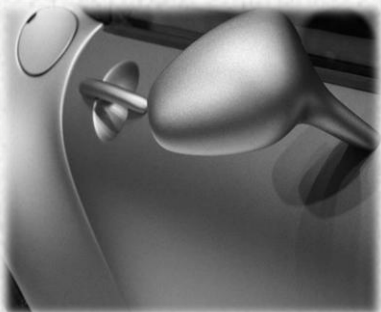


Micronized waxes

# High Performance Wax Additives



ISO 9001 Certified Company

[www.meghwax.com](http://www.meghwax.com)

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## Micronized waxes

### Waxes, emulsions and dispersions with high quality since 1987

MEGH is an entirely Brazilian funded company that began operations on January 6, 1987.

We operate as a specialized manufacturer of waxes and emulsions, covering a variety of market segments.

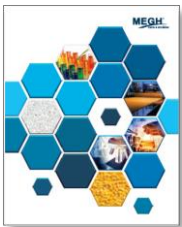
Our main mission is to develop products and services that precisely meet our customers' needs, growing in line with the markets in which we operate.

Our production line encompasses a wide range of waxes and emulsions for a variety of technical applications.

We maintain strict control over our production processes, using state-of-the-art technologies and adopting the highest standards of good manufacturing practice.

It is through these meticulous procedures that we guarantee consistent quality in each and every batch produced.

Our extensive range of micronized waxes, wax dispersions and wax emulsions brings the right solution to a vast array of applications, with superior performance values.



*Click on the left QR code and learn a little more about MEGH S/A*



## Micronized waxes



### Frequent asked question :

**Q :** Does MEGH have its own wax micronization plant ?

**A :** MEGH is the only one micronized wax facility in Latin America, 100% dedicated to MEGH's wax technology enhancing.

**Q :** What kind of waxes are MEGH's technology capable to manufacture ?

**A :** MEGH is capable to manufacture a wide range of micronized waxes among them, synthetics and natural waxes, in a different particle size range.

**Q :** Been MEGH a polyolefin wax manufacture, are MEGH using its own waxes to micronize ?

**A :** MEGH can use its own polyolefin waxes portfolio to micronize as so as other wax sources.

**Q :** Once MEGH has its own micronized wax facility, are the company able to develop an specific project to develop a material according the costumers ´s needs ?

**A :** MEGH is able to offer to the market not only the traditional micronized waxes materials, but also develop new material's according our costumers request.

Ongoing innovation keeps MEGH ahead of the curve in responding to industry trends.

Our R&D takes place in our Advanced Applications Lab, staffed by chemists with many years working in the industries we serve.

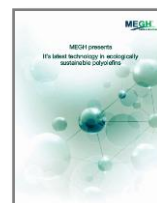
**Q :** What kind of technology is MEGH using ?

**A :** MEGH is using up to date new technology available into the market, manufacturing waxes in the best particle shape, promoting a better technical product application.

*(our technologies of polyolefin waxes manufacture processes are patent pending)*

**Q :** Is MEGH committed with quality ?

**A :** The MEGH quality assurance system is certified to ISO 9001.



Click on the above QR code and learn a little more about MEGH polyolefin waxes technology

## Micronized waxes

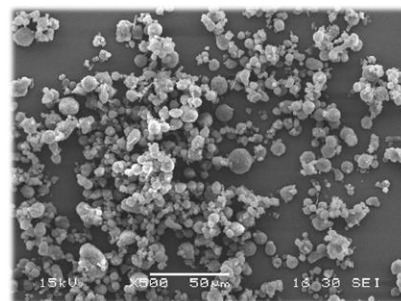
### Products range :

Laser Diffraction Analysis ensures consistent particle size uniformity from batch-to-batch.

Our wax additives are easily dispersed without prior melting or grinding.

Product groups include:

- |                                                                                                                                  |   |                                                                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>MEGH™PRINT P</b><br/><b>MEGH™PRINT W</b></p>                                                                               | } | <p>Polyolefin waxes</p> <ul style="list-style-type: none"> <li>LDPE waxes</li> <li>LLDPE waxes</li> <li>HDPE waxes</li> <li>PP waxes</li> </ul>                                              |
| <p><b>MEGH™PRINT PBF</b><br/><b>MEGH™PRINT PS</b><br/><b>MEGH™PRINT SP</b><br/><b>MEGH™PRINT BW</b></p>                          | } | <p>Modified Polyolefin waxes</p> <ul style="list-style-type: none"> <li>Modified LDPE waxes</li> <li>Modified LLDPE waxes</li> <li>Modified HDPE waxes</li> <li>Modified PP waxes</li> </ul> |
| <p><b>MEGH™PRINT F</b></p>                                                                                                       | } | <p>Polyolefin waxes low viscosity ~ Hard FT<br/>FT waxes</p>                                                                                                                                 |
| <p><b>MEGH™PRINT BF</b><br/><b>MEGH™PRINT FB</b><br/><b>MEGH™PRINT FR</b><br/><b>MEGH™PRINT WB</b><br/><b>MEGH™PRINT WBF</b></p> | } | <p>Modified polyolefin waxes low viscosity<br/>Modified hard FT waxes</p>                                                                                                                    |
| <p><b>MEGH™PRINT B</b></p>                                                                                                       | → | Ethylene bisteramide waxes                                                                                                                                                                   |
| <p><b>MEGH™PRINT BR</b></p>                                                                                                      | → | Modified ethylene bisteramide waxes                                                                                                                                                          |
| <p><b>MEGH™PRINT R</b></p>                                                                                                       | → | PTFE and modified PTFE waxes                                                                                                                                                                 |
| <p><b>MEGH™PRINT N</b></p>                                                                                                       | → | Natural waxes                                                                                                                                                                                |
| <p><b>MEGH™PRINT NP</b></p>                                                                                                      | → | Modified natural waxes                                                                                                                                                                       |



