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DOSSIER ANTI-CORROSIÓN

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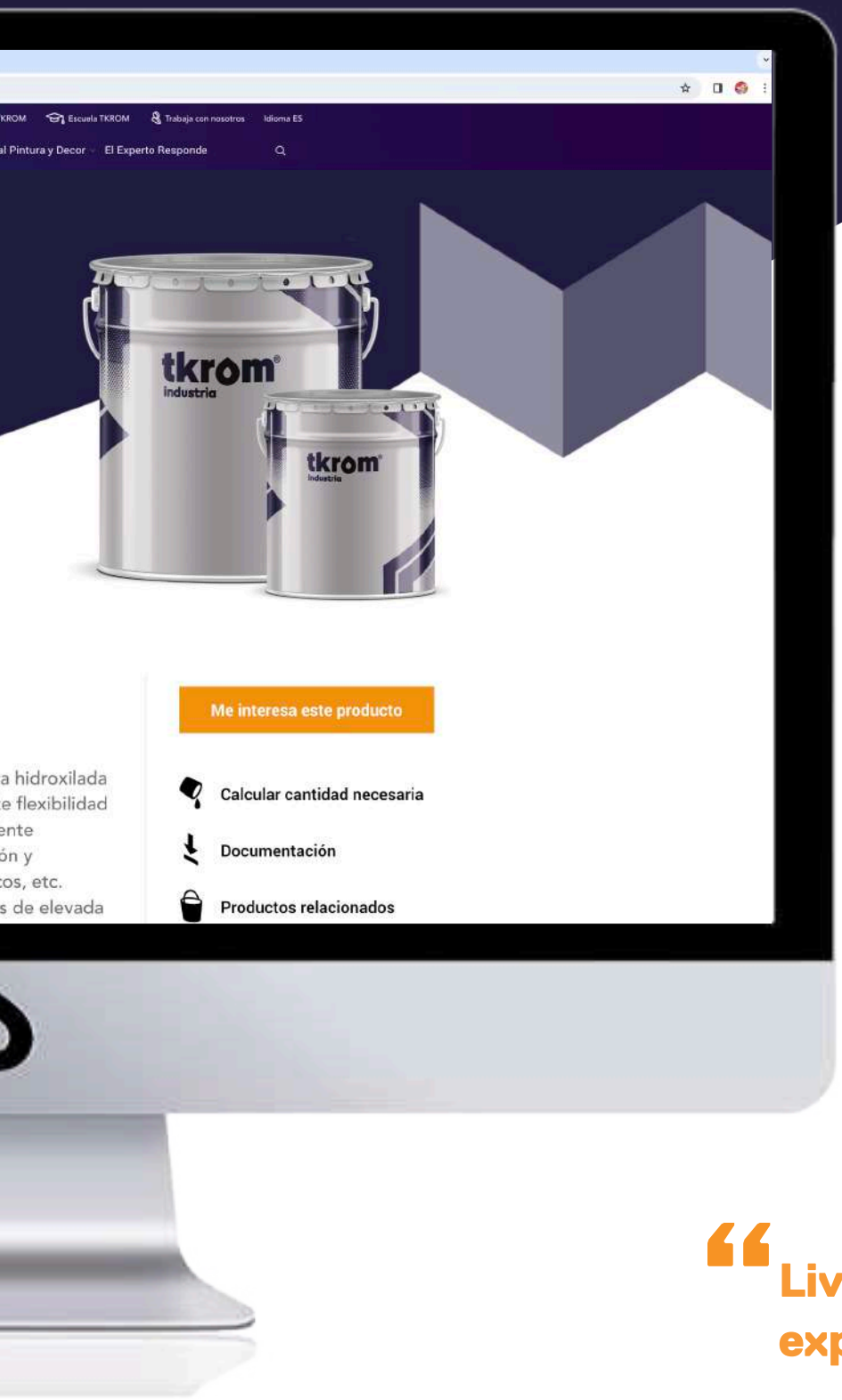

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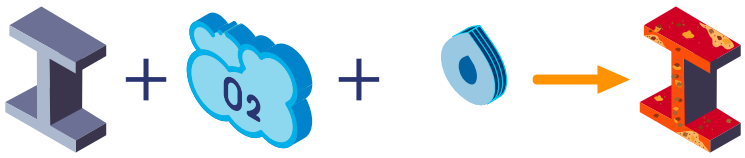
CORROSION? IT'S ALL A MATTER OF OF TIME.

Corrosion is a chemical reaction that affects all metallic materials and involves three factors: **the manufactured part, the environment and water.** A major industrial problem that can cause accidents, as well as representing a high cost of repair and maintenance.



From **tkrom** we want to help you understand the regulations governing the different anti-corrosion systems, in order to improve the quality and value of your projects through the correct use of paint as a protective layer:

1. **Regulations**
2. **Systems**
3. **Products**

“In the time it takes you to read this sentence, a tonne of steel will have corroded in Spain and will need to be replaced or repaired. Through this guide you will learn everything you need to successfully tackle industrial projects that require approved, high performance anti-corrosion systems.”

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KNOW THE UNE-EN-ISO 12944 STANDARD

There are different ways to protect steel structures from corrosion. **The UNE-EN ISO 12944 "Paints and varnishes: Corrosion protection of steel structures with protective paint systems"** takes into account all factors that are important for adequate corrosion protection.

In order to recommend a corrosion protection system we have to answer 4 questions:

What level of corrosion will the structure suffer?

What is the condition of the structure?

What material is it made of?

How durable is the chosen system expected to be?

FACTOR 1: CORROSION LEVEL

The different levels of corrosivity that a structure may suffer in its final location are defined according to a series of factors such as humidity, temperature, exposure to ultraviolet radiation, exposure to contaminants (chemical substances), as well as the nature and state of immersion of the installation.

In the light of these environmental factors, the standard makes the first major classification of categories based on the rate of mass loss of the metal surface:

	C1 VERY LOW	C2 LOW	C3 HALF	C4 HIGH	C5 VERY HIGH	CX EXTREME
OUTSIDE		Regions rural/ Low Polluted Atmospheres	Industrial and urban environments with medium level of pollution	Medium salinity industrial and coastal areas	Industrial areas with high humidity and aggressive environment	Offshore structures
INSIDE		Unheated buildings (condensation) warehouses, sports halls	Industries with high humidity and air pollution	Chemical plants, swimming pools, ship repair yards	Buildings and areas of intensive pollution	

FACTOR 2: STRUCTURAL MATERIAL

To recommend a painting system, we must first know what material the structure is made of:

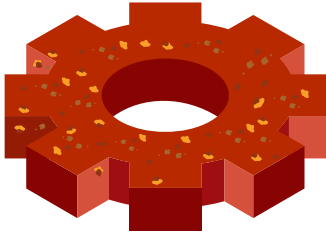
- **Unalloyed steel:** Carbon steel (high adhesion)
- **Zinc-alloyed steel:** Galvanised steel (low adhesion)
- **Steel alloyed with chromium and nickel:** Stainless steel
- **Aluminium**

Unlike other materials, **aluminium will not be protected with an anti-corrosion system** because by its nature it is "self-protecting". When aluminium oxidises, it generates aluminium oxide which is transparent and is deposited as a surface layer on a microscopic level. **Aluminium oxide is also extremely resistant.**

FACTOR 3: SYSTEM DURABILITY

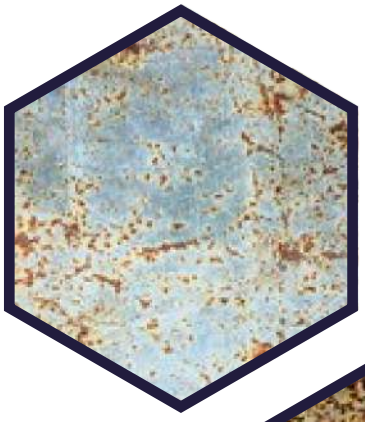
The durability of the system is a technical consideration that helps us to properly manage maintenance plans, the standard establishes the following classification based on its durability:

- **ma (very high)** - More than 25 years
- **a (high)** - From 15 to 25 years
- **m (medium)** - From 7 to 15 years
- **b (low)** - Up to 7 years



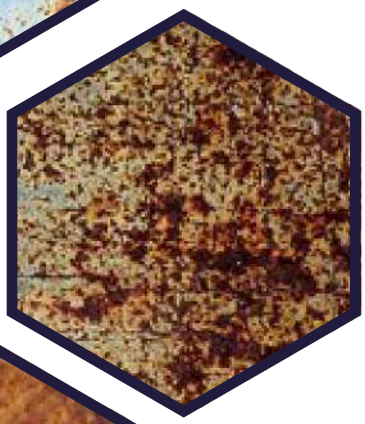
FACTOR 4: STATE OF THE MATERIAL

The UNE-EN-ISO 8501-1 standard lists the different degrees of oxidation of steel. It must be taken into account whether the steel has been in its final location for some time or whether it has just been manufactured. The 4 possible degrees of oxidation listed in the standard are:



GRADE A

The oxidation process begins, as can be seen in the picture, the steel surface is completely covered with mill scale or calamine with traces of rust.

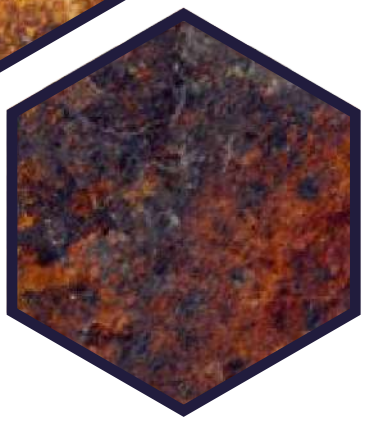


GRADE B

Degradation by ultra-violet rays occurs. The steel surface has already begun to corrode and the phase of detachment of the mill scale or calamine begins. 2 to 4 months weathering in moderately corrosive environments.

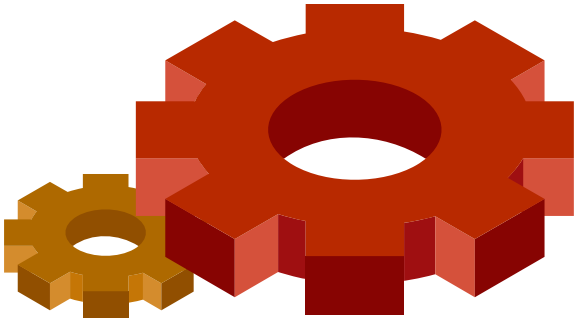
GRADE C

Corrosion has already caused all of the mill scale to be removed from the steel surface. No pitting is yet visible or detectable to the naked eye. Weathered in moderately corrosive environments for approximately 1 year.



GRADE D

Corrosion has caused the scale to flake off and pitting is visible to the naked eye. Weathered in moderately corrosive environments for approximately 3 years.



FACTOR 5: SURFACE PREPARATION

There are different standardised techniques for rust removal. These include different degrees and techniques of preparation of the metal surface, being "Sa" **an abrasive sandblasting, "St" a manual cleaning with a wire brush and "Sp" a mechanical cleaning with a wire brush:**

	Standard grade of surface preparation with abrasive blasting methods.
ISO Sa3	Complete removal of rust, scale, old paint and any foreign matter. Blast cleaning until the metal is white.
ISO Sa2 1/2	Abrasive blasting until the metal is almost white, so that at least 95% of the total surface is free of any visible residue.
ISO Sa2	Blasting until at least 2/3 of the total surface is free of all visible residues. Carefully blast until almost all mill scale, rust and foreign matter is removed.
ISO Sa1	Light blasting. Loose lamination layer, rust and loose particles are removed.
	Standard grade of surface preparation with manual cleaning.
ISO St3	Scraping with hard metal scrapers, brushing with a wire brush, should be done in one direction and then in a perpendicular direction. The surface should show a pronounced metallic appearance.
ISO St2	Careful scraping with a hard metal scraper and brushing with a wire brush. Once the dust has been removed, the surface should have a metallic appearance.
	Standard degree of surface preparation with manual cleaning by mechanical means.
SSPC-Sp11	Mechanical scraping with a wire brush should be done in one direction and then in a perpendicular direction. The surface should show a pronounced metallic appearance.
	Standard grade of surface preparation by blasting
	To clean and roughen metallised coatings on the surface, or to remove the surface layer of a poorly adhering coating. For sweep blast cleaning, blast cleaning abrasives of the shot blast type are used.

FACTOR 5: SURFACE PREPARATION

The UNE-EN-ISO 8501-1 standard determines the degrees of surface preparation,. **In most cases it is not necessary to reach Sa3 to apply a new durable protection system.**

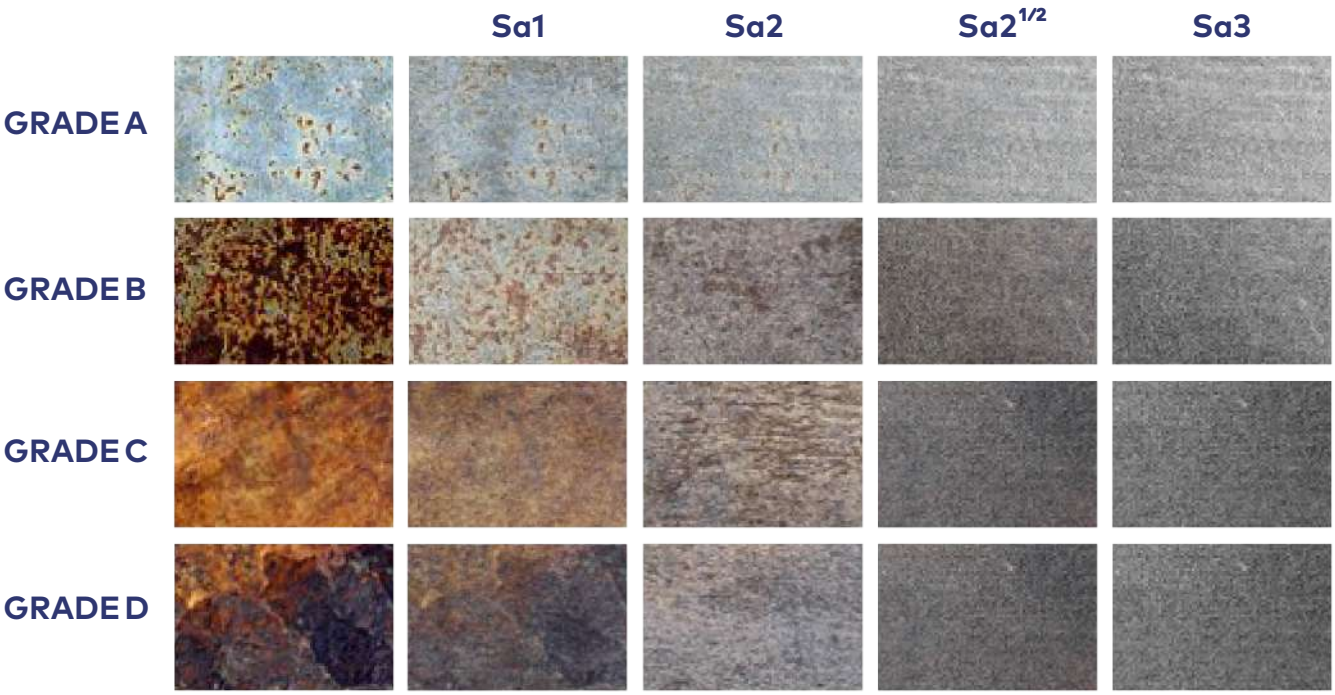


Table valid for carbon steels.

