



# THOMAS HOWSE LIMITED

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## PRODUCT SPECIFICATION SHEET

### POWDER COATINGS- GENERAL SPECIFICATIONS

#### TYPES

**POLYESTER** – Thermosetting resins giving hard durable protective coatings especially for exterior environments. Wherever exterior or architectural durability required showing minimal gloss reduction, chalking or colour change.

**EPOXY POLYESTER** – General machinery parts with service life mainly indoors or limited exposure to sunlight.

**EPOXY** – As for epoxy polyester but where maximum hardness, chemical and solvent resistance.

#### CURE SCHEDULES

**POLYESTER** – Generally 10 minutes @ 180°C, Matt 10 minutes @ 200°C, Lower schedules available e.g. 10 minutes @ 160°C.

**EPOXY AND EPOXY POLYESTER** – 10 minutes @ 180°C (metal temperature), Lower schedules available.

NB Make allowances for heat input e.g. box ovens, large sections.

Incorrect cure is indicated by, poor resistance to paint thinners Ref. T3 or brittleness.

It is particularly important to ensure and test for correct curing of polyester coatings for exterior specification.

The powder is designed to give minimum discolouration in white and pastel shades if over bake temperature encountered.

#### COLOURS

BS4800, BS381C, BS2660, RAL, MUNSEL, PANTONE, DULUX, FREE COLOUR MATCHING AVAILABLE.

#### FINISH

Any gloss level or effect, e.g. ripple, leatherette, textures, hammers.

Special finish and gloss can be matched to customers' requirements without any extra charge.

We can offer a policy price for continuity orders.

Site damage and small areas can be repaired using matched paint from our tinting department, available in aerosols or 250ml cans with an integral brush. It may be advisable to spot prime for some applications.

## **SALT SPRAY**

Minimum 500 hours pass BS3900F4.\*

## **SPECIFIC GRAVITY**

Varies – According to colour and type.

## **IMPACT RESISTANCE**

Excellent pass 100 inch pounds BS3900E3

## **SCRATCH RESISTANCE**

BS3900E2 Normally 4kg load pass.

## **HUMIDITY**

Minimum 1000 hours BS3900F2.

Table – The main advantage and limitations of the currently available thermosetting powders.

| <b>POLYMER/PROPERTY</b>   | <b>EPOXY</b> | <b>POLYURETHANES</b> | <b>POLYESTER</b> | <b>E/POLY</b>        |
|---------------------------|--------------|----------------------|------------------|----------------------|
| Powder storage stability  | excellent    | good                 | good             | excellent            |
| Flow                      | very good    | excellent            | excellent        | good                 |
| Mechanical properties     | excellent    | very good            | very good        | very good            |
| Chemical properties       | excellent    | very good            | good             | good                 |
| Durability gloss/chalking | poor         | very good            | very good        | fair (some Chalking) |

## **PRETREATMENT\***

It is essential to thoroughly clean the substrate from moisture, rust, scale, grease, oil or any other contaminant.

Then a pre-treatment that is suitable for substrate. A general guide is: -

|                          |   |  |
|--------------------------|---|--|
| <b>Ferrous substrate</b> | - | <b>iron or zinc phosphate</b>                |
| <b>Zinc coated steel</b> | - | <b>zinc phosphate or chromate conversion</b> |
| <b>Aluminium</b>         | - | <b>chromate conversion</b>                   |

The pre-treatment type and coating weight should follow the manufacturers recommendations. Further general advice available from Thomas Howse Ltd.

## Coverage rates

10 – 12 square metres per kilo @ 60 microns film thickness.

This is theoretical only, and may be less or more depending on the type of object to be coated and the colour being applied.

Our polyester powder range is based on a polyester polymer system, which has been tried and tested over many years. Our semi gloss and matt systems are anti gassing for superb application over difficult substrates e.g. galvanised.

The enclosed test data substantiate the pedigree. And subject to correct pre-treatment, application and curing of the powder coating a minimum 10 years service life can be expected.

Note: if exposure to an interior or exterior environment is likely or the coated part is subjected to frequent handling during assembly and in use, then our metallic powder coatings must be over coated with a clear polyester lacquer.

## APPLICATION CONDITIONS

60 microns film on 0.5 mm degreased cold rolled steel

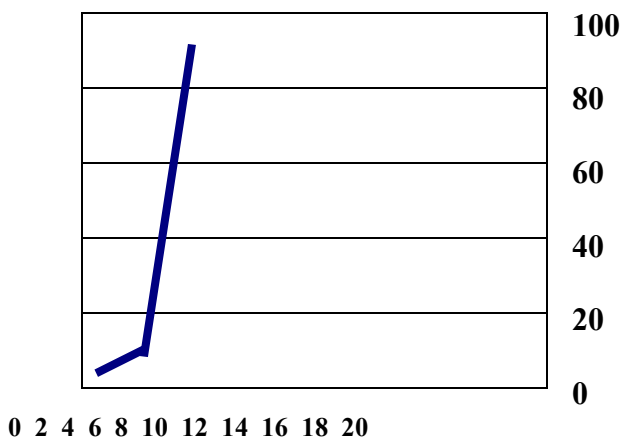
Spray tension: 60KV

Curing: 10 minutes @ 200'c in air circulation oven (object temperature)

