

EARTHING OF RESIN INSULATORS USING THE FLAMESPRAY PROCESS

Application Data Sheet EL-EP-002

INTRODUCTION

The high voltage resin insulators required when using switchgear between 3.2 KV and 38KV can sometimes give rise to problems of air ionisation between metal components and the resin insulators.

This ionisation is due to the corona or electrical discharge appearing around the surface of the charged conductor being insulated.

It is possible to counteract this problem by using the Metallisation Flamespray Process to apply a sprayed zinc integral earth screen around the offending areas of the resin insulators.

EQUIPMENT

Metallisation Mark 73 Flame Spray System

MATERIALS

Metallisation 02E Zinc 99.99% minimum purity Zinc Wire

Cleaning

Degrease by solvent vapour process if equipment available, removing all traces of release agent used in moulding process.

Preparation

- (a) Mask all surfaces adjacent to area requiring treatment with heavy duty masking tape
- (b) Thoroughly inspect for imperfections or contamination prior to blasting
- (c) Thoroughly blast with n° 50-60 grade aluminium oxide grit
- (d) Ensure that areas requiring treatment are thoroughly blasted

Application

- (a) Check thoroughly that area to be sprayed is free from all contamination and debris
- (b) **IMPORTANT:** Area to be sprayed should not come into contact with chains, rope slings, hands or any other contaminants, spraying should be completed as soon as possible after blasting.
- (c) The Flamespray Equipment should be set up in accordance with the Metallisation Manual for spraying 02E Zinc Wire.
- (d) The resin insulator should be rotated evenly, either mechanically or by hand, in front of the Flamespray Pistol keeping the surface being sprayed at as near as possible to 90° from the spraystream of zinc, until a complete coating of 50-70µm is achieved.

Spraying Parameters, 1/8" diameter 02E Zinc

- (i) Range: 150-200mm (6" – 8")
- (ii) Nozzle Air Pressure: 4.16 bar (60 psi)
- (iv) Oxygen Pressure: 2.77 (40 psi)
- (v) Propane Pressure: 1.74 (25 psi)

Flowmeter Settings

<u>Gas</u>	<u>Oxygen</u>
4.2	3.90

Demasking

- (1) Remove all masking tape
- (2) Remove all overspray, taking care to prevent coating damage

Finishing

No finishing required, component to be used in the As-Sprayed condition.

Final Inspection

Check for cracks, defects in sprayed coating i.e. large pores, protrusions and loose particles.

✚ REFERENCE TECHNICAL BULLETIN N°S :-

2.2.2 Metallisation Wire 02E Zinc

1.1.8 Metallisation Type IV Flowmeter

EL-EP-003 Earthing of resin insulators using the Arcspray process