“By analysing the final location of the structure, knowing the nature of the material, the type of preparation and the desired durability, we can correctly select the system to be applied.”

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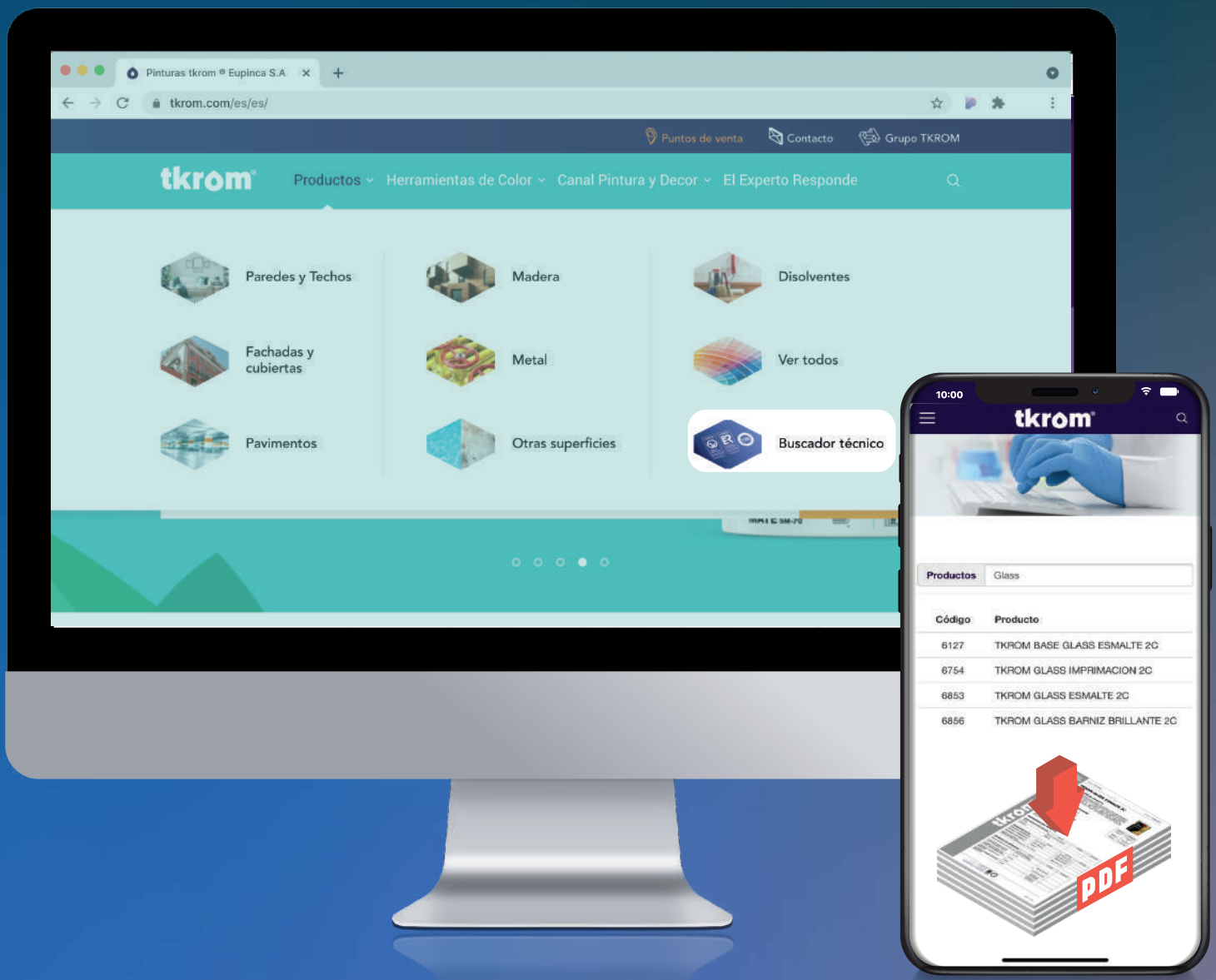
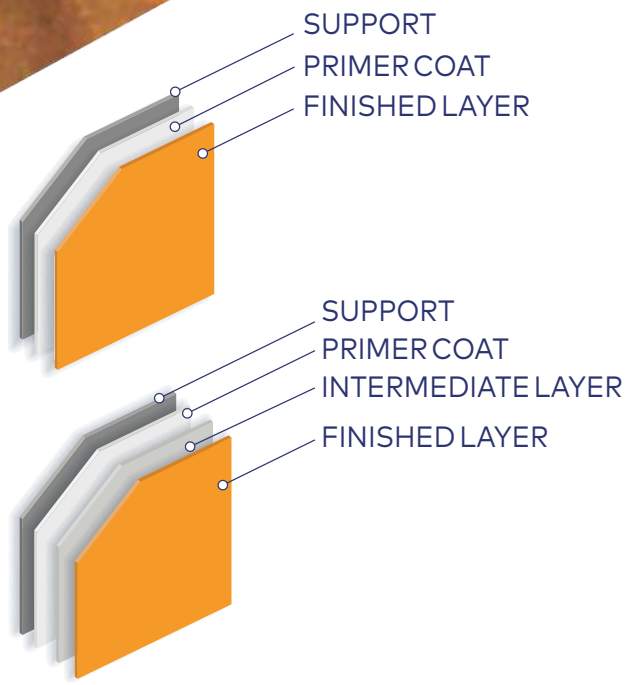


ADAPTED SYSTEMS TO EACH PROJECT AND MATERIAL



The right combination of binders between coats and the correct application of thicknesses will determine the durability of the anticorrosive system. Given the high technical component, it is essential to follow the drying and recoating times given in the technical data sheets of the products applied.

From **tkrom** we provide professionals with a detailed guide to application systems for different corrosive environments and substrates (carbon steel and galvanised steel).

IMPORTANT

The **number of coats** described in this guide will depend largely on the **application thicknesses** according to the **dilution levels and application methods used.** The systems indicated are estimates for a conventional, no sag application.

Therefore, although the number of coats may vary depending on the application variables indicated, **the microns shown for primer and total system thicknesses should never be less than those indicated in the tables** so that the microns of dry film thickness required to achieve the estimated durability for each system are applied.

C2 BAJA

The following table shows the different **systems available at tkrom** that comply with ISO 12944 in the **corrosivity category C2 for carbon steels with an oxidation degree A, B or C, and with a surface preparation Sa2.**

1/2

	SYSTEM NO.	C2.01	C2.02	C2.03	C2.04	C2.05	C2.06	C2.07	C2.08
1ST PRIMING	SINTÉTICA ANTICORROSIVA TDS-6218	●	●	●	●	○	○	○	○
	SECADO RÁPIDO ANTICORROSIVA TDS-6215	●	●	●	●	○	○	○	○
	EPOXI ANTICORROSIVA 2C TDS-6752	○	○	○	○	●	●	○	○
	EPOXI HS ANTICORROSIVA 2C TDS-6760	○	○	○	○	●	●	○	○
	EPOXI RICA EN ZINC 2C TDS-6753	○	○	○	○	○	○	●	●
	LAYERS	1 a 2	1 a 2	2 a 4	1 a 2	2 a 3	2	1	1
	NDFT en µm	40 a 80	40 a 100	60 a 160	60 a 80	60 a 120	80 a 100	60	60 a 80
2ND FINISHING	ESMALTE SINTÉTICO CON POLIURETANO TDS-6325	●	●	●	●	○	○	○	○
	ESMALTE SECADO RÁPIDO TDS-6304	●	●	●	●	○	○	○	○
	ESMALTE ANTIOXIDANTE TDS- 6401	●	●	●	●	○	○	○	○
	ESMALTE FORJA ANTIOXIDANTE TDS-6402/ 6406	●	●	●	●	○	○	○	○
	ESMALTE GLASS 2C* TDS-6853	○	○	○	○	●	●	○	●
	ESMALTE POLIURETANO 2C* TDS-6852/ 6855	○	○	○	○	●	●	○	●
	LAYERS	0 a 1	0 a 2	0 a 3	3	0 a 2	2 a 3	0	2 a 3
	NDFT en µm	0 a 40	0 a 60	0 a 100	120 a 140	0 a 60	80 a 100	0	80 a 100
TOTAL	LAYERS	2	2 a 3	4 a 5	4 a 5	3 a 4	4 a 5	1	3 a 4
	NDFT en µm	80	100	160	200	120	180	60	160
	DURABILITY								

