

Your paint's  
performance booster  
**ADDITIVES FOR THE  
PAINTS INDUSTRY**



what is precious to you?

# Additives for the Paints Industry. **SURFACTANTS, WETTING AND DISPERSING AGENTS, EMULSIFIERS, STABILIZER, HUMECTANTS.**



## CONTENT

Introduction	3
Wetting Agents for Paints and Coatings	4
Stabilizers for Potassium Silicate Paints	7
Surfactant-type Dispersing Agents for Organic Pigments	8
Surfactant-type Dispersing Agents for Inorganic Pigments	10
Special Purpose Dispersing Agents for Organic Pigments	13
Polymeric Dispersing Agents for Organic and Inorganic Pigments	15
Humectants for Pigment Preparations	17
Regulatory Status	18
Biocides for In-can, Dry-film and Antimicrobial Preservation	20
Criteria for Ecolabels	22



## INTRODUCTION

Clariant is headquartered in Muttenz near Basel, Switzerland and generated sales of more than CHF 6 billion in 2012. Clariant's Business Unit Industrial and Consumer Specialties is a leading provider of specialty chemicals and application solutions for consumer care and industrial markets. Combining with our global know-how for paints & coatings, Clariant provides you valued added solutions with our additives:

- Wetting agents and stabilizers for paints and coatings
- Dispersing agents and humectants for colorants

Our objective is helping our customers meeting their customers' requirements for performance and quality as well as the needs from the consumer market such as low odor, low VOC levels and favourable labeling.

# Wetting Agents for Paints and Coatings.

**Surfactants are used as wetting agents and additives for paints and coatings to improve the wetting of pigments and fillers during the grinding process.**



Trade name	Chemistry	Active content	Approved for ecolables	Dosage	Special value feature
<i>Dispersogen® SNW</i>	Aqueous solution of a sodium salt of a diester of sulphosuccinic acid	About 50% in water	+	0.1 – 0.3%	<ul style="list-style-type: none"><li>• Wetting agent for waterborne coatings and printing varnishes</li><li>• Compatibilizer for waterborne pigment preparations used in solvent-borne coatings, e.g. alkyd coatings</li><li>• Prevents agglomeration of pigments, reduces rub out, increases tinting strength and color acceptance</li></ul>
<i>Emulsogen® LCN 070</i>	Alcohol ethoxylate with 7 moles EO	About 100%	+	0.1 – 0.3%	<ul style="list-style-type: none"><li>• Replaces nonylphenol ethoxylates with 6 – 8 moles ethylene oxide</li></ul>
<i>Emulsogen® LCN 088</i>	Alcohol ethoxylate with 8 moles EO	About 80% in water	+	0.1 – 0.3%	<ul style="list-style-type: none"><li>• Replaces nonylphenol ethoxylates with 6 – 8 moles ethylene oxide</li></ul>
<i>Emulsogen® LCN 118</i>	Alcohol ethoxylate with 11 moles EO	About 80% in water	+	0.1 – 0.3%	<ul style="list-style-type: none"><li>• Replaces nonylphenol ethoxylates with 10 – 15 moles ethylene oxide</li></ul>
<i>Emulsogen® LCN 158</i>	Alcohol ethoxylate with 15 moles EO	About 80% in water	+	0.1 – 0.3%	<ul style="list-style-type: none"><li>• Replaces nonylphenol ethoxylates with 15 – 25 moles ethylene oxide</li></ul>
<i>Emulsogen® LCN 287</i>	Alcohol ethoxylate with 28 moles EO	About 70% in water	+	0.1 – 0.3%	<ul style="list-style-type: none"><li>• Replaces nonylphenol ethoxylates with 25 – 35 moles ethylene oxide</li><li>• Low VOC level : &lt; 1.0%</li></ul>
<i>Emulsogen® LCN 407</i>	Alcohol ethoxylate with 40 moles EO	About 70% in water	+	0.1 – 0.3%	<ul style="list-style-type: none"><li>• Replaces nonylphenol ethoxylates with 35 – 45 moles ethylene oxide</li><li>• Very low VOC level: &lt; 0.1%</li></ul>
<i>Genapol® O 080</i>	Oleyl ethoxylate with 8 moles ethylene oxide	About 100%	+	0.1 – 0.3%	<ul style="list-style-type: none"><li>• Wetting and dispersing agent, emulsifier</li><li>• Improves the compatibility of waterborne pigment pastes with solvent-borne coatings</li></ul>
<i>Genapol® O 100</i>	Oleyl ethoxylate with 10 moles ethylene oxide	About 100%	+	0.1 – 0.3%	<ul style="list-style-type: none"><li>• Wetting and dispersing agent, emulsifier</li><li>• Improves the compatibility of waterborne pigment pastes with solvent-borne coatings</li></ul>

