

# Processing guidelines

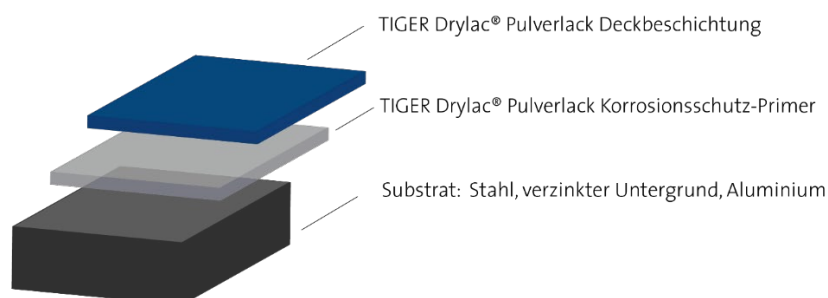
## Primer Series 270–273

### Introduction

As the most frequently used metal, steel is used wherever sturdiness is required. However, more than 200 µm of the material thickness can be lost due to corrosion every year in extreme cases. With TIGER SHIELD, TIGER Coatings has developed a system that provides lasting protection for steel and galvanized substrates.

In addition to its use on steel and galvanized steel, selected TIGER Drylac® primers can also be applied to aluminum substrates.

TIGER Drylac® primers have been developed for 2-coat applications. The 2-coat application consists of the powder coating primer and a top coat.



TIGER Coatings offers the following primer series:

| TIGER Drylac® Primer | Basic chemistry | Properties                                                                                       | Substrate        | Gloss level |
|----------------------|-----------------|--------------------------------------------------------------------------------------------------|------------------|-------------|
| Series 270           | Epoxy           | Universal primer for all substrates<br>Out gassing foregiving<br>Very good edge coverage         | Steel + aluminum | Flat matte  |
| Series 271           | Epoxy           | Low-temperature<br>Very good edge coverage<br>Good mechanical properties                         | Steel            | Glossy      |
| Series 272           | Epoxy/polyester | Out gassing foregiving<br>Excellent flow<br>Particularly suitable for top-coating with wet paint | Steel + aluminum | Glossy      |
| Series 273           | Polyester       | UV-stable<br>Very good edge coverage<br>Good mechanical properties                               | Steel + aluminum | Top-coating |

For a detailed recommendation on use and curing conditions from TIGER Coatings, please refer to the **Selector- Guide** on page 6.

## Properties

- High corrosion protection (up to C5H possible)
- Good storage stability
- Environmentally friendly
  - 100% free of zinc at equivalent corrosion protection
  - Currently no mandatory labelling
- Low density
  - approx. 1.4–1.6 g/cm<sup>3</sup>
- High theoretical yield of up to 12 m<sup>2</sup>/kg (at a film thickness of 60 µm)
- Cost-efficient
- Certified according to Qualisteelcoat, GSB, DBS 918 340
- Tested according to DIN 55634 and ISO 12944

## How the process works

### Pretreatment

#### 1. Part preparation

To prevent insufficient primer film thicknesses at the edges (running away), sharp edges, such as those that can result from cutting or milling, should be mechanically post-machined to ensure an edge radius of approx. 1 mm to 2 mm.

To prevent the escape of oils and greases during the curing process, open gaps and cracks should be avoided as much as possible in the component design.

Weld seams must be sanded well to prevent or minimize out gassing.

#### 2. Steel

##### 2.1. Blasting

The unmachined steel surface needs to be sandblasted using sharp and edged mineral or cast iron pellets. The tolerances for a sandblasted 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 according to ISO 8503-1 and ISO 8503-2.

If abrasive or square blasting agents are used, a surface roughness of 40–70 µm is recommended. In airless blast cleaning with round blasting agents, however, this value bears little resemblance to the corrosion protection that can be actually achieved.

Normally, blasting with abrasive and/or square blasting agents achieves higher corrosion protection classes due to better adhesion compared to airless blast cleaning.

The powder coating must take place immediately after blasting in order to prevent possible corrosion.

