



## Product Information Sheet

### ESI Urethane Concrete Coating (UCC)

#### PRODUCT DESCRIPTION

ESI Urethane Concrete Coating is a state-of-the-art, high-build coating with a matte finish, based upon phthalate-free, water dispersed polyurethane/cement and aggregate technology applied at 10 mils per coat. It is designed as a standalone coating for concrete.

ESI Urethane Concrete Coating represents superior polyurethane/cement technology, combining easier application, resistance to blistering and improved chemical resistance to fatty acids and performance.

#### USE

- ESI Urethane Concrete Coating is primarily used as a chemically resistant high build coating used to protect horizontal and vertical concrete substrates.
- Typically used in food processing plants, chemical storage areas, warehouses, washrooms, laboratories, food preparation areas and chemical process plants.

#### ADVANTAGES

- Can be applied onto 7 to 10 day old concrete after adequate preparation and where substrate has tensile bond strength in excess of 1.5 MPa (218 psi).
- Economical and easy installation requiring less labour to install than traditional materials.
- Versatile material suitable for application as a primer, standalone coating and top coat for other urethane concrete systems.

#### PHYSICAL PROPERTIES

Packaging	.5 kg (3.82 L) unit / 12.1 lb (1.03 US gal.) unit. Consists of 3 Components A + B + C
Colour	Light Grey, Medium Grey, Dark Grey, Tile Red and Natural
Yield	Approx. 15.3 m <sup>2</sup> /unit (165 ft <sup>2</sup> /unit) @ 10 mils per coat (These figures do not allow for surface porosity, profile or wastage)
Shelf Life	Components A+B: 1 year in original unopened packaging. Component C: 1 year in original unopened packaging. Store dry between 10 - 25°C (50 - 77°F) and protect from freezing. If frozen, discard product. Condition material for at least 24 hours to 18 - 24°C (65 - 75°F) before use.
Mix Ratio	Components A:B:C = A x 1 : B x 1 : C x 1. Mix full units only.
Application Temperature	7°C (45°F) min. / 38°C (100°F) max.

- Longer pot life permits increased productivity with less waste.
- Resists a very wide range of organic and inorganic acids, alkalis, amines, salts and solvents.
- Similar coefficient of thermal expansion to concrete allowing movement with the substrate through normal thermal cycling.
- Performs and retains its physical characteristics through a wide temperature range from -10°C (14°F) up to 90°C (194°F).
- Superior formulation eliminates formation of blisters, such as those arising out of application during elevated temperatures or early and multiple layer applications.
- Bond strength in excess of the tensile strength of concrete.
- Non-taint, odourless and phthalate-free, avoiding associated toxicity to health and environmental hazards.
- Behaves plastically under impact; deforms but will not crack or delaminate.
- Excellent long term wear resistance from a two coat application.
- Easy maintenance.
- Resistance to fungi and ASTM D3273 resistance to mold growth.
- Potential LEED® Canada Credits: IEQ 4.2- Low Emitting Material – Industrial Maintenance



**PHYSICAL PROPERTIES (cont'd)**

Service Temperature	As a stand-alone coating, continuous service temperature of -10°C to 90°C (14°F to 194°F) As a top coat onto other mortars, please refer to specific mortar Product Data Sheet.
Cure Time	at 20°C (68°F)
Foot traffic	24 hrs.
Light traffic	30 hrs.
Normal traffic (full cure)	5 days
Softening Point	130°C (266°F)
<b>Properties at 23°C (73°F) and 50% R.H</b>	
Density ASTM C905	1.44 kg/L (11.99 lb/US gal.)
Pot Life	15 - 20 min
Tensile Strength ASTM C307	15.38 MPa (2231 psi)
Flexural Strength ASTM C580	31.8 MPa (4613 psi)
Bond Strength ASTM D4541	4.55 MPa (660 psi) (substrate failure)
Surface Hardness, Shore D ASTM D2240	81
Indentation MIL-PRF-24613	~ 0%
<b>Abrasion Resistance ASTM D4060</b>	
H-17/1000 cycles/1000 g (2.2 lb)	0.08 g (0.003 oz)
H-22/1000 cycles/1000 g (2.2 lb)	0.153 g (0.005 oz)
Coefficient of Friction	Steel
ASTM D1894-61T	Rubber
Shrinkage	0.225%
Resistance to Fungi Growth ASTM G21	Rated 0 (no growth)
Resistance to Mold Growth ASTM D3273	Rated 10 (highest resistance)
Chemical Resistance	Consult Epoxy Solutions.
VOC Content	A+B+C = 5 g/L

Product properties are typically averages, obtained under laboratory conditions. Reasonable variations can be expected on-site due to local factors, including environment, preparation, application, curing and test methods.



## USE

### Surface Preparation

Concrete surfaces must be clean and sound. Remove all dust, dirt, existing paint films, efflorescence, exudates, laitance, form oils, hydraulic or fuel oils, brake fluid, grease, fungus, mildew, biological residues or any other contaminants which may prohibit good bond. Prepare the surface by any appropriate mechanical means, in order to achieve a profile equivalent to ICRI- CSP 3. The compressive strength of the concrete substrate should be at least 25 MPa (3625 psi) at 28 days and a minimum of 1.5 MPa (218 psi) in tension at the time of application. Repairs to cementitious substrates, filling of blowholes, leveling of irregularities, etc. should be carried out using an appropriate profiling mortar.

### Mixing

**Mix Ratio: Components A:B:C (A x 1 : B x 1 : C x 1).**

**Mix full units only**

Mixing will be affected by temperature; precondition materials for at least 24 hours to 18 to 24°C (65 to 75°F) before use.