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EXAMPLE
FIRE ESCAPE

- **Degree of protection:** C2.
- **Material:** Carbon steel.
- **Environment:** Rural area with low levels of pollution.
- **Surface preparation:** SA2 1/2
- **Durability:** High

1ST PRIMING	**SECADO RÁPIDO ANTICORROSIVA** TDS-6215	
	LAYERS	**2**
	NDFT en µm	**80**
2ND FINISHING	**ESMALTE SECADO RÁPIDO** TDS-6304	
	LAYERS	**2**
	NDFT en µm	**80**
TOTAL	**LAYERS**	**4**
	NDFT en µm	**160**
	DURABILITY	

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C3 MEDIA

The following table shows the different **systems available at tkrom** that comply with ISO 12944 in the **corrosivity category C3 for carbon steels with an oxidation degree A, B or C, and with a surface preparation Sa2.**

1/2

	SYSTEM NO.	C3.01	C3.02	C3.03	C3.04	C3.05	C3.06	C3.07	C3.08	C3.09	C3.10
1ST PRIMING	**SINTÉTICA ANTICORROSIVA** TDS-6218	●	●	●	●	○	○	○	○	○	○
	SECADO RÁPIDO ANTICORROSIVA TDS-6215	●	●	●	●	○	○	○	○	○	○
	EPOXI ANTICORROSIVA 2C TDS-6752	○	○	○	○	●	●	●	○	○	○
	EPOXI HS ANTICORROSIVA 2C TDS-6760	○	○	○	○	●	●	●	○	○	○
	EPOXI RICA EN ZINC 2C TDS-6753	○	○	○	○	○	○	○	●	●	●
	LAYERS	2 a 3	2 a 4	2	2	2	2 a 3	2 a 3	1	1	1
	NDFT en µm	80 a 100	60 a 160	60 a 80	60 a 80	80 a 120	80 a 160	80 a 160	60	60 a 80	60 a 80
2ND FINISHING	**ESMALTE SINTÉTICO CON POLIURETANO** TDS-6325	●	●	●	●	○	○	○	○	○	○
	ESMALTE SECADO RÁPIDO TDS-6304	●	●	●	●	○	○	○	○	○	○
	ESMALTE ANTIOXIDANTE TDS-6401	●	●	●	●	○	○	○	○	○	○
	ESMALTE FORJA ANTIOXIDANTE TDS-6402/ 6406	●	●	●	●	○	○	○	○	○	○
	ESMALTE GLASS 2C * TDS-6853	○	○	○	○	●	●	●	○	●	●
	ESMALTE POLIURETANO 2C* TDS-6852/ 6855	○	○	○	○	●	●	●	○	●	●
	LAYERS	0 a 1	0 a 2	3 a 4	5	0 a 1	1 a 3	2 a 4	0	2	3
	NDFT en µm	0 a 20	0 a 100	120 a 140	180 a 200	0 a 40	20 100	80 a 160	0	80 a 100	120 a 140
TOTAL	**LAYERS**	3	4	5 a 6	7	2 a 3	4 a 5	5 a 6	1	3	4
	NDFT en µm	100	160	200	260	120	180	240	60	160	200
	DURABILITY										

* In all applications intended for interior use, the Polyurethane finish products indicated may be substituted by the Epoxy 2C Enamel finish (TDS-6759) with identical micronage. **NDFT**: Nominal dry film thickness.

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EXAMPLE
OUTDOOR PIPELINES

- **Degree of protection:** C3.
- **Material:** Carbon steel.
- **Environment:** Areas with medium level of contamination.
- **Surface preparation:** SA2 1/2
- **Durability:** High

1ST PRIMING	**SYNTHETIC ANTI-CORROSION** TDS-6218	
	LAYERS	**2**
	NDFT en µm	**80**
2ND FINISHING	**SYNTHETIC ENAMEL WITH POLYURETHANE** TDS-6325	
	LAYERS	**3**
	NDFT en µm	**120**
TOTAL	**LAYERS**	**5**
	NDFT en µm	**200**
	DURABILITY	

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C4 ALTA

The following table shows the different **systems available at tkrom** that comply with ISO 12944 in the **corrosivity category C4 for carbon steels with an oxidation degree A, B or C, and with a surface preparation Sa2.** 1/2

	SYSTEM NO.	C4.01	C4.02	C4.03	C4.04	C4.05	C4.06	C4.07	C4.08	C4.09	C4.10	C4.11
1ST PRIMING	SINTÉTICA ANTICORROSIVA TDS-6218	●	●	●	○	○	○	○	○	○	○	○
	SECADO RÁPIDO ANTICORROSIVA TDS-6215	●	●	●	○	○	○	○	○	○	○	○
	EPOXI ANTICORROSIVA 2C TDS-6752	○	○	○	●	●	●	●	○	○	○	○
	EPOXI HS ANTICORROSIVA 2C TDS-6760	○	○	○	●	●	●	●	○	○	○	○
	EPOXI RICA EN ZINC 2C TDS-6753	○	○	○	○	○	○	○	●	●	●	●
	CAPA	1 a 3	1 a 2	1 a 2	2	2 a 3	2 a 3	2 a 4	1	1	1	1
	NDFT en µm	60 a 160	60 a 80	60 a 80	80 a 120	80 a 160	80 a 160	80 a 240	60	60 a 80	60 a 80	60 a 80
2ND INTERMEDIATE	EPOXI HM INTERMEDIA 2C TDS-6755	○	○	○	○	○	●	●	○	○	●	●
	EPOXI ALTO ESPESOR 2C TDS-6762	○	○	○	○	○	●	●	○	○	●	●
	CAPA	0	0	0	0	0	0 1	0 1	0	0	1	1
	NDFT en µm	0	0	0	0	0	80 a 120	100 a 180	0	0	100	100 a 180
3RD FINISHING	ESMALTE SINTÉTICO CON POLIURETANO TDS-6325	●	●	●	○	○	○	○	○	○	○	○
	ESMALTE SECADO RÁPIDO TDS-6325	●	●	●	○	○	○	○	○	○	○	○
	ESMALTE ANTIOXIDANTE TDS-6401	●	●	●	○	○	○	○	○	○	○	○
	ESMALTE FORJA ANTIOXIDANTE TDS-6402/ 6406	●	●	●	○	○	○	○	○	○	○	○
	ESMALTE GLASS 2C* TDS-6853	○	○	○	●	●	●	●	○	●	●	●
	ESMALTE POLIURETANO 2C* TDS-6852	○	○	○	●	●	●	●	○	●	●	●
	CAPA	0 a 2	3 a 4	4 a 5	0 a 1	1 a 2	1 a 2	1 a 2	0	2	1	1 a 2
	NDFT en µm	0 a 100	120 140	180 a 200	0 a 40	20 a 100	40 a 80	40 a 80	0	80 a 100	40	40 a 80
TOTAL	CAPA	3	5	6	2 a 3	4	4 a 5	4 a 5	1	3	3	3 a 4
	NDFT en µm	160	200	260	120	180	240	300	60	160	200	260
	DURABILITY											

* In all applications intended for interior use, the Polyurethane finish products indicated may be substituted by the Epoxy 2C Enamel finish (TDS-6759) with identical micronage. **NDFT**: Nominal dry film thickness.

