- Superior Intercoat Adhesion
- Easy to Mix & Apply
- Temperature Stability -40°C to 150°C
- Versatile Application

#### APPLICATIONS

Use Roller, Brush or Squeegee.

- Fire Resistant Coating
- Molten Metal Spillage Protection
- Chemical & Heat Resistance Coating
- Power Generation
- Metal / Concrete Surface Protection
- Structural Repair & Resurfacing
- Grouting & Bonding
- Abrasion & Impact Protection
- Metal Refineries
- Foundries
- Heat Containment
- Minerals Processing
- Chemical floors
- Chemical bunds
- Mining industry
- Containment bunds
- Mineral processing floors
- Treatment plants
- Waste treatment operations
- Extreme and high traffic floors
- Factories and warehouses

**PHYSICAL PROPERTIES OF Fire Resistant Ceramic Coating**

|  |  |
|--|--|
| <b>Mixing ratio by Weight (Kg) or Volume (Lt)</b>  | 4A:1B  |
| <b>Colour of Blend</b>   | Light Amber Clear and transparent  |
| <b>Pot Life @25°C</b>  | 30min  |
| <b>Re-Coating Time @25°C</b>   | 16 Hours   |
| <b>Application Temperature (min 3°C above Dew Point)</b>   | +5 to +30 °C   |
| <b>Material consumption</b>  | 1 Kg/sqm per coat - May require two coats  |
| <b>Overcoating @ 25 °C</b>   | 12 -24 hours   |
| <b>Cure time @ 25 °C:</b><br>Touch Dry<br>Foot Traffic<br>Heavy Traffic<br>Chemical Exposure / Total Hardening | 4 Hours<br>12 - 20 hours<br>2 days<br>7 days   |
| <b>Coefficient of expansion – Aggregated for Grouting<br/><i>Slightly More than concrete</i></b>               | 12-14 x 10 <sup>-6</sup> / °C  |
| <b>Coefficient of expansion - Concrete</b>   | 8-12 x 10 <sup>-6</sup> / °C   |
| <b>Adhesive strength</b>   | > 1.5 MPa  |
| <b>Compressive Strength:</b>   | 13,000 psi (89.6 MPa) – ASTM D695  |
| <b>Flexural Strength:</b>  | 5,500 psi (37.9 MPa) – ASTM D790.  |
| <b>Adhesion to Steel:</b>  | 2,700 psi (18.62 MPa) – ASTM D1002   |
| <b>Abrasion Resistance:</b>  | 820 mm <sup>3</sup> per 1,000 cycles – ASTM D4060<br>14 mm <sup>3</sup> per 1,000 cycles – ASTM D4060. |
| <b>Heat Distortion Temperature:</b>  | 97°F (36°C) – ASTM D648.   |
| <b>Thermal Conductivity:</b>   | 1.9 W/mK – BS 874.   |
| <b>Coefficient of Thermal Expansion:</b>   | 28.2 ppm/°C – ASTM E228.   |
| <b>Dielectric Strength:</b>  | 142.5 volts/mil (5700 volts/mm) – ASTM D149.   |
| <b>Volume Resistivity:</b>   | 1.0 × 10 <sup>13</sup> ohm·cm – ASTM D257.   |
| <b>Resists Inorganic Acids &amp; Alkalis:</b>  | Up to 20% concentration.   |
| <b>Heat Distortion Temperature:</b>  | 97°F (36°C) – ASTM D648.   |
| <b>Tensile strength</b>  | 7 MPa  |
| <b>Elastic Modulus</b>   | 2 GPa  |
| <b>Flexural strength</b>   | 15 - 20 MPa  |
| <b>Compressive strength</b>  | 45 - 55 MPa  |
| <b>Temperature resistance</b>  | -20 °C to 120 °C   |
| <b>Hardness (Shore D)</b>  | 80 (7 days)  |
| <b>Consistency and Flow</b>  | Semi-Self Levelling Epoxy Mortar   |
| <b>7 Days Compression Strength</b>   | >25 N/mm <sup>2</sup>  |
| <b>Shore D</b>   | >75  |
| <b>Compression Strength</b>  | C40 (>40 N/mm <sup>2</sup> )   |
| <b>Flexural Strength</b>   | F10 (?10N/mm <sup>2</sup> )  |
| <b>Water Resistance</b>  | A9 (<9cm <sup>3</sup> /50cm <sup>2</sup> )   |