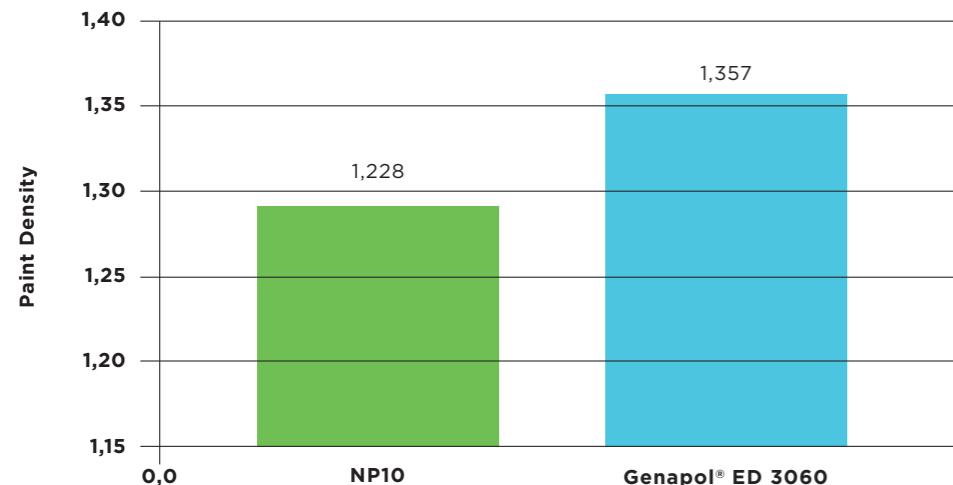
**Clariant's innovative wetting agent: Genapol® ED 3060 - a multifunctional performer in emulsion paints.**

Genapol® ED 3060 is the superior choice when selecting a wetting agent for waterborne paints and coatings. Genapol® ED 3060 performs as a defoaming, air release and dispersing agent for organic pigments in emulsion paints.

Trade name	Chemistry	Active content	Approved for ecolables	Dosage	Special value feature
Genapol® ED 3060	Ethylene oxide / propylene oxide copolymer	About 100%	+	0.1 – 0.5%	<ul style="list-style-type: none"> <li>• Air release agent for emulsion paints</li> <li>• Compatibilizer for organic pigments, prevents the flocculation of organic pigments during drying and reduces rub out</li> <li>• Low VOC level: &lt; 1.0%</li> </ul>

A demonstration video for Genapol® ED 3060 is available online under:  
[www.paints-coatings.clariant.com](http://www.paints-coatings.clariant.com)

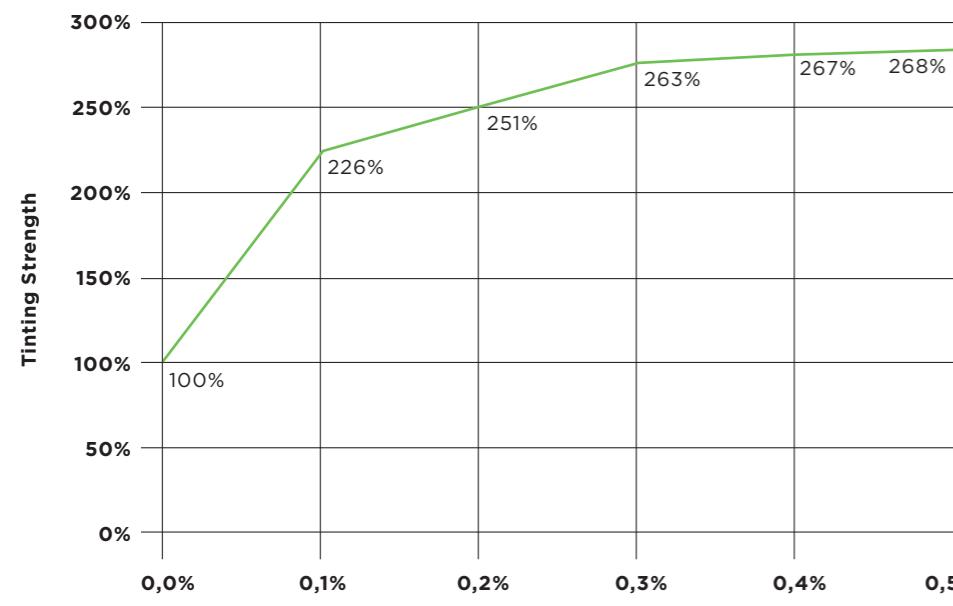
**Performance reference of Genapol® ED 3060**



**Graph 1:**

**Performance as air release agent**

Foam and air entrainment during paint production reduces the paint density. Due to the paint viscosity the air is not released. The graph shows the paint density of a white base paint made with 0,3 wt.% of wetting agent (Genapol® ED 3060 versus NP 10 using nonylphenol ethoxylate with 10 moles of ethylene oxide).

