

Specification Coating

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Table of Contents

1.	Purpose, definition of objectives	1
2.	Scope of application	1
3.	Terms	1
4.	Requirements for corrosion protection	1
5.	Painting system 1	2
6.	Painting system 2	3
7.	Painting system 3	4
8.	Painting system 4	5
9.	Painting system 5	6
10.	Painting system 6	7
11.	Examples for the painting systems of the company Osnatol (available worldwide)	8
12.	Comments	9
13.	Standard RAL tones according to products	10
14.	Quality documentation	10
15.	Related documents	10
16.	Contact to company OSNATOL-Werk GmbH & Co. KG	10

1. Purpose, definition of objectives

This specification describes the requirements for manufacturers, products, designs and certificates.

If there are no other instructions described in the order, the content of this specification always applies.

2. Scope of application

This specification applies to manufacturers of coatings for products of HAZEMAG & EPR GmbH / HAZEMAG Systems GmbH (HAZEMAG).

3. Terms

According to DIN EN ISO 12944:

Corrosivity category: The type and strength of the environmental impact (e.g. salt due to nearby coast, chemicals) will be arranged in various categories. The coating systems will be adapted to these.

AK: Alkyd resin

EP: Epoxy resin

PUR: Polyurethane

NDFT: Nominal dry film thickness (measured dry)

4. Requirements for corrosion protection

Based on DIN EN ISO 12944 - 1 to 8 Corrosion protection of steel structures, the following painting systems must be used, **provided no other specifications are ordered.**

5. Painting system 1

Painting system	1
Corrosivity category (term of protection)	C3 (M)
System no. according to DIN EN 12944-5	A3.02
Examples for environmental conditions according to EN ISO 12944-2	Urban and industrial atmospheres, moderate contamination due to sulphur dioxide. Coastal areas with low salt content
Application	For low alloy steels
Foundation coating AK	OSNAPROTECT 1K Article 7049-xxxx-20
Surface preparation according to DIN EN 12944-4	Preparation level Sa 2 ^{1/2} Weld splatter and any slag residues removed
Minimum roughness on turning/milling processes	RZ ≥ 25 µm
Coating procedure according to DIN EN 12944-7	Spray, preferably airless
Nominal dry film thickness NDFT foundation coating according to DIN EN ISO 12944-5	80 µm
Highest film thickness foundation coating (dry) according to DIN EN ISO 12944-5	see standard
Top coating(s) AK	OSNALKYD 1K Article 4062-xxxx-20
Surface preparation before the intermediate and top coating	Surface free of dirt, grease and oil
Coating procedure according to DIN EN 12944-7	Spray, preferably airless
Nominal dry film thickness NDFT top coating(s) according to DIN EN ISO 12944-5	80 µm
Highest film thickness top coatings (dry) according to DIN EN ISO 12944-5	see standard
Total film thickness of the system (dry) NDFT	160 µm
Minimum film thickness of the system (dry)	140 µm

The film thicknesses for foundation and top coatings must be verified.

Specification Coating

6. Painting system 2

Painting system	2
Corrosivity category (term of protection)	C4 (M)
System no. according to DIN EN 12944-5	A4.05
Examples for environmental conditions according to EN ISO 12944-2	Industrial and coastal areas with low salt content e.g. chemical facilities, swimming pools
Application	For low alloy steels
Foundation coating EP	OSNAPOX 2K ZP Article 7009-xxxx-0060
Surface preparation according to DIN EN 12944-4	Preparation level Sa 2½ Weld splatter and any slag residues removed
Minimum roughness on turning/milling processes	RZ ≥ 25 µm
Coating procedure according to DIN EN 12944-7	Spray, preferably airless
Nominal dry film thickness NDFT foundation coating according to DIN EN ISO 12944-5	100 µm
Highest film thickness foundation coating (dry) according to DIN EN ISO 12944-5	see standard
Top coating(s) PUR	OSNACRYL PUR G Article 3040-xxxx-0011
Surface preparation before the intermediate and cover paintwork	Surface free of dirt, grease and oil
Coating procedure according to DIN EN 12944-7	Spray, preferably airless
Nominal dry film thickness NDFT top coating(s) according to DIN EN ISO 12944-5	80 µm
Highest film thickness top coatings (dry) according to DIN EN ISO 12944-5	see standard
Total film thickness of the system (dry) NDFT	180 µm
Minimum film thickness of the system (dry)	160 µm

The film thicknesses for foundation and top coatings must be verified.