## 2.2. Sweep blasting

Sweep blasting is a blasting process at greatly reduced air pressure using non-metal blasting agents for cleaning and roughening the zinc surface. Blasting agents typically used in this process are non-metal slag, corundum or glass beads.

## 2.3. Chemical pretreatment phosphatizing (see DIN EN ISO 9717)

For exact specifications and guidelines of application, contact the chemical supplier

### 2.3.1. Iron phosphate conversion coating: Coating weight approx. 0.1–0.8 g/m<sup>2</sup>

According to Qualisteelcoat specification (Version 4.1 of January 2019), a chemical pre-treatment based on iron phosphate can be applied up to corrosion class C3 as a maximum.

### 2.3.2. Zinc phosphate conversion coating: Coating weight 1.5–3.5 g/m<sup>2</sup>

Application of a zinc-phosphate conversion coating allows the product to attain the highest corrosion classes.

## 3. Aluminum

### 3.1. Chemical pretreatment

For reasons of sustainability, TIGER Coatings recommends commercially available, chrome-free pretreatment methods. Observation of the specifications and guidelines of the manufacturer is mandatory.

Maximum corrosion protection can be attained using pretreatment complying with GSB/QUALICOAT standards.

## Coating/curing

### Film thicknesses

Generally, a primer coat thickness of 60 µm–80 µm is recommended for all primer series.

For specific applications, a lower or higher value may be required. Low primer coat thicknesses of 40 µm–60 µm are recommended for applications that are intended to withstand an increased mechanical load (e.g. coating of springs).

Depending on the application and the top coat used, the total film thickness is thus in the range of 100 µm–200 µm, with a recommendation for 120 µm–160 µm.

For the substrate temperature and curing time suitable for you, please refer to the **Selector Guide**.

### 2-coat application

For 2-coat systems, we generally recommend what is referred to as gelling (partial, incomplete curing) of the primer coat. This means that the curing process of the parts being coated is terminated once the powder coat on the parts has melted. Consequently, the primer does not fully cure in the gelling process. The required oven dwell time depends on the temperature of the recirculating air in the oven and the material thickness (heat-up curve) of the parts being coated. Gelling the primer improves the adhesion between the primer and top coat films and shortens the oven dwell times for the primer.

All primer series can also be fully cured, but the curing conditions according to the product data sheet should not be exceeded, as overcuring can have a negative impact on intercoat adhesion.

TIGER SHIELD products can be processed using all commonly available powder coating systems. Recovered powder can be recycled back into the coating process.

Important: Whenever a primer is to be applied to an e-coat or other primers, users must test compatibility on their own responsibility.

### 1-coat application / Top coating with wet paint

In the 1-coat process and if wet paint is used as a top coat, the product must be fully cured according to the respective product data sheet. If wet paint is used, we generally recommend testing the intercoat adhesion. Depending on the wet paint used, it may also be necessary to sand the primer coat.

Note – Directly heated gas oven

If directly heated gas ovens are used, it is mandatory to gel the primers to minimize the risk of reduced intercoat adhesion between the primer and the top coat.

## Storage Powder

- Use before: see date on product label
- Dry, below 25 °C
- Do not expose to direct heat

## Primed components

- Avoid storage of primed parts.
- Do not touch primed parts to which a top coat is to be applied with your bare hands.
- Store the components dry and clean.
- Storage temperature: 20–30 °C
- Protect the component from direct light.
- Parts being coated whose primer has been gelled already must be top-coated within 6 hours.
- Parts being coated whose primer has cured must be given a top coat within 12 hours.
  - If the storage period exceeds these limits, adhesion between the primer and top coat (paint) cannot be ensured due to settled dust and dirt particles from the air.
  - If storage is appropriate, the time between priming and top-coating can be extended.
- In the event of long-term storage, the primed components must be cleaned before top-coating to guarantee flawless adhesion between the primer and the top coat.

