

ANTISTATIC EPOXY FLOOR COATING

TECHNICAL SPECIFICATION**

1. Surface Preparation

- Concrete surfaces to be coated must be completely free from oil, dust, dirt, and all contaminants that may reduce or prevent adhesion.
 - All loose particles, laitance, weak surface layers, and adhesion-reducing residues must be removed by mechanical methods such as shot-blasting, diamond grinding, or similar surface preparation equipment.
 - The concrete substrate must have a minimum **compressive strength of 25 N/mm²** and a **pull-off (tensile) strength of 1.5–2 N/mm²**.
 - The surface must be dry; moisture content must not exceed **5%**.
 - If moisture exceeds this value, **PRIMER SC 220 – 100% Epoxy Primer for Damp Substrates** must be used.
 - After mechanical preparation, the generated dust must be removed thoroughly using an industrial vacuum system.
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2. Surface Repair

- Cracks on the prepared substrate are mechanically roughened.
 - Existing joints are cut into a V-shape using a demolition hammer and cleaned of dust and debris using an industrial vacuum.
 - **PRIMER SC 215 Solvent-Free Epoxy Primer**, adjusted to a putty consistency, is applied with a trowel or spatula to complete the repair process.
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3. Epoxy Primer Application

- To fill capillary voids, strengthen the surface, and ensure adhesion of the antistatic epoxy coating, the following mixture is prepared:
 - **0.400 kg/m² PRIMER SC 215 Solvent-Free Epoxy Primer**
 - **0.400 kg/m² quartz sand (0.1–0.3 mm)**
- Mixing procedure:
 0. Component A (epoxy resin) is mixed at low speed.
 1. Component B (hardener) is added slowly while mixing continues.
 2. Quartz sand is then added, and the mixture is blended for 3–4 minutes until completely homogeneous.
- The mixture is applied to the substrate with a trowel.
- While the surface is still fresh, **2 kg/m² quartz sand (0.3–0.7 mm)** is broadcast to full coverage.

- After approximately **12 hours** (depending on temperature), excess quartz sand is vacuumed, and the surface becomes ready for the intermediate coat.
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4. Intermediate Coat Application

- Primed surfaces must be protected from moisture, dust, and air currents, and must not be opened to foot or vehicle traffic.
 - After **12 hours**, **0.800 kg/m² SC 650 Intermediate Coat** is applied by trowel.
 - Mixing method is identical to the primer:
 - Component A is mixed first, then Component B is added slowly and mixed for 3–4 minutes.
 - After curing for approximately 12 hours, **conductive copper tapes** are installed on the surface according to the room layout and connected to the grounding system.
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5. Conductive (Antistatic) Primer Application

- 12 hours after the intermediate coat has cured, the following is applied over the surface where conductive copper tapes are fixed:
 - **0.200 kg/m² PRIMER SC 325 Conductive Epoxy Primer**, applied using a trowel or squeegee, and back-rolled for uniform distribution.
 - Component A and B are mixed for 3–4 minutes until homogeneous.
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6. Conductive Antistatic Epoxy Topcoat Application

- 12 hours after PRIMER SC 325 application, the topcoat is applied:
 - **1.5 kg/m² FLOOR SC 470 Antistatic Epoxy Coating** using a notched trowel or level rake.
 - Components are mixed in the same manner: A mixed first, B added slowly, and blended for 3–4 minutes until homogeneous.
 - A smooth and uniform antistatic conductive surface is obtained after application.
 - The coated surface must be protected from dust, moisture, and air flow.
 - The surface may be opened to pedestrian traffic after **48 hours**.
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7. Performance & Measurement Values

• **Electrostatic Response Ground Resistance (R_g):**
R_g < 10⁶ Ω (IEC 61340-4-1)

• **Average Ground Resistance:**
10⁴ ≤ R_g ≤ 10⁶ Ω (IEC 61340-4-1)

• **Floor Conductivity Test:**

- Measurement points must be spaced at least **50 cm** apart.
 - If insufficient results occur at any point, additional measurements must be performed within a 50-cm radius of the problematic area.
 - Acceptance criterion: **< 35 MΩ** (IEC 61340-4-1)
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****ANTISTATIC EPOXY FLOOR COATING**

SYSTEM DIAGRAM (DRAFT)**

1. Concrete Substrate
2. Mechanical Surface Preparation
3. Repair Mortar (SC 215)
4. Epoxy Primer + Quartz Sand Broadcast
5. Intermediate Coat (SC 650)
6. Conductive Copper Tape + Grounding
7. Conductive Epoxy Primer (SC 325)
8. Antistatic Epoxy Topcoat (SC 470)