Pre-agitate Components A and B separately, making sure all solids, including pigments, are uniformly distributed

Empty Component A into a clean pail and gradually add Component C (powder), mix for at least 1 min until all powders are wetted out. Use a low speed drill (300-450 rpm) and Exomixer-type mixing paddle (recommended) suited to the size of mixing container to minimize air entrapment.

Add Component B and mix all ingredients continuously and thoroughly for 3 minutes. During the blending operations and observing good safety practices, ie turning off and removing revolving parts, scrape down the sides and bottom of the container with a flat or straight edge trowel at least once to ensure complete blending of (Components A+B+C). Note: Do not attempt to attend to unmixed material that may gather on the sides of the mixing container while mechanical or electrical parts are in motion.

Cool Substrates: Application attempted at material, ambient and substrate temperatures below 18°C (65°F) will result in a decrease in product workability and slower cure rates. Accelerated cure rates and improved flowability on cool substrates can be achieved via the addition of an Accelerator.

### Application

Prior to application, measure and confirm substrate moisture content, ambient relative humidity, ambient and surface temperature and dew point.

During installation, confirm and record above values at least once every 3 hours, or more frequently whenever conditions change (e.g. ambient temperature rise/fall, relative humidity increase/decrease, etc.).

### Standalone Smooth Coating

Apply two coats of ESI Urethane Concrete Coating at 10 mils w.f.t.. per coat to the substrate using a short or medium nap roller. Work the resin well into the surface, making sure the floor is fully wetted and then pull back lightly with the roller to the required thickness.

### Slip-resistant Broadcast Coating

Apply a body coat of ESI Urethane Concrete Coating at a thickness of 10 mils w.f.t., immediately broadcast the wet coating to rejection with mineral aggregates (selected for texture). Once the broadcast body coat has dried sufficiently to allow foot traffic, sweep-up and vacuum the loose unbonded aggregate. Apply a top coat at a thickness of 10 mils w.f.t.using a squeegee followed by backrolling to provide a uniform texture and finish.

### System Top Coat

Where a broadcast urethane concrete trowel system has been installed, and a top coat is required, apply a single coat at 10 mils w.f.t using a short nap roller and back roll to encapsulate the aggregate and seal the surface.

### Clean Up

Clean all tools and equipment with Equipment Cleaner. Once hardened, product can only be removed mechanically. Wash soiled hands and skin thoroughly in hot soapy water.

### Maintenance

ESI Urethane Concrete Coated floors are easily cleaned using a stiff brushing action and/or high-pressure water. Degreasing agents and detergents will assist, but do not use any compounds containing Phenol as the floor colour may be damaged. Consult the cleaning compound manufacturer's instructions before use.

### Limitations

Urethane concrete systems are best installed by skilled and experience applicators. Consult Epoxy Solutions for advice and recommendations.

- Do not apply below 7°C (45°F) or above 38°C (100°F) / maximum relative humidity 85%. Use at temperatures between 7 - 18°C (45 - 64°F) requires addition of Accelerator. Use at temperatures around 38°C (100°F) is likely to result in reduced pot and working lives.
- Steam cleaning may lead to delamination due to thermal shock if trowel applied base layer is insufficient.
- Do not apply to concrete if measured air or substrate temperature is within 3°C (5°F) of surface temperature calculated dew point (substrate temperature can be lower than the ambient temperature). This will reduce the risk of condensation, which can lead to adhesion failure or blushing of the floor finish.



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- Do not apply to porous surfaces where significant moisture vapour transmission (out-gassing) will occur during application.
- Do not apply to polymer modified cement mortars (PCC) that may expand when sealed with an impervious resin.
- Do not apply to water-soaked, glistening-wet concrete substrates.
- Do not apply to un-reinforced sand cement screeds, asphaltic or bitumen substrate, glazed tile or non-porous brick, tile and magnesite, copper, aluminium, soft wood, or urethane composition, elastomeric membranes or fibre reinforced polyester (FRP) composites.
- Do not apply to concrete substrate containing aggregates susceptible to ASR (Alkali Silica Reaction) due to risk of natural alkali redistribution below the product after application. If concrete substrate has or is suspected to have ASR (Alkali Silica Reaction) present, do not proceed. Consult with design professional prior to use.
- Protect substrate during application from condensation from pipes or any overhead leaks.
- This product is not designed nor intended for negative side waterproofing.
- Do not mix materials by hand; mechanical mix only.
- On no account should this product be thinned. Addition of thinners (eg. water or solvent) will retard the cure, reduce the ultimate properties of this product and void any applicable warranty.
- Any aggregate used with urethane concrete coating, must be non-reactive and oven-dried.
- Do not apply to cracked or unsound substrates.
- Do not use on exterior, on-grade substrates; for interior use only.
- Do not apply to surfaces where moisture vapour can condense and freeze.
- Avoid puddling material during application.
- Colour uniformity cannot be completely guaranteed from batch to batch (numbered). Take care when using products to draw from inventory in batch number sequence, do not mix batch numbers in a single floor area if possible.
- Will discolour over time when exposed to UV light and under certain artificial lighting conditions.
- Use urethane concrete coating as a solid colour, UV resistant top coat. Use of clear, UV resistant top coats may not prevent discolouration of underlying materials.

#### **HEALTH AND SAFETY INFORMATION**

For information and advice on the safe handling, storage and disposal of chemical products, users should refer to the most recent Material Safety Data Sheet containing physical, ecological, toxicological and other safety-related data.

**KEEP OUT OF REACH OF CHILDREN**

**FOR INDUSTRIAL USE ONLY**