Industrial coating
Coil coating topcoat, solvent-based, white, glossy
good mechanical properties and resistance to weathering

Basis: Polyester

			Substitution of 20 % titanium dioxide	
		Control	by equal volume	by equal weight
T 24401.1		[1]	[18]	[19]
Dynapol LH 538-02	(1)	43.2	43.2	43.2
Solvesso 150	(2)	6.0	6.0	6.0
Aerosil 200	(1)	0.2	0.2	0.2
Kronos 2310	(3)	28.1	22.5	22.5
AKTIFIT AM	(4)	---	3.7	5.6
Cymel 303 LF	(5)	7.0	7.0	7.0
Cymel 327	(5)	1.5	1.5	1.5
Nacure 2500	(6)	0.7	0.7	0.7
Resiflow FL 2	(7)	0.5	0.5	0.5
Byk-057	(8)	0.5	0.5	0.5
Butyl diglycol acetate	(9)	12.3	12.3	12.3
Total parts by weight		100.0	98.1	100.0

Preparation

- Dynapol and Solvesso were charged
- Aerosil, Kronos and AKTIFIT AM were stirred in at 500 rpm
- grinding by dissolver with adapted bead mill (9 min, 6.3 m/s, cooled)
- the remaining components were premixed with a propeller stirrer, added after the grinding and incorporated homogeneously (1 min, 6,3 m/s)

Application

The formulations were applied to galvanized steel plates (0.55 mm, pretreated chromate-free, Bonder 1303, with PU standard primer 5 µm) and stoved in a continuous furnace with circulating air (320°C, dwell time 38 s, PMT 241°C).

Technical Data

Fineness of grind	µm	< 10	< 10	< 10
PVC	%	17,5	17,5	19,1
Solids content (by volume)	%	53,7	53,7	54,1

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HOFFMANN MINERAL GmbH • P. O. Box 14 60 • D-86619 Neuburg (Donau) • Phone (+49 84 31) 53-0 • Fax (+49 84 31) 53-3 30
Internet: www.hoffmann-mineral.com • e-Mail: info@hoffmann-mineral.com

					Substitution of 20 % titanium dioxide	
				Control	by equal volume	by equal weight
	T 24401.1			[1]	[18]	[19]
Properties	Dry film thickness		µm	17	16	17
	Color d/8°	L*		94.5	93.6	93.8
	Color d/8°	a*		-1.3	-1.3	-1.3
	Color d/8°	b*		-1.3	-1.3	-1.1
	Haze		HU	205	367	384
	Gloss 20°	DIN EN ISO 2813	GU	71	41	28
	Gloss 60°	DIN EN ISO 2813	GU	92	81	73
	Cross-cut test (1 mm)	DIN EN ISO 2409		0	0	0
	Pendulum hardness	DIN EN ISO 1522	s	167	175	174
	Impact test	DIN EN ISO 6272-1	kg·cm	55	55	50
	Cupping test	DIN EN ISO 1520	mm	7.9	7.9	7.9
	Scratch resistance Corrocutter		N	18	20	20
	(force applied to scratch the coating down to the substrate)					
	MEK resistance		double strokes	> 200	> 200	> 200
	QUV-B 313 nm, 400 h (cycle: 4 h UV 60°C + 4 h condensation 50°C)					
	Gloss 20°before weathering		GU	71	41	28
	Gloss 20° after weathering		GU	33	22	16
	remaining gloss 20°		*%*	*47*	*54*	*57*
	Gloss 60°before weathering		GU	94	82	74
	Gloss 60° after weathering		GU	71	58	52
	remaining gloss 60°		*%*	*76*	*71*	*70*
	Chalking (rel.)		%	1	1	1
	∆ E		%	0.7	0.9	0.7

Suppliers

(1) Evonik Industries
(2) ExxonMobil
(3) Kronos International
(4) HOFFMANN MINERAL
(5) Allnex
(6) King Industries (Worlée-Chemie)
(7) Worlée-Chemie
(8) Byk Chemie
(9) BASF

More information on this topic is available in this technical report:
Neuburg Siliceous Earth in a White Polyester-based Coil Coating Top Coat

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