## General information

- Read and follow the corresponding product and safety data sheet before using the product.
- For the recommended process parameters, see the **Selector-Guide Table**.
- If in doubt, please contact the TIGER Coatings team:  
*office@tiger-coatings.com or kundendienst@tiger-coatings.com*

## Corrosion protection classes

| Corrosivity category according to DIN EN ISO 12944-2 | Neutral salt spray test / h** | Examples for ambient conditions<br><b>Exterior</b>                                                    | Examples for ambient conditions<br><b>Interior</b>              |
|------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| C1 - very low                                        | –                             | n/a                                                                                                   | Heated buildings with clean atmosphere.                         |
| C2 - low                                             | 240 h                         | Outdoor areas without heavy pollution.                                                                | Unheated buildings.                                             |
| C3 - medium                                          | 480 h                         | Outdoor areas with medium SO <sub>2</sub> load and coastal regions with low salinity.                 | Production building with high humidity and some contamination.  |
| C4 - high                                            | 720 h                         | Industrial areas and coastal regions with medium salt content.                                        | Chemical plants, swimming pools and ports.                      |
| C5 - very high                                       | 1.440 h                       | Industrial areas with aggressive atmosphere and high humidity.<br>Coastal regions with high salinity. | Buildings with continuous condensation and polluted atmosphere. |

