



PRONTO GUIDE TO

ISO 12944

**STANDARD FOR STEEL
STRUCTURE COATINGS**

UNDERSTANDING ISO 12944

THIS GUIDE:

The ISO 12944 standard is an international industry standard, in 9 sections, designed to assist anyone involved in the design and construction of steel structures.

The standard is to assist architects, engineers, specifiers, applicators and other parties in specification and the application of protective coatings systems to steel structures.

This guide is designed to help you select the correct coating system to achieve the correct protective coating system for a given environment and expected durability.



CRITICAL STEPS:

Determining a coating system that complies with the requirements of ISO12944 chosen by the following steps below: -

1. Select Environment. (Examples are listed below).
2. Select the Expected Durability. (The ranges are listed below).
3. Select the suitable coating system. based on the environment and expected durability.

Corrosive category	Examples of typical environments (informative only)	
	Exterior	Interior
C1 very low	-	Heated buildings with clean atmospheres, e.g. offices, shops, schools, hotels
C2 low	Atmospheres with low level of pollution: mostly rural areas	Unheated buildings where condensation can occur, e.g. depots, sports halls
C3 medium	Urban and industrial atmospheres, moderate sulphur 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 high	Industrial areas and coastal areas with moderate salinity	Chemical plants, swimming pools, coastal ship and boatyards
C5 very high	Industrial areas with high humidity and aggressive atmosphere and coastal areas with high salinity	Buildings or areas with almost permanent condensation and with high pollution
CX extreme	Offshore areas with high salinity and industrial areas with extreme humidity and aggressive atmosphere and sub-tropical and tropical atmospheres	Industrial areas with extreme humidity and aggressive atmosphere



DURABILITY

ISO 12944 EXPRESSES DURABILITY IN FOUR RANGES:

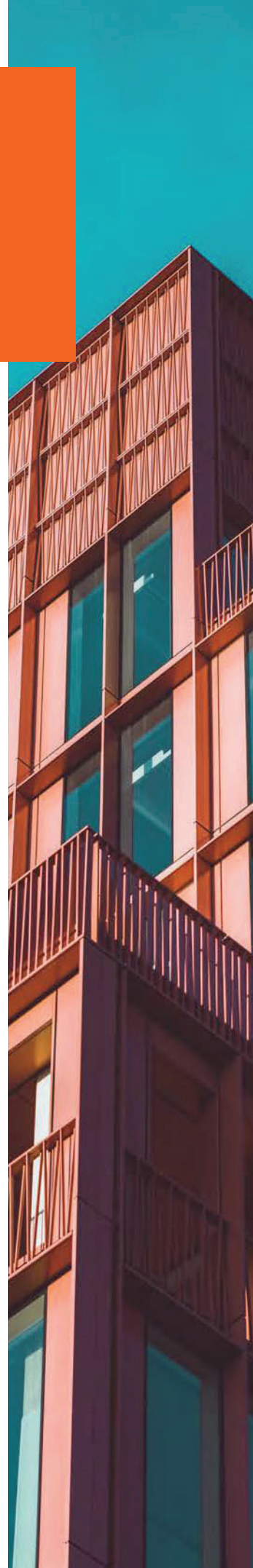
- Low (L) up to 7 years.
- Medium (M) 7 years to 15 years.
- High (H) 15 years to 25 years.
- Very high (VH) more than 25 years.

