Industrial coating
Anti-corrosion 2K epoxy clear coat, water-based improved blushing resistance

Basis: Epoxy resin (solid epoxy resin and hydrophobic amine)

			Control	SILLITIN Z 89	SILFIT Z 91	AKTISIL AM	AKTISIL AM	TP 2008037
				15 pbw	15 pbw	15 pbw	25 pbw	25 pbw
	L 00001.1		[1]	[3]	[6]	[4]	[15]	[26]
Component A	Beckocure EH 2260w/41WA	(1)	61.1	61.1	61.1	61.1	61.1	61.1
	SILLITIN Z 89	(2)	---	15.0	---	---	---	---
	SILFIT Z 91	(2)	---	---	15.0	---	---	---
	AKTISIL AM	(2)	---	---	---	15.0	25.0	---
	TP 2008037	(2)	---	---	---	---	---	25.0
Component B	Beckopox EP 147w	(1)	12.5	12.5	12.5	12.5	12.5	12.5
	Beckopox EP 386w/52WA	(1)	37.5	37.5	37.5	37.5	37.5	37.5
	Total parts by weight		111.1	126.1	126.1	126.1	136.1	136.1

Recommendation

[3]	SILLITIN Z 89:	best price/performance ratio
[6]	SILFIT Z 91:	color neutral, improved blushing resistance
[4]	AKTISIL AM:	good corrosion resistance, reduced delamination at scribe
[15]	AKTISIL AM:	best corrosion resistance, nearly no delamination at scribe
[26]	TP 2008037:	like AKTISIL AM, but more color neutral

Preparation

The preparation of component A was realized by dissolver with adapted bead mill after predispersion by grinding.
The raw materials of component B were premixed.

Application

Mix component A and B shortly before application and dilute with water to spray viscosity.
Compressed air, Walther Pilot spray gun, nozzle diameter 2 mm, approx. 1.7 bar
Substrate: steel (Gardobond OC) and aluminum (Gardobond F), both without surface treatment
Drying: 30 min at 60 °C, dry film thickness 50-80 µm
The testings were run after storage 7 d at 23 °C / 50 % rH.

Suppliers

(1) Allnex
(2) HOFFMANN MINERAL

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			Control	SILLITIN Z 89	SILFIT Z 91	AKTISIL AM	AKTISIL AM	TP 2008037
				15 pbw	15 pbw	15 pbw	25 pbw	25 pbw
	L 00001.1		[1]	[3]	[6]	[4]	[15]	[26]
Technical Data	PVC	%	0	9.9	9.9	9.9	15.5	15.5
	Solids content (not diluted)	%	51.4	57.1	57.1	57.1	60.3	60.3
	Optical properties							
	Substrate: steel (Gardobond OC)							
	Color d/8° L*		67.6	65.7	63.8	64.5	63.3	63.7
	Color d/8° a*		0.1	0.1	0.2	-0.1	-0.1	0.1
	Color d/8° b*		1.1	3.8	3.7	7.5	9.6	5.0
	Mechanical properties							
	Substrate: steel (Gardobond OC) and aluminum (Gardobond F)							
	Cross-cut test (1 mm) *DIN EN ISO 2409*		0	0	0	0	0	0
	Substrate: steel (Gardobond OC)							
	Cupping test (Erichsen) *DIN EN ISO 1520*	mm	10.0	8.3	8.0	7.9	6.3	7.4
	Humidity test DIN EN ISO 6270-2 CH, 240 h							
	Substrate: steel (Gardobond OC) and aluminum (Gardobond F)							
	Degree of blistering *DIN EN ISO 4628-2*				all: no blistering			
	Degree of rusting *DIN EN ISO 4628-3*				all Ri 0: no rusting			
	Substrate: aluminum (Gardobond F)							
	Blushing resistance, measured as ΔE before/after humidity test		6.6	4.7	2.5	4.2	3.1	3.6

A higher ΔE indicates a higher opacity (corresponding to a stronger milky-white blushing).

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		Control	SILLITIN Z 89	SILFIT Z 91	AKTISIL AM	AKTISIL AM	TP 2008037
			15 pbw	15 pbw	15 pbw	25 pbw	25 pbw
L 00001.1		[1]	[3]	[6]	[4]	[15]	[26]
Salt spray test DIN EN ISO 9227 NSS, 240 h							
Substrate: steel (Gardobond OC)							
Delamination at scribe (∅) *DIN EN ISO 4628-8*	mm	20.9	4.0	5.3	2.8	1.5	1.7
							
Substrate: aluminum (Gardobond F)							
Delamination at scribe *DIN EN ISO 4628-8*		all: no delamination, no rusting					

More information on this topic is available in this technical report:
Optimization of Corrosion Protection Properties of Waterborne 2C Epoxy Clear Coats

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