

ADDISP™ ECO

The 'One for All' Pigment Dispersant

No ball mill or pearl mill needed!

ADDISP™ ECO is a universal reactive pigment dispersant partially sourced from biomass. As a 'One for All' solution, ADDISP™ ECO excels in preparing organic and inorganic pigment concentrates with particle sizes below 5 microns by using only a dissolver.



Dispersing with dissolver, no milling with ball/pearl mill necessary



Reduction of manufacturing costs & waste.
Lower investment costs



Wide variety of pigments: organic, inorganic & carbon black



Water-, solvent & UV-based applications



Readily biodegradable & partly biobased product

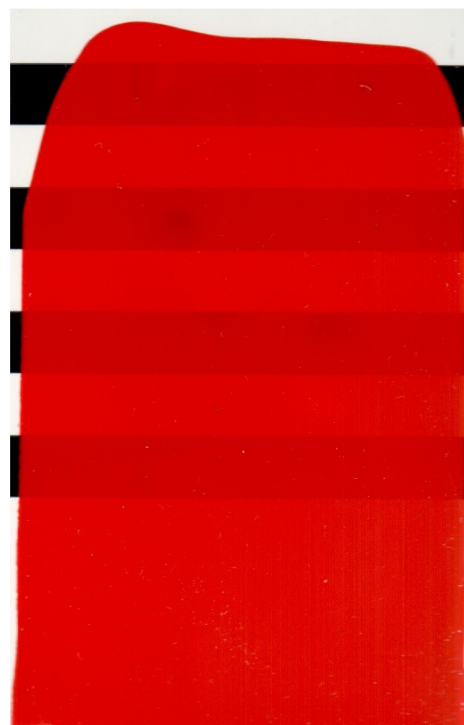
Universal pigment concentrate PR170

The pigment preparations that are formulated using ADDISP™ ECO can be used for solvent-borne, water-borne and UV applications. Preparation of PR170 pigment concentrate using a dissolver is shown below.

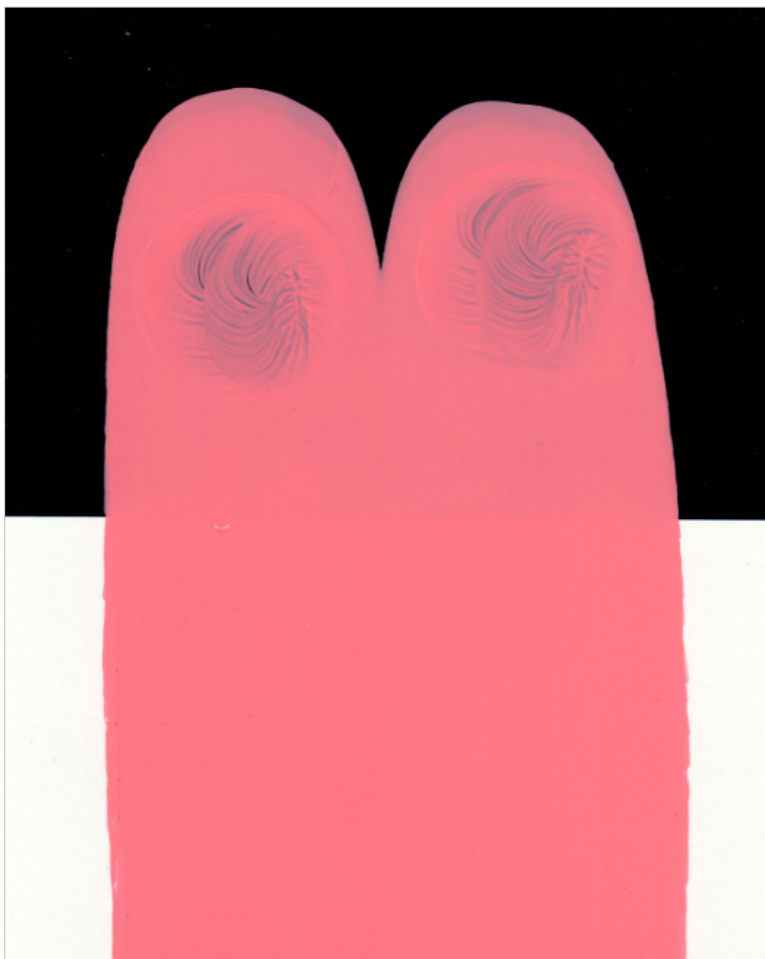
Sudaperm Red 2963C		Properties	
1 Demineralised water	33.5	Hegman fineness (µm)	0-5
2 ADDISP™ ECO	15.0	Particle size by DLS (nm)	466
3 Foamstop™ SX 47	0.2	Viscosity Anton Paar (mPa·s)	1794
4 Pigment	25.0		
↓ <i>Disperse at high speed, 3000 RPM (≥6.3 m/s)</i>			
6 Demineralised water	26.2		
7 Biocide	0.1		
Total	100.0		

Using the universal pigment concentrate enables the preparation of water-based and synthetic paints.

Water-based paint		Solvent-based paint	
1 ADDISP™ ECO pigment concentrate	24.0	1 ADDISP™ ECO pigment concentrate	30.0
2 Component A – WB PU binder	56.0	2 Synthetic transparent alkyd resin	70.0
3 Component B – NCO hardener	20.0		
Total	100.0	Total	100.0



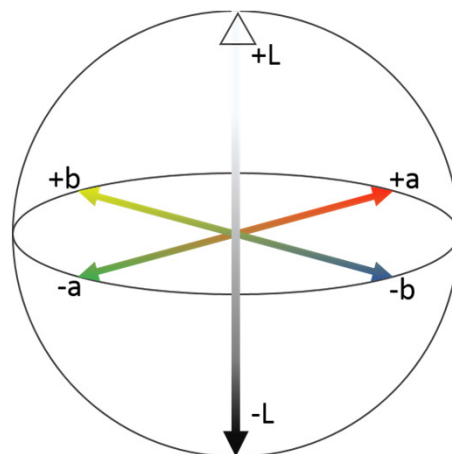
Water-based VA/VeoVa white 1:19



Pearl mill

Dissolver

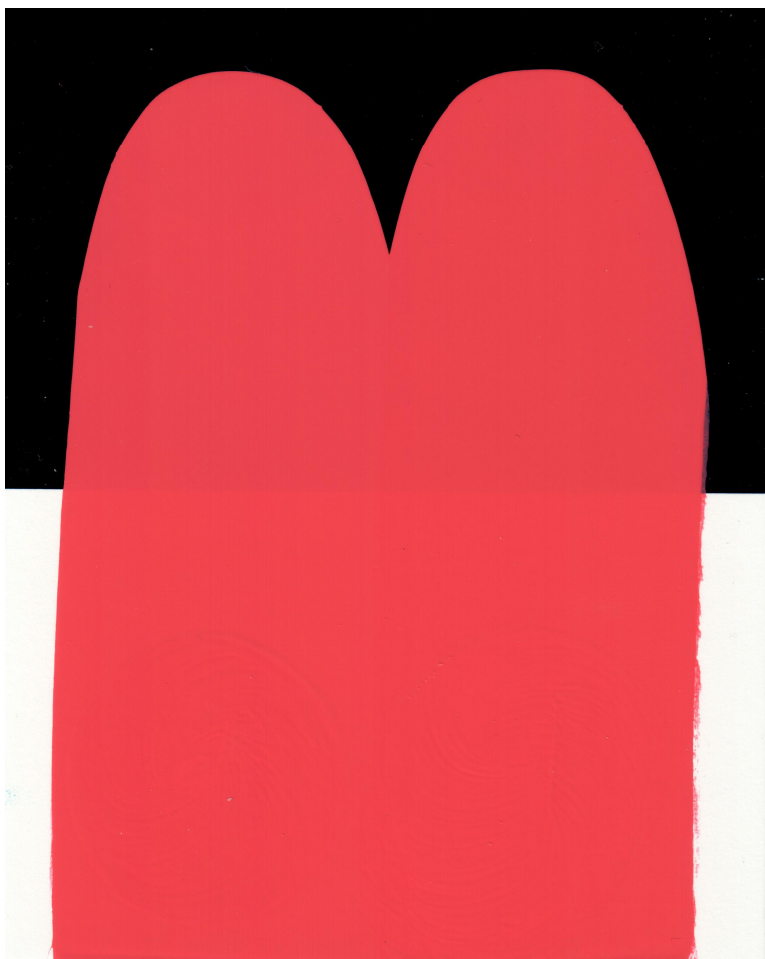
Pearl mill vs Dissolver Colour development - Tinting