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EXAMPLE
COMMUNICATION TOWER

- **Degree of protection:** C4.
- **Material:** Carbon steel.
- **Environment:** Industrial area.
- **Surface preparation:** SA2 1/2
- **Durability:** High

1ST PRIMING	**EPOXY ANTICORROSIVE 2C** TDS-6752	
	LAYERS	**2**
	NDFT en µm	**100**
2ND INTERMEDIATE	**EPOXY HM INTERMEDIATE 2C** TDS-6755	
	LAYERS	**1**
	NDFT en µm	**100**
3RD FINISHING	**ENAMEL POLYURETHANE 2C** TDS-6852	
	LAYERS	**1**
	NDFT en µm	**40**
TOTAL	**LAYERS**	**4**
	NDFT en µm	**240**
	DURABILITY	

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C5 VERY HIGH

The following table shows the different **systems available at tkrom** that comply with ISO 12944 in the **corrosivity category C5 for carbon steels with an oxidation degree A, B or C, and with a surface preparation Sa2.**

1/2

	SYSTEM NO.	C5.01	C5.02	C5.03	C5.04	C5.05	C5.06	C5.07	C5.08
1ST PRIMING	**EPOXI ANTICORROSIVA 2C** TDS-6752	●	●	●	●	○	○	○	○
	EPOXI HS ANTICORROSIVA 2C TDS-6760	●	●	●	●	○	○	○	○
	EPOXI RICA EN ZINC 2C TDS-6753	○	○	○	○	●	●	●	●
	LAYERS	2 a 3	2 a 3	2 a 4	2 a 4	1	1	1	1
	NDFT en µm	80 a 160	80 a 160	80 a 240	80 a 200	60 a 80	60 a 80	60 a 80	60 a 80
2ND INTERMEDIATE	**EPOXI HM INTERMEDIA 2C** TDS-6755	○	●	●	●	○	●	●	●
	EPOXI ALTO ESPESOR 2C TDS-6762	○	●	●	●	○	●	●	●
	LAYERS	0	0 a 1	0 a 1	1	0	0 a 1	1	1
	NDFT en µm	0	80 a 120	100 a 180	100 a 240	0	0 a 100	100 a 160	100 a 220
3RD FINISHING	**ESMALTE POLIURETANO 2C*** TDS-6852	●	●	●	●	●	●	●	●
	ESMALTE GLASS 2C* TDS-6853	●	●	●	●	●	●	●	●
	LAYERS	1 a 2	1 a 2	1 a 2	1 a 2	2	1 a 3	1 a 2	1 a 2
	NDFT en µm	20 a 100	40 a 80	40 a 80	40 a 80	80 a 100	40 a 120	40 a 80	40 a 80
TOTAL	**LAYERS**	4	4 a 5	4 a 6	4 a 7	3	3 a 4	3 a 4	3 a 4
	NDFT en µm	180	240	300	360	160	200	260	320
	DURABILITY								

* In all applications intended for interior use, the Polyurethane finish products indicated may be substituted by the Epoxy 2C Enamel finish (TDS-6759) with identical micronage. **NDFT**: Nominal dry film thickness.

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EXAMPLE
SEAPORT STRUCTURE

- **Degree of protection:** C5.
- **Material:** Carbon steel.
- **Environment:** Industrial area with high humidity and aggressive environment. (Ground areas) 1/2
- **Surface preparation:** SA2
- **Durability:** Very High

1ST PRIMING	**EPOXY RICH IN ZINC 2C** TDS-6753	
	LAYERS	**1**
	NDFT en µm	**80**
2ND INTERMEDIATE	**EPOXY HIGH THICKNESS 2C** TDS-6762	
	LAYERS	**1**
	NDFT en µm	**160**
3RD FINISHING	**ENAMEL POLYURETHANE 2C** TDS-6852	
	LAYERS	**2**
	NDFT en µm	**80**
TOTAL	**LAYERS**	**4**
	NDFT en µm	**320**
	DURABILITY	

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“Unlike carbon steel, galvanised steel by its very alloy contains zinc on the surface, which acts as a cathodic protection allowing the use of thinner corrosion protection systems.”


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C2 BAJA

The following table shows the different **systems available at tkrom** that comply with ISO 12944 in the **corrosivity category C2 for galvanised steels by surface preparation by blasting, sweeping and/or degreasing.**

	SYSTEM NO.	G2.01	G2.02	G2.03
1ST PRIMING	**EPOXI ANTICORROSIVA 2C** TDS-6752	●	○	●
	IMPRIMACIÓN GLASS 2C TDS-6754	●	○	●
	MULTIUSOS TDS-6204	●	●	○
	LAYERS	2	2	2 a 3
	NDFT en µm	80	80	80 a 120
2ND FINISHING	**ESMALTE POLIURETANO 2C*** TDS-6855 / 6852	○	○	●
	ESMALTE GLASS 2C* TDS-6853	○	○	●
	ESMALTE METACRÍLICO TDS-6110	○	●	○
	LAYERS	0	2	1
	NDFT en µm	0	80	0 a 1
TOTAL	**LAYERS**	2	4	3
	NDFT en µm	80	160	120
	DURABILITY			

* In all applications intended for interior use, the Polyurethane finish products indicated may be substituted by the Epoxy 2C Enamel finish (TDS-6759) with identical micronage. **NDFT**: Nominal dry film thickness.

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EXAMPLE
INTERNAL STRUCTURE

- **Degree of protection:** C2.
- **Material:** Galvanised steel.
- **Environment:** Unheated buildings (condensation), warehouses, sports halls....
- **Surface preparation:** Sweep blasting and/or degreasing.
- **Durability:** Very high

1ST PRIMING	**MULTI-PURPOSE** TDS-6204	
	LAYERS	2
	NDFT en µm	80
2ND FINISHING	**METHACRYLIC ENAMEL** TDS-6110	
	LAYERS	2
	NDFT en µm	80
TOTAL	**LAYERS**	4
	NDFT en µm	160
	DURABILITY	

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C3 MEDIA

The following table shows the different **systems available at tkrom** that comply with ISO 12944 in the **corrosivity category C3 for galvanised steels by surface preparation by blasting, sweeping and/or degreasing.**

	SYSTEM NO.	G3.01	G3.02	G3.03	G3.04	G3.05
1ST PRIMING	**EPOXI ANTICORROSIVA 2C** TDS-6752	●	●	○	●	○
	IMPRIMACIÓN GLASS 2C TDS-6754	●	●	○	●	○
	MULTIUSOS TDS-6204	●	○	●	○	●
	LAYERS	2	2 a 3	2	2	2
	NDFT en µm	80	80 a 120	80	80	80
2ND FINISHING	**ESMALTE POLIURETANO 2C*** TDS-6852/ 6855	○	●	○	●	○
	ESMALTE GLASS 2C* TDS-6853	○	●	○	●	○
	ESMALTE METACRÍLICO TDS-6110	○	○	●	○	●
	LAYERS	0	0 a 1	2	2	3
	NDFT en µm	0	0 a 40	80	80	120
TOTAL	**LAYERS**	2	3	4	4	5
	NDFT en µm	80	120	160	160	200
	DURABILITY					

* In all applications intended for interior use, the Polyurethane finish products indicated may be substituted by the Epoxy 2C Enamel finish (TDS-6759) with identical micronage. **NDFT**: Nominal dry film thickness.

