



TIGER SHIELD

A TWO COAT SYSTEM FOR THE CORROSION PROTECTION OF STEEL

TIGER Shield

TIGER Shield® is a two coat system comprising a corrosion protective primer, TIGER Dryzinc® 69/90500 or, TIGER Dryprotective® 69/70111 as a base coat and opacifying pigmented, UV resistant TIGER Drylac® Powder Coating for architectural application.

If the metal preparation and pretreatment are followed according to the instructions as set forth in this product data sheet, the TIGER Shield system will yield protection against corrosion that meets the requirements of a corrosion class C5-I long acc. to DIN EN ISO 12 944 part 6.

Standard Packaging in 20 kg cartons,
2,5 kg minipack

Specific Gravity (ISO 8130-2) 1.8-1.9 g/cm³ for TIGER Dryzinc, 1.5-1.6 g/cm³ for TIGER Dryprotector

Theoretical Coverage please see information sheet no. 1072 - latest edition

Storage Stability 6 months from date of delivery under dry conditions at no more than 25 °C, avoid direct and extended heat exposure.

(The shelf life of custom made blanket orders or other stock agreements which by their nature are stored over longer periods is determined by the original production date.)

Applications

- corrosion protection
- steel construction

Features

- very good corrosion protection
- very good mechanical properties
- good chemical resistance
- good storage stability
- very good edge coverage

TIGER Dryzink

- zinc rich primer
- especially suited for blasted substrates

TIGER Dryprotector

- easy processing charging, fluidization, penetration power
- especially suited for geometric complex workpieces

Finish | Colors

- grey
- smooth glossy 70 - 80*

* Gloss level acc. to ISO 2813/60° angle (doesn't apply to metallic effect powder coatings). The measured gloss level of effect powder coatings can diverge from the details given in this product datasheet. The creation of tolerance samples is urgently recommended)



Pretreatment (alternatives)

The following two methods of pretreatment have been tested: Prerequisite for inclusion in the TIGER Shield processing is the quality of the steel substrate defined as an alloy treated steel, class ST 37, ST 52 or any other equally suited steel that can be coated (stainless steel alloys, any derivatives thereof as well as galvanized workpieces are explicitly excluded for use within a TIGER Shield application). The following means of pre-treatment and metal preparation respectively have been tested in accordance with the requirements as set forth in DIN EN ISO 12944 and have been approved.

I.) zinc phosphatizing

Conversion coating weight shall be a minimum of $2,5 \pm 1,0$ g/m².

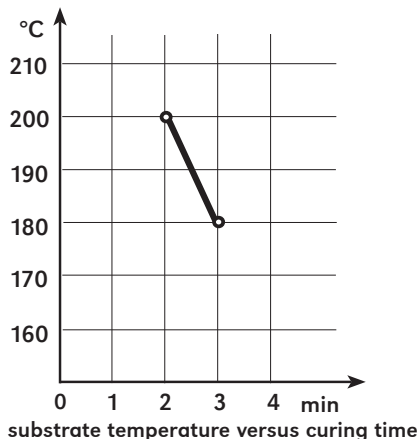
II.) blasting

The raw steel surface needs to be blasted using sharp and edged mineral or cast iron pellets. The tolerances for a blasted steel surface thereby need to correspond to the comparison specimen standard G 201 (lower tolerance segment 2, upper tolerance segment 3 = medium grade) and to the surface preparation class of minimum Sa 2.5 acc. to ISO 8503-1 and ISO 8503-2 with the surface depth between a minimum of Rz 50 – 70 µm and a maximum of Rmax 100 µm and a peak amount Pc10 µm of 20 measured with perthometer (Mahr). Blasting must ensure, that a minimum of 95 % of the total area to be blasted is reached. To avoid any corrosion, the powder coating has to take place immediately after the blasting stage.

Cure parameters

(substrate temperature)

TIGER Dryzink or TIGER Dryprotector as a Basecoat in TIGER SHIELD System



Please observe cure parameters closely since mechanical properties will develop before full cross-linking!

Processing

Corona, Tribostatic

Cure Conditions

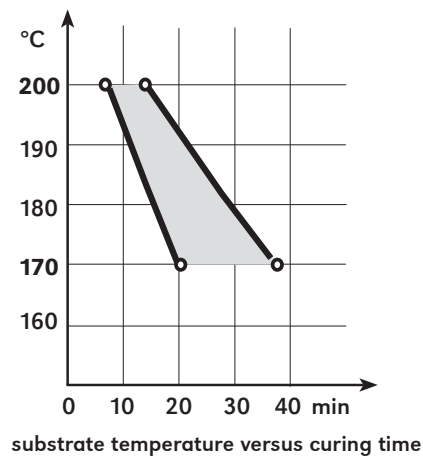
If used as a two coat TIGER Shield system, best intercoat-adhesion is achieved when the primer is subject to pre-gelling at 180° - 200° C for 2 – 3 min. only. As a result of the pregelling the primer must not be cured, but rather be melted – please mind different part configuration and metal thickness! Following the primer a top coat of a TIGER Drylac® architectural grade powder coating, e.g. Series 29 is applied and then fully cured according to the curing parameters as set forth in the relevant product data sheet for that top coat.