Water-based	L	a	b
Pearl mill	60.0	43.6	8.0
Dissolver	60.0	43.7	8.3
Δ	0.0	0.1	0.3
	$\Delta E = 0.3$		

Solvent-based	L	a	b
Pearl mill	47.8	59.0	20.2
Dissolver	48.0	58.7	20.1
Δ	0.2	-0.3	-0.1
	$\Delta E = 0.4$		

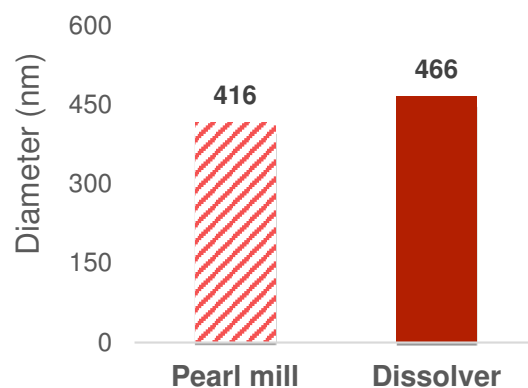
Solvent-based long-oil alkyd white 1:3



Pearl mill

Dissolver

Pigment particle size (nm)



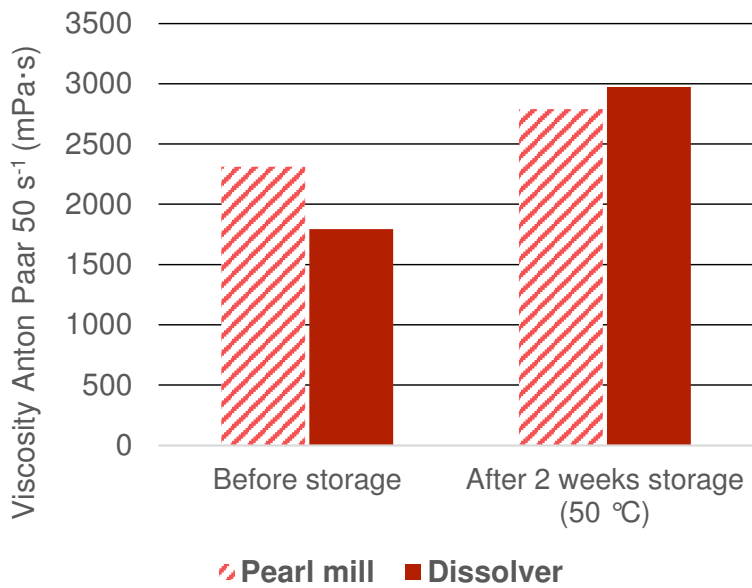
Excellent colour development with pigment concentrate prepared with dissolver:

- ✓ No reduction in colour strength
- ✓ Similar redness with pigment concentrate prepared with a dissolver
- ✓ Similar pigment particle sizes achieved

Pearl mill vs Dissolver

Storage stability

Pigment Red PR170



Colour difference after storage 2 wks 50 °C



Before storage -
Dissolver

After storage -
Dissolver

	ΔE
Pearl mill	1.3
Dissolver	0.9

Excellent storage stability with pigment concentrate prepared with dissolver:

- ✓ Less difference in colour development with dissolver
- ✓ No sedimentation
- ✓ No serum

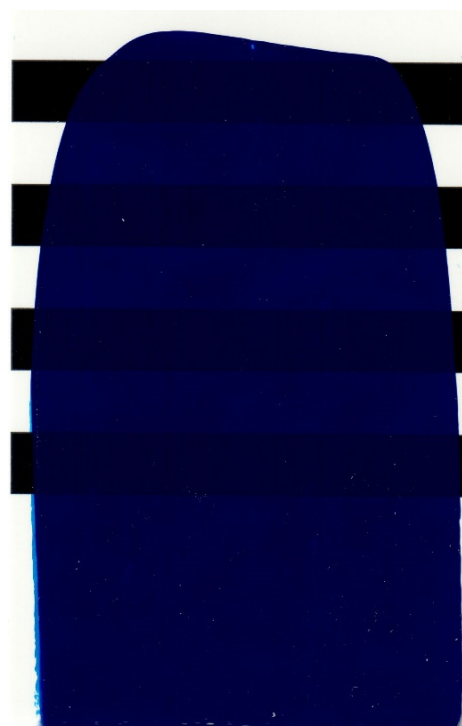
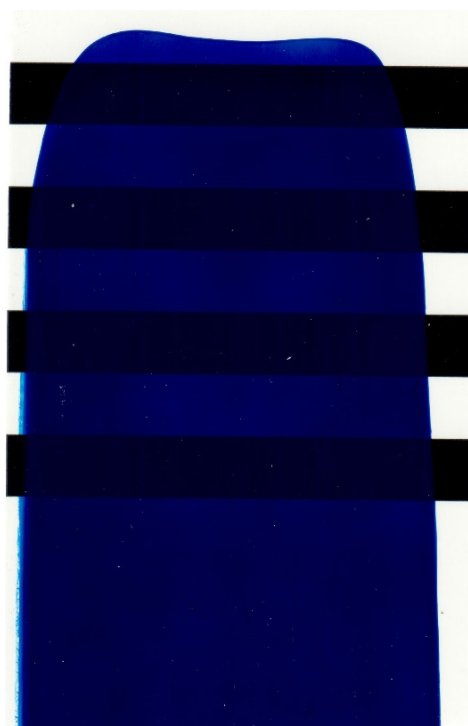
Universal pigment concentrate PB15:3

The pigment preparations that are formulated using ADDISP™ ECO can be used for solvent-borne, water-borne and UV applications. Preparation of PB15:3 pigment concentrate using a dissolver is shown below.

