Industrial coating
Transparent 1K wood filler, water-based
fast drying, good sandability and blocking resistance

Basis

Acrylic dispersion (hydroxy functional), not self-crosslinkable

I 11401.1		[3]	[2]
Butyl glycol		5.0	5.0
Deionized water		20.9	20.9
Tego Dispers 750 W	(1)	3.0	3.0
SILLITIN V 88	(2)	20.0	---
SILLITIN Z 89	(2)	---	20.0
Alberdingk AC 31	(3)	50.0	50.0
Byk-024	(4)	0.5	0.5
Rheovis PU 1214 NC	(5)	0.6	0.6
Total parts by weight		100.0	100.0

Recommendation

[3] with SILLITIN V 88: better transparency
[2] with SILLITIN Z 89: no sedimentation, good sandability at humid drying conditions

Mixing

- premix butyl glycol, water and Tego Dispers 750 W
- add filler and disperse by dissolver (15 min, 4.2 m/s)
- incorporate into Alberdingk AC 31 and complete by remaining additives

Technical Data

Solids content (w/w)		%	46.9	46.9
PVC		%	25.3	25.3

Properties

Fineness of grind, DIN EN ISO 1524		µm	5-10	5
Dynamic viscosity, 23°C	at 0.1 s^{-1}	mPa·s	840	1330
	at 1000 s^{-1}	mPa·s	300	320
Storage stability, 23°C	28 days		very good	very good
Sedimentation stability			good *	very good

* *sedimentation stability and redispersibility can be improved by adding Laponite RD (0.2 pbw, Rockwood Additives)*

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I 11401.1		[3]	[2]
The following properties were determined on knife-coated films:			
Drying time, based on ASTM D 5895			
Film applicator equipped with wire loop tool (Erichsen)			
at dry film thickness (DFT) 30 µm	min	20-25	20-25
at dry film thickness (DFT) 60 µm	min	45-50	50-55
Gloss 60° at DFT 35 µm, DIN EN ISO 2813	GU	4	7
Transparency at DFT 35 µm		good	moderate
Pendulum hardness (Koenig), DIN EN ISO 1522			
30 µm DFT after 168 h	s	63	66
65 µm DFT after 4 h	s	18	18
65 µm DFT after 168 h	s	62	63
Cross-cut test 1 mm, DIN EN ISO 2409		0	0
after 7 days, on wood, after tape tear-off			
Drying time for sufficient sandability (at 23°C / 50 % rel. humidity)			
at 30 µm DFT	min	40	40
at 60 µm DFT	min	90	90
Sandability (manually tested)		very good **	very good **

** *Grinding removal can be increased by combining SILLITIN with talc (ratio 3:1) or by adding zinc stearate (2 pbw)*

Blocking resistance on Leneta foil, DFT 35 µm		
Loading: 100 g/cm² for 1 h; Rating: 10 = not sticky, 0 = 75-100 % tear-off		
after 3 h	6	5-6
after 24 h	10	10
after 30 min 23°C / 50 % + 30 min convection oven 40°C	10	9

Suppliers

(1) Evonik Tego Chemie
(2) HOFFMANN MINERAL
(3) Alberdingk Boley
(4) Byk Chemie
(5) BASF

More information on this topic:

Neuburg Siliceous Earth in Water-based Acrylic Clear Coats for Wood

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