



Architectural Application Series 17

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TIGERWERK Lack- u. Farbenfabrik GmbH & Co. KG. | Negrellistraße 36 | PF 400 | 4600 Wels | Austria | T +43 / (0)7242 / 400-0 | F +43 / (0)7242 / 650 08 544 76 | powdercoatings@tiger-coatings.com | www.tiger-coatings.com

A powder coating for metal facades and steel construction based on polyester

Typical application

- Metal Facades**
- Steel Construction**
- Automotive Accessories**
- Marine Equipment**
- Aircraft Components**

Features

- ▶ Good Weather Resistance
- ▶ Good Mechanical Properties
- ▶ Good Flow Properties
- ▶ Suited for lightly out-gassing substrates

Finish | Colors

- ▶ **Smooth flow – glossy surface, approx. 80–95***
- ▶ **Smooth flow – semi gloss surface, approx. 75 ± 5***
- ▶ **Also available in an out-gassing forgiving formulation.**

Available as a custom order in many RAL Colors.

Any other color can be custom made with a minimum order of 60 kg.

* Gloss level acc. to ISO 2813/60° angle. (The measured gloss level of metallic and texture effect powder coatings can diverge from the details given in this product datasheet. The creation of tolerance samples is urgently recommended)

Warranty

Please see also Exhibit Limited Warranty no. 1008 latest edition.

Standard Packaging	in 20 kg cartons, 2.5 kg Minipack
Specific Gravity (ISO 8130-2)	1.3–1.7 g/cm ³ depending on pigmentation
Theoretical Coverage	at 60 µm film thickness: 9.8–12.8 m ² /kg depending on specific gravity (please see also Information Sheet no. 1072 – latest edition)
Storage Stability	6 months at no more than 25°C; avoid direct and extended heat exposure



TIGER Drylac® Series 17 Architectural Application

Pretreatment (alternatives)

The following table reflects the common methods of pretreatment with regards to various substrates and applications. In selecting the proper type of pretreatment please observe the suitability of the type of powder coating for a desired application according to typical applications on page one of this Product Data Sheet.

	ALUMINUM			GALVANIZED STEEL				STEEL		
Degreasing	○	○	○	○	○	○	○	○	○	○
1) Chromating	○	○	○	○	○	○	○	○	○	○
2) Anodizing	○	○	○	○	○	○	○	○	○	○
2) Chrome free	○	○	○	○	○	○	○	○	○	○
Iron Phosphating								○	○	○
Zinc Phosphating				○	○	○	○	○	○	○
Blasting								○	○	○
3) Sweeping				○	○	○	○	○	○	○
	I	E	A	I	E	A	S	I	E	S

- Application
- I interior
 - E exterior
 - A architectural
 - S steel
- 1) acc. to DIN 50939
 2) acc. to GSB quality and test regulations
 3) only for zinc coated parts > 45 µm
 4) for a two-coat process / TIGER Shield

Processing

Corona

Tribostatic*

* Suitability of metallic effects for tribo processing must be verified prior to application. Please consult with the relevant Information Sheets, latest edition.

Please note

TIGER Drylac® Series 17 is suited for lightly out-gassing substrates. Introduce TIGER OGF (out-gassing forgiving) inhibitor 91/00030 according to the relevant product data sheet for heavily out-gassing work pieces.

Certificates

Quality labels for the piecework coating of building components:

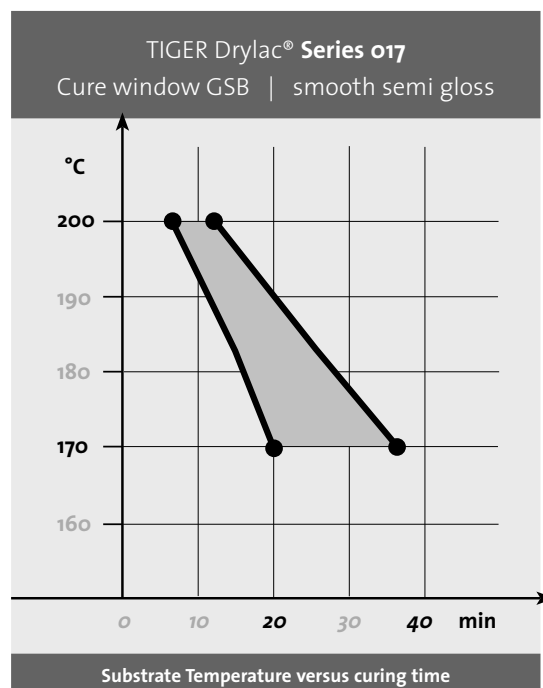
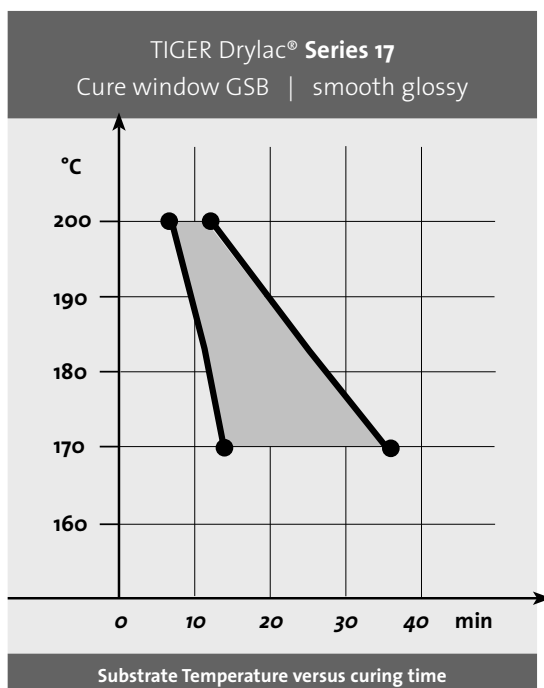
Series 17 Glossy:

GSB material license 107g, Qualicoat P-0268 (Cat. 3 Class 1)

Series 017 Semi Gloss:

Preliminary GSB material license 107n (Florida field exposure currently in testing) Qualicoat P-0545 (Cat. 2 Class 1)

Cure parameters (substrate temperature)



Please observe cure parameters closely since mechanical properties will develop before full cross-linking! Metal temperatures shall not exceed 200° C. Please verify the suitability of direct gas-fired and IR oven equipment under actual production conditions for the intended application.



Test results

Checked under laboratory conditions on a chromated aluminum test panel which is 0.7 mm thick. Actual product performance may vary due to product specific properties such as gloss, color, effect and finish as well as application related and environmental influences. Cure conditions according to the cure curves.

Test results	Test method	Series 17 Smooth flow - glossy GSB license no. 107g	Series 017 Smooth flow - semi gloss preliminary GSB license no. 107n
Film thickness	ISO 2360	60–80 µm	60–80 µm
Gloss – 60°	ISO 2813	80–95	75 ± 5
Cross cut test 1 mm	ISO 2409	0	0
Impression hardness	ISO 2815	≥ 87	≥ 87
Mendrel bending test	ISO 1519	≤ 3 mm	≤ 5 mm
Cupping test	ISO 1520	≥ 8 mm	≥ 5 mm
Impact test 20 Inch-pound	ASTM D 2794	no appearance of cracks down to the substrate	no appearance of cracks down to the substrate
Mortar resistance	ASTM D 3260	ok	ok
Drill mill test		ok	ok
Kesternich-test 30 cycles	ISO 3231	0,2 SO ₂ – ok	0,2 SO ₂ – ok
Weathering	EN 20105 - AO2	≥ 4	≥ 4
Humidity resistance 1000 h	ISO 6270-1	max. blistering 1 mm	max. blistering 1mm
Salt spray resistance 1000 h	ISO 9227	max. undercutting 1 mm	max. undercutting 1 mm

Guidelines for application - solid colors & metallic effects

General notes

To achieve a minimum thickness of 80 µm on edges and corners, a two-coat application is required for buildings at coastal and offshore areas with an extensive exposure to salt and industrial areas with high humidity and an aggressive atmosphere. The first coat in this case is cured at 200°C for 3 minutes or at 170°C for 8 minutes, the second coat at 200°C for 10 minutes or 170°C for 20 minutes.

The appearance of filiform corrosion excludes any guarantee.

Film thickness

To achieve adequate opacity, a film thickness of at least 65 µm, and not more than 110 µm is required. Bright colors may require a higher film thickness.

Color deviation

Powder coatings are formulated and manufactured to meet color standards: e.g. the RAL standard. Despite careful working methods, the color or effect difference of various batches cannot be avoided. The achievable coating result, which is to be checked in a pre-trial in comparison with the reference sample of the powder coating manufacturer, is also dependent on the application equipment. Before processing, therefore, a suitability trial is to be carried out on the spraying equipment. The color and effect differences caused by the system – especially in respect of the share of reclaim powder – are to be defined through the establishment of tolerance samples.