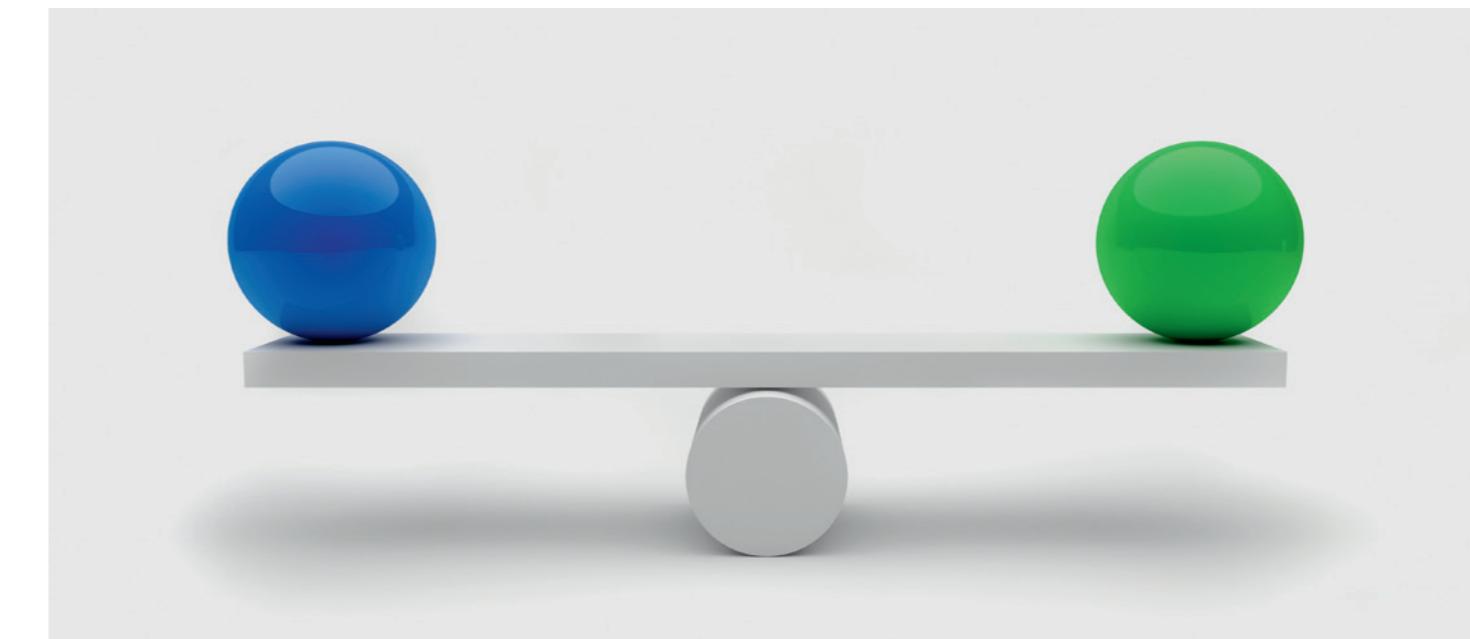


**Graph 2:**

**Performance as tinting strength improver**

The graph shows the tinting strength of an acrylic emulsion paint tinted with 2 wt.% of a phthalocyanine blue pigment preparation. Genapol® ED 3060 prevents rub out and disperses the blue pigment particles within the paint film; pushing the tinting to a maximum.

# Stabilizers for Potassium Silicate Paints



These additives are added to potassium silicate paints to stabilize the viscosity of the paint during storage.

Trade name	Chemistry	Active content	Approved for ecolables	Dosage	Special value feature
Dispersogen® SPS	Quaternary ammonium compound	About 20% in water / propylene glycol	+	0,4 – 1,0%	<ul style="list-style-type: none"> <li>• Viscosity stabilizer for potassium silicate paints</li> </ul>
Dispersogen® SPV	Amine derivative	About 20% in water	+	0,4 – 1,0%	

# Surfactant-type Dispersing Agents for Organic Pigments

Dispersing agents are added to waterborne pigment preparations to reduce and control the viscosity, prevent sedimentation and flocculation and to enable high tinting strength and compatibility in the final application.

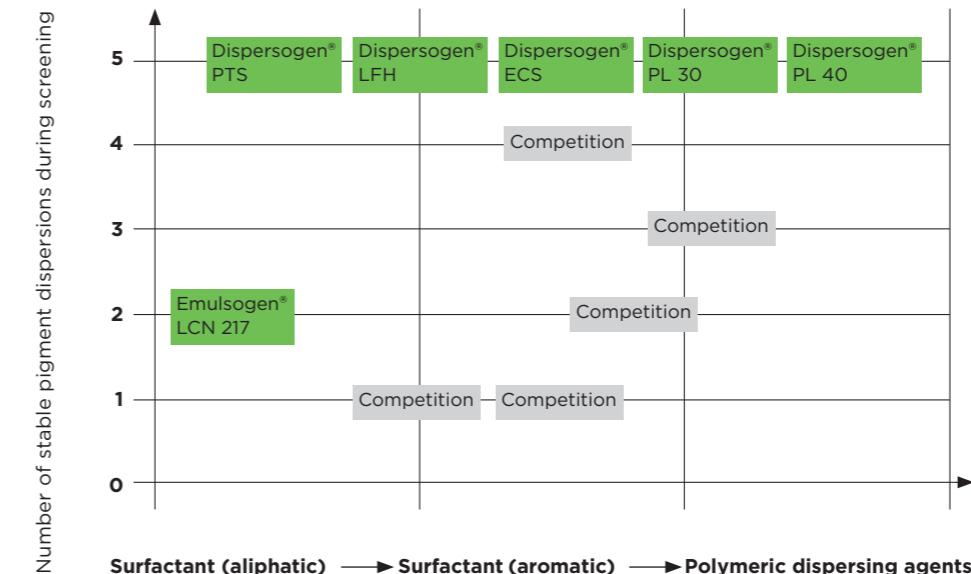


Trade name	Chemistry	Active content	Approved for ecolables	Dosage	Special value feature
Dispersogen® LFH	Tristyrylphenol polyglycol ether phosphate ester, acid form	About 95%	+	10 – 40% on organic pigments	• Low VOC content: < 1.0%
Dispersogen® LFS	Tristyrylphenol polyglycol ether phosphate ester, triethanol ammonium salt	About 96%	+	10 – 40% on organic pigments	• Low VOC content: < 1.0%
Dispersogen® PTS	Polyglycol ether with aromatic pigment anchoring groups, low odor, NPE-free	About 90% in water	+	10 – 40% on organic pigments	• Very low VOC content: < 0.1% • Low odor
Dispersogen® UDN	Mixture of nonionic surfactants, NPE-free	About 100%	+	10 – 40% on organic pigments	

