Industrial coating
Anti-corrosion coating, water-based, black
single-layer system, direct-to-metal (DTM)

Basis Acrylate

Paint formulation			*Control with barium sulfate natural*	**AKTISIL AM**
L 00035.1			[29]	[52]
Setaqua DTM 6851		(1)	714.0	714.0
Ammonia 25 %			2.0	2.0
Filler paste [A] with barium sulfate	*... page 2*		*192.0*	---
Filler paste [B] with AKTISIL AM	*... page 2*		---	*159.5*
Pigment paste black	*... page 2*		*84.5*	*84.5*
Demineralized water			10.0	---
flashproTAC C4E		(2)	2.0	1.0
Byk-024		(3)	2.0	1.0
Asconium-142DA		(4)	---	20.0
AMP-90		(5)	---	1.5
Tego Wet KL 245		(6)	---	2.0
Tego Glide 494		(6)	---	1.5
Tafigel PUR 45, 1:1 in water		(7)	---	10.0
Additol VXW 6387		(1)	2.0	---
Additol VXW 6580		(1)	2.5	---
Additol VXW 6388, 1:10 in water		(1)	28.5	---
Total parts by weight			1039.5	997.0

Benefits with AKTISIL AM

- filler paste preparation is already storage stable without thickener
- higher rheological stability of paint formulation during storage
- higher gloss
- good adhesion to the substrate, even in the wet condition during corrosion exposure
- improvement of delamination at scribe, even in the wet condition during corrosion
- high performance with anti-corrosion inhibitor instead of anti-corrosion pigment

Münchener Straße 75 • DE-86633 Neuburg (Donau)
Phone +49 8431 53-0 • info@hoffmann-mineral.com

		Barium sulfate natural	**AKTISIL AM**
Filler paste		[A]	[B]
Demineralized water		33.89	53.89
Additol XW 6588	(1)	5.76	5.76
Byk-024	(3)	3.07	3.07
Dowanol DPM	(8)	5.76	5.76
Aerosil R972	(9)	0.38	---
Barium sulfate natural		105.79	---
AKTISIL AM	(10)	---	91.02
Nubirox 102	(11)	33.99	---
Additol VXW 6388	(1)	0.48	---
Rheobyk-7420 ES	(3)	2.88	---
Total parts by weight		192.00	159.50

Pigment paste black		
Demineralized water		63.29
Surfynol 104 E	(9)	0.34
Colour Black OE 430 W	(12)	20.87
Total parts by weight		84.50

Mixing

Filler paste
- premix water, Additol XW, Byk-024 and Dowanol
- stir in the solids
- disperse 10 min with glass beads while cooling
- stir in Additol VXW and Rheobyk one after the other

Pigment paste black
- charge water and Surfynol
- stir in Colour Black
- disperse 20 min with shear force

Paint formulation
- charge binding agent and add stepwise ammonia, filler paste, pigment paste black, water (rec. [29]) as well as flashproTAC and Byk-024
- premix Asconium and AMP and add as a clear solution (if cloudy, prepare again)
- complete with the remaining components

Münchener Straße 75 • DE-86633 Neuburg (Donau)
Phone +49 8431 53-0 • info@hoffmann-mineral.com

Application

- Thinning:	rec. [29] with barium sulfate: applied without thinning rec. [52] with AKTISIL AM: thinned with 10 % water
- Application viscosity:	400-500 mPa·s @ 25 s^{-1}
- Application:	doctor blade
- Substrate:	cold-rolled steel, Q-Panel Type 48 R
- Dry film thickness:	~80 µm, single-layer application
- Drying:	for gloss and adhesion: 7 d @ 23 °C / 50 % for corrosion tests: dust-dry, then 30 min @ 60 °C

Suppliers

(1) Allnex
(2) Straetmans High TAC
(3) Byk Chemie
(4) Ascotec
(5) Advancion
(6) Evonik Tego Chemie
(7) Münzing Chemie
(8) Dow Chemical Company
(9) Evonik Industries
(10) HOFFMANN MINERAL
(11) Vibrantz Technologies
(12) Orion Engineered Carbons

Technical Data

			Control with barium sulfate natural	**AKTISIL AM**
			[29]	[52]
PVC		%	12.3	12.3
Solids content (m/m)		%	46.2	43.5
Viscosity after 35 d	@ 0.1 s^{-1}	Pa·s	10.7	5.2
	@ 100 s^{-1}	Pa·s	0.38	0.70
Viscosity after 56 d @ 40 °C	@ 0.1 s^{-1}	Pa·s	20.8	5.5
	@ 100 s^{-1}	Pa·s	0.41	0.70
Gloss 60°		GU	26	36
Cross-cut test 2 mm, after tape tear-off			0	0

Münchener Straße 75 • DE-86633 Neuburg (Donau)
Phone +49 8431 53-0 • info@hoffmann-mineral.com

		Control with barium sulfate natural	**AKTISIL AM**
		[29]	[52]
Humidity test DIN EN ISO 6270-2 CH			
Test duration 18 h, regeneration 1 h RT			
Cross-cut test 2 mm, after tape tear-off		5	0
Test duration 250 h, regeneration 24 h RT			
Cross-cut test 2 mm, after tape tear-off		1	0
Salt spray test DIN EN ISO 9227 NSS			
Test duration 18 h, regeneration 1 h RT			
Cross-cut test 2 mm, after tape tear-off		5	0
Test duration 90 h, regeneration 24 h RT			
Delamination at scribe	mm	10	4
			
Test duration 250 h, regeneration 1 h RT			
Cross-cut test 2 mm, after tape tear-off		5	0
Delamination at scribe	mm	completely	8
			
Test duration 250 h, regeneration 24 h RT			
Cross-cut test 2 mm, after tape tear-off		0	0
Delamination at scribe	mm	16	7
			

More information on this topic:
DTM: Neuburg Siliceous Earth in Water-based Corrosion Protection Acrylate Single-layer Black

Münchener Straße 75 • DE-86633 Neuburg (Donau)
Phone +49 8431 53-0 • info@hoffmann-mineral.com