## Selector-Guide

| Korrosivitäts-<br>kategorie / -<br>belastung  | Umgebungsbedingung                                                                                                                                                                                                                   | TIGER Drylac® PRIMER |                             | Systemaufbau QSC                                                                                                              |                                                                                                                             |                                                                                                                                                 |                                                                                                                                               | Systemaufbau nach DIN 55634                                                                                                   |                                                                                                                               | Einbrennbedingung<br>Grundierung     |                                 | Einbrennbedingung<br>Deckschicht             |                                  | TIGER Drylac Primer +<br>Top coat |                                              |
|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------|----------------------------------------------|----------------------------------|-----------------------------------|----------------------------------------------|
|                                               |                                                                                                                                                                                                                                      | TIGER Serie          | Chemismus                   | Stahl (DC01)<br>ST2                                                                                                           |                                                                                                                             | verzinkter Stahl<br>HD2                                                                                                                         |                                                                                                                                               | Stahl (DC01)<br>ST2                                                                                                           |                                                                                                                               | Objekttemp.                          | empfohlene<br>Schichtdicke [µm] | Einbrennen Gesamt<br>(Objekttemp. 2-Schicht) |                                  | Anzahl der<br>Schichten           | empfohlene<br>Gesamt<br>Schichtdicke<br>[µm] |
|                                               |                                                                                                                                                                                                                                      |                      |                             | ST2M<br>mechanisch<br>Vorbehandelt<br>Strahlen<br>NSS DIN EN ISO 9227<br>2mm Queritz<br>Delamination ≤ 3mm<br>Corrosion ≤ 1mm | ST2C<br>chemisch<br>Vorbehandelt<br>Zn-phos.<br>NSS DIN EN ISO 9227<br>2mm Queritz<br>Delamination ≤ 3mm<br>Corrosion ≤ 1mm | HD2M<br>mechanisch<br>Vorbehandelt<br>sweeping<br>NSS DIN EN ISO 9227<br>2mm Queritz<br>Delamination ≤ 8mm<br>Corrosion ≤ 1mm<br>(für C5 ≤ 2mm) | HD2C<br>chemisch<br>Vorbehandelt<br>Zn-phos.<br>NSS DIN EN ISO 9227<br>2mm Queritz<br>Delamination ≤ 8mm<br>Corrosion ≤ 1mm<br>(für C5 ≤ 2mm) | ST2C<br>chemisch<br>Vorbehandelt<br>Zn-phos.<br>NSS DIN EN ISO 9227<br>1mm Längeritz<br>Delamination ≤ 3mm<br>Corrosion ≤ 1mm | HD2C<br>chemisch<br>Vorbehandelt<br>Zn-phos.<br>NSS DIN EN ISO 9227<br>1mm Längeritz<br>Delamination ≤ 8mm<br>Corrosion ≤ 1mm |                                      |                                 |                                              |                                  |                                   |                                              |
| C4-H<br>(stark)<br>720h<br>Salzprühtest       | Industrie und Küstenregionen<br>mit geringer Salzbelastung z.B.<br>chem. Anlagen, Schwimmbäder,<br>Werften in Küstenregionen                                                                                                         | 270                  | Epoxy<br>stumpfmatt         | QIB 0055<br>PE-0127                                                                                                           | QIB 0056<br>PE-0128                                                                                                         | ✓ *                                                                                                                                             | ✓ *                                                                                                                                           | ✓                                                                                                                             | ✓                                                                                                                             | 200°C / 8 min bzw.<br>160°C / 30 min | 60 - 80                         | Serie 14<br>Serie 29<br>Serie 68             | 170°C/15<br>170°C/20<br>170°C/25 | 2                                 | 120 - 160                                    |
|                                               |                                                                                                                                                                                                                                      | 271                  | Epoxy<br>glänzend           | QIB 0057<br>PE-0129                                                                                                           | QIB 0058<br>PE-0130                                                                                                         | ✓ *                                                                                                                                             | ✓ *                                                                                                                                           | ✓                                                                                                                             | ✓                                                                                                                             | 200°C / 5min bzw.<br>140°C / 30 min  | 60 - 80                         |                                              |                                  |                                   |                                              |
|                                               |                                                                                                                                                                                                                                      | 272                  | Hybrid<br>glänzend          |                                                                                                                               | QIB 0059<br>PE-0131                                                                                                         | nicht geprüft                                                                                                                                   |                                                                                                                                               | ✓                                                                                                                             | nicht geprüft                                                                                                                 | 200°C / 8 min bzw.<br>160°C / 30 min | 60 - 80                         |                                              |                                  |                                   |                                              |
|                                               |                                                                                                                                                                                                                                      | 273                  | Polyester<br>seidenglänzend |                                                                                                                               |                                                                                                                             | ✓ *                                                                                                                                             | ✓ *                                                                                                                                           | ✓                                                                                                                             | ✓                                                                                                                             | 200°C / 8 min bzw.<br>160°C / 30 min | 60 - 80                         |                                              |                                  |                                   |                                              |
| C5-H<br>(sehr stark)<br>1440h<br>Salzprühtest | I: Industrietmosphäre mit hoher<br>Luftfeuchtigkeit und aggressiver<br>Atmosphäre<br>M: Küstenbereiche mit hoher<br>Salzbelastung z.B. Gebäude und<br>Gegenden mit fast<br>kontinuierlicher Kondensation<br>und hoher Verunreinigung | 270                  | Epoxy<br>stumpfmatt         | P.A.                                                                                                                          |                                                                                                                             | QIB 0060<br>PE-0132                                                                                                                             | QIB 0061<br>PE-0133                                                                                                                           | P.A.                                                                                                                          |                                                                                                                               | 200°C / 8 min bzw.<br>160°C / 30 min | 60 - 80                         | Serie 14<br>Serie 29<br>Serie 68             | 170°C/15<br>170°C/20<br>170°C/25 | 2                                 | 120 - 160                                    |
|                                               |                                                                                                                                                                                                                                      | 271                  | Epoxy<br>glänzend           | P.A.                                                                                                                          |                                                                                                                             | QIB 0062<br>PE-0134                                                                                                                             | QIB 0063<br>PE-0135                                                                                                                           | P.A.                                                                                                                          |                                                                                                                               | 200°C / 5min bzw.<br>140°C / 30 min  | 60 - 80                         |                                              |                                  |                                   |                                              |
|                                               |                                                                                                                                                                                                                                      | 272                  | Hybrid<br>glänzend          | P.A.                                                                                                                          |                                                                                                                             | nicht geprüft                                                                                                                                   |                                                                                                                                               | P.A.                                                                                                                          |                                                                                                                               | 200°C / 8 min bzw.<br>160°C / 30 min | 60 - 80                         |                                              |                                  |                                   |                                              |
|                                               |                                                                                                                                                                                                                                      | 273                  | Polyester<br>seidenglänzend | P.A.                                                                                                                          |                                                                                                                             | QIB 0064<br>PE-0136                                                                                                                             | QIB 0065<br>PE-0137                                                                                                                           | P.A.                                                                                                                          |                                                                                                                               | 200°C / 8 min bzw.<br>160°C / 30 min | 60 - 80                         |                                              |                                  |                                   |                                              |