## Guide recipes with Dispersogen PTS

Pigment type	Recipe suggestion	
Hostaperm® Pink E (PR 122)	20%	Dispersogen® PTS
		Polyglykol G 300
		Add biocide, defoamer, water up to 100%
Hostaperm® Yellow H3G (PY 154)	30%	Dispersogen® PTS
		Polyglykol G 300
		Add biocide, defoamer, water up to 100%
Graphtol® Yellow GR (PY 13)	40%	Dispersogen® PTS
Hostaperm® Yellow H4G (PY 151)		Polyglykol G 300
Novoperm® Yellow HR 02 (PY 83)		Add biocide, defoamer, water up to 100%
Printex 300 (PBk 7, Evonik AG)		
Hostaperm® Red D3G 70 (PR 254)	50%	Dispersogen® PTS
		Polyglykol G 300
		Add biocide, defoamer, water up to 100%
Hostaperm® Green GNX (PG 7)		
Hansa® Brilliant Yellow 2GX70 (PY 74)		

## Multipigment application with Clariant dispersing agents



# Surfactant-type Dispersing Agents for Inorganic Pigments

Surfactants are suitable for the dispersing of inorganic pigments. Many surfactants are capable to disperse both organic and inorganic pigments. However the following products are preferably used to disperse inorganic pigments in colorants and tinting systems.



Trade name	Chemistry	Active content	Approved for ecolables	Dosage	Special value feature
<b>Nonionic dispersing agents</b>					
<i>Dispersogen® FA</i>	Fatty alcohol ethoxylate	About 90% in water	+	5 – 10% on pigments	
<i>Dispersogen® MT 200</i>	Ethoxylated fatty acid alkanol amide	About 100%	+	5 – 10% on pigments	
<i>Dispersogen® FSE</i>	Mixture of surface active agents, AP-free	About 100%	+	5 – 10% on pigments	• Dispersing agent for inorganic pigments, preferably with a positive zeta-potential
<i>Hostapon® CT paste</i>	Coco fatty acid methyltauride, Na-salt	About 30%	+	5 – 10% on pigments	• Suitable for universal colorants with e.g. PY 42, PB 28, PW 6
<i>Hostapon® SG</i>	Sodium cocoyl glycinate in water	About 30%	+	5 – 10% on pigments	• Suitable for universal colorants with e.g. PY 42, PB 28, PG 17, PBk 11, PW 6
<b>Anionic dispersing agents</b>					
<i>Arkopon® T 8015</i>	Oleyl methyl tauride	About 42%	+	5 – 10% on pigments	
<i>Hostaphat® OPS 30</i>	Alkyl phosphonic acid	About 30%	+	5 – 10% on pigments	• Corrosion inhibitor and dispersing agent for metal effect pigments
<i>Hostaphat® OPS 75 E</i>	Alkyl phosphonic acid	About 75%	+	5 – 10% on pigments	• Corrosion inhibitor and dispersing agent for metal effect pigments
<i>Hostaphat® OPS 100</i>	Alkyl phosphonic acid	About 100%	+	5 – 10% on pigments	• Dispersing agent for titanium dioxide in polyolefins
<i>Hostapon® TPHC</i>	Oleyl methyl tauride	About 61%	+	6 – 12% on pigments	• Anionic dispersing agent for inorganic pigments
<b>Cationic synergists</b>					
<i>Dispersogen® PSM</i>	Fatty alkyl amine formulation, AP-free	About 30% in water	+	2 – 4% on inorganic pigments	
<i>Genamin® CC 100</i>	Cocos fatty alkyl amine	Min. 96%	+	1 – 2% on inorganic pigments	
<b>Performance blends AN 100</b>					
<i>Dispersogen® AN 100</i>	Mixture of anionic and nonionic surfactants and polyglycols, AP-free	About 85% in water	+	• 10 – 30% on inorganic pigments • 40 – 100% on organic pigments	• Dispersing agent for organic and inorganic pigments • Provides good compatibility with waterborne and solvent-borne coatings

# Special Purpose Dispersing Agents for Organic Pigments



## Guide recipes with Dispersogen® AN 100

Pigment type	Recipe suggestion		
Bayferrox Red 130 (PR 101)	50%	Dispersogen® AN 100	12%
		Add biocide, defoamer, water up to	100%
Kronos Titanium dioxide 2160 (PW6)	60%	Dispersogen® AN 100	15%
Bayferrox Yellow 3920 (PY 42)		Add biocide, defoamer, water up to	100%
Chrome Oxide Green GN (PG 17)	70%	Dispersogen® AN 100	14%
Bayferrox Black 316 (PB 11)		Add biocide, defoamer, water up to	100%
Heucolor Blue 551 (PB 28)		Polyglykol G 300	10%
		Add biocide, defoamer, water up to	100%

## Guide recipes with Dispersogen® MT 200

Pigment type	Recipe suggestion		
Kronos Titanium Dioxide 2160 (PW 6)	60%	Dispersogen® MT 200	8%
Heucodur Blue 551, Heubach (PB 28)		Hostapon® SG	8%
Sicopal Yellow L 1100, BASF (PY 184)		Polyglykol G 300	10%
Bayferrox Yellow 3920, Lanxess (PY 42)		Add biocide, defoamer, water up to	100%
Bayferrox Black 316, Lanxess (PBk 11)			
Bayferrox Yellow 3920, Lanxess (PY 42)			