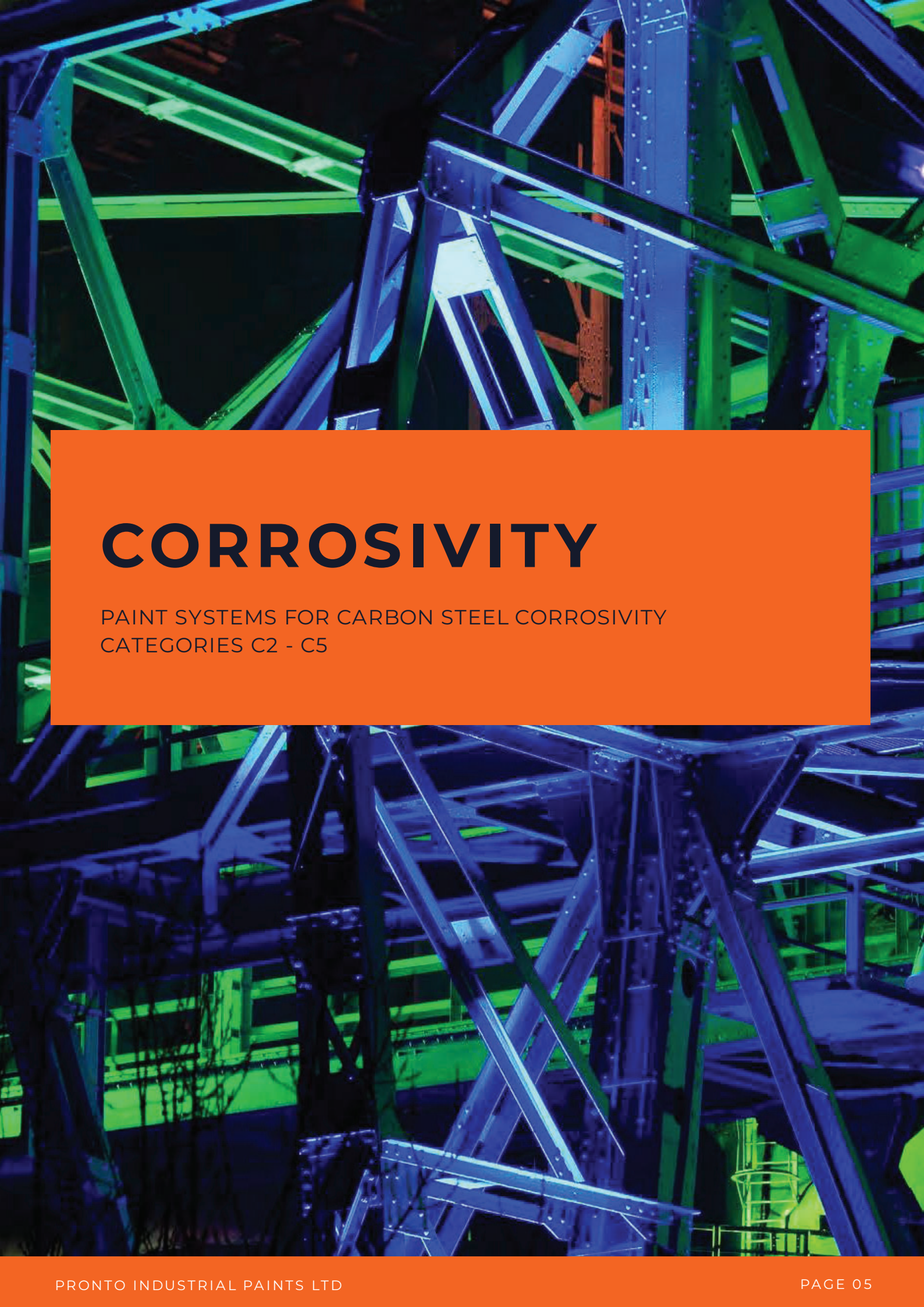
THE DURABILITY OF A PROTECTIVE COATING SYSTEM DEPENDS ON MANY FACTORS INCLUDING:

- The type of paint system.
- The design of the structure.
- The condition of the substrate before preparation.
- The surface preparation grade.
- The quality of the surface preparation work.
- The condition of any joints, edges and welds before preparation.
- The standard of the application work.
- The conditions during application.
- The exposure conditions after application.

Note:

ISO 12944 does note that “expected durability” of a protective coating system is not a guarantee time for the performance of the coating system applied.





