



# CORROSION PROTECTION

PAINT SYSTEMS  
ACCORDING TO  
ISO 12944



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# INTRODUCTION

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In 2016, the organisation NACE International (now AMPP - Association for Materials Protection and Performance) published a study on the costs associated with metallic corrosion worldwide. The results of the study, entitled “International Measures of Prevention, Applications, and Economics of Corrosion Technologies (IMPACT)”<sup>1</sup>, showed that the estimated global cost of corrosion totals a staggering \$2500 billion annually, approximately 3.4% of the World's Gross Domestic Product (GDP).

The use of steel structures in the construction of residential and public facilities, industrial units, bridges and viaducts, has been increasing. Steel is the material primarily chosen for the construction of these structures. When it is not protected, steel is subject to corrosion, which will be accelerated the more aggressive is the environment to which the material is exposed. The metallic structures should, therefore, always be protected, so that corrosion does not jeopardize their durability during their expected lifetime.

There are several methods to protect steel structures against corrosion: painting with protective coatings is the most widely used. There are countless coating solutions for corrosion protection, depending on the type of structure to be protected, the surface preparation to be carried out, the corrosivity of the environment in which they will be placed, the products to be applied, or the desired expected durability.













# OBJECTIVE

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To facilitate the specification, application, and inspection of corrosion protection systems, the **ISO 12944** standard was created in 1998, consisting of several parts, which provide information for the definition of paint systems suitable for the different situations that are commonly encountered. Its most recent revision started in 2017.

Based on this standard, on the knowledge accumulated by CIN over many years of experience in the protective coatings market, and in tests carried out in external laboratories, this document aims to be **a guide for the selection of paint systems for corrosion protection of metallic structures<sup>2</sup>**, with a set of paint systems that combine the need to address different technical requirements with having execution costs that do not compromise their use.

Painting with Protective Coatings is the most widely used method for **corrosion protection** of steel structures.

<sup>2</sup> The information contained in this document does not replace the need to refer to the various parts of the ISO 12944 standard, as well as the Technical Data Sheets for the products, available at <http://cin.com/performance-coatings>



# DURABILITY OF THE PAINT SYSTEMS ISO 12944-1:2017

Durability is, according to ISO 12944-1:2017, the expected life of a protective coating system until the first major maintenance by repainting, with four ranges being covered:

| Durability Ranges                   |
|-------------------------------------|
| Low (L) – up to 7 years             |
| Medium (M) – from 7 to 15 years     |
| High (H) – from 15 to 25 years      |
| Very High (VH) – more than 25 years |

**The durability range is not a guarantee time**, but a technical consideration that can help to set up a maintenance programme.

Guarantee time is a clause of legal nature, and is normally shorter than the durability range.  
There are no rules relating both concepts.







**CIN PERFORMANCE  
COATINGS** presents  
certified paint systems  
for **very high durability**  
(VH).

# ATMOSPHERIC-CORROSION CATEGORIES

## ISO 12944-2:2017

ISO 12944-2:2017 defines the atmospheric corrosion categories, classifying atmospheric environments into six categories of corrosion:

| Corrosion Category | Examples of typical Environments                                                                                                             |                                                                                                                        |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
|                    | Exterior                                                                                                                                     | Interior                                                                                                               |
| C1<br>Very Low     | ————                                                                                                                                         | Heated buildings with clean atmospheres, e.g. offices, shops, schools, hotels                                          |
| C2<br>Low          | Atmospheres with low level of pollution: mostly rural areas                                                                                  | Unheated buildings where condensation can occur e.g. depots, sports halls                                              |
| C3<br>Medium       | Urban and Industrial atmospheres, moderate sulfur dioxide pollution; coastal areas with low salinity                                         | Production rooms with high humidity and some air pollution, e.g. food-processing plants, laundries, breweries, dairies |
| C4<br>High         | Industrial areas and coastal areas with moderate salinity                                                                                    | Chemical plants, swimming pools, coastal ship and boatyards                                                            |
| C5<br>Very High    | Industrial areas with high humidity, aggressive atmosphere and coastal areas with high salinity                                              | Buildings or areas with almost permanent condensation and with high pollution                                          |
| CX<br>Extreme      | Offshore areas with high salinity and industrial areas with extreme humidity, aggressive atmosphere and subtropical and tropical atmospheres | Industrial areas with extreme humidity and aggressive atmosphere                                                       |





# CATEGORIES FOR IMMERSED STRUCTURES

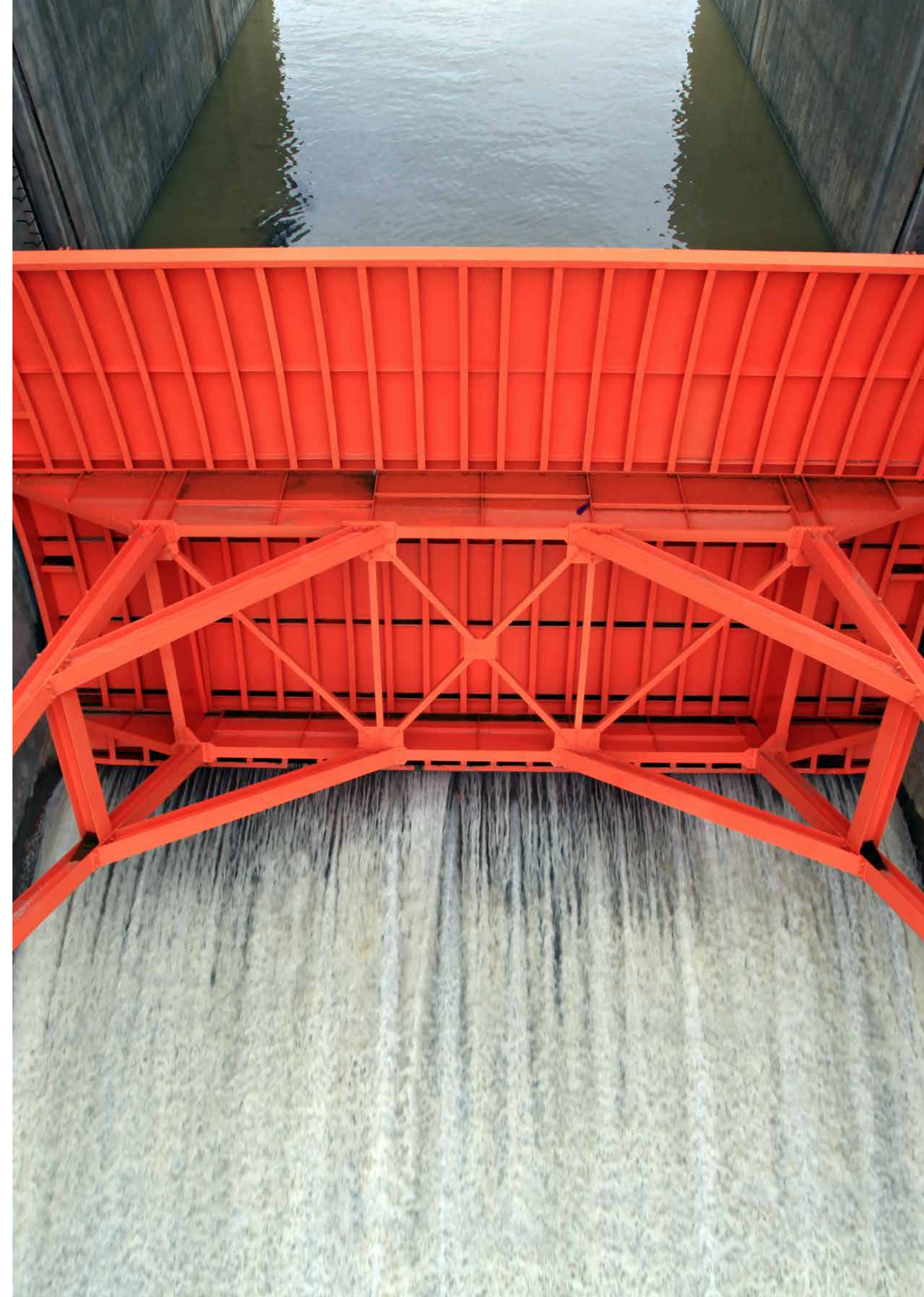
## ISO 12944-2:2017

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ISO 12944-2:2017 further defines the categories for immersed structures, both in water and in soil:

| Category | Environment           | Examples of environments and structures                                                                                  |
|----------|-----------------------|--------------------------------------------------------------------------------------------------------------------------|
| Im1      | Fresh water           | River installations, hydro-electric power plants                                                                         |
| Im2      | Sea or brackish water | Immersed structures without cathodic protection (e.g. harbour areas with structures like sluice gates, locks or jetties) |
| Im3      | Soil                  | Buired tanks, steel piles, steel pipes                                                                                   |
| Im4      | Sea or brackish water | Immersed structures with cathodic protection (e.g. offshore structures)                                                  |









# PAINT SYSTEMS

## ABRASIVE BLASTED CARBON STEEL

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For the protection of abrasive blasted steel structures, CIN Performance Coatings offers a number of solutions, depending on the desired durability and atmospheric-corrosivity category.

The minimum requirements in terms of surface preparation, minimum number of coats and minimum total dry thickness for the protection of steel structures, for different durability and environments, are described in Annex B of ISO 12944-5:2019.

### **a) Surface Preparation**

- Abrasive blast the steel to Sa 2½ grade, in accordance with ISO 8501-1:2007. The roughness profile should be as defined in the primer's Technical Data Sheet, and according to the thickness to be applied;
- Remove dust and abrasive residues from the surface;
- Remove oils and grease with cleaning solvents;
- The primer must be applied as soon as possible after completion of the surface preparation stage, to prevent any contamination. The blasted steel must not be left unprotected overnight. In case of surface contamination, remove the contaminants. Afterwards, the steel should be blasted again, where necessary





b) Minimum Number of Coats and Nominal Dry Film Thickness

| Durability                  |      | High (H)     |              |        | Very High (VH) |              |        |
|-----------------------------|------|--------------|--------------|--------|----------------|--------------|--------|
| Type of Primer              |      | Zn (R)       | Misc.        |        | Zn (R)         | Misc.        |        |
| Binder for Primers          |      | ESI, EP, PUR | EP, PUR, ESI | AK, AY | ESI, EP, PUR   | EP, PUR, ESI | AK, AY |
| Binder for Subsequent Coats |      | EP, PUR, AY  | EP, PUR, AY  | AK, AY | EP, PUR, AY    | EP, PUR, AY  | AK, AY |
| C3                          | MNOC | 2            | 2            | 2      | 2              | 2            | 2      |
|                             | NDFT | 160          | 180          | 200    | 200            | 240          | 260    |
| C4                          | MNOC | 2            | 2            | 2      | 3              | 2            | --     |
|                             | NDFT | 200          | 240          | 260    | 260            | 300          | --     |
| C5                          | MNOC | 3            | 2            | --     | 3              | 3            | --     |
|                             | NDFT | 260          | 300          | --     | 320            | 360          | --     |

| CX (offshore)  |            |        |               |
|----------------|------------|--------|---------------|
| Type of primer |            | Zn (R) | other primers |
| CX             | NDFT       | ≥ 40   | ≥ 60          |
|                | MNOC       | 3      | 3             |
|                | NDFT TOTAL | ≥ 280  | ≥ 350         |

In which:

- Zn (R) – zinc rich primer
- Misc. – other types of primer
- AK – alkyd
- AY – acrylic
- EP – epoxy
- PUR – polyurethane
- ESI – ethyl silicate
- MNOC – minimum number of coats
- NDFT – nominal dry film thickness

c) Coating Technical Specifications according to Standard ISO 12944

In addition to the minimum requirements contained in Annex B of ISO 12944-5:2019, the standard provides for the possibility of using more innovative products, including paint systems with lower thicknesses and/ or fewer number of coats, but always based on the evaluation of the performance of the applied systems and on the tests carried out by an independent laboratory. These tests are described in ISO 12944-6:2018 and include, for example, water condensation and neutral salt spray.



Based on the most recent version of the ISO 12944 standard, on the knowledge and experience accumulated by CIN Performance Coatings over many years in the corrosion protection market and on laboratory tests carried out externally, CIN Performance Coatings suggests the following **paint systems for steel structures**, which seek to combine the **various technical requirements** with **reduced execution times and costs**.