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EXAMPLE
RAILWAY BRIDGE

- **Degree of protection:** C3.
- **Material:** Galvanised steel.
- **Environment:** Industrial and urban areas with medium level of pollution.
- **Surface preparation:** Sweep blasting and/or degreasing.
- **Durability:** High

1ST PRIMING	**EPOXY ANTICORROSIVE 2C** TDS-6752	
	LAYERS	2
	NDFT en µm	80
2ND FINISHING	**ENAMEL POLYURETHANE 2C** TDS-6852 / 6855	
	LAYERS	1
	NDFT en µm	40
TOTAL	LAYERS	3
	NDFT en µm	120
	DURABILITY	

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C4 ALTA

The following table shows the different **systems available at tkrom** that comply with ISO 12944 in the **corrosivity category C4 for galvanised steels by surface preparation by blasting, sweeping and/or degreasing.**

	SYSTEM NO.	G4.01	G4.02	G4.03	G4.04	G4.05	G4.06
1ST PRIMING	**EPOXI ANTICORROSIVA 2C** TDS-6752	●	●	○	●	○	●
	IMPRIMACIÓN GLASS 2C TDS-6754	●	●	○	●	○	●
	MULTIUSOS TDS-6204	●	○	●	○	●	○
	LAYERS	2	2 a 3	2	2	2	2
	NDFT en µm	80	80 a 120	80	80	80	80
2ND FINISHING	**ESMALTE POLIURETANO 2C** TDS-6852/ 6855	○	●	○	●	○	●
	ESMALTE GLASS 2C* TDS-6853	○	●	○	●	○	●
	ESMALTE METACRÍLICO TDS-6110	○	○	●	○	●	○
	LAYERS	0	0 a 1	2	2	3	3
	NDFT en µm	0	0 a 40	80	80	120	120
TOTAL	**LAYERS**	2	3	4	4	5	5
	NDFT en µm	80	120	160	160	200	200
	DURABILITY						

* In all applications intended for interior use, the Polyurethane finish products indicated may be substituted by the Epoxy 2C Enamel finish (TDS-6759) with identical micronage. **NDFT**: Nominal dry film thickness.

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EXAMPLE
SAWMILL STRUCTURE

- **Degree of protection:** C4.
- **Material:** Galvanised steel.
- **Environment:** Coastal area of medium salinity.
- **Surface preparation:** Sweep blasting and/or degreasing.
- **Durability:** High

1ST PRIMING	**PRIMER GLASS 2C** TDS-6754	
	LAYERS	2
	NDFT en µm	80
2ND FINISHING	**ENAMEL GLASS 2C** TDS-6853	
	LAYERS	2
	NDFT en µm	80
TOTAL	LAYERS	4
	NDFT en µm	160
	DURABILITY	

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C5
VERY HIGH

The following table shows the different **systems available at tkrom** that comply with ISO 12944 in the **corrosivity category C5 for galvanised steels with an oxidation degree A, B or C, and with a surface preparation by blasting, sweeping and/or degreasing.**

	SYSTEM NO.	G5.01	G5.02	G5.03	G5.04	G5.05	G5.06
1ST PRIMING	**EPOXI ANTICORROSIVA 2C** TDS-6752	●	○	●	○	●	●
	IMPRIMACIÓN GLASS 2C TDS-6754	●	○	●	○	●	●
	MULTIUSOS TDS-6204	○	●	○	●	○	○
	LAYERS	2 a 3	2	2	2	2	2
	NDFT en µm	80 a 120	80	80	80	80	80
2ND INTERMEDIATE	**EPOXI HM INTERMEDIA** TDS-6755	○	○	○	○	○	●
	EPOXI ALTO ESPESOR TDS-6762	○	○	○	○	○	●
	LAYERS	0	0	0	0	0	1
	NDFT en µm	0	0	0	0	0	80 a 120
3RD FINISHING	**ESMALTE POLIURETANO 2C*** TDS-6852/ 6855	●	○	●	○	●	●
	ESMALTE GLASS 2C* TDS-6853	●	○	●	○	●	●
	ESMALTE METACRÍLICO TDS-6110	○	●	○	●	○	○
	LAYERS	0 a 1	2	2	2 a 3	2 a 3	1 a 2
	NDFT en µm	0 a 40	80	80	120	120	40 a 80
TOTAL	**LAYERS**	3	4	4	4 a 5	4 a 5	4 a 5
	NDFT en µm	120	160	160	200	200	240
	DURABILITY						

* In all applications intended for interior use, the Polyurethane finish products indicated may be substituted by the Epoxy 2C Enamel finish (TDS-6759) with identical micronage. **NDFT**: Nominal dry film thickness.

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EXAMPLE
INDUSTRIAL PLANT

- **Degree of protection:** C5.
- **Material:** Galvanised steel.
- **Environment:** Industrial area with high humidity and aggressive environment.
- **Surface preparation:** Sweep blasting and/or degreasing.
- **Durability:** Very high

1ST PRIMING	**PRIMER GLASS 2C** TDS-6754	
	LAYERS	2
	NDFT en µm	80
2ND INTERMEDIATE	**EPOXY HM INTERMEDIATE 2C** TDS-6755	
	LAYERS	1
	NDFT en µm	80
3RD FINISHING	**ENAMEL POLYURETHANE 2C** TDS-6853	
	LAYERS	2
	NDFT en µm	80
TOTAL	LAYERS	5
	NDFT en µm	240
	DURABILITY	

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IMPRIMACIÓN SINTÉTICA ANTICORROSIVA

Anticorrosive synthetic primer based on glycerophtalic resins and anticorrosive pigments (zinc phosphate).
Ideal product for the protection against corrosion of iron and steel surfaces, both indoors and outdoors. Hard and elastic, it has high adhesion. This product is the alternative to Minium Lead.

USES: Indoors and outdoors. Iron. Steel.

COLOURS: Orange. Colours s/m.

YIELD: 6-8m²/l

APPLICATION: Brush, roller and spray.

FINISHING: Semi-matt.

TECHNICAL DATA SHEET: TDS 6218.

• **FORMAT:** 25kg, 4L, 750ml, 250ml.

INDOOR/OUTDOOR	RESIN	DRYING/REPAINTING	HANDS	DILUTION/ CLEANING
	S	2-3h /24h	1-2 depending on finished	SOLVENT TKROM 345 SYNTHETICS AND GREASES

IMPRIMACIÓN MULTIUSOS

Universal primer based on acrylic resins, pigments, activated antioxidants and corrosion inhibitors, so it can be applied on surfaces with difficult adhesion. Suitable for decoration works, DIY, etc.

USES: Indoors and outdoors. Iron. Steel. Galvanised steel. Copper. PVC. Polyester. Zinc. Non-ferrous metals: Copper. Lead. Plastics.

COLOURS: White. Grey. Red. Green. Black. Colours s/m.

YIELD: 5-7m²/l

APPLICATION: Brush, roller and spray

TECHNICAL DATA SHEET: TDS 6204

• **FORMAT:** 22kg, 4L, 750ml, 250ml

INDOOR/OUTDOOR	RESIN	DRYING/REPAINTING	HANDS	DILUTION/ CLEANING
	A	5-10' /24h	1	SOLVENT TKROM 302 UNIVERSAL

IMPRIMACIÓN EPOXI ANTICORROSIVA 2C

The two-component line TKROM Epoxi Imprimación Anticorrosiva for metal surfaces is based on epoxy-polyamidoamine resins, anticorrosive pigments (zinc phosphate) and special inert fillers; they form by polymerisation a hard, elastic film with excellent adhesion to the substrate.

USES: Indoors and outdoors. Iron. Steel. Light alloys.

COLOURS: White. Colours s/m.

YIELD: 6-8m²/l

APPLICATION: Brush, roller and spray

FINISHING: Semi-matt.

TECHNICAL DATA SHEET: TDS 6752 (A+B)

• **FORMAT:** 18kg, 6kg

INDOOR/OUTDOOR	RESIN	DRYING/REPAINTING	HANDS	DILUTION/ CLEANING
	E	4h /18-48h	1-2 depending on finished	SOLVENT TKROM 370 EPOXY-STOVE

IMPRIMACIÓN EPOXI ANTICORROSIVA HS 2C

The two-component line TKROM Epoxi Imprimación Anticorrosiva HS for metallic surfaces is based on epoxy-polyamidoamine resins, anticorrosive pigments (zinc phosphate) and special inert fillers; they form by polymerisation a hard and elastic film with excellent adhesion to the substrate. Its high content of solids per volume allows to obtain high dry film thicknesses.

