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Z31: Powder coatings

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To be read with preliminaries/ general conditions.

121 Powder coating materials

1. Manufacturer: Obtain from one of the following:
   1.1. Licensee of Qualicoat.
   1.2. Member of GSB International.
   1.3. Licensee of Qualisteelcoat.
2. Selected manufacturer: Submit details before commencement of powder coating.
3. Use the same product, applied by the same applicator, throughout the contract.

211 Working procedures

1. Comply with the follow following standards.
   1.1. Aluminium components: To BS EN 12206-1.
   1.2. Steel components: To BS EN 13438.
   1.3. Safety standards: To British Coatings Federation 'Code of safe practice - Application of thermosetting powder coatings by electrostatic spraying'.
   1.4. Powder coating manufacturer’s guarantee conditions.

221 Powder coating applicators

1. Applicator requirements
   1.1. Shall be either:
      1.1.1. Licensee of Qualicoat. Or
      1.1.2. Member of GSB International. Or
      1.1.3. Licensee of Qualisteelcoat.
   1.2. Applicator to use only one plant.
   1.3. Selected applicator: Submit details before commencement of powder coating including name and contact details.

225 Guarantees

1. Powder coating manufacturer and applicator guarantees:
   1.1. Submit sample copies before commencement of powder coating.
   1.2. Submit signed project specific copies on completion of work.

230 Control samples

1. Sequence: Prior to ordering materials for the works, obtain approval of appearance for:
   1.1. Powder coated samples: Of various grades and forms of background metal to be used, showing any colour, texture and gloss variation.
   1.2. Fabrication samples: Showing joint assembly, how powder coating is affected and how any cut metal edges are finished and protected.
   1.3. Where manual application is required, controlled samples should be coated and inspected for colour and gloss stability.
2. Samples to include the following information
   2.1. Product reference.

2.2. Colour.

2.3. Reference number.

2.4. Name.

2.5. Gloss level.

236 Independent inspection at plant

1. Requirement: Contractors/ suppliers of the following designated components must commission an approved Independent Inspection Authority to carry out acceptance inspections to confirm that powder coating application complies with this specification.
   1.1. Designated components:
2. Acceptance inspections: Carry out for each variation of colour and finish of each component work package at applicator's plant prior to any fabrication of units, in accordance with the following:
   2.1. Where three of more production runs are required for application of coatings, not less than three acceptance inspections must be carried out in accordance with BS 6001-1, general inspection level 2, with an acceptance quality limit of 1%.
   2.2. Where less than three production runs are required for application of coatings, one acceptance inspection must be carried out in accordance with BS 6001-2, with a limiting quality of 5% where the probability of acceptance is 10%.
3. Components failing inspection: Reprocess or replace and reinspect.
4. Inspection reports: The Contractor shall submit a copy of all the inspection reports, without alteration.

240 Qualicoat quality assurance system

1. Requirement: Powder and coating application to the following designated components is to be tested and approved in accordance with either the Qualicoat system or the GSB International system as appropriate.
   1.1. Designated components: All.

241 Independent inspection on site

1. Requirement: Where coating specification compliance at plant is unresolved, contractors/ suppliers must commission an approved Independent Inspection Authority to carry out site acceptance inspections.
2. Acceptance inspections: Carry out in accordance with BS 6001-2 with a limiting quality of 5% where the probability of acceptance is 10%. Each component of a fabricated unit will be assessed as an individual part for sampling procedures.
3. Components failing inspection: Remove and reprocess/ replace.

245 Independent inspection authority

1. One of the following:
   1.1. Dr Christopher Chatfield, Chatfield Applied Research Laboratories Ltd, Newton House, Byers Lane, South Godstone, Surrey, RH9 8JH.
   1.2. Michael Atkinson, Atkinson Associates, 21 De Havilland Drive, Hazlemere, Bucks, HP15 7FP.
2. Submit, with the Tender, details of the Independent Inspection Authority and the test and inspection procedures that they intend to adopt.
3. Submit all testing and evaluation reports without alteration.

250 Component design

1. Condition of components to be powder coated
   1.1. To comply with relevant recommendations of BS 4479-1, -3, and -4.

1.2. Of suitable size to fit plant capacity.

1.3. Of suitable thickness to withstand oven curing.

260 Component materials

1. Aluminium alloy for extrusions: Alloy designation EN AW-6060, -6063 or -6082 to BS EN 573-3.
2. Aluminium alloy for sheets: Alloy designation EN-AW-1200 or -3103, to BS EN 573-3.
3. Steel components: Hot dip galvanised to BS EN ISO 1461 or BS EN 10143.