## FILM PROPERTIES

|   |            |               |
|---|------------|---------------|
| Gloss at 60'c (%)                                     | Min. 90    | (ASTM D 523)  |
| Overbaking resistance<br>(1hr @ 200'c, 0.5hr @ 230'c) | Excellent  |               |
| Tape adhesion (%)                                     | 100        | (ASTM D 3002) |
| Conical mandrel                                       | passes     | (ASTM D 522)  |
| Erichsen slow embossing (mm)                          | approx. 10 | (ISO 1520)    |
| Gardner direct impact (kg. Cm)                        | > 80       | (ASTM D 2794) |
| Gardner reverse impact (kg. Cm)                       | > 80       | (ASTM D 2794) |

### Reverse impact (kg. Cm)



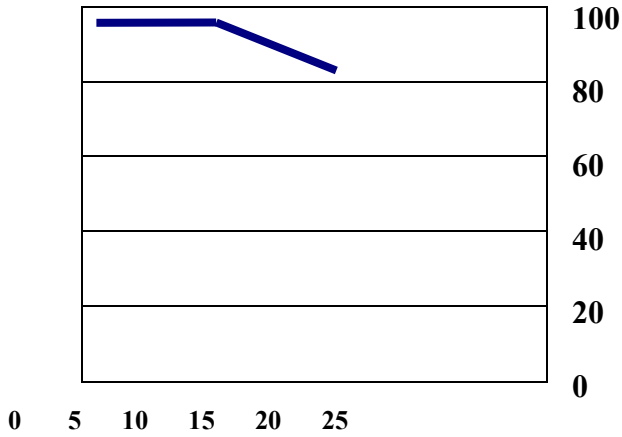
Substrate: steel 0.5 mm  
White – RAL 9010 -

### Baking time (minutes)

## WEATHERABILITY

Florida exposure (ISO 2810)

Relative gloss 60' (%)

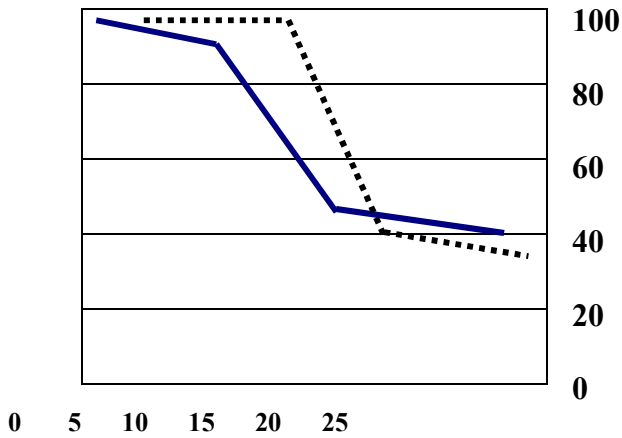


**Dark green – RAL 6005 -  
45° south washed  
Baking: 10 min @ 200°c  
Substrate: alodine 1200**

Exposure time (MONTHS)

Q – panel UV – B (ASTM G 53 88)

Relative gloss 60' (%)



**White – RAL 9010 -  
Cycle: 8h/4 h (60°c/40°c)  
Baking: 10 min @ 200°c  
UV – B (313)**

**Brown – RAL 8014 -  
Cycle: 4h/4 h (60°c/40°c)  
Baking: 10 min @ 200°c  
FS – 40/UV - B**

Exposure time (DAYS)

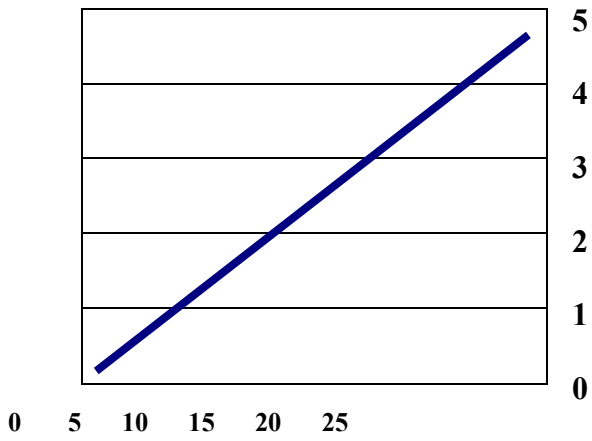
Natural Weathering (Florida 45 degrees)

Pass 1 year – minimal colour change, gloss retention > 50%

# CORROSION RESISTANCE

Kesternich (DIN 50018)

Shade variation (delta b\*)



**Dark green – RAL 6005 -  
45°c – 2L SO2  
Substrate: Alodine 1200**

salt spray (ASTM 287)

**Alodine 1200: 750 hours      :≤ 1 mm**

**Alodine 1200: 1000 hours    :≤ 1 mm**