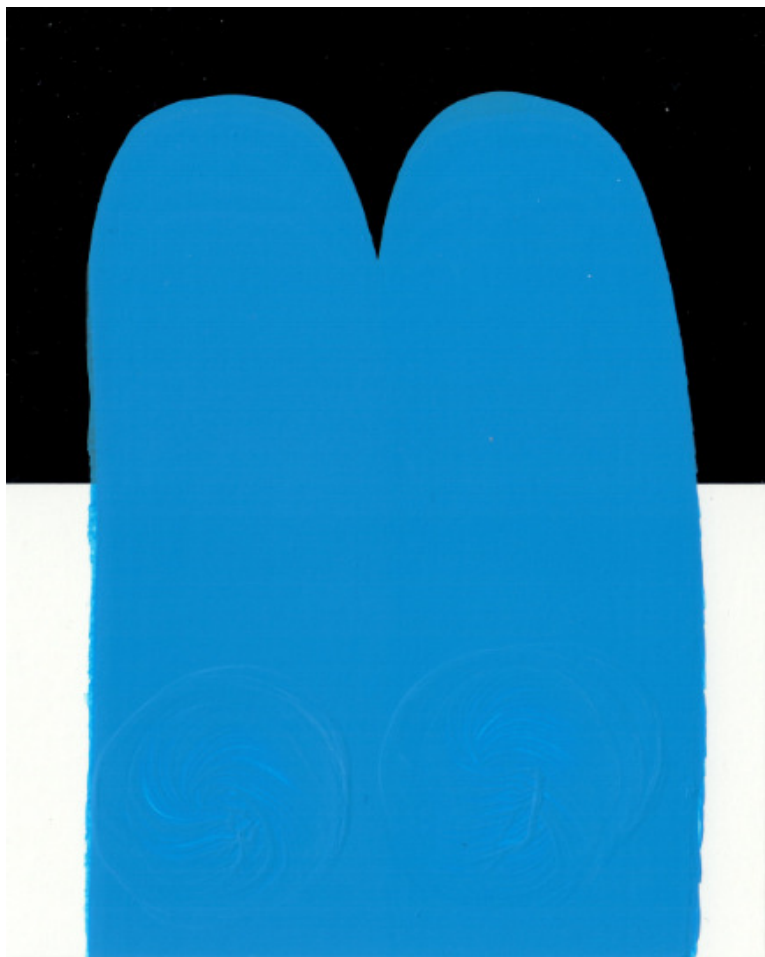
Sudafast Blue 2784		Properties	
1 Demineralised water	30.0	Hegman fineness (µm)	0-5
2 ADDISP™ ECO	15.0	Particle size - DLS (nm)	168
3 Foamstop™ SX 47	0.2	Viscosity Anton Paar (mPa·s)	683
4 Pigment	35.0		
↓ <i>Disperse at high speed, 3000 RPM (≥6.3 m/s)</i>			
5 Demineralised water	19.7		
6 Biocide	0.1		
Total	100.0		

Using the universal pigment concentrate enables the preparation of water-based and synthetic paints.

Water-based paint		Solvent-based paint	
1 ADDISP™ ECO pigment concentrate	24.0	1 ADDISP™ ECO pigment concentrate	30.0
2 Component A – WB PU binder	56.0	2 Synthetic transparent alkyd resin	70.0
3 Component B – NCO hardener	20.0		
Total	100.0	Total	100.0



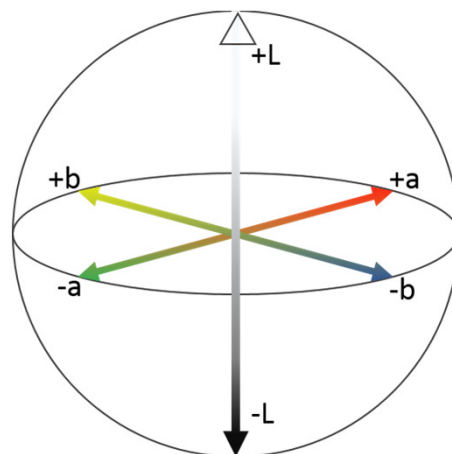
Water-based VA/VeoVa white 1:19



Pearl mill

Dissolver

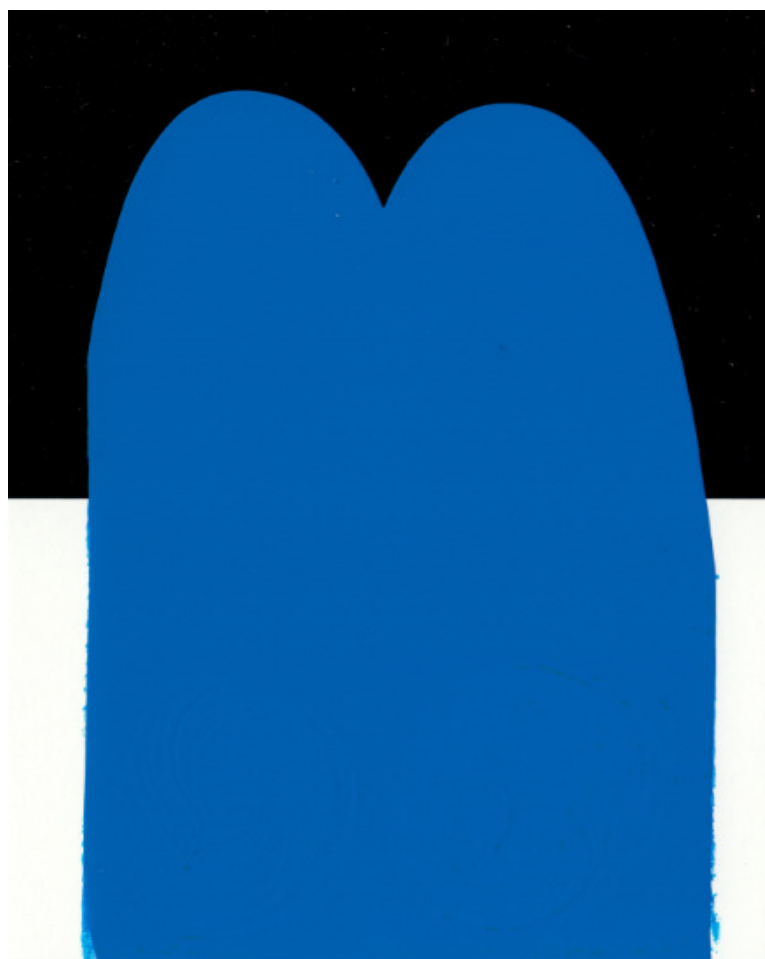
Pearl mill vs Dissolver Colour development - Tinting



Water-based	L	a	b
Pearl mill	54.8	-19.2	-34.2
Dissolver	54.7	-19.2	-34.4
Δ	-0.1	0.0	-0.2
	$\Delta E = 0.2$		

Solvent-based	L	a	b
Pearl mill	40.0	-18.1	-38.5
Dissolver	40.0	-18.2	-38.8
Δ	0.0	-0.1	-0.3
	$\Delta E = 0.3$		

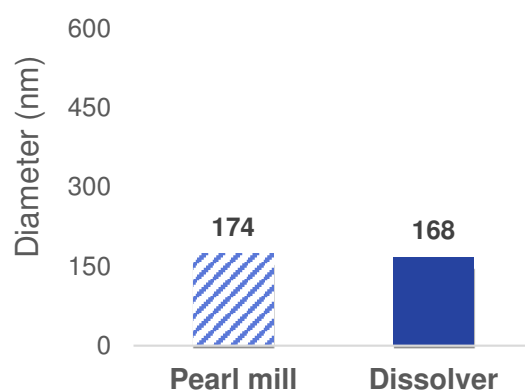
Solvent-based long-oil alkyd white 1:3



Pearl mill

Dissolver

Pigment particle size (nm)