APPLICATIONS: Interior and Exterior. Base product in anticorrosive cycles. Particularly suitable for installations with high requirements of resistance to aggressive environments.

COLOURS: White. Colours s/m.

YIELD: 6-8m²/l

APPLICATION: Brush, roller and spray

FINISHING: Semi-matt.

TECHNICAL DATA SHEET: TDS 6760

(A+B) • **FORMAT:** 15Kg

INDOOR/OUTDOOR	RESIN	DRYING/REPAINTING	HANDS	DILUTION/ CLEANING
	CC	4h /18-48h	1-2 depending on finished	SOLVENT TKROM 370 EPOXY-STOVE

IMPRIMACIÓN GLASS 2C

Two-component anticorrosive primer and adhesion primer for all types of metal, glass, ceramic, polyester, concrete, etc. surfaces. Formulated with bisphenol A based epoxy resins plus aliphatic polyamine adduct. Maximum hardness and resistance to abrasion and chemical agents or aggressive environments.

USES: Steel. Aluminium. Copper. Glass. Ceramics.

COLOURS: White. Colours s/m.

YIELD: 3-5m²/l

APPLICATION: Brush, roller and spray

FINISHING: Matt.

TECHNICAL DATA SHEET: TDS 6754

• **FORMAT:** 15kg, 5kg, 1.25kg

INDOOR/OUTDOOR	RESIN	DRYING/REPAINTING	HANDS	DILUTION/ CLEANING
	E	4h /18h	1	SOLVENT TKROM 370 EPOXY-STOVE

IMPRIMACIÓN EPOXI RICA EN ZINC 2C

Zinc-rich epoxy primer with high solids and excellent corrosion protection for steel. Formulated with bisphenol A based epoxy resin plus polyamidoamine adduct. Combines the hardness of epoxy products with the superior protection of zinc-rich primers. Outstanding resistance to water vapour, weathering and abrasion.

USES: Interior and exterior. Steel pipes. Tanks. Industry in general.

COLOURS: Grey.

PERFORMANCE: 2,5-3,5m²/l

APPLICATION: Brush, roller and spray

FINISHING: Metallic.

TECHNICAL DATA SHEET: TDS 6753 (A+B)

• **FORMAT:** 24kg

INDOOR/OUTDOOR	RESIN	DRYING/REPAINTING	HANDS	DILUTION/ CLEANING
	E	4h /24h	1-2 depending on finished	SOLVENT TKROM 370 EPOXY-STOVE

ESSENTIAL

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IMPRIMACIÓN SECADO RÁPIDO

Very fast drying primer with good anti-rust properties and excellent ease of application. Very good hardness and extensibility without any tendency to sag. Made from modified glycerophthalic resins, it can be overcoated with all types of paints.
Available in a version with excellent anticorrosive properties due to its content of pigments based on active zinc phosphate.

USES: Indoors and outdoors. Iron. Steel.

COLOURS: White. Black. Blue. Red.

YIELD: 6-8m²/l

APPLICATION: Brush, roller and spray.

FINISHES: Matt. Satin. Electrostatic. Anticorrosive.

TECHNICAL DATA SHEET: TDS 6202

• **WHITE:** 25kg, 4L, 750ml

INDOOR/OUTDOOR

RESIN

S

DRYING/PAINTING

20-25' /depending on finish

HANDS

1-2 depending on finish

DISSOLUTION CLEANING

SOLVENT TKROM 345 SYNTHETICS AND GREASES

SCAN THE QR CODE TO VIEW THE FULL DATA SHEET

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IMPRIMACIÓN EPOXI HIERRO MICACEO 2C

High thickness two-component intermediate coat, based on epoxy-polyamidoamine resins, can be overcoated with two-component and conventional paints, and can be left as a finish due to its excellent durability.

Complies with the UNE 48295 standard.

USES: Indoors and outdoors. Iron. Steel. Aggressive environments.

COLOURS: Grey. Colours s/m.

YIELD: 3-5m²/l

APPLICATION: Brush, roller and spray

FINISHING: Semi-matt.

TECHNICAL DATA SHEET: TDS 6755 (A+B)

• **FORMAT:** 21Kg

INDOOR/OUTDOOR	RESIN	DRYING/REPAINTING	HANDS	DILUTION/ CLEANING
	E	30' /12-48h	1	SOLVENT TKROM 370 EPOXY-STOVE

IMPRIMACIÓN EPOXI 2C ALTO ESPESOR

Two-component high build intermediate coat, formulated with bisphenol A based epoxy resin without thinner plus polyamide modified with fatty acids and polyamines, recoatable with two-component paints. Excellent resistance to corrosion, acid impacts, alkalis and all kinds of conventional solvents, and can be left as a finish due to its excellent durability.

USES: Indoors and outdoors. Iron. Steel. Aggressive environments.

COLOURS: White. Red. Colours s/m.

YIELD: 2-3m²/l

APPLICATION: Brush, roller and spray

FINISHING: Semi-matt.

TECHNICAL DATA SHEET: TDS 6762 (A+B)

• **FORMAT:** 21kg

INDOOR/OUTDOOR	RESIN	DRYING/REPAINTING	HANDS	DILUTION/ CLEANING
	E	90' /24-48h	1	SOLVENTE TKROM 301 UNIVERSAL

ESMALTE SINTÉTICO CON POLIURETANO

Available
TKROMATIC

Synthetic enamel for general use and gloss finish, formulated with alkyd and polyurethane resins. High performance, excellent brushability, hardness and scratch resistance. It provides the surfaces on which it is applied, both in interiors and exteriors, with smooth, hard and elastic finishes, very decorative and resistant. Anti-corrosive action.

USES: Interior and exterior. Furniture. Railings. DIY in general.

COLOURS: White. Black. TKROM enamel chart. Colours according to sample.

PERFORMANCE: 9-11m²/l

APPLICATION: Brush, roller and spray.

FINISHING: Gloss. Satin. Matt.

TECHNICAL DATA SHEET: TDS 6325

- **WHITE AND COLOURS:** 4L, 750ml, 250ml
- **TKROMATIC BASECOATS:** 4L, 750ml

INDOOR/OUTDOOR	RESIN	WASHABLE	DRYING/REPAINTING	HANDS	DILUTION
	S		3-4h /16h	2	TKROM 345 SOLVENT SYNTHETICS 5-20%.

ESMALTE ANTIOXIDANTE

Available
TKROMATIC

Enamel for direct application on rust, without the need for priming or sanding. It dries very quickly leaving very decorative smooth and shiny finishes. Specially formulated for application on ferrous surfaces, it can also be applied if desired on plaster and wood. Free of lead, chrome and heavy metals.

USES: Interior and exterior. Iron or steel. rusted.

COLOURS: White. Black. Rust-proof TKROM chart. Colours according to sample.

YIELD: 8-10m²/l

APPLICATION: Brush, roller and spray

FINISH: Gloss and satin.

TECHNICAL DATA: TDS 6401

- **WHITE AND COLOURS:** 4L, 750ml
- **BASES TKROMATIC:** 4L, 750ml

INDOOR/OUTDOOR	RESIN	WASHABLE	DRYING/REPAINTING	HANDS	DILUTION
	AL		30' /24h	2	TKROM 376 SOLVENT ANTI-RUST 5%.

ESMALTE ANTIOXIDANTE FORJA

Available
TKROMATIC

Metallic effect anticorrosive primer and finish, based on micaceous iron oxide and corrosion inhibitors. Protection and decoration of all types of iron or steel products. Direct application on iron substrates, without primer.

USES: Indoors and outdoors. Iron. Steel. Light alloys.