Drylac® Series 17 Architectural Application

To keep system-dependent color and effect differences to a minimum, the entire coating of a specific commission (also and especially when the coating comprises part commissions) is to be carried out on the same system, if possible without any interruption with constant system parameters (e.g. high-voltage, conveying air, dosage, distance from the gun to the work piece, etc.) and if possible with one batch and a constant reclaim share. Due to irregular powder application, color and effect deviations are to be reckoned with any manual spraying. A uniform film thickness is to be ensured: greater differences cause a degree of color, effect and gloss difference. The evaluation of color and effect tolerances, according to existing norms for automobile coating, is not suitable for powder coatings.

Durability - one coat versus two coat

Durability is fundamentally defined by the method, either a one or two-coat process. The durability of metallic powder coatings depends on the product and is to be clarified with the manufacturer, whereby special requirements, such as abrasion and scratch-resistance, cleaning method, color stability and chemical durability is to be indicated. Effective consultation with the manufacturer requires exact knowledge of all pollutants and substances to which the powder coating is subjected in use and assembly, this includes joint sealants and other auxiliary products such as glazing aids, gliding waxes, drilling and cutting lubricants, etc., which come into contact with coated surfaces and which must be pH-neutral and free of paint-damaging substances. They must be first subjected to a suitability check by the coater. As required, a transparent top-coat could therefore be necessary to prevent influences to the paint surface (metallic particles) that could lead to a discrepancy in color or effect. The valid curing conditions are to be observed for the implementation of two-coat systems.

A top coat for the interior use of specific powder coatings, with weather resistant transparent powder coating, creates no overall weather resistant system!

Post bending

When post bending of work pieces takes place, the suitability of the coating must be checked on original pieces before undertaking series production because the alloying, pre-treatment, bending radius, bending (environmental) conditions, temperature, wall thickness, film thickness, curing conditions, color, storage time and other factors influence flexural behavior. Microscopic cracks in the surface of the powder coating can lead to corrosive damage.

Adhesion of sealants, adhesives and foam

Before the application of a sealant or adhesive, and before foaming, the surface is to be appropriately cleaned, for example with IPA alcohol. Pre-trials are absolutely necessary. Processing guidelines and product recommendations are to be acquired from the relative suppliers. Even the short-term use of organic solutions, such as nitrocellulose thinner or acetone, as well as alkaline abrasives or other paint-damaging cleansing agents, results in irreversible damage to the coated surface that is not visible to the naked eye!

Packing and storing coated components

Assurance must be given that sufficient and suitable non-plasticizing packing materials, as well as foils and labels, auxiliary agents and transport means, the suitability of which is to be checked in pre-trials, is used properly and can be easily removed at the given time (e.g. labels, adhesive tapes, etc.). In unfavorable storage conditions, especially outside, the interaction of water accumulation (e.g. beneath packaging foils) and heat may lead to milky-white stains. This possible and occasional physical process is often reversible through thermal influence (e.g. re-tempering in the oven, industrial blower), respectively, can be reduced or hindered through the use of perforated foils.

Storage: if stored at site on the ground, place package in a tilted position lengthwise on blocks of wood and protect against the influences of sunlight, rain and contamination. Allow for adequate ventilation to avoid condensation water; for proper ventilation of foil wrapped packages remove foil at each end. Open packages are to be protected against the weather.

Cleaning

The prerequisite for the proper care of a coated building is regular cleaning at consecutive intervals at least once yearly, and more often with excessive environmental pollution, according to the guidelines of the *Gütegemeinschaft für die Reinigung von Metallfassaden e.V., GRM, (Quality Association for the Cleaning of Metal Facades)* performed by a member of GRM using only GRM accepted and approved cleaning agents and cleaning aids suited for powder coated surfaces acc. to RAL-GZ 632-1996 – prior to the initial cleaning and prior to a change of the cleaning agents and cleanings aids throughout the regular cleaning cycles suitability of the cleaning agents and cleaning aids has to be established and checked on a southward oriented area, a minimum of 2 m² in size with low visibility.

The cleaning of metallic effect coatings must be executed regularly and immediately after becoming soiled. Dried, old soiling is abrasive, which means it can only be removed by damaging (scratching) the surface. Please observe our Technical Information Sheet No. 1090 (latest edition).

For façade components coated with fine-texture-effect powder coatings, there are further especially targeted recommendations, additional to those given above, for rough surfaces, which due to their nature make cleaning difficult: use only clean water, or as required with a slight addition of a neutral or weak alkaline washing liquid. Do not use a scratching or abrasive agent. Use only non-fibering cloths for cleaning. Excessive rubbing is to be avoided. Do not use steam-jet devices. Rinse with clean cold water immediately after every cleaning process. Even the short-term use of organic solutions, such as nitrocellulose thinner or acetone, as well as alkaline abrasives or other paint-damaging cleansing agents, results in irreversible damage to the coated surface that is not visible to the naked eye!