### CHEMICAL RESISTANCE

Specific resistance properties of Fire Resistant Ceramic Coating in harsh chemicals:

| Resistance Code Explanation |  | Fats, Oils & Solvents     |        |
|-----------------------------|--|---------------------------|--------|
| Code                        | Resistance Level Description                                 | Substance                 | Rating |
| <b>A</b>                    | <b>Excellent</b> Safe for long-term immersion                | Xylene                    | A      |
| <b>B</b>                    | <b>Good</b> Safe for short-term immersion (max 3 days)       | MEK (Methyl Ethyl Ketone) | C      |
| <b>C</b>                    | <b>Caution</b> Spill/splash only – must clean within 8 hours | Diesel                    | A      |
| <b>D</b>                    | <b>Danger</b> Not recommended                                | Ethanol                   | A      |
|                             |  | Acetone                   | B      |
|                             |  | Kerosene                  | A      |
|                             |  | Unleaded Petrol           | A      |
|                             |  | Wine & Beer               | A      |
|                             |  | Animal Fat                | A      |
|                             |  | Ethyl Alcohol             | B      |
|                             |  | Lubricating Oils          | A      |
|                             |  | Aromatic/Ketone Solvents  | A      |
|                             |  | Hydraulic Fluid           | B      |
|                             |  | Vegetable Oil             | A      |

  

| Mineral Acids Resistance |        | Organic Acids Resistance |        |
|--------------------------|--------|--------------------------|--------|
| Acid                     | Rating | Organic Acid             | Rating |
| Hydrochloric (conc.)     | B      | Acetic Acid 5% (Vinegar) | A      |
| Sulphuric Acid           | C      | Acetic Acid 10%          | A      |
| Acetic Acid 10%          | A      | Acetic Acid 20%          | B      |
| Acetic Acid 20%          | B      | Butyric Acid 10%         | A      |
| Nitric Acid 10%          | A      | Citric Acid 50%          | A      |
| Nitric Acid 20%          | B      | Lactic Acid 15%          | A      |
| Nitric Acid 35%          | C      | Oleic Acid               | A      |
| Phosphoric Acid 15%      | A      |                          |        |
| Phosphoric Acid 35%      | A      |                          |        |
| Phosphoric (conc.)       | C      |                          |        |

  

| Other Solvents/Cleaners |        |
|-------------------------|--------|
| Chemical                | Rating |
| Ammonium Hydroxide 20%  | A      |
| Sodium Hydroxide 20%    | A      |
| Potassium Hydroxide 20% | A      |
| Salt Solutions 10%      | A      |
| Sodium Hypochlorite 4%  | C      |

### EXPOSURE OF FIRE RESISTANT CERAMIC COATING

|                           |  |                           |  |
|---------------------------|--|---------------------------|--|
| <b>THERMAL PROPERTIES</b> | Thermal Conductivity: 1.9 W/M <sup>2</sup> K / BS 874 / Thermal Expansion Coefficient: 28.2 ppm/°C / ASTM E228 / Thermal Stability: <b>140°C</b> | <b>Alkalis</b>            | Resist Short term immersion in all alkalis.                                  |
| <b>Weather Proofing</b>   | All Epoxy Coatings may yellow with time. Weatherproof top coat may be used if required.  | <b>Salts &amp; Brines</b> | Resist continuous or long-term immersion in all Salts & Brine systems.       |
| <b>Solvents</b>           | Resistant to most hydrocarbon solvents and alcohols.   | <b>Water</b>              | Excellent resist to continuous or long term immersion in fresh & Salt Water. |
| <b>Acids</b>              | Resist splash and spills in all acids.   | <b>Abrasion</b>           | Excellent when fully cured (7 Days)  |