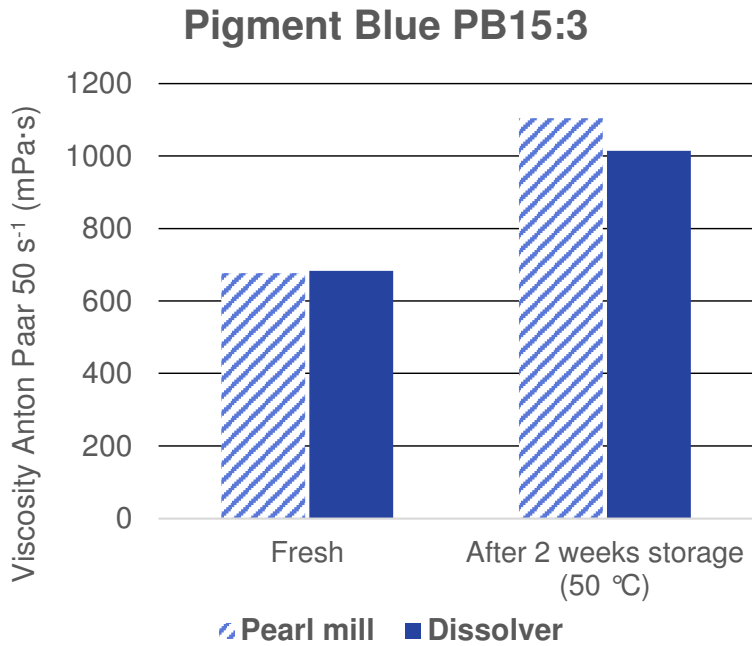


Excellent colour development with pigment concentrate prepared with dissolver:

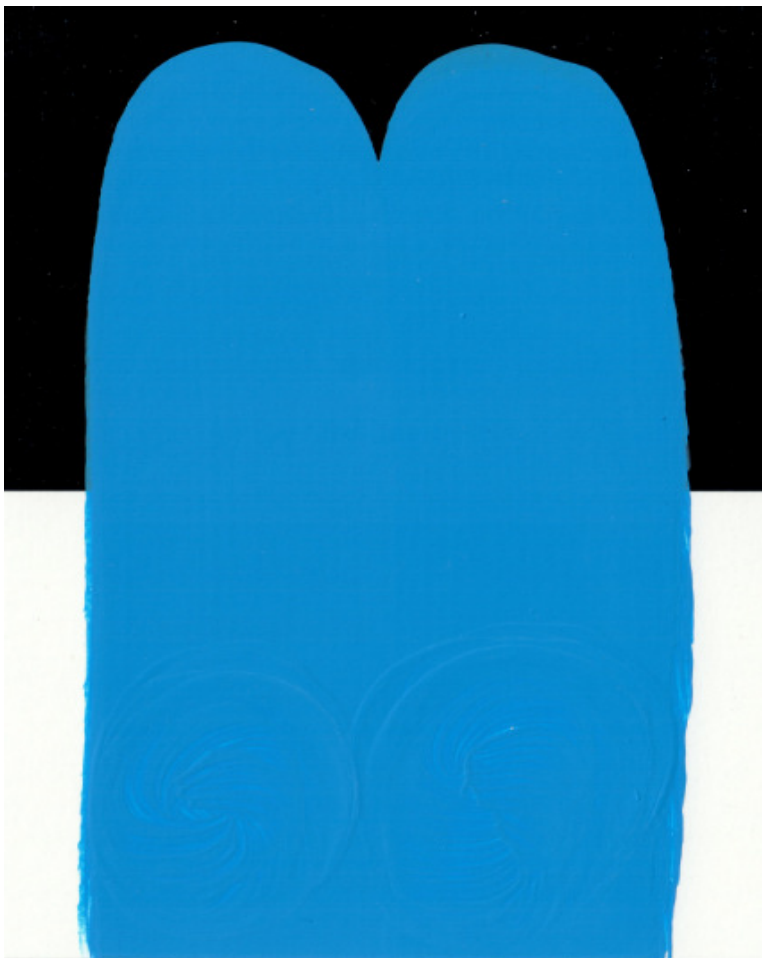
- ✓ No reduction in colour strength
- ✓ Similar blueness with pigment concentrate prepared with a dissolver
- ✓ Similar pigment particle sizes achieved

Pearl mill vs Dissolver

Storage stability



Colour difference after storage 2 wks 50 °C



Before storage -
Dissolver

After storage -
Dissolver

	ΔE
Pearl mill	0.1
Dissolver	0.1

Excellent storage stability with pigment concentrate prepared with dissolver:

- ✓ No difference in colour development
- ✓ No sedimentation
- ✓ No serum

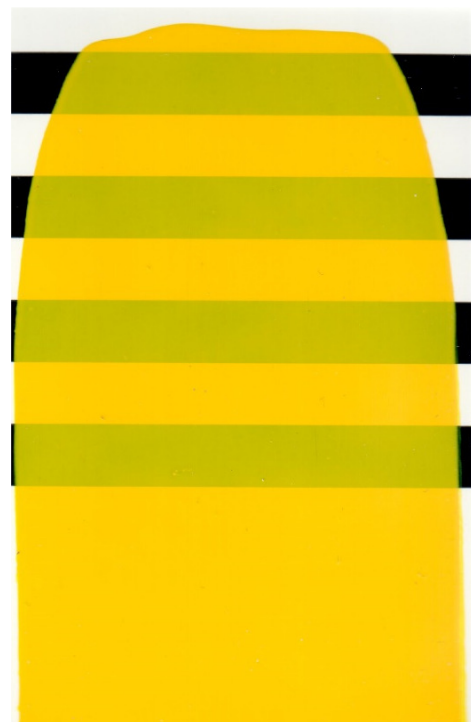
Universal pigment concentrate PY74

The pigment preparations that are formulated using ADDISP™ ECO can be used for solvent-borne, water-borne and UV applications. Preparation of PY74 pigment concentrate using a dissolver is shown below.

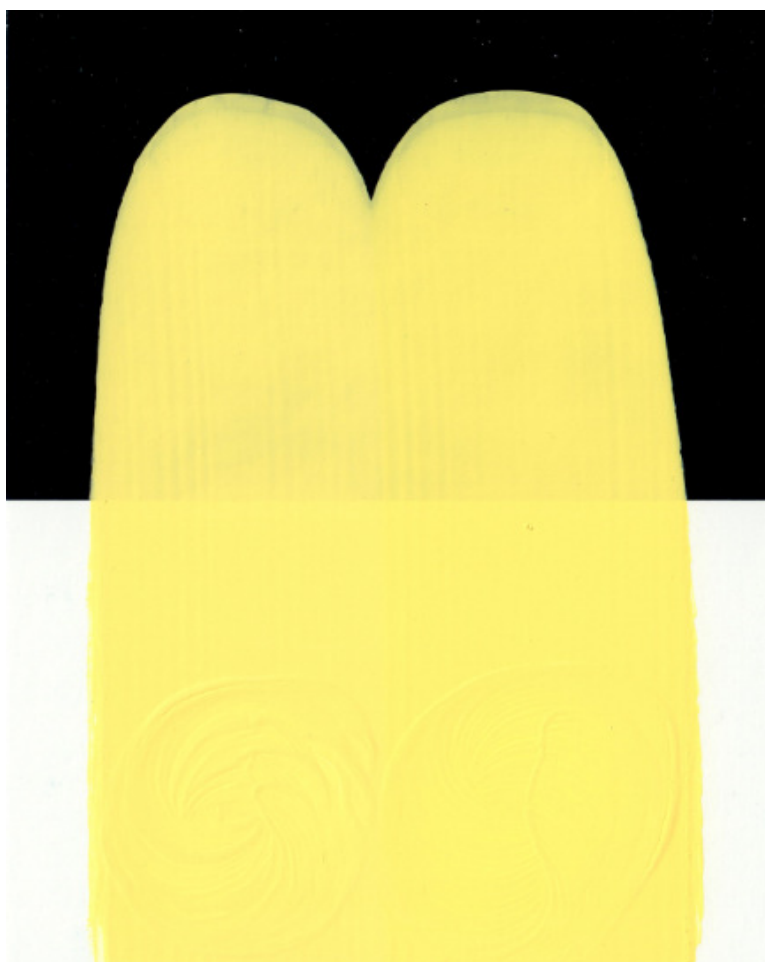
Hansa Brilliant Yellow 2GX 70-S		Properties	
1 Demineralised water	35.0	Hegman fineness (µm)	0-5
2 ADDISP™ ECO	20.0	Particle size by DLS (nm)	439
3 Foamstop™ VF 35N	0.5	Viscosity Anton Paar (mPa·s)	5447
4 Pigment	30.0		
5 Blanc fixe micro	10.0		
↓ <i>Disperse at high speed, 3000 RPM (≥6.3 m/s)</i>			
6 Demineralised water	4.3		
7 Biocide	0.1		
Total	100.0		