*Atomic microscopy appearance and morphology of MEGH micronized wax magnified 500 times to 50 μ (microns)*



## Micronized waxes

### MEGH™PRINT P

### Polyolefin waxes

Formulated to provide maximum performance in: abrasion resistance, rub resistance, mar resistance, gloss retention and anti-blocking.

Our polyethylene grades are versatile, with excellent recoatability, and allow higher processing temperatures than synthetic waxes.

MEGH's polyethylene waxes are manufacture under proprietary depolymerization technology (patent pending), ensuring excellent quality and batch-to-batch consistency.

Due our specific manufacture processes, the particle size can be adjusted to your specific needs in a wide range of mesh numbers.

Since extra fine particles until higher particle size grades that can promote other surface characteristic's like textures.

The grade **MEGH™PRINT PF 0970** exhibit a good hardness and slip among all of this family of polyolefin materials.

**MEGH™PRINT P** has also a range of specialty materials as follow :

**MEGH™PRINT PF 0970** that exhibit a good hardness and better slip among all of this family of polyolefin materials.

**MEGH™PRINT P 45** has a good particle size to promote texture surface.

*PS : Consult our sales / technical team about the minimum quantity for each grade.*

### Regulations

The composition of the **MEGH™PRINT P** types are suitable according to the following compositional provisions for food contact applications, as indicated:

#### United States

FDA regulations Paragraph 21 CFR

175.105 Adhesives

175.125 Pressure-sensitive adhesives

175.300 Resinous and polymeric coatings

175.320 Resinous and polymeric coatings for polyolefin films

176.170 Components of paper and paperboard in contact with aqueous and fatty foods.

176.180 Components of paper and paperboard in contact with dry food.

177.1520 Olefin polymers

#### Europe coatings

Suitable for food contact coatings

Yes

Regulation (EU) No. 10/2011

Yes

German BfR XIV 'Polymer Dispersions

Yes

CoE ResAP (2004) 1

Yes

#### Europe printing inks

Suitable for food contact printing inks

Yes

Swiss Ordinance 817.023.21, Annex 10

Yes

Nestlé Printing Inks for Food Packaging (07/04/2022)

Yes

EuPIA Exclusion List (March 2024)

Yes



## Micronized waxes

### MEGH™PRINT P

### Polyolefin waxes

Typical properties	P 0300 EF	P 0300	P 0300 M 400	P 0300 M 325	P 0300 M 270	P 0300 M 230	P 0300 M 200
Melting Point (°C)	101-105	101-105	101-105	101-105	101-105	101-105	101-105
Density at 25 °C (g/cm <sup>3</sup> )	0,900	0,900	0,900	0,900	0,900	0,900	0,900
Particle size (D50) (µm)	5-6	8-10	11-12	11-15	15-25	25-35	35-45
Particle size (D90) (µm)	11-12	20-25	30	40	53	63	74
Mesh (D90)		550	400	325	270	230	200

Typical properties	P 0400 EF	P 0400	P 0400 M 400	P 0400 M 325	P 0400 M 270	P 0400 M 230	P 0400 M 200
Melting Point (°C)	110 -118	110 -118	110 -118	110 -118	110 -118	110 -118	110 -118
Density at 25 °C (g/cm <sup>3</sup> )	0,920	0,920	0,920	0,920	0,920	0,920	0,920
Particle size (D50) (µm)	5-6	8-10	11-12	11-15	15-25	25-35	35-45
Particle size (D90) (µm)	11-12	20-25	30	40	53	63	74
Mesh (D90)		550	400	325	270	230	200

Typical properties	P 0900 EF	P 0900	P 0900 M 400	P 0900 M 325	P 0900 M 270	P 0900 M 230	P 0900 M 200
Melting Point (°C)	110-135	110-135	110-135	110-135	110-135	110-135	110-135
Density at 25 °C (g/cm <sup>3</sup> )	0,940	0,940	0,940	0,940	0,940	0,940	0,940
Particle size (D50) (µm)	5-6	8-10	11-12	11-15	15-25	25-35	35-45
Particle size (D90) (µm)	11-12	20-25	30	40	53	63	74
Mesh		550	400	325	270	230	200