These paint systems, numbered from 1 to 42, have been developed by CIN Performance Coatings in accordance with parts 5 and/or 6 of the referred standard. CIN Performance Coatings provides solutions for **atmospheric-corrosivity categories C3, C4, and C5, for High and Very High expected durabilities** which, according to CIN's experience, are the most commonly encountered scenarios in the markets in which CIN operates. It should be noted that there is a correlation between the several paint systems: the requirements to be met are common between C4-H and C3-VH, as well as between C5-H and C4-VH. In addition, paint systems for higher corrosivity categories are equally valid for lower corrosivity categories. For example, a paint system for environment C5 can be applied in all lower corrosive environments (C1, C2, C3 and C4).

| Atmospheric-corrosivity Categories | Durability Ranges          |                                      |
|------------------------------------|----------------------------|--------------------------------------|
|                                    | High (H)<br>15 to 25 years | Very High (VH)<br>more than 25 years |
| C3                                 | C3-H                       | C3-VH                                |
| C4                                 | C4-H                       | C4-VH                                |
| C5                                 | C5-H                       | C5-VH                                |

CIN Performance Coatings also presents CIN PC 42, for CX category (ISO 12944-9), applicable to offshore steel structures.

The **Theoretical Spreading Rate**, expressed in m<sup>2</sup>/L, depends on the percentage of solids by volume (SV) of the products and on the dry film thickness (DFT) per coat, expressed in µm:

Theoretical Spreading Rate =  $\frac{SV \times 10}{DFT}$

The Theoretical Spreading Rate increases with the percentage of solids by volume and decreases with the dry film thickness per coat.





#### d) CIN Performance Coatings Technical Specifications C3-H

| CIN PC #                                                            | Products                                                                                                                                             | Dry Thickness | Total Thickness | Theoretical Spreading Rate                  |
|---------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------|---------------------------------------------|
| <b>CIN PC 1</b><br>(System C3.09<br>ISO 12944-5)                    | Zinc rich epoxy primer, complies with<br>ISO 12944-5 about zinc content<br><b>C-POX PRIMER ZN810</b>                                                 | 80 µm         | 160 µm          | 8,38 m²/L                                   |
|                                                                     | Acrylic polyurethane enamel cured with aliphatic<br>isocyanates, with excellent colour retention and various<br>gloss options<br><b>C-THANE S350</b> | 80 µm         |                 | 8,13 m²/L                                   |
| <b>CIN PC 2</b><br>(System C3.06<br>ISO 12944-5 and ISO<br>12944-6) | Fast-drying zinc phosphate polyamide epoxy primer<br><b>C-POX PRIMER ZP230 FD</b>                                                                    | 120 µm        | 180 µm          | 5,83 m²/L                                   |
|                                                                     | Acrylic polyurethane enamel cured with aliphatic<br>isocyanates<br><b>C-THANE S350 (or S258)</b>                                                     | 60 µm         |                 | 10,83 m²/L<br>(S350)<br>9,17 m²/L<br>(S258) |
| <b>CIN PC 3</b><br>(Interior Environment<br>ISO 12944-6)            | Fast-drying zinc phosphate polyamide epoxy primer<br><b>C-POX PRIMER ZP160 FD</b>                                                                    | 50 µm         | 50 µm           | 14,40 m²/L                                  |
| <b>CIN PC 4</b><br>(Interior Environment<br>ISO 12944-6)            | Fast-drying zinc phosphate polyamide epoxy primer<br><b>C-POX PRIMER ZP230 FD</b>                                                                    | 80 µm         | 80 µm           | 8,75 m²/L                                   |
| <b>CIN PC 5</b><br>(ISO 12944-6)                                    | Fast-drying zinc phosphate polyamide epoxy primer<br><b>C-POX PRIMER ZP160 FD</b>                                                                    | 60 µm         | 120 µm          | 12,00 m²/L                                  |
|                                                                     | Acrylic polyurethane enamel cured with aliphatic<br>isocyanates<br><b>C-THANE S350 (or S258)</b>                                                     | 60 µm         |                 | 10,83 m²/L<br>(S350)<br>9,17 m²/L<br>(S258) |
| <b>CIN PC 6</b><br>(ISO 12944-6)                                    | Fast-drying zinc phosphate polyamide epoxy primer<br><b>C-POX PRIMER ZP230 FD</b>                                                                    | 80 µm         | 120 µm          | 8,75 m²/L                                   |
|                                                                     | Acrylic polyurethane enamel cured with aliphatic<br>isocyanates, with excellent colour retention and various<br>gloss options<br><b>C-THANE S350</b> | 40 µm         |                 | 16,25 m²/L                                  |
| <b>CIN PC 7</b><br>(ISO 12944-6)                                    | Acrylic polyurethane enamel cured with aliphatic<br>isocyanates, with excellent colour retention and various<br>gloss options<br><b>C-THANE S350</b> | 80 µm         | 80 µm           | 8,13 m²/L                                   |

### e) CIN Performance Coatings Technical Specifications C3-VH/C4-H

| CIN PC #                                                         | Products                                                                                                                                       | Dry Thickness | Total Thickness | Theoretical Spreading Rate             |
|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------|----------------------------------------|
| <b>CIN PC 8</b><br>(ISO 12944-5 and ISO 12944-6)                 | Zinc rich epoxy primer, complies with ISO 12944-5 about zinc content<br><b>C-POX PRIMER ZN810</b>                                              | 50 µm         | 200 µm          | 13,40 m²/L                             |
|                                                                  | Multifunctional polyamide epoxy, with micaceous iron oxide or conventional pigmentation<br><b>C-POX S150 FD</b>                                | 100 µm        |                 | 7,10 m²/L                              |
|                                                                  | Acrylic polyurethane enamel cured with aliphatic isocyanates, with excellent colour retention and various gloss options<br><b>C-THANE S350</b> | 50 µm         |                 | 13,00 m²/L                             |
| <b>CIN PC 9</b><br>(System C4.06<br>ISO 12944-5 and ISO 12944-6) | Fast-drying zinc phosphate polyamide epoxy primer<br><b>C-POX PRIMER ZP230 FD</b>                                                              | 180 µm        | 240 µm          | 3,89 m²/L                              |
|                                                                  | Acrylic polyurethane enamel cured with aliphatic isocyanates<br><b>C-THANE S350 (or S258)</b>                                                  | 60 µm         |                 | 10,83 m²/L (S350)<br>9,17 m²/L (S258)  |
| <b>CIN PC 10</b><br>(ISO 12944-6)                                | Fast-drying zinc phosphate polyamide epoxy primer<br><b>C-POX PRIMER ZP230 FD</b>                                                              | 100 µm        | 150 µm          | 7,00 m²/L                              |
|                                                                  | Acrylic polyurethane enamel cured with aliphatic isocyanates<br><b>C-THANE S350 (or S258)</b>                                                  | 50 µm         |                 | 13,00 m²/L (S350)<br>11,00 m²/L (S258) |
| <b>CIN PC 11</b><br>(ISO 12944-6)                                | Fast-drying zinc phosphate polyamide epoxy primer<br><b>C-POX PRIMER ZP160 FD</b>                                                              | 80 µm         | 160 µm          | 9,00 m²/L                              |
|                                                                  | Acrylic polyurethane enamel cured with aliphatic isocyanates<br><b>C-THANE S350 (or S258)</b>                                                  | 80 µm         |                 | 8,13 m²/L (S350)<br>6,88 m²/L (S258)   |
| <b>CIN PC 12</b><br>(Interior Environment<br>ISO 12944-6)        | Fast-drying zinc phosphate polyamide epoxy primer<br><b>C-POX PRIMER ZP230 FD</b>                                                              | 100 µm        | 100 µm          | 7,00 m²/L                              |
| <b>CIN PC 13</b><br>(ISO 12944-6)                                | High solids aliphatic polyurethane with zinc phosphate<br><b>C-THANE S740 DTM</b>                                                              | 115 µm        | 115 µm          | 6,70 m²/L                              |
| <b>CIN PC 14</b><br>(ISO 12944-5 and ISO 12944-6)                | Shop primer epoxy with zinc phosphate<br><b>C-POX PRIMER SP125</b>                                                                             | 25 µm         | 265 µm          | 10,40 m²/L                             |
|                                                                  | Fast-drying zinc phosphate polyamide epoxy primer<br><b>C-POX PRIMER ZP230 FD</b>                                                              | 190 µm        |                 | 3,68 m²/L                              |
|                                                                  | Acrylic polyurethane enamel cured with aliphatic isocyanates, with excellent colour retention and various gloss options<br><b>C-THANE S350</b> | 50 µm         |                 | 13,00 m²/L                             |



### f) Summary Table for Atmospheric-Corrosivity Category C3

| CIN PC #  | Primer        |               |                    | Subsequent Coats        | Paint System          |                     | Durability C3 |                |
|-----------|---------------|---------------|--------------------|-------------------------|-----------------------|---------------------|---------------|----------------|
|           | Primer Binder | Primer Type   | Dry Thickness (µm) | Subsequent Coats Binder | Total Number of Coats | Dry Thickness Total | High (H)      | Very High (VH) |
|           | EP, PUR, ESI  | Zn (R), Misc. |                    | EP, PUR, AY             |                       |                     |               |                |
| CIN PC 1  | EP            | Zn (R)        | 80                 | PUR                     | 2                     | 160                 | X             |                |
| CIN PC 2  | EP            | Misc.         | 120                | PUR                     | 2                     | 180                 | X             |                |
| CIN PC 3  | EP            | Misc.         | 50                 | —                       | 1                     | 50                  | X             |                |
| CIN PC 4  | EP            | Misc.         | 80                 | —                       | 1                     | 80                  | X             |                |
| CIN PC 5  | EP            | Misc.         | 60                 | PUR                     | 2                     | 120                 | X             |                |
| CIN PC 6  | EP            | Misc.         | 80                 | PUR                     | 2                     | 120                 | X             |                |
| CIN PC 7  | PUR           | Misc.         | 80                 | —                       | 1                     | 80                  | X             |                |
| CIN PC 8  | EP            | Zn (R)        | 50                 | EP, PUR                 | 3                     | 200                 |               | X              |
| CIN PC 9  | EP            | Misc.         | 180                | PUR                     | 2                     | 240                 |               | X              |
| CIN PC 10 | EP            | Misc.         | 100                | PUR                     | 2                     | 150                 |               | X              |
| CIN PC 11 | EP            | Misc.         | 80                 | PUR                     | 2                     | 160                 |               | X              |
| CIN PC 12 | EP            | Misc.         | 100                | —                       | 1                     | 100                 |               | X              |
| CIN PC 13 | PUR           | Misc.         | 115                | —                       | 1                     | 115                 |               | X              |
| CIN PC 14 | EP            | Misc.         | 25                 | EP, PUR                 | 3                     | 265                 |               | X              |

## g) CIN Performance Coatings Technical Specifications C4-VH/C5-H

| CIN PC #                                                          | Products                                                                                                                                       | Dry Thickness | Total Thickness | Theoretical Spreading Rate             |
|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------|----------------------------------------|
| <b>CIN PC 15</b><br>(System C5.07<br>ISO 12944-5 and ISO 12944-6) | Zinc rich epoxy primer, complies with ISO 12944-5 about zinc content<br><b>C-POX PRIMER ZN810</b>                                              | 60 µm         | 260 µm          | 11,17 m²/L                             |
|                                                                   | Multifunctional polyamide epoxy, with micaceous iron oxide or conventional pigmentation<br><b>C-POX S150 FD</b>                                | 150 µm        |                 | 4,73 m²/L                              |
|                                                                   | Acrylic polyurethane enamel cured with aliphatic isocyanates, with excellent colour retention and various gloss options<br><b>C-THANE S350</b> | 50 µm         |                 | 13,00 m²/L                             |
| <b>CIN PC 16</b><br>(ISO 12944-5 and ISO 12944-6)                 | Fast-drying zinc phosphate polyamide epoxy primer<br><b>C-POX PRIMER ZP230 FD</b>                                                              | 250 µm        | 300 µm          | 2,80 m²/L                              |
|                                                                   | Acrylic polyurethane enamel cured with aliphatic isocyanates, with excellent colour retention and various gloss options<br><b>C-THANE S350</b> | 50 µm         |                 | 13,00 m²/L                             |
| <b>CIN PC 17</b><br>(ISO 12944-6)                                 | Fast-drying zinc phosphate polyamide epoxy primer<br><b>C-POX PRIMER ZP230 FD</b>                                                              | 190 µm        | 240 µm          | 3,68 m²/L                              |
|                                                                   | Acrylic polyurethane enamel cured with aliphatic isocyanates<br><b>C-THANE S350 (or S258)</b>                                                  | 50 µm         |                 | 13,00 m²/L (S350)<br>11,00 m²/L (S258) |
| <b>CIN PC 18</b><br>(ISO 12944-6)                                 | Zinc rich epoxy primer, complies with ISO 12944-5 about zinc content<br><b>C-POX PRIMER ZN810</b>                                              | 75 µm         | 125 µm          | 8,93 m²/L                              |
|                                                                   | Acrylic polyurethane enamel cured with aliphatic isocyanates, with excellent colour retention and various gloss options<br><b>C-THANE S350</b> | 50 µm         |                 | 13,00 m²/L                             |
| <b>CIN PC 19</b><br>(ISO 12944-6)                                 | Fast-drying zinc phosphate polyamide epoxy primer<br><b>C-POX PRIMER ZP230 FD</b>                                                              | 150 µm        | 200 µm          | 4,67 m²/L                              |
|                                                                   | Acrylic polyurethane enamel cured with aliphatic isocyanates<br><b>C-THANE S258</b>                                                            | 50 µm         |                 | 11,00 m²/L                             |
| <b>CIN PC 20</b><br>(ISO 12944-6)                                 | Fast-drying zinc phosphate polyamide epoxy primer<br><b>C-POX PRIMER ZP230 FD</b>                                                              | 120 µm        | 120 µm          | 5,83 m²/L                              |