Drylac® Series 17 Architectural Application

Chemical resistance

The required chemical resistance of a powder coating is, among other things, product-dependent and according to the situation and awareness of all pollutions must therefore be brought to agreement between the contract partners as soon as possible, at best during the projecting phase. Agreement is especially necessary in respect of the requirements profile and the monitoring method, which can take place according to EN ISO 2812-1 "Paint and Paint Materials. Definition of Durability Against Fluids." Moreover, the duration of monitoring and effectiveness and concentration of the pollution mediums is to be established.

General notes - metallic effects

Pieces that are difficult to coat should be given an undercoat. A subsequent top coat can lead to clouding. On pieces to be coated on both sides, the main visible side should be coated last. The positioning of façade sheet metal and profiles is to be determined before coating – vertical or horizontal – and must not be changed during coating and subsequent installation! Differing heat-up curves are to be avoided: thin and thick-walled pieces should be brought to the coating process separately. To avoid color, gloss and effect differences, colors from differing batches should not be used or combined with those from different manufacturers for the same object. It is recommended that during the entire coating of a production series to constantly maintain the application parameters and to carry out an initial and an ongoing test during the process, which includes at least the color, gloss, effect and curing conditions. In large projects completed by several coaters, due to differing processing and system parameters, and even with the same manufacturer and batch product types, color and effect differences are possible. Appropriate tolerance samples are therefore to be mutually agreed upon before coating commences. Differing material stress between the substrate and coating can lead to stress cracks in the powder coating in non-pigmented coatings (e.g. transparent).

Coating systems - metallic effects

Differing gun types, processing and system parameters are often responsible for a varied result. It is therefore to be ensured that only gun nozzles are used that are recommended for metallic powder coating. According to the type of object to be coated, a flat-spray nozzle, respectively, flat-spray impact disk is to be used in an even cloud of powder pattern. The grounding and charging of the powder cloud is to be regularly monitored. A part of regular process controls includes the monitoring of the intermediate cleaning of powder hoses and the removal of powder-gun deposits, and booths. The metallic coatings should take place exclusively from fluidized containers. Because metallic coatings react more sensitively to differing reclaim shares, the coating should take place from the start with reclaim powder to an extent of not more than around 30% (initial coating without pieces).

To avoid the "formation of stripes", powder guns should never be positioned too close to the pieces during the entire application period. These "stripe formations", which occur in automatic systems, among others, through the reciprocator movement in a sinus curve, are generally not immediately recognizable and often appear only under appropriate lighting conditions, respectively, when viewed from various angles.

Reclaim - metallic effects

To achieve uniform color and effect, the dosing of fresh powder is to be defined by the coater and maintained throughout the entire process, but should not be less than 70%. At the same time the reclaim powder should only be continuously reintroduced and sieved into the powder circulation. The multiple or exclusive use of reclaim powder is not permitted. Because not all metallic powder coatings are uniformly stable in reclaiming, the fresh-powder percentage is to be defined via the color/effect tolerance samples. The initial monitoring of color stability is nevertheless absolutely necessary. It is recommended to spray fine texture metallic effects without the use of reclaim powder!

Charging - metallic effects

Manually or automatically; electrostatic (metallic powder coatings), respectively, tribostatic (solid colors). Fundamentally only a few metallic powder coatings can be sprayed tribostatically. Appropriate suitability must be checked prior to application. Due to the differing charging capacities of powder coatings and metallic particles, not all metallic particles are transported to the object to be coated, which can also result in a discrepancy of the color/effect. A change from electrostatic to tribostatic charging is not permitted. Special system cleanliness is to be observed for the use of metallic powder coatings to avoid sintering, thus causing a short circuit in the gun sphere.

Grounding - metallic effects

When using metallic powder coatings, the powder-spray system and the object to be coated must sufficiently be grounded. This measure contributes significantly to the consistency of the color and effect.



Drylac® Series 17 Architectural Application

Our verbal and written recommendations for the use of our products are based upon experience and in accordance with present technological standards. These are given in order to support the buyer or user. They are non-committal and do not create any additional commitments to the purchase agreement. They do not release the buyer from verifying the suitability of our products for the intended application. We warrant that our products are free of flaws and defects to the extent as stipulated in our Terms of Delivery and Payment.

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certified
according to

EN ISO 9001 / 14001

TIGERWERK
Lack- u. Farbenfabrik
GmbH & Co. KG.

Negrellistraße 36
Postfach 400
4600 Wels | Austria

T +43 / (0)7242 / 400-0

F +43 / (0)7242 / 650 08

E powdercoatings@tiger-coatings.com

W www.tiger-coatings.com