

PAINTING SYSTEMS for PR 7501 EXPLOSION-PROOF HOUSINGS

Lp.	Painting system	System name	Used lacquers		Thickness of paint coating	
1	SE	Epoxide lacquer (wet)	Any RAL	Sigmacover 456	70 µm ±15 µm	
2			RAL 9006	Temacoat RM 40	80 µm ±15 µm	
3	SPU	Polyurethane lacquer (wet)	Any RAL	Sigmacover 280	70 µm	120 µm ±20 µm
				Sigmadur 520	50 µm	
4			RAL 9006	Sigmacover 280	70 µm	120 µm ±20 µm
				Temadur 50	50 µm	

GENERAL FEATURES OF DIFFERENT TYPES OF PAINT

○ - excellent ▲ - good ● - bad	Main properties	
	Epoxy	Epoxy + polyurethane
	E, SE	SE+SPU
Durability of gloss	●	○
Durability of color	●	○
Resistance against		
Submergence in water	○	▲
Rain (water vapor condensation)	○	○
Solvents	▲	●
Solvents (splash)	○	○
Acids	●	●
Acids (splash)	▲	▲
Alkalies	○	●
Alkalies (splash)	○	○
Temperature resistance in dry conditions		
Up to 100°C	○	○
Up to 150°C	▲	▲
Up to 200°C	●	●
Physical properties		
Erasure resistance	○	▲
Impact resistance	▲	○
Flexibility	○ / ▲	○
Hardness	○ / ▲	▲
Resistance against temperature changes	●	▲
Application		
Indoor location	Yes	Yes
Outdoor location	In dark places	Yes
	Exposed to sunlight	No*
	* Not recommended - after 3 to 4 years yellowing and chalking can occur, which will cause loss of gloss and color.	

APPLICATIONS OF PAINTING SYSTEMS

Painting system	Application	
	Indoor location	Outdoor location
PS5	<ul style="list-style-type: none"> Offices, shops, hotels, schools Non-heated buildings with mist condensation Production halls with high humidity and contamination, e.g. food plants, breweries, etc. Chemical plants, swimming pools, shipyards, repair shipyards Buildings and areas with almost continuous mist condensation and high contamination 	<ul style="list-style-type: none"> Rural atmospheres, urban and industrial atmospheres with moderate sulphur dioxide pollution Coastal areas with low salinity Industrial areas and coastal areas with moderate salinity Industrial areas with high humidity and aggressive atmospheres Desert areas
PS6	<ul style="list-style-type: none"> As above 	<ul style="list-style-type: none"> As above, plus Coastal and offshore areas with high salinity

TESTING METHODS OF PAINTING SYSTEMS

Corrosion category	Durability period	Chemical resistance in (h) ISO 2812-1	Water steam condensation in (h) ISO 6270	Neutral salt mist in (h) ISO 7253
C2	L	-	48	-
	M		48	
	H		120	
C3	L	-	48	120
	M		120	240
	H		240	480
C4	L	-	120	240
	M		240	480
	H		480	720
C5-I	L	168	240	480
	M		480	720
	H		720	1440
C5-M	L	-	240	480
	M		480	720
	H		720	1440

CORROSION CATEGORY ACCORDING TO ISO 12944-2

Corrosion category	Corrosion exposure	Layer thickness loss of carbon steel in (µm) (during first year exposure)	Main features of environment
C2	Low	1,3-25	Atmospheres with low level of pollution, mostly rural areas.
C3	Medium	25-50	Urban and industrial atmospheres, moderate sulphur dioxide pollution. Coastal areas with low salinity.
C4	High	50-80	Industrial areas and coastal areas with moderate salinity.
C5-I	Very high - industrial	80-200	Industrial areas with high humidity and aggressive atmospheres.
C5-M	Very high - marine	80-200	Coastal and offshore areas with high salinity.
Durability of painting systems: L - low, from 2 to 5 years M - medium, from 5 to 15 years H - high, over 15 years		Durability of painting systems is not guarantee period. The guarantee period is a legal regulation. There are no rules which connect both regulations.	

PAINTING SYSTEMS: CORROSION CATEGORY AND DURABILITY

Painting system = base material + surface finishing + paint layer

Painting system	Base material	Surface finishing	Paint type	No. of layers	Thickness of one layer in (µm)	Total thickness of the layers in (µm)
PS5	Copper free Aluminum alloy • AK-11B 1C • CG-A1Si12 no. 230	1. Vibration abrasive treatment in ceramic chips. 2. Washing in alkalies.	E	1	70	70
			SE			
PS6	• EN AC-A1Si12mod • EN AC-44200mod	3. Yellow chromating or chromium free, conversion treatment.	SE + SPU	1 + 1	70 + 50	120

Painting system	Applications	Maximum durability period	UV rays resistant
PS5	C2, C3 → C4 → C5-I → C5-M →	H M L L	No
PS6	C2, C3, C4 → C5-I → C5-M →	H M M	Yes