



ISO 9001:2008

DAI PHU CO.,LTD

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OXYPLAST POLYESTER POWDER COATING PE54 / DP54

A TGIC-Free Polyester Powder Coating

DESCRIPTION

Polyester binders, the basic components of outdoor thermosetting powders, have been used since 1975 for the decorative protection of outdoor material and particularly Architectural Aluminium.

The long experience accumulated with Polyester powders in this application field, particularly with OXYPLAST PR29, based on carboxylic polyesters and the high performance hardener Triglycidyl-Isocyanurate, has ensured reliable results for what weather and corrosion resistance is concerned.

Already since several years OXYPLAST BELGIUM has developed a TGIC-free alternative for OXYPLAST PR29, viz. OXYPLAST PE50.

As part of its continuous technology development, OXYPLAST BELGIUM has aimed to introduce a TGIC-free alternative for the industrial polyester powders OXYPLAST PR40. This has resulted in the **OXYPLAST PE54** powders, based on the same technology as OXYPLAST PE50.

PROPERTIES OF THE POWDER

Melting range (Kofler)	: 90 – 95 °C
Specific gravity (DIN 55990/3)	: 1.35 – 1.65
Particle size distribution (Laser Diffraction) (DIN55990/2, air flow sieve)	
% ≥ 100 µ	: 1 – 5
% ≥ 32 µ	: 55 – 65
Gel time 180 °C (DIN 55990/8)	: 190 – 210 seconds

POWDER APPLICATION

OXYPLAST PE54 / DP54 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 PE54 / DP54 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 180 – 200°C (metal temperature)

WARNING

One should take care of the following parameters during application and curing of **OXYPLAST PE54 / DP54**.



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OXYPLAST PE54 / DP54 must be cured at 180 °C (metal temperature) and preferably not above 200 °C.

OXYPLAST PE54 / DP54 will be applied at prescribed film thicknesses i.e. between 50 Micron and 120 Micron.

OXYPLAST PE54 / DP54 is only partly compatible with OXYPLAST PR40.

PROPERTIES OF THE COATING

The general properties hereafter are determined on chromated Aluminium (DIN 50939). However **OXYPLAST PE54 / DP54** also ensures the protection of other metal substrates like steel or galvanized steel provided adequate surface treatment are applied in order to guarantee an optimal adhesion as well as good corrosion protection.

Steel (indoor) : amorphous Iron Phosphate
Steel (outdoor) : crystalline Zinc Phosphate; or better : Tricationic Phosphate
Galvanized Steel (Zinc) : Chromate conversion or Tricationic Phosphate
Aluminium : Chromate conversion (DIN 50939)

OXYPLAST PE54 / DP54

PROPERTIES OF THE COATING

Substrate	: aluminium
Curing cycle	: 10 min/180 – 2000C (Metal temp)
Film Thickness	
The smooth surface	: 60 – 80 microns
The sanding surface	: 60 – 90 microns (depends on the surface)
The wrinkle surface	: 70 – 150 microns (depends on the surface)
Gloss level (ASTM D-523 60 °)	: 5 – 95%
Flow-out	: very good
Buchholz Hardness (ISO 2815: 1973)	: > 80
Persoz Hardness (NF-T-30016)	: > 250 seconds
Pencil Hardness, Wolf & Wilborn	: HB - F
Clemen Hardness	: ≥ 3 kg
Erichsen Cupping (ISO 1520: 1973)	: ≥ 5 mm
Impact (ASTM D-2794)	
Direct	: ≥ 25 kg.cm
Reverse	: ≥ 25 kg.cm
Conical Bending (DIN 53152)	: maximum 20 mm
Adhesion (ISO 2409: 1992)	: Gt = 0
Taber Abrasion (ASTM D-1044), wheel CS10, 10 N, 1000 revs. Loss of weight (mg)	: < 30



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CHEMICAL RESISTANCE

OXYPLAST PE54 / DP54 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

Hydrochloric Acid	10 %
Nitric Acid	30 %
Sulfurous Acid	(saturated)
Hydrogen Peroxide	40 Vol
Ammonium Hydroxide	10 %
Ammonium Hydroxide	33 %
Sodium Hydroxide	5 %
Tartaric Acid	5 %
Citric Acid	5 %
Lactic Acid	5 %
Ethanol	
n-Butanol	
Petroleum Ether	

RESULTS

film unchanged
film matt but washable
film unchanged
film unchanged
film unchanged
film unchanged
film unchanged
film unchanged
film unchanged
film unchanged
film unchanged
film unchanged
film unchanged
slight softening

CORROSION RESISTANCE

OXYPLAST PE54 / DP54 has been tested in the saltspray cabinet according to ASTM B 117-73, on different substrates.

IRON PHOSPHATE	1000 H	: ≤ 3 mm undercutting
TRICATIONIC PHOSPHATE	1000 H	: ≤ 1 mm undercutting
GALVANIZED STEEL		
CHROMATED	1000 H	: ≤ 2 mm undercutting
TRICATIONIC PHOSPHATE	1000 H	: ≤ 2 mm undercutting
CHROMATED ALUMINIUM (DIN 50939)	2000 H	: no change

STORAGE STABILITY

Owing to a high glass transition temperature, **OXYPLAST PE54 / DP54** can be stored at 25 °C in a dry room in its original packaging for one year.

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.

OXYPLAST PE54 / DP54 / CW2

ADDENDUM TO TECHNICAL DATA SHEET PE54 / DP54 / ENG-99/3

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OXYPLAST also offers the Epoxy-polyester powder coating qualities in special decorative effects like WRINKLE type "CW2".

The properties, mechanical and corrosion resistance of **PE54 / DP54 / CW2** are similar to those of the PE54 / DP54 described in the present technical data sheet.