### DRY TIME AT 25°C

|                       |   |
|-----------------------|---|
| <b>Pot Life:</b>      | 45 minutes at 25°C                                  |
| <b>Tack Free:</b>     | 4-6 hours depending on temperature and humidity     |
| <b>Thin Film Set:</b> | 16 Hours Min, depending on temperature and humidity |
| <b>Dry Cured:</b>     | 16-24 hours – Foot Traffic                          |
| <b>Fully Cured:</b>   | 7 days (Vehicle Traffic)                            |
| <b>Re-Coat:</b>       | 16 Hours / Over night                               |

| Temp °C | Pot Life (min) | Surface Dry (Hours) | Initial Cure (Hours) | Recoat Time (Hours) | Fully Cured (Days) |
|---------|----------------|---------------------|----------------------|---------------------|--------------------|
| 10°C    | 45             | 12                  | 24                   | 24                  | 7 Days             |
| 20°C    | 40             | 10                  | 18                   | 18                  | 7 Days             |
| 30°C    | 35             | 8                   | 16                   | 16                  | 7 Days             |

#### CLEAN UP

Thinner & Diluent (Blend of Solvents).

#### COVERAGE

5-10sqm/Lt Per Coat / Recommended Two Coats

#### PREPARATIONS

Clean and dry surface. Ensure surface to be coated is free of all dirt, grease, oil, paint, curing agents and other contaminants. Removal of Oil Contamination by degreaser and alkaline cleaning pressure wash. Acid-wash to enhanced surface porosity and etch the surface

Ensure moisture free surface. Allow to completely dry, run Dry Test. Place a piece of plastic over a small area, tape the edges and leave for 1 hour. Remove plastic, if there is no moisture on either surface, concrete is sufficiently dry.

Ideally, always consider surface grinding and removal of loose materials. Grinding is always advisable prior to application of all Shimicoat Epoxy products, to maximize adhesion. For further information, please refer to SHIMICOAT Instruction for "Surface Preparations".

#### MIXING AND APPLICATION

##### Mixing Procedure:

1. Use a slow-speed mechanical mixer to ensure a controlled and thorough blend.
2. Gradually add Component B (curative) while continuing to mix.
3. Mix until the blend is homogeneous and free from lumps (2min).

##### Application Guidelines:

- Pour the mixed product directly over the surface.
- Use a squeegee to spread out to assist with self-levelling.
- Using a brush or medium nap roller, apply the product evenly to the substrate.
- Finish off the surface uniformly, ensuring there are no puddles, streaks, or roller trails.

For Thin Coat Applications of 100 microns, Epoxy Diluent may be added to adjust consistency. Dilute up to 10% by volume.

#### CUREING PROCESS

Fire Resistant Ceramic Coating dries in 12-16 hours depending on atmospheric temperature. High temperatures and windy conditions may speed up the curing time.

Complete curing process and full hardness is achieved after 7 days.

Cure time may vary depending on several factors:

- Application thickness
- Amount of material applied
- Surface temperature
- Product temperature

To Accelerate Cure:

- Warm the product before mixing, or
- Allow mixed material to stand for 15 minutes prior to application.

To Slow Cure:

- Cool the product before mixing.

| Temp °C | Pot Life (min) | Surface Dry (Hours) | Initial Cure (Hours) | Recoat Time (Hours) | Fully Cured (Days) |
|---------|----------------|---------------------|----------------------|---------------------|--------------------|
| 10°C    | 30             | 10                  | 16                   | 16                  | 7 Days             |
| 20°C    | 20             | 8                   | 12                   | 12                  | 7 Days             |
| 30°C    | 15             | 6                   | 8                    | 8                   | 7 Days             |

### WARNING

Ideally suitable for out of sun surfaces.  
If using under sun, UV stable topcoat application shall be used.  
Direct sunlight and UV radiation may result in chalking, colour variations and yellowing effect over time.

### STORAGE

The products shall be stored out of direct sunlight and heat at all times. The shelf life of the product is 24 months, mix uniformly for 3 minutes prior to use.

### Why Choose SHIMICOAT?

- Cures to Perfection
- No hot work required
- Minimal surface preparation
- Strong adhesion to steel / Concrete
- Long-lasting, permanent protection
- Proven performance globally

SHIMICOAT's surface-tolerant Epoxy Coating and repair systems reduce maintenance costs and extend the life of your assets.

### Get in Touch

For more information on SHIMICOAT's industrial solutions, contact your local SHIMICOAT representative today.

### DISCLAIMER

Material Safety Data Sheet, Technical and Environmental Data Sheet can be provided upon request.  
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