## h) Summary Table for Atmospheric-Corrosivity Category C4

| CIN PC #  | Primer        |               |                    | Subsequent Coats        | Paint System          |                     | Durability C4 |                |
|-----------|---------------|---------------|--------------------|-------------------------|-----------------------|---------------------|---------------|----------------|
|           | Primer Binder | Primer Type   | Dry Thickness (µm) | Subsequent Coats Binder | Total Number of Coats | Dry Thickness Total | High (H)      | Very High (VH) |
|           | EP, PUR, ESI  | Zn (R), Misc. |                    | EP, PUR, AY             |                       |                     |               |                |
| CIN PC 8  | EP            | Zn (R)        | 50                 | EP, PUR                 | 3                     | 200                 | X             |                |
| CIN PC 9  | EP            | Misc.         | 180                | PUR                     | 2                     | 240                 | X             |                |
| CIN PC 10 | EP            | Misc.         | 100                | PUR                     | 2                     | 150                 | X             |                |
| CIN PC 11 | EP            | Misc.         | 80                 | PUR                     | 2                     | 160                 | X             |                |
| CIN PC 12 | EP            | Misc.         | 100                | —                       | 1                     | 100                 | X             |                |
| CIN PC 13 | PUR           | Misc.         | 115                | —                       | 1                     | 115                 | X             |                |
| CIN PC 14 | EP            | Misc.         | 25                 | EP, PUR                 | 3                     | 265                 | X             |                |
| CIN PC 15 | EP            | Zn (R)        | 60                 | EP, PUR                 | 3                     | 260                 |               | X              |
| CIN PC 16 | EP            | Misc.         | 250                | PUR                     | 2                     | 300                 |               | X              |
| CIN PC 17 | EP            | Misc.         | 190                | PUR                     | 2                     | 240                 |               | X              |
| CIN PC 18 | EP            | Zn (R)        | 75                 | PUR                     | 2                     | 125                 |               | X              |
| CIN PC 19 | EP            | Misc.         | 150                | PUR                     | 2                     | 200                 |               | X              |
| CIN PC 20 | EP            | Misc.         | 120                | —                       | 1                     | 120                 |               | X              |



## i) CIN Performance Coatings Technical Specifications C5-VH

| CIN PC #                                                             | Products                                                                                                                                             | Dry Thickness | Total Thickness | Theoretical Spreading Rate |
|----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------|----------------------------|
| <b>CIN PC 21</b><br>(System C5.08<br>ISO 12944-5 and<br>ISO 12944-6) | Zinc rich epoxy primer, complies with<br>ISO 12944-5 about zinc content<br><b>C-POX PRIMER ZN810</b>                                                 | 60 µm         | 320 µm          | 11,17 m²/L                 |
|                                                                      | Multifunctional polyamide epoxy, with micaceous iron<br>oxide or conventional pigmentation<br><b>C-POX S150 FD</b>                                   | 200 µm        |                 | 3,55 m²/L                  |
|                                                                      | Acrylic polyurethane enamel cured with aliphatic<br>isocyanates, with excellent colour retention and various<br>gloss options<br><b>C-THANE S350</b> | 60 µm         |                 | 10,83 m²/L                 |
| <b>CIN PC 22</b><br>(System C5.04<br>ISO 12944-5)                    | Fast-drying zinc phosphate polyamide epoxy primer<br><b>C-POX PRIMER ZP160 FD</b>                                                                    | 80 µm         | 360 µm          | 9,00 m²/L                  |
|                                                                      | Multifunctional polyamide epoxy, with micaceous iron<br>oxide or conventional pigmentation<br><b>C-POX S150 FD</b>                                   | 230 µm        |                 | 3,09 m²/L                  |
|                                                                      | Acrylic polyurethane enamel cured with aliphatic<br>isocyanates, with excellent colour retention and various<br>gloss options<br><b>C-THANE S350</b> | 50 µm         |                 | 13,00 m²/L                 |
| <b>CIN PC 23</b><br>(ISO 12944-6)                                    | Inorganic zinc silicate<br><b>CINCOAT PRIMER IZS920</b>                                                                                              | 60 µm         | 300 µm          | 10,50 m²/L                 |
|                                                                      | Multifunctional polyamide epoxy, with micaceous iron<br>oxide or conventional pigmentation<br><b>C-POX S150 FD</b>                                   | 180 µm        |                 | 3,94 m²/L                  |
|                                                                      | Acrylic polyurethane enamel cured with aliphatic<br>isocyanates, with excellent colour retention and various<br>gloss options<br><b>C-THANE S350</b> | 60 µm         |                 | 10,83 m²/L                 |

j) Summary Table for Atmospheric-Corrosivity Category C5

| CIN PC #  | Primer        |               |                    | Subsequent Coats        | Paint System          |                     | Durability C5 |                |
|-----------|---------------|---------------|--------------------|-------------------------|-----------------------|---------------------|---------------|----------------|
|           | Primer Binder | Primer Type   | Dry Thickness (µm) | Subsequent Coats Binder | Total Number of Coats | Dry Thickness Total | High (H)      | Very High (VH) |
|           | EP, PUR, ESI  | Zn (R), Misc. |                    | EP, PUR, AY             |                       |                     |               |                |
| CIN PC 15 | EP            | Zn (R)        | 60                 | EP, PUR                 | 3                     | 260                 | X             |                |
| CIN PC 16 | EP            | Misc.         | 250                | PUR                     | 2                     | 300                 | X             |                |
| CIN PC 17 | EP            | Misc.         | 190                | PUR                     | 2                     | 240                 | X             |                |
| CIN PC 18 | EP            | Zn (R)        | 75                 | PUR                     | 2                     | 125                 | X             |                |
| CIN PC 19 | EP            | Misc.         | 150                | PUR                     | 2                     | 200                 | X             |                |
| CIN PC 20 | EP            | Misc.         | 120                | —                       | 1                     | 120                 | X             |                |
| CIN PC 21 | EP            | Zn (R)        | 60                 | EP, PUR                 | 3                     | 320                 |               | X              |
| CIN PC 22 | EP            | Misc.         | 80                 | EP, PUR                 | 3                     | 360                 |               | X              |
| CIN PC 23 | ESI           | Zn (R)        | 60                 | EP, PUR                 | 3                     | 300                 |               | X              |







# PAINT SYSTEMS

## HOT DIP GALVANIZED STEEL

For the protection of **steel structures galvanized in a hot-dip zinc bath**, CIN Performance Coatings offers various solutions depending on the corrosivity and durability categories.

For information on the requirements and thicknesses of hot-dip galvanizing, please refer to ISO 1461 or equivalent.

### a) CIN Performance Coatings Technical Specifications for Galvanized Steel C3-VH/C4-H

| Surface Preparation                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                |               |                 |                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------|--------------------------------------|
| <ul style="list-style-type: none"> <li>– After galvanizing, remove oils and grease with a neutral detergent. Afterwards, brush-off blast clean with non-metallic fine abrasive in accordance with SSPC-SP16.</li> <li>– If galvanized steel is exposed to weathering for periods of 6 months or more, remove the zinc corrosion products by mechanical methods, such as mechanical sanding. Remove oils and grease with C-POX THINNER.</li> </ul> |                                                                                                                                                |               |                 |                                      |
| CIN PC #                                                                                                                                                                                                                                                                                                                                                                                                                                          | Products                                                                                                                                       | Dry Thickness | Total Thickness | Theoretical Spreading Rate           |
| <b>CIN PC 24</b><br>(ISO 12944-5 and ISO 12944-6)                                                                                                                                                                                                                                                                                                                                                                                                 | Fast-drying zinc phosphate polyamide epoxy primer<br><b>C-POX PRIMER ZP230 FD</b>                                                              | 110 µm        | 160 µm          | 6,36 m²/L                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Acrylic polyurethane enamel cured with aliphatic isocyanates, with excellent colour retention and various gloss options<br><b>C-THANE S350</b> | 50 µm         |                 | 13,00 m²/L                           |
| <b>CIN PC 25</b><br>(System G4.04 ISO 12944-5)                                                                                                                                                                                                                                                                                                                                                                                                    | Fast-drying zinc phosphate polyamide epoxy primer<br><b>C-POX PRIMER ZP160 FD</b>                                                              | 80 µm         | 160 µm          | 9,00 m²/L                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Acrylic polyurethane enamel cured with aliphatic isocyanates<br><b>C-THANE S350 (or S258)</b>                                                  | 80 µm         |                 | 8,13 m²/L (S350)<br>6,88 m²/L (S258) |
| <b>CIN PC 26</b><br>(ISO 12944-6)                                                                                                                                                                                                                                                                                                                                                                                                                 | Fast-drying zinc phosphate polyamide epoxy primer<br><b>C-POX PRIMER ZP160 FD</b>                                                              | 50 µm         | 100 µm          | 14,40 m²/L                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Acrylic polyurethane enamel cured with aliphatic isocyanates, with excellent colour retention and various gloss options<br><b>C-THANE S350</b> | 50 µm         |                 | 13,00 m²/L                           |

## b) CIN Performance Coatings Technical Specifications for Galvanized Steel C4-VH/C5-H

| Surface Preparation                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                               |               |                 |                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|---------------|-----------------|---------------------------------------|
| <ul style="list-style-type: none"> <li>– After galvanizing, remove oils and grease with a neutral detergent. Afterwards, brush-off blast clean with fine abrasive in accordance with SSPC-SP16.</li> <li>– If galvanized steel is exposed to weathering for periods of 6 months or more, remove the zinc corrosion products by mechanical methods, such as mechanical sanding. Remove oils and grease with C-POX THINNER.</li> </ul> |                                                                                               |               |                 |                                       |
| CIN PC #                                                                                                                                                                                                                                                                                                                                                                                                                             | Products                                                                                      | Dry Thickness | Total Thickness | Theoretical Spreading Rate            |
| <b>CIN PC 27</b><br>(ISO 12944-5)                                                                                                                                                                                                                                                                                                                                                                                                    | Fast-drying zinc phosphate polyamide epoxy primer<br><b>C-POX PRIMER ZP230 FD</b>             | 140 µm        | 200 µm          | 5,00 m²/L                             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | Acrylic polyurethane enamel cured with aliphatic isocyanates<br><b>C-THANE S350 (or S258)</b> | 60 µm         |                 | 10,83 m²/L (S350)<br>9,17 m²/L (S258) |