7. Painting system 3

Painting system	3
Corrosivity category (term of protection)	C5-I (M)
System no. according to DIN EN 12944-5	A5.05
Examples for environmental conditions according to EN ISO 12944-2	Industrial areas with increased humidity and more aggressive atmospheres
Application	For low alloy steels
Foundation coating EP	OSNAPOX 2K ZP ground Article 7009-xxxx-0060
Surface preparation according to DIN EN 12944-4	Preparation level Sa 2½ Weld splatter and any slag residues removed
Minimum roughness on turning/milling processes	RZ ≥ 25 µm
Coating procedure according to DIN EN 12944-7	Spray, preferably airless
Nominal dry film thickness NDFT foundation coating according to DIN EN ISO 12944-5	160 µm
Highest film thickness foundation coating (dry) according to DIN EN ISO 12944-5	see standard
Top coating(s) PUR	OSNACRYL PUR G paint Article 3040-xxxx-0011
Surface preparation before the intermediate and cover paintwork	Surface free of dirt, grease and oil
Coating procedure according to DIN EN 12944-7	Spray, preferably airless
Nominal dry film thickness NDFT top coating(s) according to DIN EN ISO 12944-5	80 µm
Highest film thickness top coatings (dry) according to DIN EN ISO 12944-5	see standard
Total film thickness of the system (dry) NDFT	240 µm
Minimum film thickness of the system (dry)	220 µm

The film thicknesses for foundation and top coatings must be verified.

8. Painting system 4

Painting system	4
Corrosivity category (term of protection)	C3 (M)
System no. according to DIN EN 12944-5	See Technical datasheets
Examples for environmental conditions according to EN ISO 12944-2	Urban and industrial atmosphere, moderate contamination by sulphur dioxide, coastal areas exposed to a low salt load
Application	Temperature to 400°C for a short time to 500°C
Foundation coating Polysiloxan	OSNASIL zinc dust paint Article 0039-93636
Surface preparation according to DIN EN 12944-4	Preparation level Sa 2½ Weld splatter and any slag residues removed Edges bevelled / rounded
Minimum roughness on turning/milling processes	RZ ≥ 25 µm
Coating procedure according to DIN EN 12944-7	Spray, preferably airless
Nominal dry film thickness NDFT foundation coating according to DIN EN ISO 12944-5	40 µm
Highest film thickness foundation coating (dry) according to DIN EN ISO 12944-5	see standard
Top coating(s) Polysiloxan	OSNASIL HT matt paint Article 6039-95890
Surface preparation before the intermediate and cover paintwork	Surface free of dirt, grease and oil
Coating procedure according to DIN EN 12944-7	Spray, preferably airless
Nominal dry film thickness NDFT top coating(s) according to DIN EN ISO 12944-5	40 µm
Highest film thickness top coatings (dry) according to DIN EN ISO 12944-5	see standard
Total film thickness of the system (dry) NDFT	80 µm
Minimum film thickness of the system (dry)	60 µm

The film thicknesses for foundation and top coatings must be verified.

9. Painting system 5

Painting system	5
Corrosivity category (term of protection)	C3 (M)
System no. according to DIN EN 12944-5	See Technical datasheets
Examples for environmental conditions according to EN ISO 12944-2	Urban and industrial atmosphere, moderate contamination by sulphur dioxide, coastal areas exposed to a low salt load
Application	temperatures of between -20 and 200 °C for e.g. Pendulum Flap Gates or Rotary Gate Valves
Foundation coating EPE	OSNAPOX Z 1K ground Article 7038-7035
Surface preparation according to DIN EN 12944-4	Preparation level Sa 2½ Weld splatter and any slag residues removed
Minimum roughness on turning/milling processes	RZ ≥ 25 µm
Coating procedure according to DIN EN 12944-7	Spray, preferably airless
Nominal dry film thickness NDFT foundation coating according to DIN EN ISO 12944-5	80 µm
Highest film thickness foundation coating (dry) according to DIN EN ISO 12944-5	see standard
Top coating(s) EPE	OSNAPOX Z 1K paint Article 4038-xxxx-20, sdm
Surface preparation before the intermediate and cover paintwork	Surface free of dirt, grease and oil
Coating procedure according to DIN EN 12944-7	Spray, preferably airless
Nominal dry film thickness NDFT top coating(s) according to DIN EN ISO 12944-5	80 µm
Highest film thickness top coatings (dry) according to DIN EN ISO 12944-5	see standard
Total film thickness of the system (dry) NDFT	160 µm
Minimum film thickness of the system (dry)	140 µm

The film thicknesses for foundation and top coatings must be verified.