Using the universal pigment concentrate enables the preparation of water-based and synthetic paints.

Water-based paint		Solvent-based paint	
1 ADDISP™ ECO pigment concentrate	24.0	1 ADDISP™ ECO pigment concentrate	30.0
2 Component A – WB PU binder	56.0	2 Synthetic transparent alkyd resin	70.0
3 Component B – NCO hardener	20.0		
Total	100.0	Total	100.0



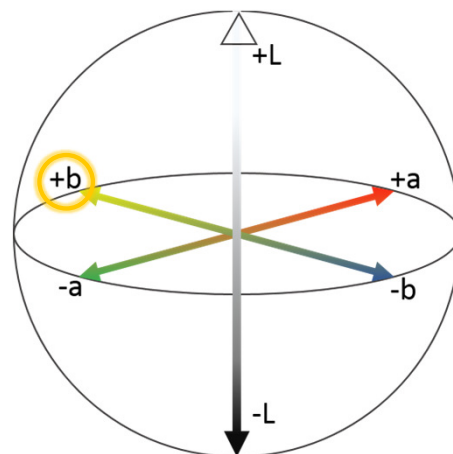
Water-based VA/VeoVa white 1:19



Pearl mill

Dissolver

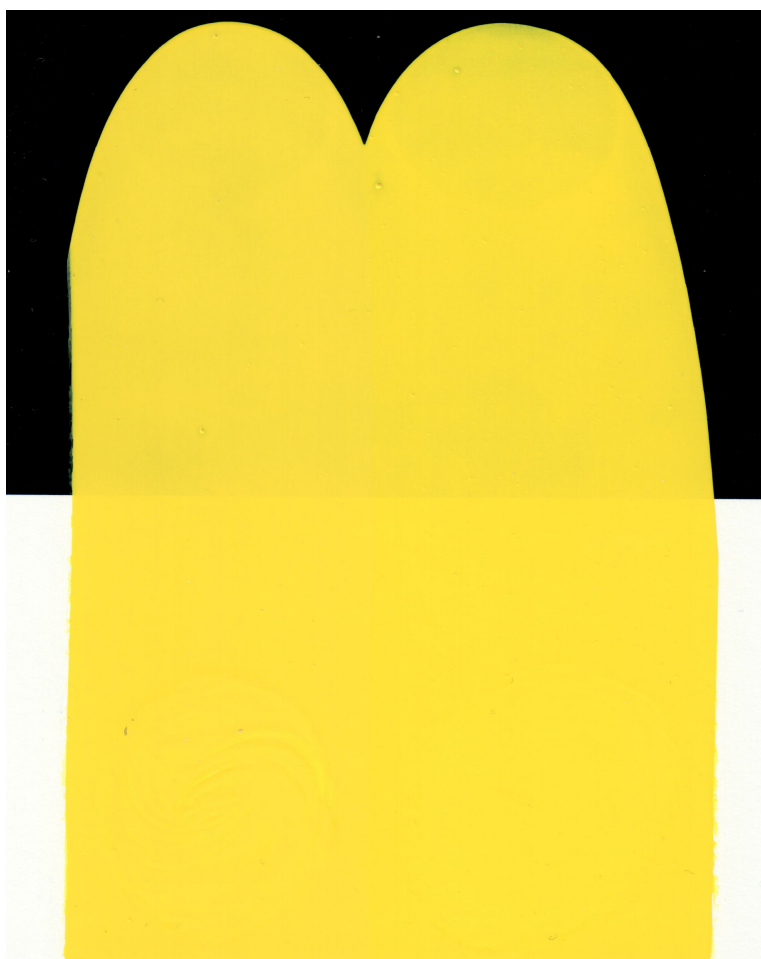
Pearl mill vs Dissolver Colour development - Tinting



Water-based	L	a	b
Pearl mill	88.8	3.8	56.1
Dissolver	88.6	3.6	59.3
Δ	-0.2	-0.2	3.2
	$\Delta E = 3.2$		

Solvent-based	L	a	b
Pearl mill	84.3	7.9	80.5
Dissolver	84.5	7.6	83.3
Δ	0.2	-0.3	2.8
	$\Delta E = 2.8$		

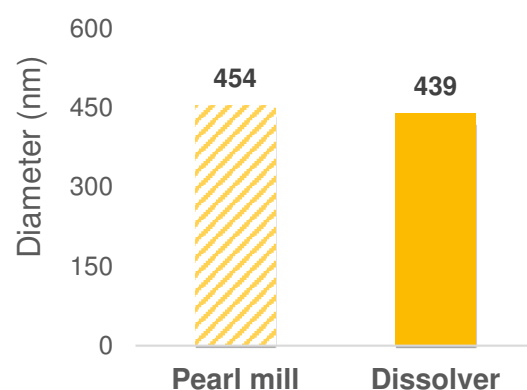
Solvent-based long-oil alkyd white 1:3



Pearl mill

Dissolver

Pigment particle size (nm)

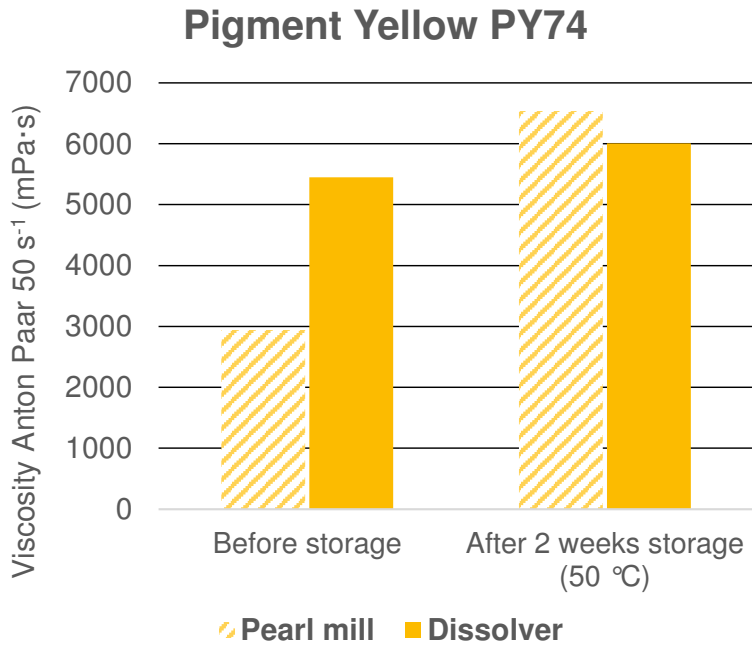


Excellent colour development with pigment concentrate prepared with dissolver:

