

## APPLICATION MANUAL - PERAN ESD SL SYSTEM

### 1. Description.

**Peran ESD SL** is a two-component pigmented, electrically conductive epoxy self-levelling coating system.

**Peran ESD SL** system consist of:

- **Flowprime** – two component, solvent-free epoxy primer with good adhesion to concrete characteristics and high mechanical strength.
- **Peran ESD Primer WB** – two-component, solvent-free, epoxy conductive primer,
- **Peran Copperstrip** – self-adhesive copper tape,
- **Peran ESD SL** – three-component, pigmented, self-levelling, electrically conductive epoxy.

#### Specification – material consumption:

##### a) Primer:

- Flowprime 0,25-0,50 kg/m<sup>2</sup>
- Peran Copperstrip tape 0,50\* lm/m<sup>2</sup>

##### b) Conductive primer:

- Peran ESD Primer WB 0,15 kg/m<sup>2</sup>

##### c) Main layer:

- Peran ESD SL 2,90 kg/m<sup>2</sup>

\* Actual amount of copper tape needs to be individually calculated based on size and shape of the application area. Value in the table has been estimated for exemplary, rectangle-shaped, 500 m<sup>2</sup> room.

### 2. Application conditions.

Detailed requirements for substrate and other application conditions can be found in **Substrate Requirements for Flowcrete Floor Systems**.

Recommended temperatures during floor application process:

- Substrate +10°C - +25°C
- Ambient +15°C - +25°C

In abovementioned temperatures resin flow is optimized for best application effect and assumed material consumptions can be maintained.

Before application, air humidity needs to be checked. Maximum ambient relative humidity: **75%**.

During application and initial curing of resin, substrate temperature needs to be at least **3°C higher than dew point temperature**.

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### 3. Concrete substrate preparation.

Before application of system, substrate needs to be free of laitance and other contaminants that could reduce bond strength of applied coatings. Surface should be prepared by mechanical means – e.g. by shotblasting, grinding, milling etc. All cracks and floor damage has to be repaired before installation of flooring.

**Flowprime** can be applied onto concrete substrate of humidity up to **5% measured with TRAMEX meter**. Concrete bases of higher humidity need to be primed using **Hydraseal DPM**.

In case of any doubts, contact Flowcrete Technical Department.

### 4. Application details.

#### 4.1. Priming – Flowprime.

Apply **Flowprime** (or alternative primer, as described in pt 3) onto properly prepared substrate.

**Mixing:** stir the component A using slow-speed mixer to homogenize, add B curing agent then mix for 3 minutes.

**Flowprime** – mixing proportions:

- A: 9,40 kg
- B: 4,70 kg

**Application:** spread the material evenly onto the substrate till it is fully saturated using squeegee and even it out with medium-bristled nylon roller.

Check substrate saturation – primer layer must be uniform and continuous on entire surface. Very porous, highly absorptive substrates might require additional primer layer.

Apply next layer between 16 and 24 hours from primer application (in +20°C).

For application past the abovementioned period, cured primer needs to be abraded (e.g. with sandpaper) and vacuumed. In lower temperatures curing time is increased, so the time interval above needs to be extended.

## 4.2. Copper tape application – Peran Copperstrip.

**Peran ESD SL** does not require a copper grid connection when applied over **Peran ESD Primer WB**. Only the areas separated by slab joints need a wire connection to ensure proper conductivity of entire floor. Follow the joint transition connection and earthing guide below.

Floor joint transitions need to be connected in such way that would allow re-cutting the joint and its sealing without damaging the conductive grid. To do that, create small cut in concrete base perpendicular to the joint, couple centimetres deep (forming “tunnel” across the joint). Place electric wire of minimum 1,5 mm<sup>2</sup> diameter size in the cut. Connect the wire on both sides of the joint to copper grid using pre-cut tape strips. Fill the cut to match substrate level with epoxy-based, thixotropic mortar.

## 4.3. Earthing.

It is recommended to create at least two earthing points in each room. Area size served by singular earthing point should not exceed 300 m<sup>2</sup>. There are two ways to connect copper grid with earth:

- **Using electric stranded wire of minimum 2,5 mm<sup>2</sup> diameter:**

Create small cut near earthing point to hide the wire. Remove ~15 cm of insulation layer from the wire and spread individual strands to form fan shape. Connect the strands with the grid using copper tape strips. Place other end of the wire inside the cut made earlier and connect it to the earthing point. Fill the cut to match substrate level with epoxy-based, thixotropic mortar.

- **Using steel anchor:**

Place the anchor in concrete base. Place copper tape strips on both sides so they adhere to the anchor and are connected to the grid. Press the tapes to the base with proper sized washer and use nut to secure it. Protect the anchor thread from being stained with resin.

#### 4.4. Conductive primer – Peran ESD Primer WB.

Apply **Peran ESD Primer WB** conductive primer after copper tape grid is installed. Make sure that entire area is evenly covered with the material, including the grid and all elements that connect the grid the earthing points.

**Mixing:** stir the component A using slow-speed mixer to homogenize, add B curing agent then mix for 3 minutes.

**Peran ESD Primer WB** – mixing proportions:

- A: 1,72 kg
- B: 8,28 kg

**Application:** spread the material evenly onto the substrate using squeegee and even it out with medium-bristled nylon roller. Take extra care that applied layer is uniform and continuous.

**NOTE:** Once cured, **Peran ESD Primer WB** conductivity must be verified in accordance with EN 61340-4-1.  $R_g \leq 5 \cdot 10^4 \text{ Ohm}$  ( $\leq 5 \text{ kOhm}$ ) is required for proper function of system without copper grid.

#### 4.5. Main layer – Peran ESD SL

**Mixing:** Stir Base A using a slow-speed mixer and helical spinner to homogenize. Add all Hardener B to Base A and mix thoroughly and take care not to entrain air. Add gradually filler C to the liquid and mix thoroughly for 1 minute. Ensure that all Filler C is mixed in from the sides of the container and fully dispersed throughout the mix. Finally pour the material into another container and mix for a further minute before application.

**NOTE:** Do not split individual components as this may jeopardise the end result. Proper homogenization of component A is critical for performance of the system.

**Peran ESD SL** - mixing proportions:

- A: 11,00 kg
- B: 5,00 kg
- C: 16,00 kg

**Application:** Distribute the material evenly onto the surface primed with Peran ESD Primer WB using gauged rake or notched trowel. Control on regular base the thickness of the floor. Incorrect thickness results in irregular dispersion of static electricity in the finished floor

Wait for 2-3 minutes and use spiked roller to remove air bubbles from the surface. Guide the roller along and across the floor plane for best results.

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## 5. General information.

- Small differences in colour of different batches are possible. When using materials from different batches, check if their colours match.
- All material components should be kept in the same temperature as the application area (recommended +15°C - +25°C).
- Materials should be applied immediately after mixing of components.
- System curing times:

	+10°C	+20°C	+30°C
Light foot traffic after	36 hours	16 hours	12 hours
Vehicular traffic after	72 hours	48 hours	36 hours
Full cure after	12 days	7 days	5 days

**Lower ambient temperatures may extend this time window.**

- Protect finished floor from stains and dirt until it is fully cured. Do not wash or cover tightly the uncured resin.
- Use and maintain the finished flooring system as described in **Flowcrete Resin Flooring Cleaning and Maintenance Guide**.

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