Tested by independent inspection laboratories!

Corrosion protection of steel structures according to ISO 12944

MONOPOL COLORS

We cover everything.

ISO 12944 is the international standard for corrosion protection of steel structures

This standard gives detailed instructions for the selection, design, application and maintenance of corrosion protection systems. The objective of ISO 12944 is to ensure the long-term protection of steel structures from corrosion and to reduce maintenance costs. The standard is relevant to industries such as shipbuilding, oil and gas, bridge-building, construction and other branches where steel structures are used.

Corrosivity categories and protection duration

ISO 12944 differentiates between six corrosivity categories for atmospheric environments (C1, C2, C3, C4, C5, CX) and four categories for structures in contact with water and soil (Im1, Im2, Im3, Im4). Im1 to Im4 as well as CX are covered by our partner Hempel.

In addition to the corrosivity categories the standard also distinguishes between four different protection durations*, i.e. the expected service life of a coating system until a first partial renewal is necessary:

- Low (l) up to 7 years
- Medium (m) from 7 to 15 years
- Long (h) from 15 to 25 years
- Very high (vh) more than 25 years

Corrosivity categories and examples for typical environments (source ISO 12944-2:2018):

Corrosivity category	Outdoors	Indoors
C1 insignificant	-	Heated buildings with neutral atmosphere (e.g. offices, sales rooms, schools, hotels)
C2 minor	Atmospheres with low level of contamination (mostly rural areas)	Unheated buildings where condensation can occur (e.g. warehouses and sports halls)
C3 moderate	Urban and industrial atmospheres with moderate sulphur oxide pollution and coastal atmospheres with low salt exposure	Production areas with high humidity and some air pollution (e.g. food processing plants, laundries, breweries)
C4 significant	Industrial and coastal atmospheres with moderate salt exposure	Chemical plants, swimming pools, coastal shipyards and boat harbours
C5 intense	Industrial areas with high humidity and aggressive atmosphere, and coastal atmospheres with high salt exposure	Buildings or areas with almost constant condensation and heavy contamination
CX extreme	Offshore areas with high salt exposure and industrial areas with extreme humidity and aggressive atmosphere, as well as subtropical atmospheres	Industrial areas with extreme humidity and aggressive atmosphere

Contrary to the previous ISO 12944 standard (prior to 2018), the current version specifies dry film thickness (DFT) and minimum number of coatings (MNOC), which vary depending on the corrosivity category and coating type.

* The protection duration is not a warranty period, but a technical term and planning parameter that can help the owner to determine a maintenance programme («time to first maintenance»).

From C1 – C5: All-round protection with only a few products

Our product range speaks plainly:

- We cover all systems from C1 to C5 h with only five products.
- Thanks to its fine surface, Duopol EP micaceous iron oxide (MIO) paint is excellently suited as an intermediate coat under polyurethane and fluoropolymer top coats without the need for sanding at film thicknesses of 40 - 50 µm.
- Since polyurethane systems change considerably in color and gloss after a protection period of > 25 years, we use our ultra-durable fluoropolymer line Vernidur FP for C5 vh, so that the object retains the same color and gloss even after such a long time.
- The protection durations not listed in the table are also covered by our registrations: a protection duration «h» corresponds to «vh» in a lower corrosivity category (e.g. C3 h = C2 vh, C4 h = C3 vh, C5 h = C4 vh, C5 I = C4 h = C3 vh, etc.):

Systems tested according to ISO 12944-6:

Category	Primer	Intermediate coat 1	Intermediate coat 2	Top coat	Total DFT
C2 h	1x80 µm DUOPOL PU Steelcolor PUR One-coat paint				80 µm
C3 h	1x120 µm DUOPOL EP Steelguard EP Primer			1x60 µm DUOPOL PU PUR Top coat	180 µm
C4 h	1x180 µm DUOPOL EP Steelguard EP Primer			1x60 µm DUOPOL PU PUR Top coat	240 µm
C5 h	1x100 µm DUOPOL Z60 EP Zinc dust primer	1x100 µm DUOPOL EP MIO paint		1x60 µm DUOPOL PU PUR Top coat	260 µm
C5 vh	1x100 µm DUOPOL Z60 EP Zinc dust primer	1x90 µm DUOPOL EP MIO paint	1x90 µm DUOPOL EP MIO paint	1x40 µm VERNIDUR FP Fluoropolymer Top coat	320 µm
C5 vh	1x120 µm DUOPOL EP Steelguard EP Primer	1x100 µm DUOPOL EP MIO paint	1x100 µm DUOPOL EP MIO paint	1x40 µm VERNIDUR FP Fluoropolymer Top coat	360 µm

We show color, so much color.

We produce metallic façade paints, industrial paints and corrosion protection systems for the highest demands. These are used worldwide in architecture, construction and industry.

We are a down-to-earth Swiss company with a very traditional approach: if you are satisfied, then so are we. Of course, as a business we want to earn money. But not at any price. We attach great importance to the attentive treatment of people and materials.

Since the company was founded in 1947, ethics have been part of our corporate culture: mindfulness, care and responsibility are important values at Monopol Colors. That is why we promote water-based paints and solvent-based paints with a high solids content.

We are proud of the fact that our coatings are used around the globe. Well-known architects show as much trust in our competences and products as do companies listed on the stock exchange. That says a lot about the innovative power of a family business, don‘t you think?

Behind our know-how are employees; no, they are people of flesh and blood. With very different opinions, cultures and skin color. But they all have one thing in common: they live colors! This diversity is in every container that leaves our factory by lorry. It is the most valuable component of our paints.

You can find more information about our company in concentrated form on our website **monopol-colors.ch.** And yes, you are welcome to remember our guiding principle for all our daily activities:

Show your Colors

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