COLOURS: Graphite black. Steel grey. Letter TKROM forging.

YIELD: 5-7m²/l

APPLICATION: Brush, roller and spray

FINISHING: Gloss and bluing.

TECHNICAL DATA: TDS 6402

- **COLOURS:** 4L, 750ml
- **TKROMATIC BASES:** 4L, 750ml

INDOOR/OUTDOOR	RESIN	WASHABLE	DRYING/REPAINTING	HANDS	DILUTION
	AL		30' /24h	2	TKROM 345 SYNTHETICS 5-20% TKROM 345 SYNTHETICS 5-20% TKROM 345

ESMALTE SECADO RÁPIDO

Available
TKROMATIC
INFINITYCOLOR

Synthetic enamel made from modified alkyd resins, which give the product an exceptional air-drying speed, as well as very good hardness, elasticity, adhesion and gloss. The pigments used in its formulation are solid and resistant to light and atmospheric agents.

USES: Indoor and outdoor. Suitable for agricultural and industrial machinery, pumps, compressors, structures, etc.

COLOURS: Industry chart. Colours s/m.

PERFORMANCE: 7-10m²/l. 6-9m²/kg

APPLICATION: Brush, roller and spray

FINISH: Gloss.

TECHNICAL DATA SHEET: TDS 6304

- **WHITE AND COLOURS:** 20kg, 4L
- **TKROMATIC BASES:** 15L, 4L, 750ml

INDOOR/OUTDOOR	RESIN	WASHABLE	DRYING/REPAINTING	HANDS	DILUTION
	S		30' /6h	1-2	TKROM 345 SOLVENT SYNTHETIC 5-20% TKROM 345

ESMALTE METACRILICO PARA GALVANIZADOS

Available
TKROMATIC

Solvent based acrylic enamel with excellent adhesion on galvanised steel, good gloss and excellent resistance to chemicals, water, weathering and corrosion.
Very good abrasion and wear resistance.

USES: Piping. Tanks. Metal structures. Bridges.

COLOURS: Industry chart.

PERFORMANCE: 8-10m²/l

APPLICATION: Brush, roller and spray

FINISHING: Gloss.

TECHNICAL DATA SHEET: TDS 6110

- **TKROMATIC BASES:** 15L, 4L, 750ml

INDOOR/OUTDOOR	RESIN	WASHABLE	DRYING/REPAINTING	HANDS	DILUTION
	S		30' /6h	1-2	TKROM 365 SOLVENTE ACRYLIC/UHS 5-20% TKROM 365 acrylic/uhs 5-20% TKROM 365 SOLVENT

ESMALTE EPOXI 2C

Available
TKROMATIC
INFINITYCOLOR

Two-component enamel, based on epoxy-polyamidoamine resins and high solidity pigments. When dry, it forms a hard, elastic film, highly resistant to weathering (see product application data) and to dilute solutions of acids and alkalis, which makes it particularly suitable for use in interior paving.

USES: Interior.Metal. Floors. Concrete surfaces. Aggressive environments.

COLOURS: Rust red. Industrial grey.letter.

PERFORMANCE: 7-9m²/l

APPLICATION: Brush, roller and spray

FINISHING: Satin and matte

TECHNICAL DATA: TDS 6759 (A+B)

- **WHITE AND COLOURS:** 15kg, 5kg
- **TKROMATIC BASE:** 15L, 4L, 750ml

INTERIOR	RESIN	WASHABLE	DRYING/REPAINTING	HANDS	DILUTION/ CLEANING
	E		2-3h /12h	1-2	TKROM 370 EPOXY-STOVE <10%.

ESMALTE POLIURETANO 2C

Available
TKROMATIC
INFINITYCOLOR

Two-component polyurethane enamel, based on hydroxyacrylic resins, aliphatic isocyanates and lightfast and weather-resistant pigments. When polymerised, it forms a durable film with high elasticity and adhesion. It is exceptionally resistant to atmospheric agents, lubricating oils, solvents and aggressive chemicals.

USES: Interior and exterior. Structures in chemical industries. Installations in marine floors. Floors.

COLOURS: White. Colours according to sample.

YIELD: 8-10m²/l. 7-8m²/kg

APPLICATION: Brush, roller and spray

FINISHING: Gloss. Satin.

TECHNICAL DATA SHEET: TDS 6852 (A+B)

- **WHITE AND COLOURS:** 15kg, 5kg
- **TKROMATIC BASES:** 15L, 4L, 750ml

INDOOR/OUTDOOR	RESIN	WASHABLE	DRYING/REPAINTING	HANDS	DILUTION
	PU		15-20'' /3-4h	1-2	TKROM 310 SOLVENT POLYURETHANE 5-10% TKROM 310 polyurethane 5-10% TKROM 310

ESMALTE POLIURETANO FORJA 2C

Available
TKROMATIC

Two-component polyurethane enamel, based on hydroxyacrylic resins and aliphatic isocyanates, with excellent hardness, flexibility, gloss and adhesion and high resistance to atmospheric agents. Anticorrosive primer and topcoat, with metallic effect, based on micaceous iron oxide and corrosion inhibitors, for the protection and decoration of all types of iron and steel products.

USES: Piping. Tanks. Metallic structures. Bridges.

COLOURS: Graphite black. Steel grey. TKROM forging chart.

YIELD: 9-11m²/l

APPLICATION: Brush, roller and spray

FINISH: Gloss.

TECHNICAL DATA SHEET: TDS 6855 (A+B)

- **COLOURS:** 4L.
- **BASES TKROMATIC:** 4L.

INDOOR/OUTDOOR	RESIN	WASHABLE	DRYING/REPAINTING	HANDS	DILUTION
	PU		30' /24h	2	TKROM 310 SOLVENT POLYURETHANE 5-20% TKROM 310 Solvent polyurethane 5-20% TKROM 310

ESMALTE GLASS 2C

Available
TKROMATIC

Two-component polyurethane enamel based on hydroxylated acrylic resin and aliphatic isocyanate, with glossy finish, maximum hardness, excellent flexibility and high chemical and abrasion resistance. Finishing coat with excellent performance in epoxy-polyurethane anti-corrosion systems. Repair and restoration of bathrooms, kitchens, tiles, household appliances, etc. Suitable for rural, marine and highly aggressive industrial environments.

USES: Interior and exterior. Structures in chemical industries. Installations in marine floors. Floors.

COLOURS: White. Colours according to sample

YIELD: 11-13m²/l. 7-9m²/Kg

APPLICATION: Brush, roller and spray

FINISHING: Gloss, satin and matte on request.

TECHNICAL DATA SHEET: TDS 6853 (A+B

- **WHITE AND COLOURS:** 15kg, 5kg, 1,25kg
- **TKROMATIC BASES:** 15L, 4L, 750ml

INDOOR/OUTDOOR	RESIN	WASHABLE	DRYING/REPAINTING	HANDS	DILUTION/ CLEANING
	PU		1h /16-48h	1-2	TKROM 310 SOLVENT POLYURETHANE 5-10% TKROM 310 polyurethane 5-10% TKROM 310

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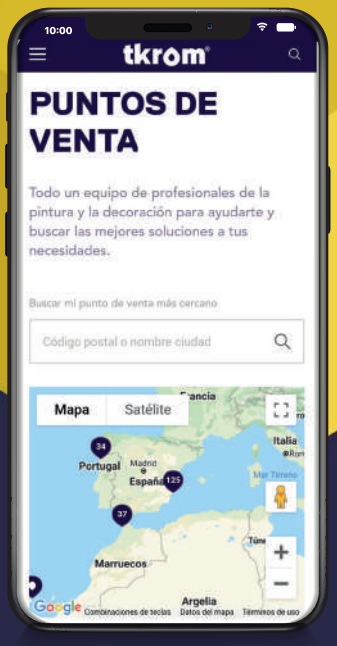

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8 424214 204894
Issue February 2024

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