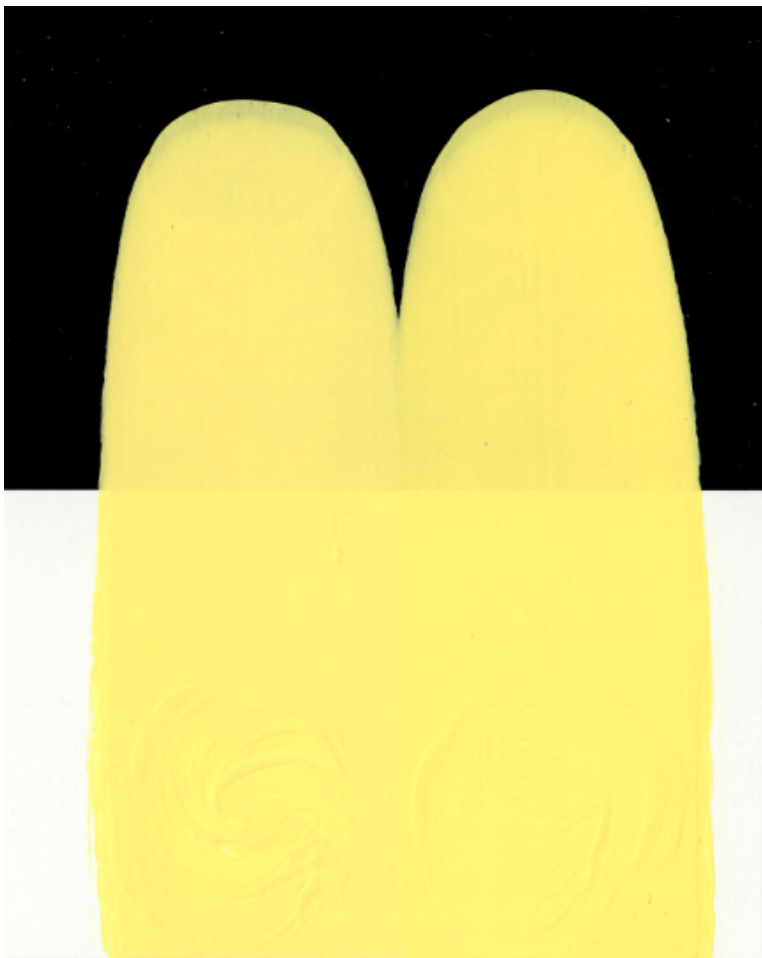
- ✓ No reduction in colour strength
- ✓ Increased yellowness with pigment concentrate prepared with a dissolver
- ✓ Similar pigment particle sizes achieved

Pearl mill vs Dissolver

Storage stability



Colour difference after storage 2 wks 50 °C



Before storage -
Dissolver

After storage -
Dissolver

	ΔE
Pearl mill	0.5
Dissolver	0.2

Excellent storage stability with pigment concentrate prepared with dissolver:

- ✓ No change in viscosity
- ✓ Minimal difference in colour development
- ✓ No sedimentation
- ✓ No serum

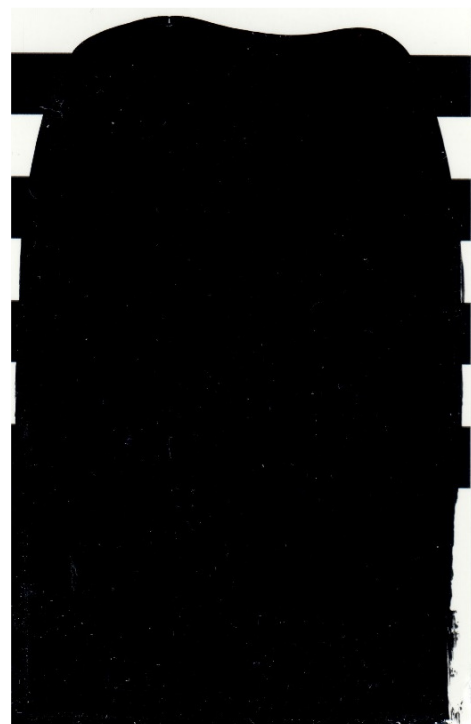
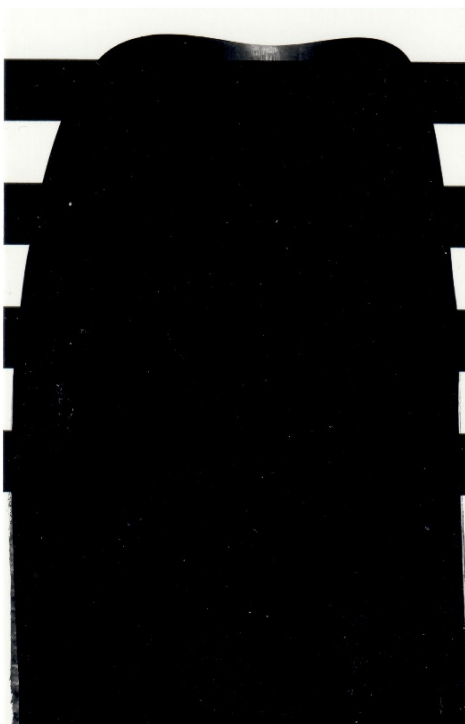
Universal pigment concentrate PBk7

The pigment preparations that are formulated using ADDISP™ ECO can be used for solvent-borne, water-borne and UV applications. Preparation of PBk7 pigment concentrate using a dissolver is shown below.

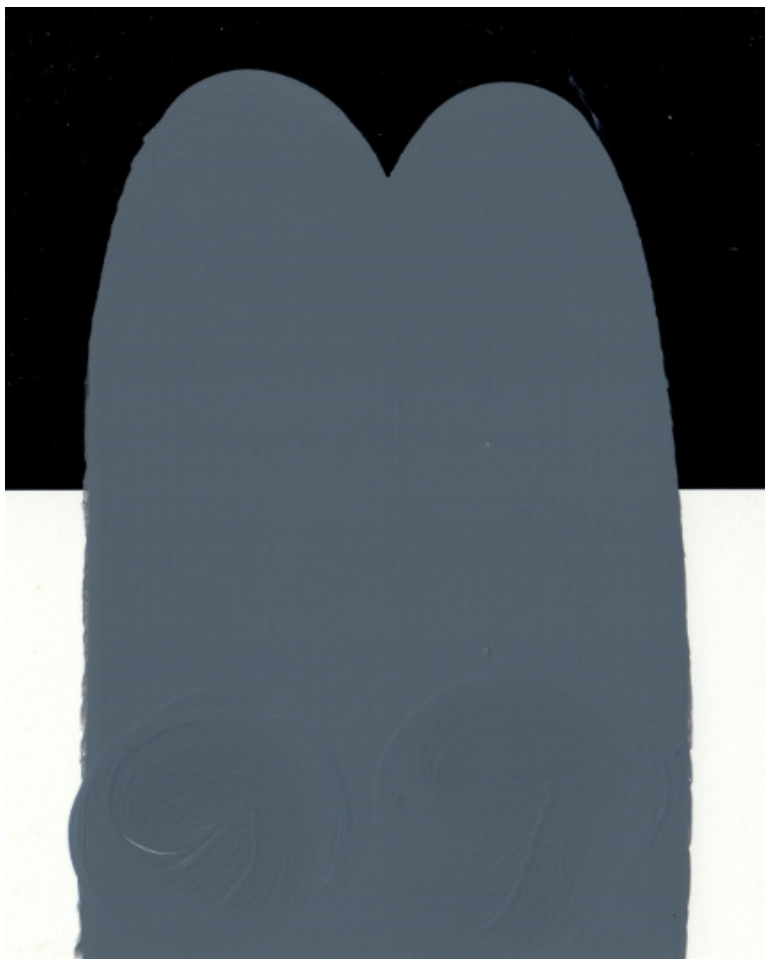
Printex G		Properties	
1 Demineralised water	40.0	Hegman fineness (µm)	0-5
2 ADDISP™ ECO	15.0	Particle size by DLS (nm)	265
3 Foamstop™ SX 47	0.2	Viscosity Anton Paar (mPa·s)	319
4 Pigment	25.0		
↓ <i>Disperse at high speed, 3000 RPM (≥6.3 m/s)</i>			
6 Demineralised water	19.7		
7 Biocide	0.1		
Total	100.0		