## c) CIN Performance Coatings Technical Specifications for Galvanized Steel C5-VH

| Surface Preparation                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                |               |                 |                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------|----------------------------|
| <ul style="list-style-type: none"> <li>– After galvanizing, remove oils and grease with a neutral detergent. Afterwards, brush-off blast clean with fine abrasive in accordance with SSPC-SP16.</li> <li>– If galvanized steel is exposed to weathering for periods of 6 months or more, remove the zinc corrosion products by mechanical methods, such as mechanical sanding. Remove oils and grease with C-POX THINNER.</li> </ul> |                                                                                                                                                |               |                 |                            |
| CIN PC #                                                                                                                                                                                                                                                                                                                                                                                                                             | Products                                                                                                                                       | Dry Thickness | Total Thickness | Theoretical Spreading Rate |
| <b>CIN PC 28</b><br>(ISO 12944-5 and ISO 12944-6)                                                                                                                                                                                                                                                                                                                                                                                    | Fast-drying zinc phosphate polyamide epoxy primer<br><b>C-POX PRIMER ZP230 FD</b>                                                              | 180 µm        | 240 µm          | 3,89 m²/L                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | Acrylic polyurethane enamel cured with aliphatic isocyanates, with excellent colour retention and various gloss options<br><b>C-THANE S350</b> | 60 µm         |                 | 10,83 m²/L                 |

d) Summary Table - Hot-dip Galvanized Steel

| CIN PC #  | Primer        |               |                    | Subsequent Coats        | Paint System          |                     | Durability |
|-----------|---------------|---------------|--------------------|-------------------------|-----------------------|---------------------|------------|
|           | Primer Binder | Primer Type   | Dry Thickness (µm) | Subsequent Coats Binder | Total Number of Coats | Dry Thickness Total |            |
|           | EP, PUR, ESI  | Zn (R), Misc. |                    | EP, PUR, AY             |                       |                     |            |
| CIN PC 24 | EP            | Misc.         | 100                | PUR                     | 2                     | 160                 | C3-VH/C4-H |
| CIN PC 25 | EP            | Misc.         | 80                 | PUR                     | 2                     | 160                 | C3-VH/C4-H |
| CIN PC 26 | EP            | Misc.         | 50                 | PUR                     | 2                     | 100                 | C3-VH/C4-H |
| CIN PC 27 | EP            | Misc.         | 140                | PUR                     | 2                     | 200                 | C4-VH/C5-H |
| CIN PC 28 | EP            | Misc.         | 180                | PUR                     | 2                     | 240                 | C5-VH      |



# PAINT SYSTEMS

## STEEL WITH THERMAL-SPRAYED ZINC

For the protection of **metallized steel structures by spraying (metallisation/thermal spraying)**, CIN Performance Coatings offers various solutions depending on the corrosivity and durability categories.

For information on the requirements and thicknesses for thermal-sprayed zinc, please refer to ISO 2063 or equivalent.

### a) CIN Performance Coatings Technical Specifications for Steel with Thermal-Sprayed Zinc C3-VH/C4-H

| Surface Preparation                                                                                                                                                                                                                                                                                                                                                   |                                                                                               |               |                 |                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|---------------|-----------------|---------------------------------------|
| <ul style="list-style-type: none"> <li>– The primer must be applied immediately after the metallization coat has cooled down in order to avoid contamination of the surface with dirt or moisture.</li> <li>– After the metallization and before painting, all dust and excess particles or poorly-adherent overspray particles must be blown or vacuumed.</li> </ul> |                                                                                               |               |                 |                                       |
| CIN PC #                                                                                                                                                                                                                                                                                                                                                              | Products                                                                                      | Dry Thickness | Total Thickness | Theoretical Spreading Rate            |
| <b>CIN PC 29</b><br>(System TSM 4.01<br>ISO 12944-5)                                                                                                                                                                                                                                                                                                                  | Fast-drying zinc phosphate polyamide epoxy primer<br><b>C-POX PRIMER ZP230 FD</b>             | 100 µm        | 160 µm          | 7,00 m²/L                             |
|                                                                                                                                                                                                                                                                                                                                                                       | Acrylic polyurethane enamel cured with aliphatic isocyanates<br><b>C-THANE S350 (or S258)</b> | 60 µm         |                 | 10,83 m²/L (S350)<br>9,17 m²/L (S258) |
| <b>CIN PC 30</b><br>(System TSM 4.01<br>ISO 12944-5)                                                                                                                                                                                                                                                                                                                  | Fast-drying zinc phosphate polyamide epoxy primer<br><b>C-POX PRIMER ZP160 FD</b>             | 80 µm         | 160 µm          | 9,00 m²/L                             |
|                                                                                                                                                                                                                                                                                                                                                                       | Acrylic polyurethane enamel cured with aliphatic isocyanates<br><b>C-THANE S350 (or S258)</b> | 80 µm         |                 | 8,13 m²/L (S350)<br>6,88 m²/L (S258)  |

## b) CIN Performance Coatings Technical Specification for Steel with Thermal-Sprayed Zinc C4-VH/C5-H

| Surface Preparation                                                                                                                                                                                                                                                                                                                                                   |                                                                                               |               |                 |                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|---------------|-----------------|----------------------------------------|
| <ul style="list-style-type: none"> <li>– The primer must be applied immediately after the metallization coat has cooled down in order to avoid contamination of the surface with dirt or moisture.</li> <li>– After the metallization and before painting, all dust and excess particles or poorly-adherent overspray particles must be blown or vacuumed.</li> </ul> |                                                                                               |               |                 |                                        |
| CIN PC #                                                                                                                                                                                                                                                                                                                                                              | Products                                                                                      | Dry Thickness | Total Thickness | Theoretical Spreading Rate             |
| <b>CIN PC 31</b><br>(System TSM 5.01<br>ISO 12944-5)                                                                                                                                                                                                                                                                                                                  | Fast-drying zinc phosphate polyamide epoxy primer<br><b>C-POX PRIMER ZP230 FD</b>             | 150 µm        | 200 µm          | 4,67 m²/L                              |
|                                                                                                                                                                                                                                                                                                                                                                       | Acrylic polyurethane enamel cured with aliphatic isocyanates<br><b>C-THANE S350 (or S258)</b> | 50 µm         |                 | 13,00 m²/L (S350)<br>11,00 m²/L (S258) |

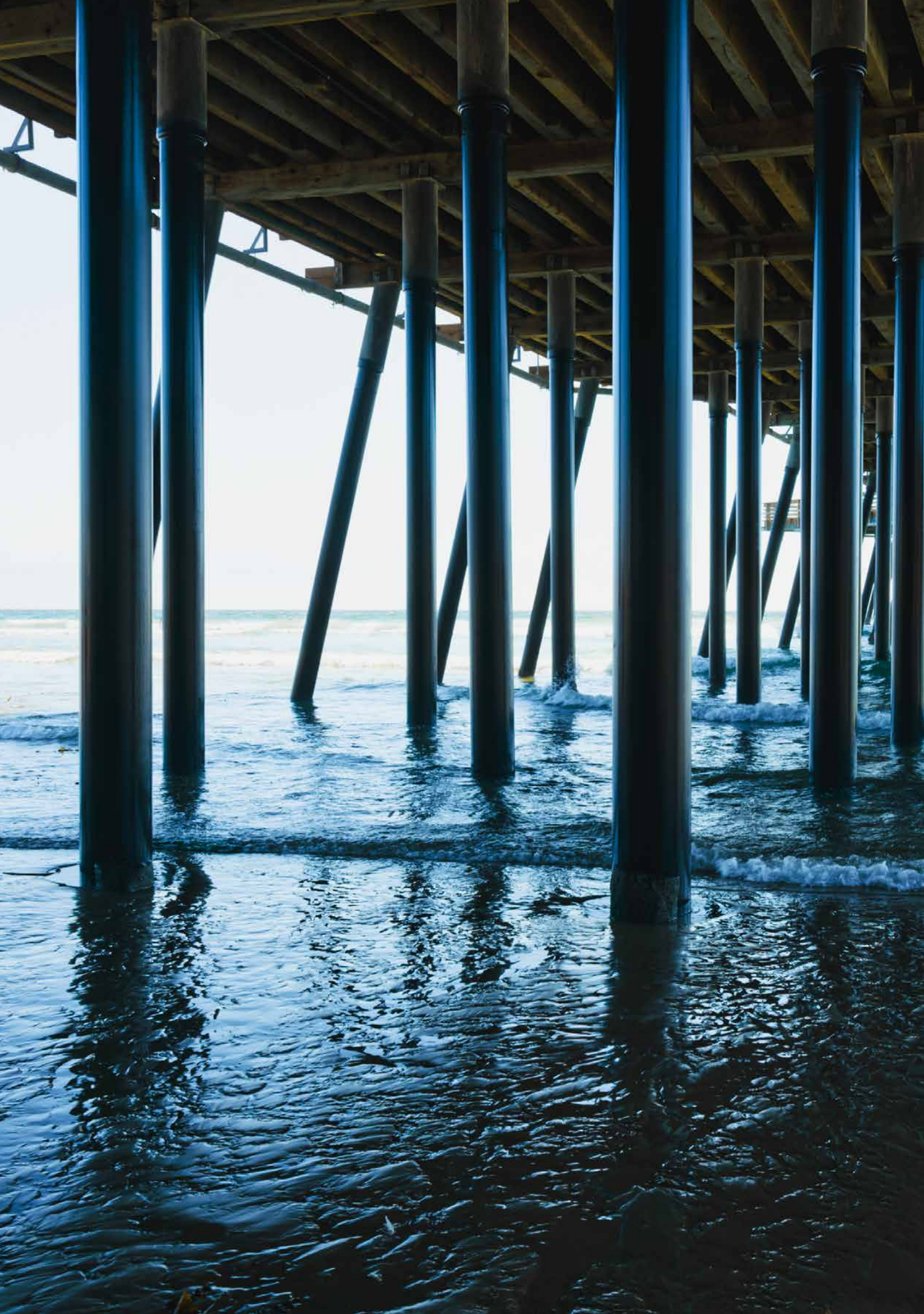
## c) CIN Performance Coatings Technical Specification for Steel with Thermal-Sprayed Zinc C5-VH

| Surface Preparation                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                |               |                 |                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------|----------------------------|
| <ul style="list-style-type: none"> <li>– The primer must be applied immediately after the metallization coat has cooled down in order to avoid contamination of the surface with dirt or moisture.</li> <li>– After the metallization and before painting, all dust and excess particles or poorly-adherent overspray particles must be blown or vacuumed.</li> </ul> |                                                                                                                                                |               |                 |                            |
| CIN PC #                                                                                                                                                                                                                                                                                                                                                              | Products                                                                                                                                       | Dry Thickness | Total Thickness | Theoretical Spreading Rate |
| <b>CIN PC 32</b><br>(System TSM 5.02<br>ISO 12944-5 and ISO 12944-6)                                                                                                                                                                                                                                                                                                  | Fast-drying zinc phosphate polyamide epoxy primer<br><b>C-POX PRIMER ZP230 FD</b>                                                              | 190 µm        | 240 µm          | 3,68 m²/L                  |
|                                                                                                                                                                                                                                                                                                                                                                       | Acrylic polyurethane enamel cured with aliphatic isocyanates, with excellent colour retention and various gloss options<br><b>C-THANE S350</b> | 50 µm         |                 | 13,00 m²/L                 |

d) Summary Table – Steel with Thermal-Sprayed Zinc

| CIN PC #  | Primer        |               |                    | Subsequent Coats        | Paint System          |                     | Durability |
|-----------|---------------|---------------|--------------------|-------------------------|-----------------------|---------------------|------------|
|           | Primer Binder | Primer Type   | Dry Thickness (µm) | Subsequent Coats Binder | Total Number of Coats | Dry Thickness Total |            |
|           | EP, PUR, ESI  | Zn (R), Misc. |                    | EP, PUR, AY             |                       |                     |            |
| CIN PC 29 | EP            | Misc.         | 100                | PUR                     | 2                     | 160                 | C3-VH/C4-H |
| CIN PC 30 | EP            | Misc.         | 80                 | PUR                     | 2                     | 160                 | C3-VH/C4-H |
| CIN PC 31 | EP            | Misc.         | 150                | PUR                     | 2                     | 200                 | C4-VH/C5-H |
| CIN PC 32 | EP            | Misc.         | 190                | PUR                     | 2                     | 240                 | C5-VH      |





# PAINT SYSTEMS

## IMMERSED STRUCTURES

For the protection of immersed metallic structures, both in water and in soil, CIN Performance Coatings offers two paint systems certified in accordance with parts 5 and 6 of the ISO 12944 standard, suitable for the six different categories: Im1-H, Im2-H, Im3-H, Im1-VH, Im2-VH and Im3-VH.

