

SYF std 2000, edition 3

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Electrolytic zinc and zinc alloy coatings with passivation



Scope

The scope of this standard is to serve as a complement to the standards SS-EN ISO 2081 and ISO 19598.

Limitations

If issues covered by SS-EN ISO 2081 and SS 19598 are not treated in this standard, the requirements in the other standards apply.

Definitions

Chromating

Conversion coatings containing hexavalent chromium, chromates. This type of coatings do not fulfil the requirements of ROHS and ELV

Passivation

Conversion coatings free from hexavalent chromium. They may contain trivalent chromium.

Denomination for passivation

Passivation free from hexavalent chromium

	This standard	ISO 19598
Blue, bright passivation, decorative finish	P1	An
Yellow passivation	P2	-
Green passivation (for future use)	P3	-
Black passivation	P4	Fn
Transparent, iridescent passivation (thick-layer passivation)	P5	Cn

Post treatment

No post treatment	(T0)
Lacquer	T1
Organic or inorganic sealer	T2
Organic pigmented	T3
Grease, oil, etc.	T4
Wax	T5

Denomination for heat treatment

SR = stress relief before surface treatment
 ER = hydrogen relief after surface treatment
 Temperature in °C inside parenthesis
 Duration in hours after parenthesis

Example:

1. Hydrogen relief of blue passivated 8 µm zinc on steel at 190°C for 12 h:
Fe/Zn8/ER(190)12/P1
2. Stress relief of steel part to be plated with 8 µm of black passivated zinc:
Fe/SR(200)2/Zn8/P4

Nomenclature - examples	SYF std 2000, edition 1	ISO 2081	ISO 19598	ISO 4042
5 µm zinc on steel, blue chromating		Fe/Zn5/A	-	A2B
8 µm zinc on steel, yellow chromating		Fe/Zn8/C	-	A3C
12 µm zinc on steel, green chromating		Fe/Zn12/D	-	A4D
15 µm zinc on steel, black chromating		Fe/Zn15/F	-	A5R
8 µm zinc on steel, blue passivation	Fe/Zn8/P1		Fe//Zn8//An//T0	A3B(+ELV/RoHS)
8 µm zinc on steel, yellow passivation	Fe/Zn8/P2		Fe//Zn8//An//T0	A3C
8 µm zinc on steel, green passivation	Fe/Zn8/P3			A3D
8 µm zinc on steel, black passivation - with sealer	Fe/Zn8/P4/T2		Fe//Zn8//Fn//T2	A3R
8 µm zinc on steel, iridescent passivation	Fe/Zn8/P5		Fe//Zn8//Cn//T0	A3A
8 µm zinc-nickel on steel, black passivation – no sealer	Fe/ZnNi8/P4		Fe//ZnNi8//Fn//T0	P3R
8 µm zinc-nickel on steel, black passivation – with sealer	Fe/ZnNi8/P4/T2		Fe//ZnNi8//Fn//T2	P3R
8 µm zinc-nickel on steel, iridescent passivation	Fe/ZnNi8/P5		Fe//ZnNi8//Cn//T0	R3A
12 µm zinc-iron on steel, black passivation – no sealer	Fe/ZnFe12/P4		Fe//ZnFe12//Fn//T0	R4R
12 µm zinc-iron on steel, black passivation – with sealer	Fe/ZnFe12/P4/T2		Fe//ZnFe12//Fn//T2	R4R

Type of surface protection coating	Coating designation	Type of electroplating	Minimum test time h			
			Without white corrosion	Without base metal corrosion		
				5 µm	8 µm	12 µm
Blue passivated electroplated zinc coating	Fe/Zn/P1	Barrel	8	48	72	96
		Rack	16	72	96	120
Yellow or iridescent passivated electroplated zinc coating	Fe/Zn/P2 Fe/Zn/P5	Barrel	72	144	216	288
		Rack	120	192	264	336
Yellow or iridescent passivated and sealed electroplated zinc coating	Fe/Zn/P2/T2 Fe/Zn/P5/T2	Barrel	120	192	264	360
		Rack	168	264	360	480
Thick-layer passivated electroplated zinc-iron alloy coating	Fe/ZnFe/P5	Barrel	96	168	240	312
		Rack	168	240	312	384
Thick-layer passivated and sealed electroplated zinc-iron alloy coating	Fe/ZnFe/P5/T2	Barrel	144	216	288	384
		Rack	216	312	408	528
Iridescent passivated electroplated zinc-nickel alloy coating	Fe/ZnNi/P5	Barrel	120	480	720	720
		Rack	192	600	720	720
Iridescent passivated and sealed electroplated zinc-nickel alloy coating	Fe/ZnNi/P5/T2	Barrel	168	600	720	720
		Rack	360	600	720	720
Black passivated electroplated zinc coating	Fe/Zn/P4	Barrel	24	48	72	96
		Rack	48	72	96	120
Black passivated and sealed electroplated zinc coating	Fe/Zn/P4/T2	Barrel	72	144	216	288
		Rack	120	192	264	360
Black passivated and sealed electroplated zinc-iron alloy coating	Fe/ZnFe/P4/T2	Barrel	120	192	264	360
		Rack	168	264	360	480
Black passivated and sealed electroplated zinc-nickel alloy coating	Fe/ZnNi/P4/T2	Barrel	168	480	720	720
		Rack	240	600	720	720
Black passivated electroplated zinc-nickel alloy coating	Fe/ZnNi/P4	Barrel	48	480	720	720
		Rack	72	600	720	720

The table describes test by method NSS according to SS-EN ISO 9227 on reference area and not on complete article.