Using the universal pigment concentrate enables the preparation of water-based and synthetic paints.

Water-based paint		Solvent-based paint	
1 ADDISP™ ECO pigment concentrate	24.0	1 ADDISP™ ECO pigment concentrate	30.0
2 Component A – WB PU binder	56.0	2 Synthetic transparent alkyd resin	70.0
3 Component B – NCO hardener	20.0		
Total	100.0	Total	100.0



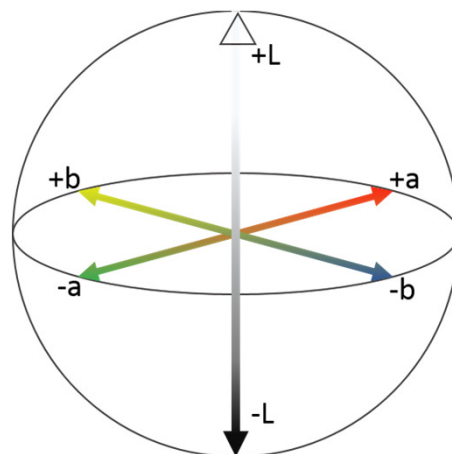
Water-based VA/VeoVa white 1:19



Pearl mill

Dissolver

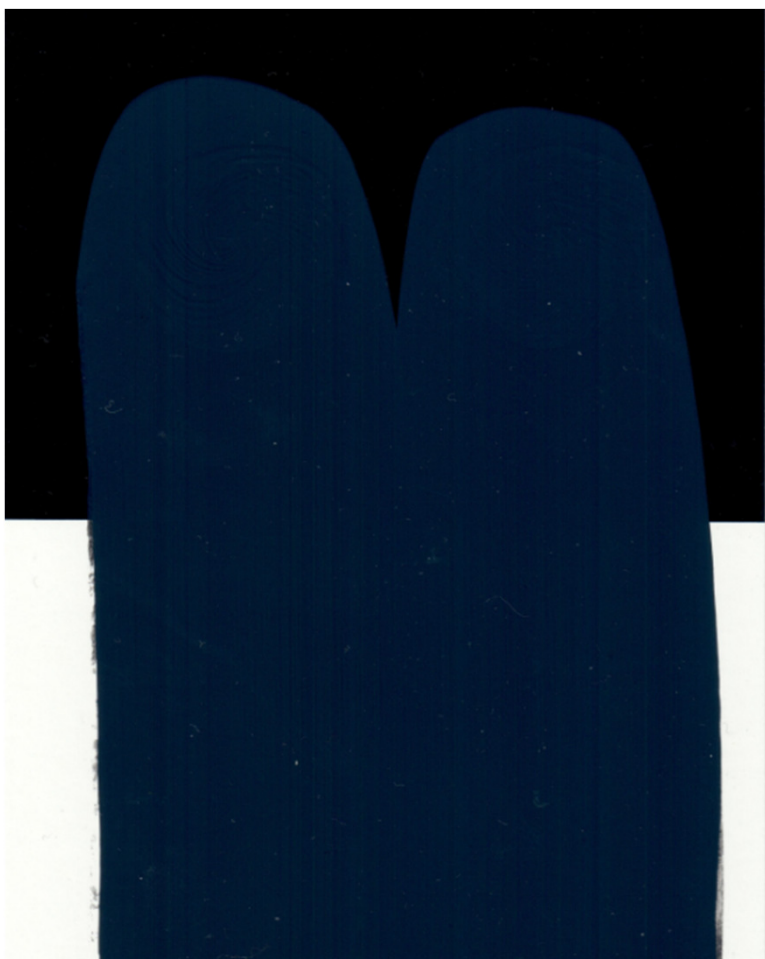
Pearl mill vs Dissolver Colour development - Tinting



Water-based	L	a	b
Pearl mill	42.7	-1.0	-5.9
Dissolver	42.6	-1.0	-5.9
Δ	-0.1	0.0	0.0
	$\Delta E = 0.1$		

Solvent-based	L	A	b
Pearl mill	20.9	-0.6	-6.3
Dissolver	20.7	-0.6	-6.4
Δ	-0.2	0.0	-0.1
	$\Delta E = 0.2$		

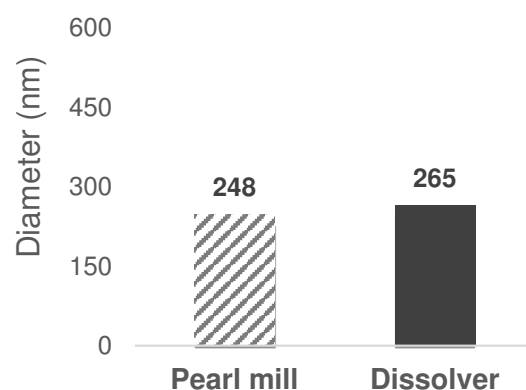
Solvent-based long-oil alkyd white 1:3



Pearl mill

Dissolver

Pigment particle size (nm)



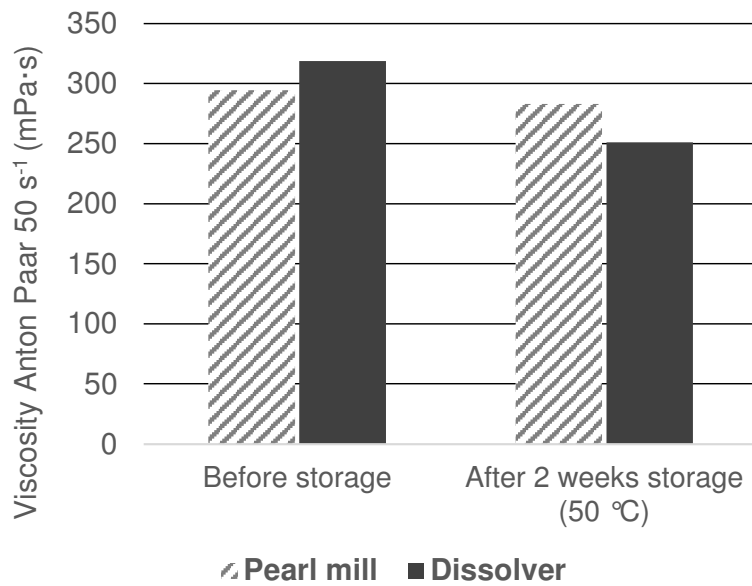
Excellent colour development with pigment concentrate prepared with dissolver:

- ✓ No reduction in colour strength
- ✓ Similar pigment particle sizes achieved

Pearl mill vs Dissolver

Storage stability

Pigment Black PBk7



Colour difference after storage 2 wks 50 °C



Before storage -
Dissolver

After storage -
Dissolver

	ΔE
Pearl mill	0.1
Dissolver	0.2

Excellent storage stability with pigment concentrate prepared with dissolver:

- ✓ No change in viscosity
- ✓ Minimal difference in colour development
- ✓ No sedimentation

ADDISP™ ECO Starting point formulations

Universal pigment concentrates

Colour index	Printex G	Tronox	Bayferrox	Sudaperm	Bayferrox	Hansa	Sudafast	Sudafast
	PBK7	CR-826	130 M	Red 2963C	3920	Brilliant Yellow 2GX 70-S	Green 2727C	Blue 2784
	PW6	PR101	PR170	PY42	PY74	PG7	PB15:3	
1 Demineralised water	35.0	20.1	20.0	33.5	20.0	35.0	20.0	30.0
2 ADDISP™ ECO	15.0	2.0	7.0	15.0	7.0	20.0	15.0	15.0
3 Foamstop™ SX 47	0.2	0.2	0.2	0.2	0.2	0.2*	0.2	0.2
4 Pigment	25.0	76.6	68.0	25.0	54.0	30.0	30.0	35.0
5 Blanc fixe micro						10.0		
6 Rheolate FX 1070					0.6			
↓ Disperse at high speed, 3000 RPM (≥6.3 m/s) and add extra water when necessary:								
7 Demineralised water	5.0		4.5	7.0	8.4	4.7	34.7	4.0
↓ After dispersing, 1000 RPM (≥2.1 m/s) and add:								
8 Demineralised water	19.7			19.2	9.3			15.7
9 Rheolate FX 1070		1.0						
10 Anti settling agent			0.2		0.4			
11 Biocide	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Hegman fineness (µm)	0 - 5	< 1	< 1	0 - 5	< 1	0 - 5	0 - 5	0 - 5

* For some pigment types like PY74, 0.5 % Foamstop™ VF 35N is recommended

ADDISP™ ECO Starting point formulations

Miscellaneous paints and concentrates

Water-based paint

1	ADDISP™ ECO pigment concentrate	30.0
2	Water-based transparent paint	69.0
3	Rheology additive	1.0
Total		100.0

Silica matting agent concentrate

1	Demineralised water	80.0
2	ADDISP™ ECO	1.0
3	Biocide	0.2
4	Foamstop™ VF 35N	0.3
5	Lingwe S-776L	15.0
6	Anti settling agent	0.6
7	Demineralised water	3.0
Total		100.0

Calcium carbonate filler concentrate

1	Demineralised water	20.9
2	Kimicell KEC 6000	0.2
3	CODIS™ 95	0.1
4	ADDISP™ ECO	2.3
5	Biocide	0.2
6	Foamstop™ VF 35N	0.2
7	Durcal 5	41.0
8	Anti settling agent	0.6
9	Styrene acrylic co-polymer binder	34.0
10	Co-solvent	0.5
Total		100.0

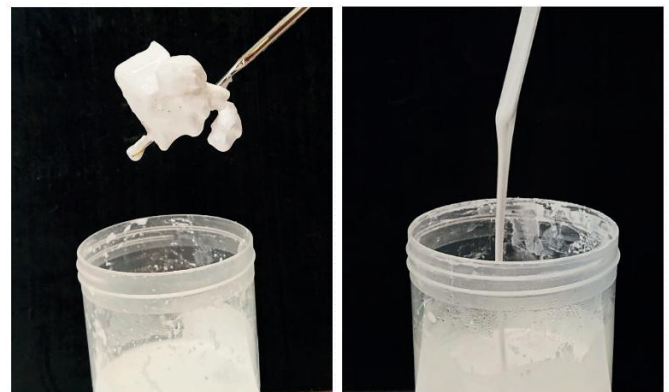
Synthetic paint

1	ADDISP™ ECO pigment concentrate	30.0
2	Synthetic transparent resin	60.0
3	ShellSol D40	10.0
Total		100.0

Talc filler concentrate

1	Demineralised water	49.7
2	ADDISP™ ECO	9.0
3	Foamstop™ SX 47	0.2
4	intalc 8 CG	40.5
5	Anti settling agent	0.6
Total		100.0

Talc concentrates - Dispersant comparison



Competitor dispersant

ADDISP™ ECO

Overnight stability, after stirring by hand

ADDISP ECO – Tested pigments

Color index	Pigment name
Fillers	intalc 8 CS
Fillers	microtalc IT Extra
Fillers	Durcal 5
Matting agent	Lingwe S-776
PB 15:1	Monolite Blue CSN-N
PB 15:2	Sudafast Blue 2773
PB 15:3	Monolite Blue 515303
PB 15:3	Sudafast Blue 2784
PB 15:4	Hostaperm Blue BT 617-D
PB 15:4	Sudafast Blue 2796
PB 28	ChromaFer Blue B33
PB 29	Sudafast Blue 2662
PB 29	Ultramarine Blue 26
PB 36	ChromaFer Blue B22
PBk 7	Beblack 5319L
PBk 7	Birla 1080 UP-Raven
PBk 7	Birla L-Raven
PBk 7	Birla P14R Raven
PBk 7	Printex G
PBk 11	Bayferrox 3180BM
PG 7	Heliogreen L8730
PG 7	Heliogreen L8735
PG 7	Sudafast green 2727C
PG 17	Colortherm green GX
PG 17	ChromaFer Green G3M
PG 50	ChromaFer Green G02
PO 36	Sudaperm Orange 2915
PO 73	Conoran Orange 5
PO 73	Irgazin Orange L2990HD

Color index	Pigment name
PR 3	Hansa Scarlet RNC
PR 101	Oxired Roja malaga
PR 101	Bayferrox 120M
PR 101	Bayferrox 130 BM
PR 101	ChromaFer Red OT-19103-130
PR 101	ChromaFer Red 1130 MS
PR 122	Hostaperm Pink E-WDM250
PR 122	Sudaperm Pink 2997C
PR 122	Sudaperm Pink 2998
PR 122	Sudaperm Pink 2999
PR 122	Sudaperm Pink 3000
PR 170	Sudaperm Red 2963C
PV 15	Ultramarine Pink 19
PV 19	Sudaperm Violet 2995
PV 23	Sipfast RL-U
PW 6	Tronox CR-826
PY 3	Sudacolor Yellow 109
PY 42	Bayferrox 3905
PY 42	Bayferrox 3910
PY 42	Bayferrox 3920
PY 42	ChromaFer 9910 MS
PY 53	ChromaFer Yellow Y02
PY 74	Hansa Brilliant 2970-S
PY 74	Sudafast yellow 117
PY 74	Hansa Brilliant 2GX 70-S
PY 110	Sudaperm Yellow 2925C
PY 139	Sudaperm Yellow 2935
PY 150	Yellow 4G
PY 154	Sudaperm Yellow 2906
PY 180	Benzimidazolone YH9-D
PY 184	Durovan 5001C
PY 184	ChromaFer Y09