### a) CIN Performance Coatings Technical Specification Im1-H/Im2-H/Im3-H

| Surface Preparation                                                                                                                                                                                                                                                                                                           |                                                                                                |               |                 |                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|---------------|-----------------|----------------------------|
| <div><div></div><div>– Abrasive blast the steel to Sa 2½ grade, in accordance with ISO 8501-1:2007. The roughness profile should be as defined in the Technical Data Sheet for the primer.</div><div>– Remove dust and abrasive residues from the surface.</div><div>– Remove oils and grease with C-POX THINNER.</div></div> |                                                                                                |               |                 |                            |
| CIN PC #                                                                                                                                                                                                                                                                                                                      | Products                                                                                       | Dry Thickness | Total Thickness | Theoretical Spreading Rate |
| <b>CIN PC 33</b><br>(System I.03<br>ISO 12944-5 and ISO 12944-6)                                                                                                                                                                                                                                                              | Fast-drying zinc phosphate polyamide epoxy primer<br><b>C-POX PRIMER ZP160 FD</b>              | 80 µm         | 380 µm          | 9,00 m²/L                  |
|                                                                                                                                                                                                                                                                                                                               | Surface-tolerant epoxy coating reinforced with glass particles<br><b>C-POX MASTIC ST150 GF</b> | 300 µm        |                 | 2,83 m²/L                  |
| <b>CIN PC 34</b><br>(ISO 12944-5 and ISO 12944-6)                                                                                                                                                                                                                                                                             | Multi-purpose surface-tolerant epoxy coating<br><b>C-POX MASTIC ST150<sup>4</sup></b>          | 190 µm        | 380 µm          | 4,58 m²/L                  |
|                                                                                                                                                                                                                                                                                                                               | Multi-purpose surface-tolerant epoxy coating<br><b>C-POX MASTIC ST150<sup>4</sup></b>          | 190 µm        |                 | 4,58 m²/L                  |

### b) CIN Performance Coatings Technical Specification Im1-VH/Im2-VH/Im3-VH

| Surface Preparation                                                                                                                                                                                                                                                              |                                                                                                |               |                 |                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|---------------|-----------------|----------------------------|
| <div><div></div><div>– Abrasive blast the steel to Sa 2½ grade, in accordance with ISO 8501-1:2007. The roughness profile should be 25-50 µm.</div><div>– Remove dust and abrasive residues from the surface.</div><div>– Remove oils and grease with C-POX THINNER.</div></div> |                                                                                                |               |                 |                            |
| CIN PC #                                                                                                                                                                                                                                                                         | Products                                                                                       | Dry Thickness | Total Thickness | Theoretical Spreading Rate |
| <b>CIN PC 35</b><br>(System I.04<br>ISO 12944-5 e 12944-6)                                                                                                                                                                                                                       | Fast-drying zinc phosphate polyamide epoxy primer<br><b>C-POX PRIMER ZP160 FD</b>              | 80 µm         | 540 µm          | 9,00 m²/L                  |
|                                                                                                                                                                                                                                                                                  | Surface-tolerant epoxy coating reinforced with glass particles<br><b>C-POX MASTIC ST150 GF</b> | 460 µm        |                 | 1,85 m²/L                  |

<sup>4</sup> Consult recommended colours in the product's Technical DataSheet.



c) Summary Table – Immersed Structures

| CIN PC #  | Primer        |               |                    | Subsequent Coats        | Paint System          |                     | Durability Im1, Im2, Im3 |                |
|-----------|---------------|---------------|--------------------|-------------------------|-----------------------|---------------------|--------------------------|----------------|
|           | Primer Binder | Primer Type   | Dry Thickness (µm) | Subsequent Coats Binder | Total Number of Coats | Dry Thickness Total | High (H)                 | Very High (VH) |
|           | EP, PUR, ESI  | Zn (R), Misc. |                    | EP, PUR, AY             |                       |                     |                          |                |
| CIN PC 33 | EP            | Misc.         | 80                 | EP                      | 2                     | 380                 | X                        |                |
| CIN PC 34 | EP            | Misc.         | 190                | EP                      | 2                     | 380                 | X                        |                |
| CIN PC 35 | EP            | Misc.         | 80                 | EP                      | 2                     | 540                 |                          | X              |





**CIN PERFORMANCE  
COATINGS** offers  
certified paint systems for  
immersion in **fresh water,**  
**brackish water, sea**  
**water, or soil.**



# PAINT SYSTEMS

## SPECIFIC CASES

### (ISO 12944-6:2018)

CIN Performance Coatings offers solutions for corrosion protection of **carbon steel structures** prepared by water jetting or intensive manual or mechanical cleaning, mainly for **maintenance and rehabilitation** projects, as well as painting systems that include **passive fire protection**.

These systems have been tested and certified in an independent laboratory, complying with the requirements applicable to atmospheric corrosivity categories and expected durability, according to ISO 12944-6:2018, for which they were tested.

**a) CIN Performance Coatings Technical Specifications for Carbon Steel prepared by Water Jetting, WJ-2 (C3-VH/C4-H)**

| Surface Preparation                                                                                                                                                                                                                                                                                                                          |                                                                                                                                         |               |                 |                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------|----------------------------|
| <div><div></div><div>– Water Jetting: use high-pressure water jetting according to NACE specification No. 5/SSPC-SP 12, WJ-2/L (visual standard WJ-2, flash rust L).</div><div>– The damp surface can be dried by blowing with dry and clean compressed air, with particular attention given to horizontal surfaces and corners.</div></div> |                                                                                                                                         |               |                 |                            |
| CIN PC #                                                                                                                                                                                                                                                                                                                                     | Products                                                                                                                                | Dry Thickness | Total Thickness | Theoretical Spreading Rate |
| CIN PC 36<br>(ISO 12944-6)                                                                                                                                                                                                                                                                                                                   | Multi-purpose surface-tolerant epoxy coating<br>C-POX MASTIC ST150                                                                      | 180 µm        | 240 µm          | 4,83 m²/L                  |
|                                                                                                                                                                                                                                                                                                                                              | Acrylic polyurethane enamel cured with aliphatic isocyanates, with excellent colour retention and various gloss options<br>C-THANE S350 | 60 µm         |                 | 10,83 m²/L                 |

**b) CIN Performance Coatings Technical Specifications for Carbon Steel prepared with manual or intense mechanical cleaning – St2 according to ISO 8501-1:2007 (C3-H)**

| Surface Preparation                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                |               |                 |                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------|----------------------------|
| <ul style="list-style-type: none"> <li>– Water Jetting: use high-pressure water jetting according to NACE specification No. 5/SSPC-SP 12, WJ-2/L (visual standard WJ-2, flash rust L).</li> <li>– The damp surface can be dried by blowing with dry and clean compressed air, with particular attention given to horizontal surfaces and corners..</li> </ul> |                                                                                                                                                |               |                 |                            |
| CIN PC #                                                                                                                                                                                                                                                                                                                                                      | Products                                                                                                                                       | Dry Thickness | Total Thickness | Theoretical Spreading Rate |
| <b>CIN PC 37</b><br>(ISO 12944-6) <sup>5</sup>                                                                                                                                                                                                                                                                                                                | Multi-purpose surface-tolerant epoxy coating <sup>6</sup><br><b>C-POX MASTIC ST150</b>                                                         | 120 µm        | 300 µm          | 7,25 m²/L                  |
|                                                                                                                                                                                                                                                                                                                                                               | Multi-purpose surface-tolerant epoxy coating <sup>6</sup><br><b>C-POX MASTIC ST150</b>                                                         | 120 µm        |                 | 7,25 m²/L                  |
|                                                                                                                                                                                                                                                                                                                                                               | Acrylic polyurethane enamel cured with aliphatic isocyanates, with excellent colour retention and various gloss options<br><b>C-THANE S350</b> | 60 µm         |                 | 10,83 m²/L                 |

**c) CIN Performance Coatings Technical Specifications for Carbon Steel prepared with manual or intense mechanical cleaning – St2 according to ISO 8501-1:2007 (C3-H)**

| CIN PC #                          | Products                                                                                                                                       | Dry Thickness | Total Thickness | Theoretical Spreading Rate |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------|----------------------------|
| <b>CIN PC 38</b><br>(ISO 12944-6) | Multi-purpose surface-tolerant epoxy coating<br><b>C-POX MASTIC ST120</b>                                                                      | 140 µm        | 180 µm          | 5,86 m²/L                  |
|                                   | Acrylic polyurethane enamel cured with aliphatic isocyanates, with excellent colour retention and various gloss options<br><b>C-THANE S350</b> | 40 µm         |                 | 16,25 m²/L                 |

**d) CIN Performance Coatings Technical Specifications for Carbon Steel prepared with manual or intense mechanical cleaning – St2 according to ISO 8501-1:2007 (C3-VH/C4-H)**

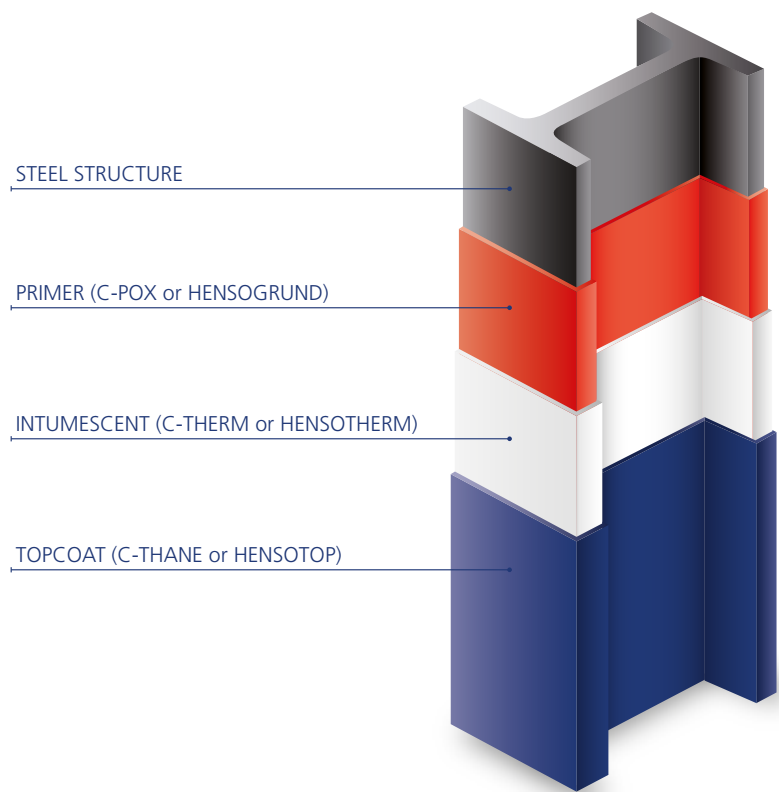
| Surface Preparation                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                |               |                 |                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------|----------------------------|
| <ul style="list-style-type: none"> <li>– All rust, dust, oils, grease or other surface contaminants must be removed;</li> <li>– C-POX MASTIC ST150 has been developed for circumstances where abrasive blasting is impossible or impractical and can therefore be applied to manually or mechanically prepared surfaces to grade St2 per ISO 8501-1:2007, or per standard SSPCSP 11.</li> </ul> |                                                                                                                                                |               |                 |                            |
| CIN PC #                                                                                                                                                                                                                                                                                                                                                                                        | Products                                                                                                                                       | Dry Thickness | Total Thickness | Theoretical Spreading Rate |
| <b>CIN PC 39</b><br>(ISO 12944-6)                                                                                                                                                                                                                                                                                                                                                               | Multi-purpose surface-tolerant epoxy coating<br><b>C-POX MASTIC ST150</b>                                                                      | 180 µm        | 240 µm          | 4,83 m²/L                  |
|                                                                                                                                                                                                                                                                                                                                                                                                 | Acrylic polyurethane enamel cured with aliphatic isocyanates, with excellent colour retention and various gloss options<br><b>C-THANE S350</b> | 60 µm         |                 | 10,83 m²/L                 |

<sup>5</sup> The same system is also certified by an independent laboratory in accordance with ISO 12944-6:2018, for surface preparation to grade Sa 2½, in accordance with ISO 8501-1:2007.

<sup>6</sup> It is recommended to apply two coats in contrasting colours, such as aluminium colour for the first coat.

e) Passive Fire Protection Systems from CIN Performance Coatings

In order to combine **Passive Fire Protection** with **corrosion protection**, the following technical coating specifications have the particularity of including an **intumescent paint as an intermediate layer**. This type of coating, whether it is a single-component solvent-based acrylic or a two-component solvent-free epoxy, produces a foam with very low thermal conductivity when subjected to heat, giving it insulating properties.



How do CIN Performance Coatings intumescent coatings work?

