Industrial coating
Coil coating primer, solvent-based, white

Basis Polyester

				no talc -50 % anti-corrosion pigment	
			Control	**SILLITIN Z 89**	**AKTIFIT AM**
	T 24402.1		[22]	[28]	[31]
Component A	Dynapol LH 820-16	(1)	36.0	36.0	36.0
Component B	Aerosil 200	(1)	0.2	0.2	0.2
	Heucophos SAPP	(2)	9.5	4.75	4.75
	Kronos 2059	(3)	6.6	6.6	6.6
	Luzenac 10M0	(4)	5.7	---	---
	SILLITIN Z 89	(5)	---	10.45	---
	AKTIFIT AM	(5)	---	---	10.45
Component C	Methoxy propyl acetate (MPA)		13.5	13.5	13.5
Component D	Dynapol LH 820-16	(1)	1.9	1.9	1.9
	Epikote Resin 1004, 50 % in MPA	(6)	5.7	5.7	5.7
	Vesticoat Catalyst C 31	(1)	1.4	1.4	1.4
	Vestanat EP-B 1481 ND	(1)	5.7	5.7	5.7
	Resiflow FL 2, 10 % in Solvesso 150	(7)	2.8	2.8	2.8
	Nacure X49-110, 5 % in Isopropanol	(8)	1.0	1.0	1.0
	Cymel 202	(9)	2.4	2.4	2.4
	Solvesso 150	(10)	7.6	7.6	7.6
	Total % by weight		100.0	100.0	100.0

Recommendation

[28] SILLITIN Z 89: for cost-effective / low-cost formulations

[31] AKTIFIT AM: easy dispersing
higher hardness right after the corrosion test

Dependent on the formulation and the substrate it is advised to adjust the loading of the anti-corrosion pigment (e. g. 30 %).

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Note

Application behavior, when exclusively talc is replaced by AKTIFIT AM (no change for the anti-corrosion pigment):

- good rheological properties, especially suitable for the direct roller coating process: considerably better leveling than talc, thus avoiding surface structures, which would be visible in the following topcoat and would deteriorate the appearance of the coating
- quick deaeration after roller application, thus a smooth surface is feasible
- improved hiding power, thus the amount of titanium dioxide can be reduced, which has a positive impact on costs

Mixing

Grinding stage

- charge component A
- stir in component B at approx. 500 min^{-1}
- add component C
- grind by dissolver with adapted bead mill (9 min, 6.3 m/s, cooled)

Let down stage and completion

- premix component D with a paddle mixer
- add component D to the grinding stage and mix in homogeneously (1 min, 6.3 m/s)

Application

Substrate:	hot dip galvanized (HDG) steel panels with Bonder 1303 treatment
Primer:	with wire-wound rod 14 µm wet film thickness (dry film thickness 5 µm)
Top coat:	Akzo PE-340-2027 with wire-wound rod 32 µm wet film thickness (dry film thickness 20 µm)

Stoving

Primer:	oven at 350°C, dwell time 24 s, PMT 230°C
Top coat:	continuous circulating air oven at 270°C, dwell time 35 s, PMT 240°C

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Technical data (Primer)	Fineness of grind		µm	< 10	< 10	< 10
	PVC		%	20.1	20.8	20.8
Properties (with top coat)	Color d/8°	L*			all 89,0	
	Color d/8°	a*			all 3,2	
	Color d/8°	b*			all 15,8	
	Gloss 60°	DIN EN ISO 2813			all 40 GU	
	Cross-cut test (1 mm)	DIN EN ISO 2409			all 0	
	Pendulum hardness	DIN EN ISO 1522	s	64	64	66
	Cupping test	DIN EN ISO 1520	mm	11.1	11.6	11.2
	Impact test (Reverse impact)	ASTM D 2794-93	inch-pounds	52	52	54
	Humidity test DIN EN ISO 6270-2 CH, 1000 h					
	Cross-cut test 1 mm after 48 h at 23°C / 50 % rel. humidity	DIN EN ISO 2409			all 0	
	Cupping test after 72 h at 23°C / 50 % rel. humidity	DIN EN ISO 1520	mm		all 9-10	
	Remainig pendulum hardness					
	right after humidity test		%	66	63	91
	after 72 h at 23°C / 50 % rel. humidity		%	103	96	117
	Rating of degradation according to DIN EN ISO 4628 part 1-8			no visible defects no blistering on the surface no blistering at scribe no rust at scribe no delamination no corrosion		

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		Control	SILLITIN Z 89	AKTIFIT AM
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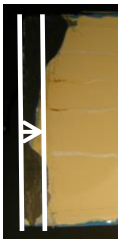
Salt spray test DIN EN ISO 9227 NSS, 1000 h				
Cross-cut test 1 mm DIN EN ISO 2409 after 48 h at 23°C / 50 % rel. humidity			all 0	
Cupping test DIN EN ISO 1520 after 72 h at 23°C / 50 % rel. humidity	mm		all 10-11	
Remainig pendulum hardness right after humidity test	%	107	111	121
after 72 h at 23°C / 50 % rel. humidity	%	118	128	129
Rating of degradation according to DIN EN ISO 4628 part 1-8				
Surface		no visible defects, no blistering	localized, single and small blistering (close to the edge or scribe)	
Blistering at scribe				
Disbonding / rust creepage at scribe				
average of delamination	mm	3.2	3.9	4.3
corrosion at scribe	mm	2.2	2.7	2.9
				
average of delamination at cutted edge	mm	11	10	9
				

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Suppliers

(1) Evonik Industries
(2) Heubach
(3) Kronos International
(4) Imerys Talc
(5) HOFFMANN MINERAL
(6) Westlake
(7) Worlée-Chemie
(8) King Industries (Worlée-Chemie)
(9) Allnex
(10) ExxonMobil

More information on this topic:

Neuburg Siliceous Earth in Polyester Based Coil Coating Primer

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