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OXYPLAST POLYESTER POWDER COATING PE52

A TGIC-Free Matt Polyester Powder Coating

DESCRIPTION

Long before the legislation of labelling TGIC-based polyester powders took effect, OXYPLAST BELGIUM had developed OXYPLAST PE50, the TGIC-free polyester powder as alternative for the TGIC-based OXYPLAST PR29 products.
These OXYPLAST PE50 polyester powders are QUALICOAT certified since 1992 (class 1: normal durable / category 3: gloss 71 - 100% at 60°).

OXYPLAST BELGIUM has developed in her range of durable polyester powders a series of matt colours with a degree of gloss corresponding to category 1 (gloss lower than 31% at 60°). This work has led to the introduction of **OXYPLAST PE52** polyester powders.

PROPERTIES OF THE POWDER

Melting range (Kofler)	:	90 - 115 °C
Specific gravity (DIN 55990/3)	:	1.60 ± 0.05 (white powder)
Particle size distribution (Laser diffraction)		
Diameter (micron)		% undersize
32		55 ± 15
63		78 ± 12
80		89 ± 9
100		96 ± 4
Gel time 180 °C (DIN 55990/8)	:	90 - 170 seconds (depending on the degree of gloss)

SPECIFICATIONS

OXYPLAST PE52 fulfils the most important specifications used for the decorative and protective coating of Aluminium, namely :

QUALICOAT: Approval number P-0452
GSB (Germany)
British Standard BS 6496-1984
V.M.R. (Netherlands)

POWDER APPLICATION

OXYPLAST PE52 powder coatings can be applied by electrostatic spraying using classic, high performance devices which can produce a high negative tension, preferably above 80 kilovolts.

OXYPLAST PE52 powder coatings can also be applied by means of tribo guns.

The curing will take place in a suitable convection oven.

Curing schedule: 10 minutes at 200 °C (metal temperature)

WARNING

One should take care of the following parameters during application and curing of **OXYPLAST PE52**.

1. **OXYPLAST PE52** must be cured, for preference, at a temperature not exceeding 200 °C (metal temperature).

2. **OXYPLAST PE52** is not compatible with OXYPLAST PE50.
   Before switching over from PE50 to PE52, one should thoroughly clean the powder application plant as well as the reclaim devices like cyclones, filters, sieves etc.

PROPERTIES OF THE COATING

The general properties hereafter are determined on chromated aluminium, according to the QUALICOAT and GSB specifications.
However **OXYPLAST PE52** also ensures the protection of other metal substrates like steel or galvanized steel provided adequate surface treatment is applied in order to guaranteeing an optimal adhesion as well as good corrosion protection.

Steel (indoor)	:	iron phosphate amorphous
Steel (outdoor)	:	zinc phosphate crystalline or better: tri-cationic phosphatation
Galvanized steel	:	chromate treatment or tri-cationic phosphatation
Aluminium	:	chromate treatment (DIN 50939)

OXYPLAST PE52 meets the Qualicoat requirements under the "NORMAL DURABLE" QUALICOAT CLASS 1 specification.

OXYPLAST PE52		**PROPERTIES OF THE COATING**
Substrate	:	chromated aluminium
Curing cycle	:	10 min/200 °C (metal temperature)
Film thickness	:	minimum 60 microns
Gloss level, ISO 2813: 1994 - 60°: Category 1	:	0 - 30%
Adhesion, ISO 2409: 1992	:	Gt=0
Reverse impact ECCA T5: 1985 (N.m)	:	minimum 2.5
Erichsen cupping, ISO 1520: 1973 (mm)	:	minimum 5
Cylindrical bending, diameter 5 mm, ISO 1519: 1973	:	no cracks
Buchholz hardness, ISO 2815: 1973	:	> 90
Pencil hardness, Wolff & Wilborn	:	2H - 3H
Persoz hardness, NF.T 30016 (s)	:	> 300
Clemen hardness	:	> 3 kg
Taber abrasion, ASTM D 4060-95, wheel CS10, 10 N, 1000 revs. - Loss of weight (mg)	:	< 30

DURABILITY

Resistance to acetic acid saltspray ISO 9227: 1990
(1000 hours) : no change, no undercutting at scratch.

Resistance to SO_2 (Kesternich) ISO 3231: 1993
(0.2 l SO_2 - 24 cycli) : no colour change, no softening, blistering or loss of adhesion.

Boiling water test
Chromated aluminium panels coated with **OXYPLAST PE52** have been immersed for 2 hours in boiling distilled water : no chalking, softening, discoloration or disbonding of the coating is observed.

FUNCTIONAL DATA

Mortar resistance (ASTM C207: 1985) : No loss of adhesion or surface marring from mortar pats after 24 hours at 38 ± 3 °C at 95 ± 5% relative humidity.

Hygiene criteria : Odourless and disinfectable.

Chemical resistance : **OXYPLAST PE52** is resistant for a brief contact to various chemicals. The reagent is maintained in contact with the coating during 48 hours at room temperature.

CHEMICALS		RESULTS
Hydrochloric acid	10 %	film unchanged
Nitric acid	30 %	film matt but washable
Hydrogen sulphide	(saturated)	film unchanged
Hydrogen peroxide	40 Vol	film unchanged
Ammonium hydroxide	10 %	film unchanged
Ammonium hydroxide	33 %	film unchanged
Sodium hydroxide	5 %	film unchanged
Tartaric acid	5 %	film unchanged
Citric acid	5 %	film unchanged
Lactic acid	5 %	film unchanged
Ethanol		film unchanged
n-Butanol		film unchanged
Petroleum ether		slight softening

Building materials : **OXYPLAST PE52** is compatible with normal building materials.
For more information, refer to OXYPLAST BELGIUM.

Mastics / Sealants : Before the application of a sealant the coating needs to be degreased. Some degreasing agents may influence the gloss or the aspect of the coating.
An efficient degreasing, without affecting the coating aspect, is being obtained with Multi Foam (Novatio) or an equivalent product.
A good adhesion between the PE52 coating and the sealant is obtained with the following sealants:
Sealtrans (Novatio),
Seal&Bond SIL25 (Novatio),
or an equivalent product.
Refer to OXYPLAST BELGIUM for detailed information.

Storage stability : Due to a high glass transition temperature, **OXYPLAST PE52** powder can be stored for at least one year at a temperature of 25 °C.

Storage of finished pieces : OXYPLAST BELGIUM advises to pack finished pieces in such a way that aspiration is possible, in order to preventing local condensation.
Furthermore, OXYPLAST BELGIUM advises to store packed pieces in a dry room, in which contact with direct sunlight is avoided.

In the event of storage of finished pieces in poorly ventilated packing, in extreme cases, under the influence of condensation and direct sunlight, local discoloration of the coating may occur for dark colours.
This discoloration can be undone by locally heating the surface of the pieces for a short time to approximately 150 °C.
The heating process can be done by means of a paint stripper, gas burner for shrink foil, a powerful hairdryer, …
This treatment will not affect the aspect of the coating.

All the information given in this Data Sheet is the result of our research work and experience. It is given in good faith and with every belief in its accuracy but cannot be considered as a formal warranty. In accordance with OXYPLAST BELGIUM policy of product development, this specification is subject to change without notice.