Specially formulated to expand when exposed to high temperatures, CIN Performance Coatings’ intumescent coatings provide passive fire protection: through a chemical reaction, they develop a protective thermal insulation foam with very low thermal conductivity, known as intumescent.

In the event of a fire, this insulation delays the collapse of the metal structure, thus increasing the time available for a safer evacuation of the building.



Steel beam with C-THERM® before the fire test.



Steel beam with C-THERM® after the fire test.



The fire resistance of structural elements provided by intumescent coatings is determined in accordance with standard EN 13381-8:2013. Although there is no direct and official correlation between standards ISO 12944 and EN 13381-8, it is possible to establish a comparison between the two.

For further information, please refer to the following table, adapted from the document “Classifying Environments – The new environmental categorisation systems for corrosive and fire protection coating systems – Information and guidance for the Construction Sector” by the British Coatings Federation:

| Category                             | Category Description                                                                                                                                                        | Atmospheric-Corrosivity Categories Comparison <sup>7</sup> |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| <b>X</b>                             |                                                                                                                                                                             |                                                            |
| Valid for categories Z1, Z2, Y and X | Intumescent paint system for all environments                                                                                                                               | Similar to C3 Exterior / C4                                |
| <b>Y</b>                             |                                                                                                                                                                             |                                                            |
| Valid for categories Z1, Z2 and Y    | Intumescent paint system intended for indoor and semi-exposed environments.<br>Semi-exposed includes temperature below 0°C, but no exposure to rain and limited UV exposure | Similar to C2 Exterior / C3 Interior                       |
| <b>Z1</b>                            |                                                                                                                                                                             |                                                            |
| Valid for categories Z1 and Z2       | Intumescent paint system intended for indoor environments with humidity equal to or greater than 85%, excluding temperatures below 0 °C                                     | Similar to C2 Interior                                     |
| <b>Z2</b>                            |                                                                                                                                                                             |                                                            |
|                                      | Intumescent paint system intended for indoor environments without high moisture content and excluding temperatures below 0 °C                                               | Similiar to C1                                             |

For a concrete and realistic assessment of their performance, CIN Performance Coatings’ passive fire protection paint systems have been tested and certified by an independent laboratory in accordance with the requirements of ISO 12944-6 for categories C3, C4 and C5.

It should be noted that the intumescent paint thickness considered is merely illustrative. To obtain the specific solution that is right for your project, we recommend that you consult CIN’s technical and specialised team.

### What is the expected durability of CIN Performance Coatings’ Passive Fire Protection?

European Assessment Document (EAD) 350402-00-1106, used for the purpose of CE marking of construction products, only mentions a minimum of 10 years as an estimated durability value.

To answer this question objectively, the CIN PC 40 system, whose intermediate layer includes the C-THERM S100 / C-THERM S101 FD, was subjected to fire exposure tests after being exposed to test conditions for corrosive environments C3-VH/C4-H, in accordance with ISO 12944-6.

This pioneering approach in the sector has proven that passive fire protection is not affected.

It is therefore possible to estimate the durability of passive fire protection and corrosion protection according to the following table:

| Environmet | Minimum Expected Durability |                      |
|------------|-----------------------------|----------------------|
|            | Passive Fire Protection     | Corrosion Protection |
| C3         | >25 years (VH)              | >25 years (VH)       |
| C4         | >15 years (H)               | >15 years (H)        |

<sup>7</sup> See detailed description of the environments on page 8.

### Carbon Steel, C3-VH/C4-H, Acrylic Intumescent Coating

| Surface Preparation                                                                                                                                                                                                                                                                         |                                                                                                                                                                           |               |                 |                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------|----------------------------|
| <ul style="list-style-type: none"><li>– Abrasive blast the steel to Sa 2½ grade, in accordance with ISO 8501-1:2007. The roughness profile should be 50-75 µm;</li><li>– Remove dust and abrasive residues from the surface;</li><li>– Remove oils and grease with C-POX THINNER.</li></ul> |                                                                                                                                                                           |               |                 |                            |
| CIN PC #                                                                                                                                                                                                                                                                                    | Products                                                                                                                                                                  | Dry Thickness | Total Thickness | Theoretical Spreading Rate |
| CIN PC 40<br>(ISO 12944-6)                                                                                                                                                                                                                                                                  | Fast-drying zinc phosphate polyamide epoxy primer, com classificação de reacção ao fogo B-s1, d0 (EN 13501-1:2007)<br><b>C-POX PRIMER ZP230 FD</b>                        | 100 µm        | 1220 µm         | 7,00 m²/L                  |
|                                                                                                                                                                                                                                                                                             | Solvent-based intumescent coating<br><b>C-THERM S100 / C-THERM S101 FD</b><br>or <b>C-THERM S110 / C-THERM S111 FD</b>                                                    | 1000 µm       |                 | 0,75 m²/L                  |
|                                                                                                                                                                                                                                                                                             | Acrylic polyurethane enamel cured with aliphatic isocyanates, with excellent colour retention and various gloss options B-s1, d0 (EN 13501-1:2007)<br><b>C-THANE S350</b> | 2x 60 µm      |                 | 5,42 m²/L<br>(for 120 µm)  |

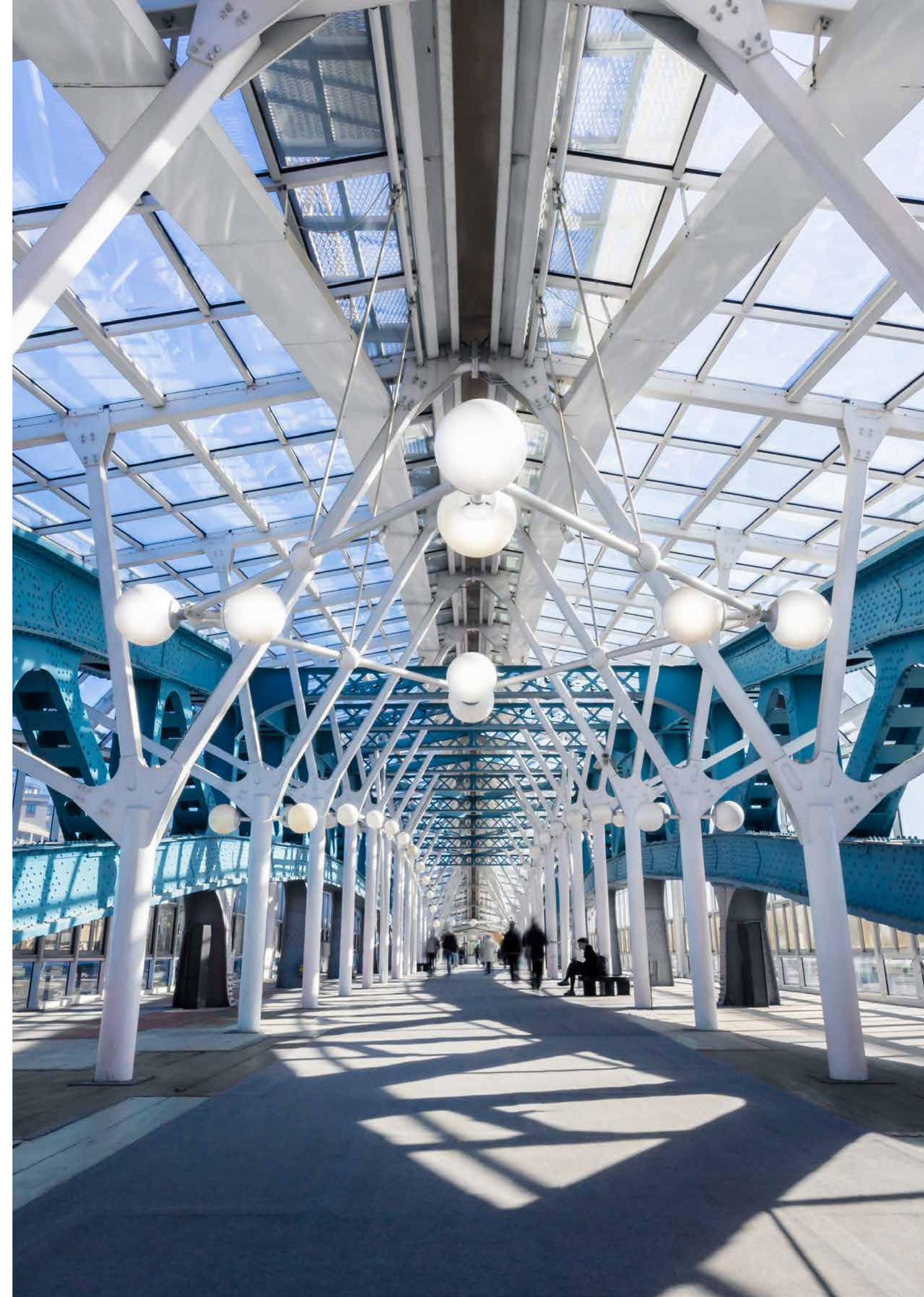
### Carbon Steel, C5-H, Epoxy Intumescent Coating

To provide passive fire protection in more aggressive atmospheric corrosion environments - corrosion category C5 - it is necessary to use epoxy intumescent products instead of traditional acrylics, due to their high chemical and mechanical resistance, which allows them to withstand more severe stresses. These systems are also recommended for projects involving the transport of pre-painted metal structures by sea.

| Surface Preparation                                                                                                                                                                                                                                                                         |                                                                   |                 |                 |                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-----------------|-----------------|----------------------------|
| <ul style="list-style-type: none"><li>– Abrasive blast the steel to Sa 2½ grade, in accordance with ISO 8501-1:2007. The roughness profile should be 50-75 µm;</li><li>– Remove dust and abrasive residues from the surface;</li><li>– Remove oils and grease with C-POX THINNER.</li></ul> |                                                                   |                 |                 |                            |
| CIN PC #                                                                                                                                                                                                                                                                                    | Products                                                          | Dry Thickness   | Total Thickness | Theoretical Spreading Rate |
| CIN PC 41<br>(ISO 12944-6)                                                                                                                                                                                                                                                                  | Two-component epoxy primer<br><b>HENSOGRUND 2K EP</b>             | 80 µm           | 550 and 6150 µm | 6,88 m²/L                  |
|                                                                                                                                                                                                                                                                                             | Intumescent epoxy coating<br><b>HENSOTHERM 920 KS<sup>8</sup></b> | 400 and 6000 µm |                 | 2,50 and 0,17 m²/L         |
|                                                                                                                                                                                                                                                                                             | Satin polyurethane topcoat<br><b>HENSOTOP 2K PU</b>               | 70 µm           |                 | 8,13 m²/L                  |

The CIN PC 41 system has been tested in accordance with Part 6 of ISO 12944 for atmospheric corrosivity category C5 and expected durability High (H) for two dry film thicknesses of the intumescent product HENSOTHERM 920 KS (400 and 6000 µm), which defines the normal range of use. It is important to remember that in the case of intumescent products, the dry film thickness to be applied is calculated according to the geometry of the profile (i.e. massiveness) and other factors such as the fire resistance class and the critical temperature of the structure.











# PAINT SYSTEM

## CATEGORY CX - OFFSHORE

### (ISO 12944-9:2018)

In 2018, when the first version of ISO 12944 was revised, Part 9 was included, which cancels and replaces ISO 20340 and defines a new category of corrosivity for offshore metal structures and other related structures, designated **CX**. This update is based on the fact that these structures require special treatment to enable them to withstand the severe corrosion stresses to which they are exposed during their lifetime, thereby minimising the risk of failures that could affect safety and increase associated costs.

