Low cost interior dispersion paint, no co-solvent, matte
high brightness
improving hiding power, reducing titanium dioxide

Basis Straight acrylic dispersion

			Control	40 pbw SILFIT Z 91	80 pbw SILFIT Z 91	40 pbw SILFIT Z 91 -10 % TiO_2	80 pbw SILFIT Z 91 -20 % TiO_2
	F 10402.2		[39]	[2]	[4]	[35]	[46]
Component A	Demineralized water		300	300	300	300	300
	Natrosol 250 HBR	(1)	4	4	4	4	4
	Caustic soda solution 20 %		2	2	2	2	2
	Joncryl 8078	(2)	9	9	9	9	9
	Parmetol MBX	(3)	1	1	1	1	1
	Foamaster MO 2134	(2)	2	2	2	2	2
Component B	Tiona 828	(4)	60	60	60	54	48
	SILFIT Z 91	(5)	---	40	80	40	80
	Socal P2	(6)	50	50	50	50	50
	Plustalc H15	(7)	90	90	90	90	90
	Omyacarb 2 GU	(8)	80	80	80	80	80
	Omyacarb 5 GU	(8)	210	210	210	210	210
	Arbocel B 600	(9)	---	---	---	20	---
Component C	Foamaster MO 2134	(2)	2	2	2	2	2
	Acronal ECO 6270	(2)	84	84	84	84	84
	Demineralized water		66	66	66	66	66
	Total parts by weight		960	1000	1040	1014	1028

Recommendation

[2] highest brightness
[4] best hiding power
[35] good wet-scrub resistance and matting, titanium dioxide savings
[46] good hiding power despite reducing further titanium dioxide, high cost reduction potential

Mixing

- component A: charge water and add Natrosol, let swell approx. 30 min while stirring
- add remaining ingredients of component A and stir for another 5 min
- premix and add component B, disperse by dissolver under cooling with water
- complete by component C and stir for another 5 min

The properties were determined on films applied with a doctor blade.

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	F 10402.2		[39]	[2]	[4]	[35]	[46]
Technical Data	Solids content w/w	%	56.6	58.3	59.9	58.9	59.3
	Titanium dioxide content w/w	%	6.3	6.0	5.8	5.3	4.7
	PVC	%	82.0	83.2	84.3	84.1	84.0
	Dynamic viscosity, 23 °C						
	at 0.1 s^{-1}	Pa·s	11.1	8.9	8.6	15.7	9.2
	at 1000 s^{-1}	Pa·s	0.14	0.11	0.09	0.15	0.11
	Storage stability 6 months, 23 °C		good	good	good	good	good
Properties	Color d/8°, DIN 5033-1						
	L*		97.6	97.5	97.3	97.4	97.3
	a*		-0.4	-0.4	-0.3	-0.3	-0.3
	b*		1.8	1.7	1.8	1.8	1.9
	Classification along with DIN EN 13300						
	Degree of gloss, ISO 2813	GU	dull matte	matte	matte	dull matte	matte
	Gloss 85°	GU	4.7	6.1	7.9	4.7	7.5
	Wet-scrub resistance, ISO 11998						
	Class		3	3	3	3	3
	Abrasion loss after 200 cycles	µm	30	31	33	25	30
	Hiding power, ISO 6504-3						
	Class		2	2	2	2	2
	Spreading rate at contrast ratio 98 %	m^2/l	4.6	5.3	5.9	5.2	5.5

Suppliers

(1) Ashland
(2) BASF
(3) Vink Chemicals
(4) Tronox
(5) HOFFMANN MINERAL
(6) Solvay
(7) Elementis
(8) Omya
(9) J. Rettenmaier & Söhne

More information on this topic:

Silfit Z 91 vs. Na/Al-Silicate und Alumosilicate in Solvent-free Straight Acrylic Paints

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