Trade name	Chemistry	Active content	Approved for ecolables	Dosage	Special value feature
Dispersogen® 4387	Anionic oligomeric ester	About 80% in water	+	10 – 40% on organic pigments	• Low VOC content: < 1.0%
Dispersogen® ECS	Anionic surfactant	About 30% in water	+	20 – 50% on organic pigments	• Provides good compatibility with waterborne and solvent-borne coatings • Very low VOC content: < 0.1%
Emulsogen® LCN 217	Alcohol ethoxylate with 21 moles ethylene oxide	About 70% in water	+	10 – 40% on organic pigments	• Low VOC content: < 1.0%
Genapol® X 1005	Alcohol ethoxylate with 100 moles ethylene oxide	About 50% in water	+	10 – 40% on organic pigments	• Very low VOC content: < 0.1%
Hostaphat® 1306	Alcohol polyethylene glycol ether phosphoric acid ester	About 100%	+	10 – 40% on organic pigments	
Hostaphat® MDAH	Alcohol phosphoric acid ester	About 100%	+	10 – 40% on organic pigments	• Dispersing agent for organic pigments in inks

## Examples for selected organic pigments

Hostaperm® Yellow H4G (PY 151)	40%	Hostaperm® Pink E (PR 122)	30%
Dispersogen® 4387	6%	Genapol® X 1005	6%
Polyglykol G 300	10%	Polyglykol G 300	10%
Add biocide, defoamer, water up to	100%	Add biocide, defoamer, water up to	100%
Hostaperm® Blue B2G (PB 15:3)	50%	Hostaperm® Green GNX (PG 7)	50%
Emulsogen® LCN 217	6%	Emulsogen® LCN 217	6%
Polyglykol G 300	10%	Polyglykol® G 300	10%
Add biocide, defoamer, water up to	100%	Add biocide, defoamer, water up to	100%

# Polymeric Dispersing Agents for Organic and Inorganic Pigments

Polymeric dispersing agents have a higher molecular weight than surfactant-based dispersing agents. They provide constant viscosity profiles over a wider concentration range.

## Examples with Dispersogen® ECS

Pigment type	Recipe suggestion		
<i>Hostaperm® Pink E (PR 122)</i>	30%	Dispersogen® ECS	10%
<i>Hostaperm® Yellow H3G (PY 154)</i>		Polyglykol G 300	10%
<i>Hostaperm® Violet RL02 (PV 23)</i>		Add biocide, defoamer, water up to	100%
<i>Hostaperm® Blue A2R (PB 15:1)</i>	40%	Dispersogen® ECS	10%
<i>Novoperm® Yellow HR 70 (PY 83)</i>		Polyglykol G 300	10%
<i>Novoperm® Yellow HR02 (PY 83)</i>		Add biocide, defoamer, water up to	100%
<i>Novoperm® Yellow FGL (PY 97)</i>			
<i>Novoperm® Red F3RK 70 (PR 170)</i>			
<i>Hostaperm® Scarlet GO (PR 168)</i>			
<i>Hostaperm® Green GNX (PG 7)</i>	50%	Dispersogen® ECS	20%
<i>Hansa® Yellow 10G (PY 3)</i>		Polyglykol G 300	10%
<i>Permanent® Orange RL 70 (PO34)</i>		Add biocide, defoamer, water up to	100%
<i>Hostaperm® Red FGR02 (PR 112)</i>			
<i>Hostaperm® Blue B2G (PB 15:3)</i>			
<i>Hansa® Yellow G 02 (PY 1)</i>			
<i>Hansa® Brilliant Yellow 2GX70 (PY 74)</i>			
<i>Hansa® Red GG (PO 5)</i>			
<i>Hostaperm® Red D3G 70 (PR 254)</i>			