10. Painting system 6

Painting system	6
Corrosivity category (term of protection)	C3 (M)
System no. according to DIN EN 12944-5	See Technical datasheets
Examples for environmental conditions according to EN ISO 12944-2	Urban and industrial atmosphere, moderate contamination by sulphur dioxide, coastal areas exposed to a low salt load
Application	Temperature to -40°C maximum up to +120°C
Foundation coating EP	OSNAPOX 2K ZP ground Article 7009-xxxx-0060
Surface preparation according to DIN EN 12944-4	Preparation level Sa 2½ Weld splatter and any slag residues removed
Minimum roughness on turning/milling processes	RZ ≥ 25 µm
Coating procedure according to DIN EN 12944-7	Spray, preferably airless
Nominal dry film thickness NDFT foundation coating according to DIN EN ISO 12944-5	100 µm
Highest film thickness foundation coating (dry) according to DIN EN ISO 12944-5	see standard
Top coating(s) PUR	OSNACRYL PUR G paint Article 3040-xxxx-0011
Surface preparation before the intermediate and cover paintwork	Surface free of dirt, grease and oil
Coating procedure according to DIN EN 12944-7	Spray, preferably airless
Nominal dry film thickness NDFT top coating(s) according to DIN EN ISO 12944-5	60 µm
Highest film thickness top coatings (dry) according to DIN EN ISO 12944-5	see standard
Total film thickness of the system (dry) NDFT	160 µm
Minimum film thickness of the system (dry)	140 µm

The film thicknesses for foundation and top coatings must be verified.

11. Examples for the painting systems of the company Osnatol (available worldwide)

Painting system 1 / corrosivity category C3 M

Foundation coating

OSNAPROTECT 1 K Finish ground
Article 7049-xxxx-20
NDFT: 80 µm

Top coating

OSNALKYD 1 K
Article 4062-xxxx-20
NDFT: 80 µm

Painting system 2 / corrosivity category C4 M

Foundation coating

OSNAPOX 2K ZP ground
Article 7009-xxxx-0060
NDFT: 100 µm

Top coating

OSNACRYL PUR G paint
Article 3040-xxxx-0011
NDFT: 80 µm

Painting system 3 / corrosivity category C5I M

Foundation coating

OSNAPOX 2K ZP ground
Article 7009-xxxx-0060
NDFT: 80 µm

Intermediate coating

OSNAPOX 2K EG
Article 3009-x06xx-0060
NDFT: 80 µm

Top coating

OSNACRYL PUR G paint
Article 3040-xxxx-0011
NDFT: 80 µm

12. Comments

- Only one coating system or harmonised coating materials from one manufacturer can be used on an object.
- The technical data sheets of the coating material manufacturer must be observed. The must be submitted together with the test report (see below).
- **In the event that only a foundation is ordered: it is obligatory to use the foundation coating of the corresponding painting system of the company Hempel.**
- Prior to preparation, the coating materials must be checked by the processor to ensure it is fault-free.
- Type plates, title blocks, brass components, hydraulic screw connections and pipes must be taped prior to the start of surface preparation. They must not be exceeded.
- Machined surfaces that are not coated must be protected from corrosion.
Mining, loader and drilling machine sector: All unpainted surfaces such as sliding areas, piston rods, etc. must preferably be coated with anti-corrosion oil Rustilo 647, Castrol Industrie GmbH.
- Components with particular colour coding and/or safety devices must not be processed with another colour as that specified.
- Components already coated with the final layer (purchased parts) are not re-coated.
- If steel structures are completely coated prior to assembly, all contact surfaces of the field joints must only be provided with a foundation coating. These contact surfaces must be taped after the foundation coating.
- Foundation coatings must not be applied with the roller.
- To measure the film thickness, only use calibrated devices.

13. Standard RAL tones according to products

When no other regulations are implemented, the following applies:

	Minerals	Mining	
		Loading/lowering machines and drilling machines	Crusher and conveyor systems
Primer coat:	According to manufacturer (light)	According to manufacturer (light)	According to manufacturer (light)
Top coat:	RAL 5003	RAL 9001	RAL 9016
Attachment points:	RAL 3024	RAL 3024	RAL 3024
Miscellaneous:	RAL 7035: Switch cabinet, hydraulic aggregate cabinet	RAL 9005: Crawler chain, shovel teeth, foot pedals RAL 3024: Lubrication points	

14. Quality documentation

The manufacturer ensures that the forms made available by HAZEMAG & EPR are used. The forms must be completed and signed.

The following documents must be included in the delivery of the goods:

- Recording of surface treatments (form 01FO1014 "Coating Test Report").
- Technical data sheet of the coating material manufacturer.

Furthermore, the documents are sorted according to assemblies or parts, including specification of the HAZEMAG & EPR order number, part number and drawing number, prior to submission via e-mail to zeugnisverwaltung@hazemag.de.

Note: HAZEMAG & EPR reserves the right to agree or check the features to be verified (from drawings, ITP, dimension sheets, etc.) with the supplier.

15. Related documents

- Forms listed

16. Contact to company OSNATOL-Werk GmbH & Co. KG

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