\*das Zertifikat wird jeweils für die maximal geprüfte Korrosivitätskategorie ausgestellt. Das Erreichen von C5-H impliziert das Erreichen von C4-H.

| Anforderungen | Umgebungsbedingung       | TIGER Drylac® PRIMER |                             | Systemaufbau                                                                                                                                                                  |                                                                                                                                        | Einbrennbedingung<br>Grundierung     |                                      | Einbrennbedingung<br>Deckschicht               |                                                   | TIGER Drylac Primer +<br>Top coat   |           |
|---------------|--------------------------|----------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|--------------------------------------|------------------------------------------------|---------------------------------------------------|-------------------------------------|-----------|
|               |                          | TIGER Serie          | Produktnr.                  | Aluminium (EN AW-5005)                                                                                                                                                        | Stahl (DC01)                                                                                                                           | Objekttemp.                          | empfohlene min.<br>Schichtdicke [µm] | Einbrennen Gesamt<br>(Objekttemp. 2-Schicht)   | Anzahl der<br>Schichten                           | min. Gesamt<br>Schichtdicke<br>[µm] |           |
|               |                          |                      |                             | chemisch Vorbehandelt / chromfrei<br>AASS DIN EN ISO 9227 1000 Stunden<br>1mm Sikkers / Andreakkreuz<br>flächige Unterwanderung ≤ 16 mm²/10cm<br>längste Unterwanderung ≤ 4mm | chemisch Vorbehandelt / Zn-Phos.<br>NSS DIN EN ISO 9227 1000Stunden<br>1mm Sikkers / Längritz<br>Delamination ≤ 2mm<br>Corrosion ≤ 1mm |                                      |                                      |                                                |                                                   |                                     |           |
| DBS 918 340   | Außenanwendung Aluminium | 273                  | Polyester<br>seidenglänzend | Produktqualifikation Nr. 5                                                                                                                                                    |                                                                                                                                        | 200°C / 8 min bzw.<br>160°C / 30 min | 40 - 60                              | Serie 68                                       | 170°C/25'                                         | 2                                   | 100 - 140 |
|               | Außenanwendung Stahl     | 273                  | Polyester<br>seidenglänzend |                                                                                                                                                                               | Produktqualifikation Nr. 9 / 10                                                                                                        | 200°C / 8 min bzw.<br>160°C / 30 min | 40 - 60                              | Serie 29<br>Serie 14                           | 170°C/25'                                         | 2                                   | 100 - 140 |
|               |                          | 271                  | Epoxy<br>glänzend           |                                                                                                                                                                               | Produktqualifikation Nr. 9 / 10 / 12 / 15                                                                                              | 200°C / 5min bzw.<br>140°C / 30 min  | 40 - 60                              | Serie 14<br>Serie 29<br>Serie 285<br>Serie 287 | 170°C/15'<br>170°C/20'<br>170°C/ 20'<br>180°C/25' | 2                                   | 100 - 140 |

## Disclaimer

Our verbal and written recommendations for the use of our products are based upon experience to the best of our knowledge in accordance with present technological standards. These are given in order to support the buyer or user. They are non-binding and do not constitute any contractual legal relationship or additional obligation from the purchase agreement. **They do not release the purchaser from verifying the suitability of our products for the intended application at his own responsibility.** We guarantee that our products are free of flaws and defects to the extent stipulated in our Terms of Delivery and Payment. As part of our duty to inform, we modify our product information periodically according to technical progress. Therefore, please visit the download area of [www.tiger-coatings.com](http://www.tiger-coatings.com) to make sure you have the most current version of this Product Data Sheet. TIGER Coatings GmbH & Co. KG reserves the right to make changes to the Product Data Sheet without written notification.

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EN ISO 9001 / 14001  
IATF 16949



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