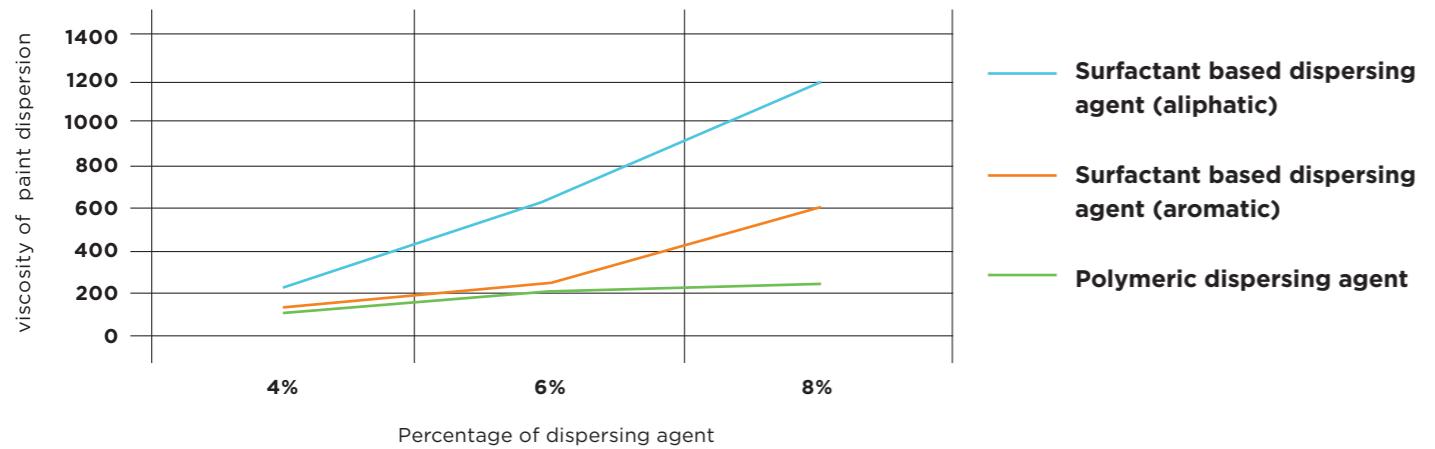


Trade name	Chemistry	Active content	Approved for ecolables	Properties	Special value feature
<i>Dispersogen® PCE</i>	Polycarboxylate ether	About 100%	+	Liquid (20°C)	<ul style="list-style-type: none"> <li>• Dispersing agent for inorganic pigments</li> <li>• 0,1 – 0,5% on opaque pigments</li> <li>• 5 – 20% on transparent pigments</li> <li>• Very low VOC content : &lt; 0.1%</li> </ul>
<i>Dispersogen® PL 30</i>	Polymeric dispersing agent, nonionic, AP-free	About 100%	+	Viscous liquid (20°C)	<ul style="list-style-type: none"> <li>• Dispersing agent for organic pigments</li> <li>• 10 – 30% on organic pigments</li> <li>• Low VOC content : &lt; 1.0%</li> </ul>
<i>Dispersogen® PL 40</i>	Polymeric dispersing agent, anionic, AP-free	About 40% in water	+	Liquid (20°C)	<ul style="list-style-type: none"> <li>• Dispersing agent for organic pigments</li> <li>• 20 – 50% on organic pigments</li> <li>• Low VOC content : &lt; 1.0%</li> </ul>

# Humectants for Pigment Preparations

Purified polyethylene and polyalkylene glycols are used as humectants, retention agents and solvents in waterborne pigment preparations. They slow down the drying of pigment preparations and prevent skin formation.

The impact of dispersing agents on the viscosity of a paint dispersion (Example)



Trade name	Chemistry	Active content	Approved for ecolables	Dosage	VOC-content (b.p.<250°C)
Polyglykol 200 USP	Polyethylene glycol with an average molecular weight of 200 g/mole	About 100%	+	10 – 12% for organic pigments 8 – 10% for inorganic pigments	< 0.2 wt.%
Polyglykol 300	Polyethylene glycol with an average molecular weight of 300 g/mole	About 100%	+	10 – 12% for organic pigments 8 – 10% for inorganic pigments	< 0.2 wt.%
Polyglykol G 300	Glycerol ethoxylate with an average molecular weight of 300 g/mole	About 100%	+	10 – 12% for organic pigments 8 – 10% for inorganic pigment	< 0.1 wt.%
Polyglykol 400	Polyethylene glycol with an average molecular weight of 400 g/mole	About 100%	+	10 – 12% for organic pigments 8 – 10% for inorganic pigments	< 0.1 wt.%

## Guide recipes with Dispersogen® PL 30

Pigment type	Recipe suggestion		
Hostaperm® Violet RL02 (PV 23)	30%	Dispersogen® PL 30	6%
Hostaperm® Yellow H3G (PY 154)		Polyglykol G 300	10%
		Add biocide, defoamer, water up to	100%
Hostaperm® Blue A2R (PB 15:1)	40%	Dispersogen® PL 30	8%
Novoperm® Yellow HR02 (PY 83)		Polyglykol G 300	10%
Novoperm® Yellow H4G (PY 151)		Add biocide, defoamer, water up to	100%
Hostaperm® Red FGR (PR 112)	45%	Dispersogen® PL 30	6%
		Polyglykol G 300	10%
		Add biocide, defoamer, water up to	100%
Hostaperm® Green GNX (PG 7)	50%	Dispersogen® PL 30	6%
Hostaperm® Blue B2G (PB 15:3)		Polyglykol G 300	10%
Hansa® Yellow 10G (PY 3)		Add biocide, defoamer, water up to	100%
Hansa® Brilliant Yellow 2GX70 (PY 74)			
Hostaperm® Scarlet GO (PR 168)			
Hostaperm® Red D3G 70 (PR 254)			



# Regulatory Status

Trade name	European Union (EINECS)	USA (TSCA)	Canada (DSL)	Australia (AICS)	China (CN)	Korea (ECL)	Philippines (PHIL)	Japan (METI)
<i>Arkopen® T 8015</i>	+	+	+	+	+	+	+	+
<i>Dispersogen® 1728</i>	+	+	+	+	+	+	+	-
<i>Dispersogen® 2774</i>	+	+	+	+	+	+	+	+
<i>Dispersogen® 3169</i>	+	+	+	+	+	+	+	-
<i>Dispersogen® 4387</i>	+	-	+	-	+	+	-	-
<i>Dispersogen® AN 100</i>	+	+	-	+	+	+	-	-
<i>Dispersogen® ECS</i>	+	-	+	+	+	-	+	+
<i>Dispersogen® FA</i>	+	+	+	+	+	+	+	-
<i>Dispersogen® FSE</i>	+	+	+	+	+	+	+	-
<i>Dispersogen® LFH</i>	+	+	+	+	+	-	-	+
<i>Dispersogen® LFS</i>	+	+	-	+	+	+	-	-
<i>Dispersogen® MT 200</i>	+	+	-	+	+	+	-	+
<i>Dispersogen® PCE</i>	+	-	-	-	-	-	-	-
<i>Dispersogen® PL 30</i>	+	-	-	-	-	-	-	-
<i>Dispersogen® PL 40</i>	+	-	-	-	-	-	-	-
<i>Dispersogen® PSM</i>	+	+	+	+	+	+	+	-
<i>Dispersogen® PTS</i>	+	+	+	+	+	+	-	+
<i>Dispersogen® SNW</i>	+	+	+	+	+	+	+	+
<i>Dispersogen® SPS</i>	+	-	-	-	-	-	-	-
<i>Dispersogen® SPV</i>	+	+	+	+	+	+	+	+
<i>Emulsogen® LCN 070</i>	+	+	+	+	+	+	-	+
<i>Emulsogen® LCN 088</i>	+	+	+	+	+	+	-	+
<i>Emulsogen® LCN 118</i>	+	+	+	+	+	+	-	+

