COLIBER® POWDER COATINGS

TECHNICAL DATA SHEET

Type of coating	**PA - POLYESTER POWDER COATINGS**
Color	RAL 9005
Symbol	PA112/0/2746/03CNT
Surface	Smooth
Gloss level	Semi-gloss

Characteristics

- Outdoor, industrial application
- Low-temperature powder coating
- Good weather resistance
- Good chalking resistance
- Very good covering power
- Decorative and protective effect
- Very good mechanical resistance
- Very good degassing properties

Applications

To cover porous, out gassing and galvanized elements, for example railings, traffic signs, casing of machine etc.

Powder properties

Particle size (Malvern)	Fine powder suitable for electrostatic spray (corona) and tribocharging (tribo)
Density (g/cm³) ISO 8130-2	1,636
Theoretical coverage (m²/kg)	~9 by the film thickness 70 µm and 100 % use of powder coating.
Storage stability	12 months from the date of production, in the orginal, unopened package, keep away from heat sources, in the temperature of 5 – 25°C, protect from moisture. No direct sun exposure. The product should be stay at ambient temperature (paint shop) 12h before use.

Coating film

tested in lab conditions on: steel panel

Thickness ISO 2808	recommended 70-100µm - max. 120µm	
Gloss (60°) ISO 2813[1] VISUAL[2]	65 ±5 GU	
Cross cut ISO 2409	0	
Mandrel bending ISO 1519	<5 mm	
Erichsen cupping ISO 1520	>5 mm	
Impact resistance ISO 6272-1	front reverse	>50 kg/cm <50 kg/cm
Buchholz hardness ISO 2815[3]	>80	
Pencil hardness ISO 15184[3]	2H	

(1) applies to smooth and no metallic coatings film
(2) applies to structural and metallic coatings film
(3) not applicable structural coatings film

Eko-Color Sp. z o.o.
St. Sucharskiego 2, 77-100 Bytów, Poland
Tel. +48 59 822 22 22, e-mail: info@eko-color.pl

Version: 1.0 Date of version: 24.11.2020

COLIBER®
POWDER COATINGS

TECHNICAL DATA SHEET

Surface pretreatment	- The overall quality of the coating film depends on the type and quality of the pretreatment. - Surfaces must be dry, degreased and free from rust and other contaminants. - In order to improve coating adhesion to the surface and improve resistance it is recommended: aluminium - chromating, chrome-free pretreatment or anodic pretreatment. steel and galvanized steel - individual choice of surface pretreatment (e.g. phosphating). - However, in order to achieve optimum results, you must follow the instructions and recommendations of the pretreatment material manufacturer.
Application	- Before using low temperature powder coatings special attention to cleanliness should be paid - the application system (corona, tribo) and the booth should be thoroughly cleaned in order to avoid coating defects. - Electrostatic gun - corona (recommended voltage - 60 kV) or tribo gun. - Application parameters depend on the geometric shapes of the detail and the film thickness to be reached. - Responsibility for the correct application parameters lies on the coating applicators. - Despite careful production methods, slight deviation of color and effect between the different manufacturing batches may occur (typical for powder coatings). - Various application parameters may cause color/effect changes. - Proper grounding of application equipment and coated elements helps to keep repeatability of the obtained color/effect. - It is recommended to do the entire order on the same equipment, with the same application parameters and using powder coating from one production batch. - Not be mixed with other powder coatings. - Control the air speed during application of powder coatings. - Keep the appropriate distance: the gun - coated elements. - Keep a uniform thickness of coating.
Curing conditions	- Curing time recommendation in a convection oven: **180°C/6min.** **160°C/10min.** **150°C/15min.** (object temperature) - Must be strictly observed parameters of stoving the coating film to ensure that the full mechanical and chemical properties. - Suitability of the product for stoving in gas ovens and radiant ovens should be verified - may be a significant difference in color - perform a comparative test with the standard color (please contact us for details).
Approvals	- The powder coatings are in compliance with 2011/65/EC and 2015/863/EC (so called ROHS). - Heavy metal and TGiC free.
Technical recommendations	- In the case of cleaning powder coated surfaces it is necessary strict compliance with the Technical recommendations 01: Cleaning of powder coated surfaces.
Comments	- To print, to glue, to label, to laminate with foil, over-coating or any other post-treatment, some preliminary testing is recommended. - Powder-coated details should be packaged after being completely cooled down to ambient temperature, into appropriate packaging materials previously tested by the user. - Packaged details should be stored under cover to avoid condensation, which may result in traces on the finished coating.
Safety Data Sheet	POLYESTER POWDER COATINGS PA, PA/FP
Edition / date	1.1 / 2023-04-17

EKO-COLOR
Eko-Color Sp. z o.o.
St. Sucharskiego 2, 77-100 Bytów, Poland
Tel. +48 59 822 22 22, e-mail: info@eko-color.pl

Version: 1.0 Date of version: 24.11.2020

EKO-COLOR

TECHNICAL RECOMMENDATION 02:
USE OF LOW-TEMPERATURE POWDER COATINGS

1. Description

Low temperature powder coatings are thermosetting products with a lower polymerisation range
compared to standard coatings used for the protective and decorative protection of metal details. Their use can reduce energy costs or increase production capacity (e.g. by increasing the speed of the coating line while maintaining standard curing temperatures).
They come in a wide range of colours and different surface finishes: smooth (gloss, semi-gloss), fine and coarse texture (gloss, semi-gloss, matt).
This sheet is intended to make the job of painters faced with the task of coating with low-temperature coatings easier and to highlight particularly key coating steps.

