

# ENTECH

**Environmental Technology Limited**  
Entech House, London Road, Woolmer Green  
Knebworth, Hertfordshire, England SG3 6JR  
Telephone: 01438 812812 Fax: 01438 814224  
E-Mail Address: [admin@etl-entech.co.uk](mailto:admin@etl-entech.co.uk)

## PRODUCT SPECIFICATION (REV.01)

NOVEMBER 2003

**ENTECH SERIES 1520 STEELWORK PROTECTIVE COATING SYSTEM**, consisting of a thermal-spray aluminium coating with a polymeric sealing and finishing coat, designed to provide long-term resistance to corrosion for mild steel sections combined with an high grade architectural-quality coloured surface finish, the system consisting of surface preparation, cleaning and degreasing, abrasive grit blast treatment, followed by electric-arc-sprayed coating in aluminium in accordance with BS EN 22063:1994 (Replacing BS 2569:Part 1 1964), to a minimum thickness of 100 microns, with a modified siloxane coating available in a range of standard non-metallic RAL colours, the finish providing a re-coatable surface so that the quality and appearance can be maintained on a continuing basis.

### 1. Surface Preparation

All surface defects, sharp edges to corners all welds are removed by abrasive grinding, this stage in the process to be repeated if any such defects are revealed at a later stage after blast-cleaning.

All grease, oil, and other contaminates are removed from the surfaces of the steelwork, using inorganic or organic degreasing agents, with particular attention to welded areas to ensure the removal of all weld-flux, the surface being cleansed of the degreasing agent after completion of the stage.

### 2. Blast Cleaning

Once the surface of the steel sections are clean and dry they are blast-cleaned to Sa2,5-3 in accordance with ISO8501-1, direct contact by operatives with any blasted surface being prevented by the use of clean gloves or clean slings as appropriate, the compressed air source during the blasting process having in-line water traps and oil filters to ensure the delivery of uncontaminated dry air, the work being carried out in a constant environment with a relative humidity not exceeding 75%, the surface temperature of the steelwork being a minimum of 10°C and a minimum of 5°C higher than the dew point temperature of the surrounding air, the work being transferred immediately after blasting in to the coating workshop environment.

### 3. Electric-Arc-Spray Coating

Using a wire-fed electric-arc-spray gun, aluminium of 99.0% purity is applied to a minimum thickness of 100 microns, the coating being in multiple layers of not less than two passes over every part of the surface, the sprayed zones being overlapped on each pass of the gun to ensure uniform coverage, the coating being carried out within 4 hours of completion of the blast-cleaning preparation, the prepared work being kept in a constant environment between processes as noted above.

### 4. Inspection

The metal coating is inspected for thickness using a calibrated Magnetic Thickness Gauge, and is subjected to an adhesion test in accordance with ISO4624 with a minimum measured adhesion of 710 Ncm<sup>2</sup>, the test being carried out at a minimum rate of one per shift on specimen panels using attachments glued to the metal-coated surface with solvent-free epoxy glue, the test panels being prepared and electric-arc-sprayed in parallel with the main production process.

Any section of work which is rejected due to under-coating will be inspected to ensure that the surfaces are completely dry and free of contamination and will then have additional electric-arc-sprayed aluminium applied to achieve the required thickness. Any sections of work that have adequate coating thickness but fail an adhesion test will have the defective sections blasted clean of all sprayed metal prior to re-spraying and complete re-inspection.

### 5. Polymeric Finishing Coat

Following completion of the electric-arc-spray coating of the sections, they are sealed and finished with an epoxy polyamide tiecoat and modified siloxane finishing coating to a thickness of not less than 100 microns in a range of standard non-metallic RAL colours from the available range, the coating having a Class 1 Spread of Flame Rating, in accordance with BS476 Part 7, and Class 0 Fire Rating, in accordance with BS476 Parts 6 and 7 (Fire Propagation), and which has been tested on an aluminium substrate and is reported as being considered to meet the smoke emission requirements and therefore fully compliant with the LUL Code of Practice for Fire Safety of Materials Used in the Underground : August 1990 for use on the interior of rolling stock.