Please note

To avoid eventual oxidation no more than 12 hours must elapse between the application of TIGER Dryzink® 69/90500 and the spraying of any TIGER Drylac® top coat.

When pregelling and the subsequent cure are done in a directly fired gas oven inter-coat adhesion between the primer and the top coat may suffer due to a variation in the gas supply.

Topcoat in TIGER SHIELD System cure parameters | TIGER Drylac® Series 29





Film thickness

A minimum film thickness of 80 µm each (ISO 2360) needs to be applied per layer. The system requires the primer, either TIGER Dryzink® 69/90500 or TIGER Dryprotector® 69/70111 to be applied at 80 - 100 µm and the architectural grade top coat to be sprayed at a film thickness of 80 - 100 µm. It is required that the total film thickness of both, the primer and the top coat amount then and throughout the entire film build up to 160 µm. In order to achieve sufficient opacity it may become necessary to apply organic pigmented top coats at a higher film thickness. Please observe at non pigmented top coats, such as clear coats or transparent effects are not suited for a TIGER Shield application.

Please note

Proper application of any packaging material is important, including but not limited to any fixing aids or means of transportation and to the ease of their post-removal (e.g.

adhesive tapes). Under unfavorable storage conditions a micro climate (e.g. water and moisture accumulation under packaging foils) may lead to milky-white spots on the coated surface. This physical process only occurs occasionally and may be reversed with heat (e.g. post-tempering in the oven, industrial heating device).

Joint sealants and any other auxiliary products, such as glazing aids, gliding waxes, drilling and cutting lubricants, which come in contact with the coated surface must be ph-neutral and free of substances which may damage the finish. Prior to coating a suitability test at the applicator is therefore highly recommended.

Please pay attention to pigment related color differences of red-yellow-orange shades between architectural grade versus weather resistant powder coatings.

Any post mechanical processing of already coated parts, such as sawing, drilling, milling, cutting and bending will result in a damage of the coated surface and will subsequently weaken the corrosion protection.

Test results:

1.) TIGER Shield

Checked on a 3,0 mm in gauge zinc phosphated, steel panel, two coat TIGER Shield system with a total film thickness of max. 160 - 180 µm and a top coat in a smooth glossy finish. Cure conditions according to the cure curves.

test results	test method	TIGER SHIELD
film thickness	ISO 2360	160-180 µm
cross cut test 2mm	ISO 2409	0
salt spray test 1.440 h	ISO 9227	max. undercutting ≤ 1 mm
determination of resistance to humidity 720 h	ISO 6270	max. blistering ≤ 1 mm
kesternich test 0,2l SO ₂ / cycle 30 cycles	ISO 3231 evaluation acc. to DIN EN ISO 4628	blistering 0 (S0)
porous thickness	DIN 55 670	non-porous



2.1) TIGER Shield (pretreatment: zinc phosphatizing)

Checked on a hard, zinc phosphated steel panel 3,0 mm, with two-coated-structure with a general film thickness of max. 160 - 180 µm and smooth glossy top coat Hardening according to relevant curing parameters.

test results	test method	Dryzink 69/90500 + TIGER Drylac® Series 29	Dryprotector 69/70111 + TIGER Drylac® Series 29
tested corrosion resistance	DIN EN ISO 12 944	C5 I long IKS test report PB 300/62/00*	C5 I long IKS test report PB 300/61/00*
suitable for the application in prestressed and highly fastened bolted connections	DIN 18 800 Part1	unrestricted use for bolted connections ISL test report PB 10/00**	

2.2) TIGER Shield (metal preparation: blasting)

Checked on a 3,0 mm in gauge blasted, steel panel, two coat TIGER Shield system with a total film thickness of max. 160 - 180 µm and a top coat in smooth glossy finish. Cure conditions according to the cure curves.

test results	test method	Dryzink 69/90500 + TIGER Drylac® Series 29	Dryprotector 69/70111 + TIGER Drylac® Series 29
tested corrosion resistance	DIN EN ISO 12 944	C5 I long IKS test report PB 300/64/00*	C5 I long IKS test report PB 300/63/00*
suitable for the application in prestressed and highly fastened bolted connections	DIN 18 800 Part1	unrestricted use for bolted connections ISL test report PB 10/00**	

* Institute for Corrosion Protection, Dresden, Germany

** Institute for Steel Construction, Leipzig, Germany

Chemical Resistance

The chemical resistance of a powder coating depends among other things on its formulation. Chemical resistance requirements therefore must be considered according to processing conditions and final use of the finished product. This is best already established during the product specification process. Agreement between all parties involved must be reached about the chemical resistance test method, which may be performed in accordance with EN ISO 2812-1 "Lacquers and Paint Products. Test Methods for Surface Resistance to Liquids". It is necessary to also have a common understanding of the requirements for such chemical resistance, such as test duration, test method, reactive time and concentration of the test media.



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EN ISO 9001 / 14001



TIGER Coatings GmbH & Co. KG

Negrellistrasse 36

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