310 Pretreatment of aluminium components

1. Condition of components to be pretreated
   1.1. Free from corrosion and damage.
   1.2. All welding and jointing completed and finish off as specified.
   1.3. Free from impurities including soil, grease and oil.
   1.4. Suitable for and compatible with the pretreatment process.
2. Conversion coating requirements
   2.1. Chromate system: To BS EN 12206-1.
   2.2. Chromate-free system: To BS EN 12206-1. Submit details before using.

320 Pretreatment of steel components

1. Condition of components to be pretreated
   1.1. Free from corrosion and damage.
   1.2. All welding and jointing completed and finish off as specified.
   1.3. Free from impurities including soil, grease and oil.
   1.4. Suitable for and compatible with the pretreatment process.
2. Conversion coating requirements: To BS EN 13438.

330 Pretreatment for protection in aggressive environments

1. Minimum thickness of 60 microns across significant and/ or primary surfaces.
2. Minimum thickness of 25 microns on non-significant and/ or secondary faces ensuring a coherent film layer.
3. All cut edges, drilled holes and mitres to be fully sealed.
4. Cleaning and maintenance: Carried out once every three to twelve months (dependent on proximity to pollutant).

430 Extent of powder coatings

1. Application: To visible component surfaces, and concealed surfaces requiring protection. Coated surfaces will be deemed 'significant surfaces' for relevant BS EN 12206-1 or BS EN 13438 performance requirements.

435 Application of powder coatings

1. Surfaces to receive powder coatings: Free from dust or powder deposits.
2. Powder colours: Obtain from one batch of one manufacturer.
3. Commencement of powder coating: To be continuous from pretreatment.
4. Components to be installed on site in order of application.
5. Jig points: Not visible on coated components.
6. Curing: Controlled to attain metal temperatures and hold periods recommended by powder coating manufacturer.

7. Stripping and recoating of components: Only acceptable by prior agreement of powder coating manufacturer. Stripping, pretreatment and powder coating are to be in accordance with manufacturer's requirements.
8. Overcoating of components: Not acceptable.

441 Performance and appearance of powder coatings

1. For aluminium components: In accordance with Qualicoat's or GSB's specification.
2. For steel components: In accordance with Qualisteelcoat's specification.
3. Visual inspection after powder coating: Significant surface viewing distances to be as specified in the relevant Standard, unless specified otherwise.
4. Colour and gloss levels: To conform with approved samples.

445 Minimum dry film thickness

1. Increase the dry film thickness to provide adequate opacity if required for certain colours.

450 Aluminium alloy fabrications

1. Units may be assembled
    1.1. Before powder coating.
    1.2. From components powder coated after cutting to size.
    1.3. Where approved, from components powder coated before cutting to size.
2. Exposure of uncoated background metal: Not acceptable.
3. Assembly sealants: Compatible with powder coatings. Obtain approval of colour if sealants are visible after fabrication.

460 Steel fabrications

1. Unit assembly: Wherever practical, before powder coating.
2. Exposure of uncoated background metal: Not acceptable.
3. Assembly sealants: Compatible with powder coatings. Obtain approval of colour if sealants are visible after fabrication.

470 Fixings

1. Exposed metal fixings: Powder coat together with components, or coat with matching repair paint system applied in accordance with the powder coating manufacturer’s recommendations.

480 Damaged components – repair or replacement

1. Before delivery to site: Check all components for damage to powder coatings. Replace damaged components.
2. Site damage: Submit proposals for repair or replacement.

510 Protection

1. Powder coated surfaces of components: Protect from damage during handling and installation, or by subsequent site operations.
2. Protective coverings must be
    2.1. Resistant to weather conditions.
    2.2. Partially removable to suit building in and access to fixing points.
3. Protective tapes in contact with powder coatings must be
    3.1. Low tack, self adhesive and light in colour.

3.2. Applied and removed in accordance with tape and powder coating manufacturers' recommendations. Do not use solvents to remove residues as these are detrimental to the coating.

4. Inspection of protection: Carry out monthly. Promptly repair any deterioration or deficiency.

520 Protection in hazardous locations

1. Minimum thickness of 60 microns across significant and/ or primary surfaces.
2. Minimum thickness of 25 microns on non-significant and/ or secondary faces ensuring a coherent film layer.
3. All cut edges, drilled holes and mitres to be fully sealed.
4. Cleaning: Carried out once every three to twelve months (dependent on proximity to pollutant).

535 Documentation

1. Submit the following information for each batch of powder coated components
   1.1. Supplier.
   1.2. Trade name.
   1.3. Colour.
   1.4. Type of powder.
   1.5. Method of application.
   1.6. Batch and reference number.
   1.7. Statutory requirements.
   1.8. Test certificates.
   1.9. Maintenance instructions.

540 Completion

1. Protection: Remove any protective coverings.
2. Cleaning and maintenance of powder coatings: Carry out in accordance with procedures detailed in powder coating manufacturer and applicator guarantees.

Ω End of Section