CORROSIVITY

PAINT SYSTEMS FOR CARBON STEEL CORROSIVITY
CATEGORIES C2 - C5

CATEGORY C2

Paint systems for carbon steel corrosivity category C2

System No.	System Type	Primer/Primer Finish			Subsequent coat(s)	Paint system		Durability			
		Product Ref	No. of coats	NDFT in µm	Product Ref	Total no. of coats	NDFT in µm	l	m	h	vh
C2.01	AK	200:026 207:516 210:032 203:042	1 1	40 40	203:142/042 203:142/042	2 2 1 1	80 80 80 80	X			
C2.02	AK	200:026 207:516 210:032 203:042	1 1	50 50	203:142/042 203:142/042	2 2 1 1	100 100 100 100	X	X		
C2.03	AK	200:026 207:516 210:032 203:042	1 1	75 to 85 75 to 85	203:142/042 203:142/042	2 2 1 1	160 160 160 160	X	X	X	
C2.04	AK	N/A	N/A	N/A	N/A	N/A	N/A	X	X	X	X
C2.05	EP, PUR	100:006	1	60 to 80	370:000	2	120	X	X	X	
C2.06	EP, PUR	100:006	1	100 to 120	370:000	2	180	X	X	X	X
C2.07	EP Zn(R)	103:026	1	60	—	1	60	X	X	X	
C2.08	EP, PUR	103:026	1	60 to 80	370:000	2	160	X	X	X	X

CATEGORY C3

Paint systems for carbon steel corrosivity category C3

System No.	System Type	Primer/primer Finish			Subsequent coat(s)	Paint system		Durability			
		Product Ref	No. of coats	NDFT in μm	Product Ref	Total no. of coats	NDFT in μm	l	m	h	vh
C3.01	AK	200:026 207:516 203:042 210:032	1 1	50 50	203:142/042 203:142/042	2 2 1 1	100 100 100 100	X			
C3.02	AK,	200:026 207:516 210:032 203:042	1 1	75 75	203:142/042 203:142/042	2 2 1-2 1-2	160	X	X		
C3.03	AK, AY	200:026 207:516 210:032 203:042	1 1	75 to 85 75 to 85	203:142/042 203:142/042	2 2 1-2 1-2	200	X	X	X	
C3.04	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
C3.05	EP, PUR	100:006.	1	70 to 80	370:000	2	120	X	X		
C3.06	EP, PUR	100:006.	1	100 to 120	370:000	2-3	180	X	X	X	
C3.07	EP, PUR	Misc.	1	100 to 120	Intermediate 100:006 Topcoat 370:000	–	240	X	X	X	X
C3.08	EP Zn(R)	103:026	1	60	N/A	1	60	X	X		
C3.09	EP, Zn(R) PUR	103:026	1	60 to 80	Intermediate 100:006 Topcoat 370:000	3	160	X	X	X	
C3.10	EP Zn(R) PUR	103:026	1	60 to 80	Intermediate 100:006 Topcoat 370:000	2–3	200	X	X	X	X

CATEGORY C4

Paint systems for carbon steel corrosivity category C4

System No.	System Type	Primer/Primer Finish			Subsequent coat(s)	Paint system		Durability			
		Product Ref	No. of coats	NDFT in µm	Product Ref	Total no. of coats	NDFT in µm	l	m	h	vh
C4.01	AK	200:026 207:516 203:042 210:032.	1 1	70 to 80 70 to 80	203:142/042 203:142/042	2 2 1-2 1-2	160	X			
C4.02	AK	200:026 207:516 203:042 210:032.	1	75 to 100 75 to 100	203:142/042 203:142/042	2-3 2-3 1-2 1-2	200	X	X		
C4.03	N/A	N/A.	N/A	N/A	N/A	N/A	N/A				
C4.04	EP, PUR	100:006	1	70 to 80	370:000	2	120	X			
C4.05	EP, PUR	100:006	1	80 to 100	370:000	2-3	180	X	X		
C4.06	EP, PUR	100:006	1-2	120 to 150	370:000	3-4	240	X	X	X	
C4.07	N/A	N/A.	N/A	N/A	N/A	N/A	N/A				
C4.08	EP, Zn(R)	103:026	1	60	—	1	60	X			
C4.09	EP, Zn(R) PUR	103:026	1	60 to 80	Intermediate 100:006 Topcoat 370:000	3	160	X	X		
C4.10	EP, Zn(R) PUR	103:026	1	60 to 80	Intermediate 100:006 Topcoat 370:000	3-4	200	X	X	X	