For the protection of carbon steel structures exposed to the atmosphere in a **CX (offshore) environment**, CIN Performance Coatings presents a paint system certified by an external laboratory in accordance with the requirements described in part 9 of the standard.

| Surface Preparation                                                                                                                                                                                                                                                                        |                                                                                                                                         |               |                 |                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------|----------------------------|
| <div><div></div><div>– Abrasive blast the steel to Sa 2½ grade, in accordance with ISO 8501-1:2007. The roughness profile must be greater than 50 µm.</div><div>– Remove dust and abrasive residue from the surface;</div><div>– Remove oils and grease with cleaning thinner.</div></div> |                                                                                                                                         |               |                 |                            |
| CIN PC #                                                                                                                                                                                                                                                                                   | Products                                                                                                                                | Dry Thickness | Total Thickness | Theoretical Spreading Rate |
| CIN PC 42<br>(ISO 12944-9)                                                                                                                                                                                                                                                                 | Inorganic Zinc Silicate<br>CINCOAT PRIMER IZS920                                                                                        | 60 µm         | 300 µm          | 10,50 m²/L                 |
|                                                                                                                                                                                                                                                                                            | Multifunctional polyamide epoxy, with micaceous iron oxide or conventional pigmentation<br>C-POX S150 FD                                | 180 µm        |                 | 3,94 m²/L                  |
|                                                                                                                                                                                                                                                                                            | Acrylic polyurethane enamel cured with aliphatic isocyanates, with excellent colour retention and various gloss options<br>C-THANE S350 | 60 µm         |                 | 10,83 m²/L                 |

# PRODUCTS

## CIN PERFORMANCE COATINGS

### DESCRIPTION

| Type of product               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PRIMER<br>Shop primer         | <b>C-POX PRIMER SP125</b> <p>C-POX PRIMER SP125 is a zinc phosphate epoxy shop primer for temporary corrosion protection of steel. C-POX PRIMER SP125 is a holding primer that allows cutting and welding with manual or automatic methods, without these processes causing difficulties or damage to the paint.</p> <p><b>Technical Specifications:</b></p> <ul style="list-style-type: none"> <li>- Type: Zinc phosphate epoxy shop primer for pre-construction</li> <li>- Finish/Gloss: Matt</li> <li>- Colours: Red and grey iron oxide</li> <li>- Components: 2 (5 parts Resin, 1 part Cure)</li> <li>- Solids by Volume: 26% (ISO 3233)</li> <li>- Density: 1.14 g/mL</li> <li>- Dry Film Thickness: 15 - 25 µm</li> <li>- VOC Content (as supplied): &lt;667 g/L</li> <li>- Reaction to Fire: B-s1, d0 (EN 13501-1)</li> </ul>                                                                                                                                                                                                                                                                                                     |
|                               | <b>C-POX PRIMER ZN810</b> <p>C-POX PRIMER ZN810 is a high solids, zinc-rich epoxy primer that provides excellent cathodic protection for metal structures. Combined with suitable intermediate/top coats, C-POX PRIMER ZN810 is integrated into paint systems for corrosion protection for environments up to category C5 and Very High durability, in accordance with ISO 12944.</p> <p><b>Technical Specifications:</b></p> <ul style="list-style-type: none"> <li>- Type: Zinc-rich epoxy primer (80% by weight in dry film, ISO 12944-5 and SSPC-Paint 20-Level 2)</li> <li>- Finish/Gloss: Matt</li> <li>- Colours: Grey</li> <li>- Components: 2 (5.5 parts Resin, 1 part Cure)</li> <li>- Solids by Volume: 67% (ISO 3233)</li> <li>- Density: 1.86 g/mL</li> <li>- Dry Film Thickness: 40 - 80 µm</li> <li>- VOC Content (as supplied): &lt;292 g/L</li> <li>- Reaction to Fire: B-s1, d0 (EN 13501-1)</li> <li>- Environmental Product Declaration (EPD) No. EPD-IES-0021612 (EN 15804 and ISO 14025)</li> </ul>                                                                                                                 |
| PRIMER<br>Zinc ethyl silicate | <b>CINCOAT PRIMER IZS920</b> <p>CINCOAT PRIMER IZS920 is an inorganic zinc silicate primer that provides excellent cathodic protection for metal structures. Combined with suitable intermediate/top coats, CINCOAT PRIMER IZS920 is integrated into paint systems for corrosion protection for different environments, including solutions for category CX and also Very High durability, in accordance with ISO 12944. Due to its high zinc powder content, this primer provides highly durable corrosion protection, resulting in reduced maintenance costs for structures.</p> <p><b>Technical Specifications:</b></p> <ul style="list-style-type: none"> <li>- Type: Inorganic zinc silicate primer (85% by weight in dry film, ISO 12944-5 and SSPC-Paint 20-Level 1)</li> <li>- Finish/Gloss: Matt</li> <li>- Colours: Grey</li> <li>- Components: 2 (1.92 parts powder, 1 part liquid, by weight)</li> <li>- Solids by Volume: 63% (ISO 3233)</li> <li>- Density: 2.45 g/mL</li> <li>- Dry Film Thickness: 60 - 80 µm</li> <li>- VOC Content (as supplied): &lt;381 g/L</li> <li>- Maximum Service Temperature: 450 °C</li> </ul> |

| Type of product                          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PRIMERS</b><br>Zinc Phosphate Epoxies | <b>C-POX PRIMER ZP230 FD</b><br><br>C-POX PRIMER ZP230 FD is a zinc phosphate pigmented epoxy polyamide primer that provides high-performance corrosion protection for metal structures in industrial or shipyard applications.<br>Applied in a single coat, C-POX PRIMER ZP230 FD provides high durability anti-corrosion protection for corrosivity category C5, according to ISO 12944.<br><b>Technical Specifications:</b> <ul style="list-style-type: none"> <li>- Type: High thickness epoxy polyamide primer with zinc phosphate per coat</li> <li>- Finish/Gloss: Satin</li> <li>- Colours: RAL 1001, RAL 1014, RAL 6019, RAL 6034, RAL 7035, RAL 7040, RAL 7047, RAL 9010, 3N11, 7X04 (with MIO)</li> <li>- Components: 2 (4 parts Resin, 1 part Cure)</li> <li>- Solids by Volume: 70% (ISO 3233)</li> <li>- Density: 1.50 g/mL</li> <li>- Dry Film Thickness: 100 - 250 µm</li> <li>- VOC content (as supplied): &lt;327 g/L</li> <li>- Reaction to fire: B-s1, d0 (EN 13501-1)</li> <li>- Environmental Product Declaration (EPD) No. EPD-IES-0021610 (EN 15804 and ISO 14025)</li> </ul>                                                                                                                                                                                                                                       |
|                                          | <b>C-POX PRIMER ZP160 FD</b><br><br>C-POX PRIMER ZP160 FD is a zinc phosphate pigmented epoxy polyamide primer that provides high-performance corrosion protection for metal structures in industrial or shipyard applications.<br>Applied in a single coat, C-POX PRIMER ZP160 FD provides high durability anti-corrosion protection for corrosivity category C3, according to ISO 12944. Combined with suitable intermediate/top coats, C-POX PRIMER ZP160 FD is integrated into paint systems for corrosion protection for different environments, including solutions for categories C4, Im1, Im2 and Im3, high and very high durability, in accordance with ISO 12944.<br><b>Technical Specifications:</b> <ul style="list-style-type: none"> <li>- Type: Epoxy polyamide primer with zinc phosphate</li> <li>- Finish/Gloss: Satin</li> <li>- Colours: RAL 1001, RAL 1014, RAL 6019, RAL 6034, RAL 7035, RAL 7040, RAL 7047, RAL 9010, 3N09</li> <li>- Components: 2 (4 parts Resin, 1 part Cure)</li> <li>- Solids by Volume: 72% (ISO 3233)</li> <li>- Density: 1.50 g/mL</li> <li>- Dry Film Thickness: 40 - 80 µm</li> <li>- VOC content (as supplied): &lt;309 g/L</li> <li>- Reaction to fire: B-s1, d0 (EN 13501-1)</li> <li>- Environmental Product Declaration (EPD) No. EPD-IES-0021610 (EN 15804 and ISO 14025)</li> </ul> |
|                                          | <b>HENSOGRUND 2K EP</b><br><br>HENSOGRUND 2K EP is a two-component solvent-based epoxy primer for indoor and outdoor use in conjunction with the HENSOTHERM 920 KS epoxy intumescent product. It ensures excellent resistance to mechanical impact, as well as fast drying and hardening. It can be applied to steel, cast iron and stainless steel.<br><b>Technical Specifications:</b> <ul style="list-style-type: none"> <li>- Type: Two-component epoxy primer</li> <li>- Finish/Gloss: Matt</li> <li>- Colours: Grey</li> <li>- Components: 2 (5 parts Resin, 1 part Cure, by weight)</li> <li>- Solids by Volume: 55% (ISO 3233)</li> <li>- Density: 1.50 g/mL</li> <li>- Dry Film Thickness: 60 - 80 µm</li> <li>- VOC Content (as supplied): &lt;435 g/L</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |



| Type of product                                  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PRIMERS<br>Multifunctional and Surface Tolerants | <b>C-POX ST120</b><br><br>C-POX ST120 is a surface-tolerant epoxy coating for high-performance corrosion protection of metal structures. It is compatible with manually/mechanically prepared surfaces.<br><b>Technical Specifications:</b> <ul style="list-style-type: none"> <li>- Type: Multifunctional surface-tolerant epoxy coating</li> <li>- Finish/Gloss: Semi-gloss</li> <li>- Colours: RAL 7032 and aluminium</li> <li>- Components: 2 (3 parts Resin, 1 part Cure)</li> <li>- Solids by Volume: 82% (RAL 7032) (ISO 3233)</li> <li>- Density: 1.44 g/mL</li> <li>- Dry Film Thickness: 100 - 230 µm/coat</li> <li>- VOC Content (as supplied): &lt;220 g/L (RAL 7032)</li> <li>- Maximum service temperature: 150 °C (aluminium colour)</li> <li>- Reaction to fire: B-s1, d0 (EN 13501-1)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                  | <b>C-POX MASTIC ST150</b><br><br>C-POX MASTIC ST150 is a surface-tolerant epoxy coating for high-performance corrosion protection of metal structures. It can be applied as a primer and also as an intermediate or top coat (multipurpose) and is compatible with manually/mechanically prepared surfaces, as well as water jetting. It resists high humidity and condensation and is also suitable for immersion in water (it can be immersed 30 minutes after application).<br><b>Technical Specifications:</b> <ul style="list-style-type: none"> <li>- Type: Multifunctional epoxy coating, surface tolerant</li> <li>- Finish/Gloss: Semi-gloss</li> <li>- Colours: RAL colours and aluminium</li> <li>- Components: 2 (3 parts Resin, 1 part Cure)</li> <li>- Solids by Volume: 87% (white colour) (ISO 3233)</li> <li>- Density: 1.49 g/mL</li> <li>- Dry Film Thickness: 100 - 300 µm/coat</li> <li>- VOC Content (as supplied): &lt;150 g/L (RAL colours)</li> <li>- Maximum service temperature: 150 °C (aluminium colour)</li> <li>- Reaction to Fire: C-s1, d0 (EN 13501-1)</li> <li>- Environmental Product Declaration (EPD) No. EPD-IES-0021608 (EN 15804 and ISO 14025)</li> </ul> |
|                                                  | <b>C-POX MASTIC ST150 GF</b><br><br>C-POX MASTIC ST150 GF is a glass particle reinforced, surface tolerant epoxy coating specially formulated for structures in marine environments, including immersion, tidal and wave zones, as well as other industrial applications.<br>Combined with a suitable primer, C-POX MASTIC ST150 GF is integrated into paint systems for corrosion protection for categories Im1, Im2 and Im3, up to Very High durability, in accordance with ISO 12944 (can be immersed 30 minutes after application).<br><b>Technical Specifications:</b> <ul style="list-style-type: none"> <li>- Type: Multifunctional surface-tolerant coating reinforced with glass particles</li> <li>- Finish/Gloss: Matt</li> <li>- Colours: Light colours, black</li> <li>- Components: 2 (3 parts Resin, 1 part Cure)</li> <li>- Solids by Volume: 85% (ISO 3233)</li> <li>- Density: 1.38 g/mL</li> <li>- Dry Film Thickness: 200 - 1000 µm/coat</li> <li>- VOC Content (as supplied): &lt;189 g/L</li> <li>- Reaction to Fire: C-s1, d0 (EN 13501-1)</li> </ul>                                                                                                                        |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