Trade name	European Union (EINECS)	USA (TSCA)	Canada (DSL)	Australia (AICS)	China (CN)	Korea (ECL)	Philippines (PHIL)	Japan (METI)
<i>Emulsogen® LCN 158</i>	+	+	+	+	-	+	-	+
<i>Emulsogen® LCN 217</i>	+	+	+	+	-	+	-	+
<i>Emulsogen® LCN 287</i>	+	+	+	+	+	+	-	+
<i>Emulsogen® LCN 407</i>	+	+	+	+	+	+	-	+
<i>Emulsogen® SF 8</i>	+	+	+	+	+	+	+	+
<i>Genamin® CC 100</i>	+	+	+	+	+	+	+	+
<i>Genapol® ED 3060</i>	+	+	+	+	+	+	+	+
<i>Genapol® O 080</i>	+	+	+	+	+	+	+	+
<i>Genapol® O 100</i>	+	+	+	+	+	+	+	+
<i>Genapol® X 1005</i>	+	+	+	+	+	+	+	+
<i>Hostapal® BV conc.</i>	+	+	+	+	+	+	+	+
<i>Hostaphat® 1306</i>	+	+	+	+	+	-	-	+
<i>Hostaphat® MDAH</i>	+	+	+	+	+	+	+	+
<i>Hostaphat® OPS 30</i>	+	+	-	+	+	+	+	+
<i>Hostaphat® OPS 75 E</i>	+	+	-	+	+	+	+	+
<i>Hostaphat® OPS 100</i>	+	+	-	+	+	+	+	+
<i>Hostapon® TPHC</i>	+	+	+	+	+	+	+	+
<i>Hostapon® CT paste</i>	+	+	+	+	+	+	+	+
<i>Hostapon® SG</i>	+	-	-	+	+	+	-	+
<i>Polyglycol 200 USP</i>	+	+	+	+	+	+	+	+
<i>Polyglycol 300</i>	+	+	+	+	+	+	+	+
<i>Polyglycol G 400</i>	+	+	+	+	+	+	+	+
<i>Polyglycol G 300</i>	+	+	+	+	+	+	+	+

# Biocides for In-Can, Dry-Film and Antimicrobial Preservation

Clariant's biocide range under the brand NIPACIDE® protects products during application, storage and transport against microbial contamination.

With our innovative silver technology JMAC® we are able to provide long-term preservation for hygienic coatings.



## In-Can preservation

Product	Active ingredients	Physical Form	pH Stability	Temperature Stability	Recommended Use Level [%]
Nipacide® BIT 20	Benzisothiazolinone (BIT)	Solution	2-12	100°C	0.1 – 0.25
Nipacide® BIT AS 20	Benzisothiazolinone (BIT)	Dispersion	2-12	100°C	0.1 – 0.25
Nipacide® BK	HHT	Aqueous Solution	7-12	40°C	0.05 – 0.3
Nipacide® BIT 10 W	Benzisothiazolinone (BIT)	Solution	2-12	100°C	0.1 – 0.25
Nipacide® BNPD 10	Bronopol	Solution	4-8	40°C	0.1 – 0.3
Nipacide® BSM 2	BIT ; MIT	Solution	2-10	60°C	0.1 – 0.2
Nipacide® CBX 10	BIT ; CMIT / MIT	Dispersion	4-9	40°C	0.1 – 0.3
Nipacide® CI	CMIT / MIT	Solution	4-9	40°C	0.005 – 0.01
Nipacide® CI 15	CMIT / MIT	Solution	4-9	40°C	0.05 – 0.1
Nipacide® CFX 3	CMIT / MIT, O-formal	Solution	4-9	40°C	0.15
Nipacide® CFX 4	CMIT / MIT, O-formal	Solution	4-9	40°C	0.2
Nipacide® FC	EDDM	Solution	3-10	40°C	0.05 – 0.2
Nipacide® IB	CMIT / MIT ; Bronopol	Solution	4-9	40°C	0.05 – 0.2
Nipacide® IBF	CMIT / MIT ; Bronopol (monovalent)	Solution	4-9	40°C	0.05 – 0.12
Nipacide® TBXB	BIT ; HHT	Solution	3-12	60°C	0.1 – 0.3

## Dry-Film preservation

Product	Active ingredients	Physical Form	pH Stability	Temperature Stability	Recommended Use Level [%]	Fungicide	Algicide
Nipacide® IPBC 30	IPBC	Solution	4-10	40°C	0.5 – 2.0	•	
Nipacide® PZI	Zinc-pyrithione ; IPBC	Dispersion	4-9	40°C	0.1 – 1.0	•	•
Nipacide® PZT	Zinc-pyrithione ; Terbutryne	Dispersion	4-9	60°C	0.1 – 1.0	•	•