2. Substrate preparation

The overall quality of powder coatings depends mainly on the type and quality of the pretreatment of the substrate.
Surfaces to be coated must be dry, degreased, free from rust, dust and other impurities. For good adhesion of the coating to the substrate and to increase the resistance of the coating, a chemical or mechanical treatment adapted to the type of material to be treated is recommended.

3. Application

- **Before applying low-temperature coatings, special attention must be paid to cleanliness – the application system (corona, tribo) and the spray booth must be cleaned very thoroughly to avoid coating defects.**
- It is important to maintain cleanliness on the entire coating system before filling with powder coating or when changing to a different type of powder coating in order to eliminate potential coating defects, such as contamination.
- In addition to thorough cleaning of the coating system during daily operation, maintenance work recommended by the system manufacturer (e.g. cleaning of powder feed lines, nozzles, electrodes) and replacement of wear parts should be carried out at appropriate intervals.
- Powder coating application is stable and guarantees an even coating.
- The coatings are suitable for application by electrostatic spraying (corona), recommended voltage 60 kV,
  and tribokinetic spraying (tribo). The final settings are decided by the paint shop staff.
- The application parameters depend on the geometric shapes of the workpiece and the thickness of the coating to be achieved.
- Ideally, the entire job should be carried out using the same equipment, with the same application parameters and using coating from a single production batch.
- From observation, it is possible to obtain different results with regard to the final appearance of the coating (e.g. orange peel may appear on the coating) when applying with equipment from different manufacturers.
- The optimum coating effect is achieved by coating on the automatic line while maintaining the appropriate distance of the applicator from the workpiece (approximately 30 cm). When coating by hand, it is more difficult to maintain a constant and even coating thickness, but this way of coating is also acceptable.
- Powder coating feeding must ensure an even supply of powder to the applicator. Fluidised feeders are recommended.
- The entire application system and coated components should be properly earthed.
- In order to obtain an even coating, it is recommended to apply a coating thickness at the level specified in the Product Data Sheet.
- Do not mix with other coatings.

4. Recovery

- On automatic spray ropes, it is recommended to disconnect the recovery for the first 20 minutes after a colour change.
- Powder coatings with a smooth coating are suitable for recovery.
- Structural coatings are not as suitable for the recovery as smooth coatings - details available in Technical Recommendations 06.
- Care must be taken to ensure that the recovery powder is dosed appropriately in relation to the fresh powder. The amount of reclaimed coating should be as low as possible, as long as optimal mixing with fresh coating is ensured. The responsibility for achieving an acceptable and reproducible result lies with the paint shop.
- The amount of recovery coating should be determined by the paint shop on the basis of its own practical tests and maintained throughout the process.
- The recovery powder should be continuously circulated and screened.
- The recovery coating should be dosed into fresh coating in equal quantities.
- When working with the recovery coating, frequent inspections are necessary to check the appearance of the resulting coating.
- It is good practice to draw up boundary standards and use them throughout the production process to control the final appearance.
- The use of the recovery coating alone or multiple recoveries of powder is prohibited.

5. Curing conditions

- The recommended curing parameters must be strictly adhered to. The curing time is calculated from the moment the workpiece is heated to the set temperature.
- In order to determine the required curing conditions, it is advisable in each case to carry out practical tests adapted to the workpiece and the coating oven.
- Differing curing conditions should be avoided, which means that thin-walled workpieces should be coated separately from thick-walled workpieces in order to achieve a reproducible coating appearance.
- Thick-walled workpieces take longer to heat up compared to thin-walled workpieces, which can translate into a visually different end result.
- Differences in workpiece heating rates should be avoided. The heating time of the workpiece depends on the heat capacity of the workpiece to be cured, i.e. on the workpiece's design, shape, size, thickness, the amount of charge in the oven and the temperature control in the coating oven. Adjustment of the required curing parameters to the workpiece/structure rests with the paint shop.
- The physico-chemical properties of low-temperature coatings, like those of coatings cured under standard conditions, depend mainly on appropriate surface preparation and maintenance of the correct curing parameters.
- A too short curing time or curing at too low a temperature will result in coatings with inappropriate gloss and insufficient physical and chemical properties.
- Overly long curing or curing at too high a temperature can result in, among other things, colour changes, yellowing and the formation of more dull coatings. It can also lead to the degradation of the components and, consequently, the loss of the protective properties of the powder coating.

6. Summary

- Low-temperature powder coatings have the same coating characteristics as standard cure coatings.
- Before coating, special attention must be paid to maintaining cleanliness throughout the coating installation in order to avoid coating defects in the form of craters, needle marks and orange peel.
- When changing powder coatings, all parts of the coating system responsible for feeding or recovering powder coatings should be carefully cleaned.
- Be careful when using low-temperature coatings on parts consisting of very thick and very thin components - the inhomogeneous heat capacity can lead to overheating or underheating of the powder coating, which will affect the durability and quality of the powder coating.
- Application with low-temperature coatings is stable.
- It is necessary to properly ground the coated details and the entire application installation.

7. Storage conditions

Low-temperature coatings, i.e. coatings with a lower polymerisation range, are more sensitive to storage, transport and application conditions compared to standard coatings.
Store in accordance with the data on the label and product data sheet, in the original unopened packaging, away from heat sources (e.g. direct sunlight, oven, dryer, heat exchanger) at 5 - 25°C, protect from moisture. The product should be kept at ambient (paint shop) temperature for 12 h before use. Product expiry date: 12 months from date of manufacture.

version 1.0 dated 23.05.2022

77-100 Bytów, ul. H. Sucharskiego 2
NIP: PL8421747918, Regon: 221018629
BDO: 000030405

KRS 0000356946 Sąd Rejonowy
Gdańsk Północ VIII Wydział Gospodarczy
Kapitał zakładowy: 3 750 000,00 zł

+48 59 822 22 22
info@eko-color.pl
www.eko-color.eu