CATEGORY C5

Paint systems for carbon steel corrosivity category C5

System No.	System Type	Primer/Primer Finish			Subsequent coat(s)	Paint system		Durability			
		Product Ref	No. of coats	NDFT in µm	Product Ref	Total no. of coats	NDFT in µm	l	m	h	vh
C5.01	EP, PUR	100:006	1	80 to 100	370:000	3	180	X			
C5.02	EP, PUR	100:006	1-2	80 to 160	Intermediate 100:006 Topcoat 370:000	3-4	240	X	X		
C5.03	N/A	N/A.	N/A	N/A	N/A	N/A	N/A				
C5.04	N/A	N/A.	N/A	N/A	N/A	N/A	N/A				
C5.05	EP, (Zn(R) PUR	103:026	1	60 to 80	Intermediate 100:006 Topcoat 370:000	3	160	X			
C5.06	EP, (Zn(R) PUR	103:026	1	60 to 80	Intermediate 100:006 Topcoat 370:000	2-3	200	X	X		
C5.07	EP, (Zn(R) PUR	103:026	1	60 to 80	Intermediate 100:006 Topcoat 370:000	3-4	260	X	X	X	
C5.08	N/A	N/A	N/A	N/A	N/A	N/A	N/A				

SYSTEM & PRODUCTS

SYSTEM TYPES:

Ak	Alkyd
EP	Epoxy
PUR	Polyurethane
EP Zn(R)	Epoxy Zinc Rich

PRODUCTS LISTED:

200:026	Quick Drying Industrial Zinc Phosphate primer
207:516	Quick Drying High Solids Zinc Phosphate Industrial Primer
203:042	Quick Drying Sheen Primer Finish
203:142	Quick Drying High Build Gloss Finish
210:032	Quick Drying Ultra High Solids Primer Finish
100:006	Two Pack Epoxy Zinc Phosphate Primer
103:026	Two Pack Epoxy Zinc Rich Primer
370:000	Two Pack P.U. Primer Finish

SURFACE PREPARATION

MINIMUM PREPARATION:

Proper surface preparation is essential and one of the preconditions for a long lasting protective coating systems.

The classifications of the coating systems are based on minimum requirements for surface preparation.

The minimum preparation grade (if not otherwise specified or agreed) for carbon steel rust from grades A, B, C, is blast cleaning to SA 2 1/2 (ISO 8501-1).

Surface Preparation

ISO 8501 - Condition of steel identification A, B,C,D.

- A.** Steel surface largely covered with adherent mill scale. Little if any rust.
- B.** Steel surface which has begun to rust and from which mill scale has begun to flake.
- C.** Steel surface on which the mill scale has rusted away or can be removed by scraping but with slight pitting visible under normal vision.
- D.** Steel surface on which the mill scale has rusted away, and general pitting is visible without magnification.

SURFACE PREPARATION

GRADES OF SURFACE, ACCORDING TO ISO 8501-1:

Sa3 Blast cleaning to visually clean steel

When viewed without magnification, the surface shall be free from visible rust oil, grease and dirt.

Sa2- / Very thorough blast cleaning

When viewed without magnification the surface shall be free from oil grease and dirt, and free from mill scale, rust paint coatings and foreign matter. Any remaining traces of contamination shall show only as slight stains in the form of spots or stripes.

Sa2 Thorough blast cleaning

When viewed without magnification the surface shall be free from oil grease and dirt, and free from most of the millscale, rust paint coatings and foreign matter. Any residual contamination shall be firmly adhering.

Sa1 Light blast cleaning

When viewed without magnification the surface shall be free from visible oil grease and dirt, and poorly adhering mill scale, rust paint coatings and foreign matter.

St3 Very thorough hand and power tool cleaning

As for St2, but the surface shall be treated much more thoroughly to give a metallic sheen arising from the metallic substrate.

St2 Thorough hand and power tool cleaning

When viewed without magnification, the surfaces shall be free from visible oil grease and dirt, and poorly adhering mill scale, rust, paint coatings and foreign matter.



ABOUT PRONTO PAINTS

ABOUT:

Pronto Industrial Paints Ltd is a fast, friendly, family run manufacturer of high technology surface coatings.

We've been providing coatings into industry for over 30 years.

PRONTO IN NUMBERS:

300 products.

5000 colours.

36000 litres daily capability.

2.8m litres a year.





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