## Antimicrobial preservation

Product	Active ingredients	Physical Form	pH Stability	Temperature Stability	Recommended Use Level [%]	VOC free	Blue Angel (RAL UZ-102)
JMAC® Composite PG	AgCl on TiO2	Solid	4-12	max. 300°C	0.005 – 0.3	•	•
JMAC® LP 10	AgCl on TiO2	Dispersion	4-12	max. 100°C	0.05 – 0.5		•
JMAC® S 10	AgCl on TiO2	Solid	4-12	max. 300°C	0.05 – 1.0	•	•
Nipacide® JMBT 11	AgCl on TiO2	BIT Dispersion	4-12	max. 100°C	0.05 – 0.2		
Nipacide® JMDB 46	AgCl on TiO2	DBDCB Dispersion	4-12	max. 40°C	0.05 – 0.2		

Use biocides safely. Always read the label and product information before use.

# Criteria for Ecolabels

## Ecological criteria for the award of the community eco-label to indoor paints and varnishes

Product Classification (Directive 2004/42/EC)

VOC content shall not exceed:

- Interior matt (walls/ceiling) (Gloss < 25@60 °): **15g/L**
- Interior glossy (walls/ceiling) (Gloss > 25@60 °): **60g/L**
- Interior trim and cladding paints for wood and metal including undercoats: **90g/L**
- Interior trim varnishes and wood-stains, including opaque woodstains: **75g/L**
- Interior minimum build woodstains: **75g/L**
- Primers: **15g/L**
- Binding Primers: **15g/L**
- Pack performance coatings: **100g/L**
- Two-pack reactive performance coatings for specific end use such as floors: **100g/L**
- Decorative effect coatings: **9g/L**

In this context volatile organic compounds (VOC) means any organic compounds having an initial boiling point less than or equal to 250 °C measured at a standard pressure of 101,3 kPa as defined in Directive 2004/42/EC. The subcategories for paints and varnishes of the Directive are used for defining VOC limits. Only the categories relevant to indoor coatings are displayed here.

No ingredient including those used in tinting (if applicable) shall be used that at the time of application fulfil the classification criteria of any of the following risk phrases (or combinations thereof):

- R23 (toxic by inhalation),
- R24 (toxic in contact with skin),
- R25 (toxic if swallowed),
- R26 (very toxic by inhalation),
- R27 (very toxic in contact with skin),
- R28 (very toxic if swallowed),
- R33 (danger of cumulative effects),
- R39 (danger of very serious irreversible effects),
- R40 (limited evidence of carcinogenic effect),
- R42 (may cause sensitisation by inhalation),
- R45 (may cause cancer),
- R46 (may cause heritable genetic damage),
- R48 (danger of serious damage to health by prolonged exposure),
- R49 (may cause cancer by inhalation),
- R60 (may impair fertility),
- R61 (may cause harm to the unborn child),
- R62 (possible risk of impaired fertility),
- R63 (possible risk of harm to the unborn child),
- R68 (possible risk of irreversible effects),

as laid down in Council Directive 67/548/EEC (4) or in Directive 1999/45/EC. Active ingredients used as preservatives in the formula and that are assigned any of the risk phrases R23, R24, R25, R26, R27, R28, R39 R40 or R48 (or combinations thereof) may nevertheless be used up to a limit of 0,1 % (m/m) of the total paint formulation



## Basic criteria for award of the environmental label (blue angel)

### Volatile Organic Substances

The VOC-content of the ready-to-use wall paint under para. 2 must not exceed 700 ppm. (VOC = volatile organic compounds). VOC stands for all organic substances (e.g. residual monomers, solvents, film-forming aids, preservatives and other production-induced accompanying substances) which as result of total evaporation and subsequent gas chromatographic analysis up to the retention time of the substance Tetradecan (boiling point: 252,6 °C) are eluted on a non-1 VOC - Determination according to DIN 55649 5/11 UZ 102 - Edition April 2010 polar separating column. Following the addition of a stock mixture the VOC content is quantified by means of subtraction and extrapolation.



### Exclusion of Substances and Preparations

The following substances must not be added to wall paints within the meaning of these Basic Criteria:

1. Substances which are listed in Annex I to Directive 67/548/EEC3 and which according to Section 4a, Ordinance on Hazardous Substances must be classified and marked as "very toxic" (T+) or "toxic" (T);
2. Substances which are classified as carcinogenic according to EC Category Carc.Cat. 1, Carc.Cat. 2 or Carc.Cat.3 or as mutagenic according to EC Category Mut.Cat. 1, Mut.Cat. 2 or Mut.Cat. 3 or as reprotoxic according to EC

### Preservation

Wall paints under para. 2 must not contain any biocides except for microbiocides used as pot preservative and listed in Appendix 1 to the Basic Criteria RAL-UZ 102 together with their admissible contents.

### Formaldehyde

Simplified Verification method for wall paints with less than 10 ppm free formaldehyde.  
a) The content of free formaldehyde must not exceed 10 mg/kg (10 ppm). Formaldehyde depot substances may be added in quantities which make sure that the total content of free formaldehyde does not exceed 10 mg/kg.

### Water-Endangering Classification 9

The wall paint under para. 2 must not be classified higher than in category 1 of the water-endangering classification scheme (Water Endangering Category 1, slightly 9/11 UZ 102 - Edition April 2010 water endangering)

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