| Type of product           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| INTERMEDIATE<br>Epoxy     | <b>C-POX S150 FD</b><br><br>C-POX S150 FD is a high-performance, high-build, fast-drying epoxy coating, especially recommended for the anti-corrosion protection of metal structures in aggressive environments. Integrated into different painting systems, C-POX S150 FD provides corrosion protection up to Very High durability for all categories of corrosivity, including CX, according to ISO 12944.<br><b>Technical Specifications:</b> <ul style="list-style-type: none"> <li>- Type: Fast-drying multifunctional epoxy polyamide primer</li> <li>- Finish/Gloss: Satin</li> <li>- Colours: White or micaceous iron oxide</li> <li>- Components: 2 (4 parts Resin, 1 part Cure)</li> <li>- Solids by Volume: 71 % (ISO 3233)</li> <li>- Density: 1.60 g/mL</li> <li>- Dry Film Thickness: 100 - 200 µm/coat</li> <li>- VOC Content (as supplied): &lt;326 g/L</li> <li>- Reaction to Fire: B-s1, d0 (EN 13501-1)</li> <li>- Environmental Product Declaration (EPD) No. EPD-IES-0021602 (EN 15804 and ISO 14025)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                           | <b>C-THANE S350</b><br><br>C-THANE S350 is an aliphatic polyurethane enamel with excellent outdoor performance. Recommended for corrosion protection of metal structures in aggressive environments, it is certified as a topcoat in certified paint systems in accordance with parts 5 and 6 of ISO 12944. With excellent weather resistance, proven in QUV-A accelerated ageing tests, C-THANE S350 demonstrates excellent colour and gloss retention when exposed to UVA radiation and condensation cycles, even after 6000 hours of testing.<br><b>Glosses and finishes available:</b> <ul style="list-style-type: none"> <li>- C-THANE S350, glossy, gloss &gt;90 Gloss Units (GU) at 60°</li> <li>- C-THANE S350 SG, semi-gloss, 60-70 GU at 60°</li> <li>- C-THANE S350 SAT, satin, 20-30 GB, at 60°</li> <li>- C-THANE S350 MATT, matt, &lt;10 GB, at 60°</li> </ul> <b>Technical Specifications:</b> <ul style="list-style-type: none"> <li>- Type: Acrylic polyurethane enamel cured with aliphatic isocyanates</li> <li>- Finish/Gloss: Glossy</li> <li>- Colours: White, Aluminium, RAL and NCS</li> <li>- Components: 2 (6 parts Resin, 1 part Cure)</li> <li>- Solids by Volume: 65% (ISO 3233)</li> <li>- Density: 1.24 g/mL</li> <li>- Dry Film Thickness: 40 - 80 µm/coat</li> <li>- VOC Content (as supplied): &lt;346 g/L</li> <li>- Reaction to Fire: B-s1, d0 (EN 13501-1)</li> <li>- Environmental Product Declaration (EPD) No. EPD-IES-0021607 (EN 15804 and ISO 14025)</li> </ul> |
| TOP COATS<br>Polyurethane | <b>C-THANE S258</b><br><br>C-THANE S258 is a polyurethane enamel with very good outdoor performance, recommended for the protection of metal structures. As a topcoat, this product is integrated into different painting systems for high durability corrosion protection for categories C3, C4 and C5, according to ISO 12944.<br><b>Technical Specifications:</b> <ul style="list-style-type: none"> <li>- Type: Acrylic polyurethane enamel cured with aliphatic isocyanates</li> <li>- Finish/Gloss: Glossy</li> <li>- Colours: White, RAL and NCS</li> <li>- Components: 2 (4 parts Resin, 1 part Cure)</li> <li>- Solids by Volume: 55% (ISO 3233)</li> <li>- Density: 1.30 g/mL</li> <li>- Dry Film Thickness: 40 - 80 µm/coat</li> <li>- VOC Content (as supplied): &lt;433 g/L</li> <li>- Reaction to Fire: B-s1, d0 (EN 13501-1)</li> <li>- Environmental Product Declaration (EPD) No. EPD-IES-0021607 (EN 15804 and ISO 14025)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

### C-THANE S740 DTM

C-THANE S740 DTM is a polyurethane enamel with very good outdoor performance, recommended for the protection of metal structures. C-THANE S740 DTM can be applied directly to metal, in a single coat, for high durability corrosion protection for category C4, according to ISO 12944.

#### Technical Specifications:

- Type: High-build, fast-drying polyurethane enamel for direct application to metal
- Finish/Gloss: Gloss
- Colours: RAL catalogue
- Components: 2 (4 parts Resin, 1 part Cure)
- Solids by Volume: 77% (ISO 3233)
- Density: 1.25 – 1.45 g/mL
- Dry Film Thickness: 75 - 125 µm/coat
- VOC Content (as supplied): <303 g/L
- Reaction to Fire: B-s1, d0 (EN 13501-1)

### HENSOTOP 2K PU

HENSOTOP 2K PU is a satin polyurethane topcoat for indoor and outdoor use in combination with the intumescent epoxy product HENSOTHERM 920 KS. It is resistant to chemicals such as oils, fuels, salts and diluted acids. It also dries quickly and has high mechanical and abrasion resistance.

#### Technical Specifications:

- Type: Polyurethane finish
- Finish/Gloss: Satin
- Colours: RAL catalogue
- Components: 2 (10 parts Resin, 1.7 parts Cure, by weight)
- Solids by volume: 64% (ISO 3233)
- Density: 1.35 g/mL
- Dry film thickness: 75 - 80 µm/coat
- VOC content (as supplied): <318 g/L



|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| INTUMESCENTS<br>Acrylic | <b>C-THERM S100 / C-THERM S101 FD</b> <p>C-THERM S100 / C-THERM S101 FD are fast-drying / extra-fast-drying (FD) and high-build intumescent acrylic coatings for passive cellulose fire protection of metal structures, for interior and exterior use, when combined with the appropriate topcoat. Formulated to expand when exposed to high temperatures, C-THERM S100 / C-THERM S101 FD products produce a foam with very low thermal conductivity, giving them excellent insulating properties for up to 120 minutes.</p> <p><b>Technical Specifications:</b></p> <ul style="list-style-type: none"> <li>- Type: Fast-drying solvent-based intumescent</li> <li>- Finish/Gloss: Matt</li> <li>- Colours: White</li> <li>- Components: 1</li> <li>- Solids by Volume: 75% (ISO 3233)</li> <li>- Density: 1.34 g/mL</li> <li>- Dry Film Thickness: 200 - 1500 µm/coat (C-THERM S100) and 200 - 1000 µm/coat (C-THERM S101 FD)</li> <li>- VOC content (as supplied): &lt;348 g/L</li> <li>- Environmental Product Declaration (EPD) No. EPD-IES-0021605 (EN 15804 and ISO 14025)</li> </ul>                                      |
|                         | <b>C-THERM S110 / C-THERM S111 FD</b> <p>C-THERM S110 / C-THERM S111 FD are fast-drying / extra-fast-drying (FD) intumescent acrylic coatings with high thickness per coat, for passive protection against cellulosic fire in metal structures, for interior and exterior use, provided they are combined with the appropriate topcoat. Formulated to expand when exposed to high temperatures, C-THERM S110 / C-THERM S111 FD products produce a foam with very low thermal conductivity, giving them excellent insulating properties for up to 150 minutes.</p> <p><b>Technical Specifications:</b></p> <ul style="list-style-type: none"> <li>- Type: Fast-drying solvent-based intumescent</li> <li>- Finish/Gloss: Matt</li> <li>- Colours: White</li> <li>- Components: 1</li> <li>- Solids by Volume: 75% (ISO 3233)</li> <li>- Density: 1.34 g/mL</li> <li>- Dry Film Thickness: 200 - 1500 µm/coat (C-THERM S110) and 200 - 1000 µm/coat (C-THERM S111 FD)</li> <li>- VOC content (as supplied): &lt;348 g/L</li> <li>- Environmental Product Declaration (EPD) No. EPD-IES-0021605 (EN 15804 and ISO 14025)</li> </ul> |
| INTUMESCENT<br>Epoxy    | <b>HENSOTHERM 920 KS</b> <p>HENSOTHERM 920 KS is a two-component, solvent-free (100% solids) intumescent epoxy coating for interior and exterior use. It is tested in accordance with EN 13381-8 for fire resistance up to 120 minutes and in accordance with ISO 12944 for corrosion protection up to C5-H.</p> <p>It is also tested in accordance with AgBB, halogen-free, alkylphenol-free and benzyl alcohol-free, as well as classified according to VOC emissions as class A+.</p> <p><b>Technical Specifications:</b></p> <ul style="list-style-type: none"> <li>- Type: Two-component epoxy intumescent</li> <li>- Finish/Gloss: Matt</li> <li>- Colours: Grey</li> <li>- Components: 2 (2.5 parts Resin, 1 part Cure, by weight)</li> <li>- Solids by Volume: 100% (ISO 3233)</li> <li>- Density: 1.28 g/mL</li> <li>- Dry Film Thickness: up to 2500 µm/coat</li> <li>- VOC Content (as supplied): 0 g/L</li> <li>- Environmental Product Declaration (EPD) No. EPD-RHG-20240230-IBA3-EN (EN 15804 and ISO 14025)</li> </ul>                                                                                           |

# OTHER INFORMATION

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| Record of alterations |                                                                                                                                                               |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Edition               | Alterations                                                                                                                                                   |
| 03                    | Inclusion of new Systems (CIN PC 14, 19, 20, 26, 34, 38 and 41)<br>Inclusion of new Products and updating of Certificates<br>Updating of Product Descriptions |

The technical specifications for CIN Performance Coatings contained in this document are standard systems defined in accordance with ISO 12944-5:2019 and/or ISO 12944-6:2018. The CIN Performance Coatings product range includes many other solutions that can also be used in the coating systems presented without compromising compliance with these standards.

For specifications for specific projects that require an alternative coating solution to those presented, we suggest contacting the CIN Performance Coatings team directly.

The information in this document does not replace consultation of the various parts of the ISO 12944 standard, as well as the Technical Datasheets for the proposed products, available at: <http://cin.com/performance-coatings/>

To stay up to date on new CIN Performance Coatings products, certifications and reference projects, subscribe to the Newsletter on the website at:





**CIN – CORPORAÇÃO INDUSTRIAL DO NORTE, S. A.**

Av de Dom Mendo nº 831 (antes EN13 km6) - 4474-009 Maia - Portugal

T +351 229 405 000 - customerservice@cin.com

[www.cin.com/performance-coatings](http://www.cin.com/performance-coatings)

**CIN INDUSTRIAL COATINGS, S. A.**

Av de Dom Mendo nº 330 (antes EN13 km6) - 4474-009 Maia - Portugal

T +351 229 405 000 - customerservice@cin.com

**CIN VALENTINE, S.A.U.**

P. I. Can Milans - Riera Seca, 1 - 08110 Montcada i Reixac - España

T +34 93 565 66 00 - customerservice.es@cin.com

**PINTURAS CIN CANARIAS, S.A.U.**

P. I. Güimar, Manzana 13, Parcela 2 - 38509 Güimar - Tenerife - España

T +34 922 505 330 - customerservice@cin.com

**CIN SORITEC S.A.**

Calle Germans Valls, s/n, P. I. Gaserans - 17450 Hostalric Girona - España

Tel: +34 972 86 55 90 - customerservice@cin.com

**CIN CELLIOSE, S.A. - Division CIN Déco**

Chemin de la Verrerie - BP 58 - 69492 Pierre Bénite Cedex - France

T +33 (0) 4 72 39 77 77 - customerservice.fr@cin.com

**CIN MONOPOL, S.A.S.**

56 Allée Bernard Palissy - ZI des Auréats - 26000 Valence - France

T +33 (0) 475 442 117 - monopol@monopol-sa.com

**CIN SCHAEPMAN LAKFABRIELEN B.V.**

Gildestraat 9, 8263 AH, KAMPEN - Nederland

T +31 38 421 1345 - customercare.cinschaepman@cin.com

**BOERO BARTOLOMEO S.p.A.**

Via Macaggi, 19 - Genova - 16121 GE, Italia

T +39 010 55001 - [www.cin.com/performance-coatings](http://www.cin.com/performance-coatings)

**CIN COATINGS MEXICO S de RL de CV**

Calle Loma de San Gremal 108, Navex Park. Nave N° 110-111 - Colonia Santa María Magdalena C.P. 76137 Querétaro. México

T. +52 5511131156 - info.mx@cin.com

**CIN COATINGS SOUTH AFRICA (PTY) Ltd**

39 Creativity boulevard, Klipriver Business Park, cnr R59 and R550 Kliprivier, Midvaal, Sedibeng, Gauteng, 1871, South Africa

T +27 011 824 0163 – M +27 084 077 1000 - customerservice.za@cin.com

**TINTAS CIN ANGOLA, S.A.**

Rua Pedro Álvares Cabral, 21 - Cx. Postal 788 - Benguela - Angola

+244 272 235 059 - customerservice.ao@cin.com

**TINTAS CIN DE MOÇAMBIQUE, S.A.**

Av. das Indústrias, 2507 - Machava - Moçambique

+258 21 748 012 - customerservice.mz@cin.com