Typical properties	P 0900 M 030	PF 0970	P 45
Melting Point (°C)	120-135	120-135	130-135
Density at 25 °C (g/cm <sup>3</sup> )	0,940	0,940	0,925
Particle size (D50) (µm)	350-370	8-10	150-170
Particle size (D90) (µm)	420-600	20-25	350 (D99)
Mesh	030	550	45



Texture effect achieve with MEGH™PRINT P 45 texture additive; 3% dosage

# Micronized waxes

MEGH™PRINT P

Polyolefin waxes

		Applications																																			
		Liquid Inks					Printing Inks							Offset Inks (Oil based)			Paints and Coatings					Stains		Lacquers													
MEGHPRINT	P	Film : Aqueous	Film : Solvent	Paper : Aqueous	Paper : Solvent	Gravure : Publications	OPV : Overprint varnish	Flexographic : Aqueous	Flexographic : Solvent	Flexographic : UV	Gravure : Aqueous	Gravure : Solvent	Gravure : UV	Digital Ink	Ultraviolet (UV)	Electron Beam (EB)	UV LED	Sheetfed (UV)	Lithography	Heatset	Coldset	Can & Container	Metal : Aqueous	Metal : Solvent	Wood : Aqueous	Wood : Solvent	Powder	Architectural	Trim Paints	Floor	Aqueous	Solvent	Aqueous	Solvent	UV & EB		

		Surface performance and benefits																																						
		Resistances					Gloss		Slip		Surface effects					others important properties																								
MEGHPRINT	P	Abrasion resistance	Blocking resistance	Burnishing resistance	Heat resistance	Mar resistance	Metal marking resistance	Rub resistance	Scratch resistance	Gloss control	Gloss retention	Satin gloss	Maximum Slip (low COF)	Slip (low COF)	Slip control (high COF)	Film toughness	Maximum Lubricity	Lubricity	Matting	Silk touch	Smooth feel	Smoothness coating	Soft feel	Texture	Antisettling	Anti-stick	Air release	Blooming properties	Chemical resistance	Hardness	In-can stability	Non skid coating	Recoatibility	Sandability	Scrub ability	Solvent resistance	Water beading effect	Water repellency		
		2	1			2	1	2	2		1		2		2				2		1		1						3											

**Recommended dosage :**

- = 0,25% - 1,00%
- = 1,00% - 2,00%
- = 1,00% - 3,00%
- = 2,00% - 3,00%
- = above 3,00%

**Surface performance :**

- 1 = Effective
- 2 = Very Effective
- 3 = Extremely Effective



## Micronized waxes

### MEGH™PRINT PM Oxidized polyolefin waxes

MEGH™PRINT PM is a product series based on micronized oxidized polyethylene, due to its chemical characteristic it is especially useful in water based systems.

The density of MEGH™PRINT PM is nearly identical to water (1,000), resulting in a product that does not settle and has minimal to no flotation, depending on coating viscosity.

The oxidative functionality of MEGH™PRINT PM makes incorporation into water based systems easier and faster. In solvent and water based coatings these family of micronized oxidized polyethylene's create an excellent scratch resistance. Also the slip performance can be influenced by them.

MEGH™PRINT PM grades are compatible with acrylic emulsions, polyurethane dispersions and alkyd emulsions. Those micronized waxes are excellent rub and scratch resistance additive for all kind of printing inks. The fine powder is easy to disperse especially in water based printing inks.

MEGH™PRINT PM grades deliver excellent matting effect, slip property, pleasant touch feel and good clarity for wood coatings.

MEGH™PRINT PM grades also provide scratch and burnish resistance, making them an excellent choice for architectural coatings.

MEGH™PRINT PMT series 6 are products based on micronized high density oxidized polyethylene.

They are ideally suited for **waterborne texturizing applications** where excellent dispersibility and reduced flotation are desired.

PS : Consult our sales / technical team about the minimum quantity for each grade.

### Regulations

The composition of the MEGH™PRINT PM types are suitable according to the following compositional provisions for food contact applications, as indicated:

#### United States

FDA regulations Paragraph 21 CFR

- 175.105 Adhesives
- 175.125 Pressure-sensitive adhesives
- 175.300 Resinous and polymeric coatings
- 175.320 Resinous and polymeric coatings for polyolefin films
- 176.170 Components of paper and paperboard in contact with aqueous and fatty foods.
- 176.180 Components of paper and paperboard in contact with dry food.
- 177.1520 Olefin polymers

#### Europe coatings

Suitable for food contact coatings	Yes
Regulation (EU) No. 10/2011	Yes
German BfR XIV 'Polymer Dispersions	Yes
CoE ResAP (2004) 1	Yes

#### Europe printing inks

Suitable for food contact printing inks	Yes
Swiss Ordinance 817.023.21, Annex 10	Yes
Nestlé Printing Inks for Food Packaging (07/04/2022)	Yes
EuPIA Exclusion List (March 2024)	Yes



## Micronized waxes

### MEGH™PRINT PM

### Oxidized polyolefin waxes

Typical properties	PM 100 M 400	PM 216	PM 216 M 400	PM 416 EF	PM 416	PM 606	PM 619	PM 640 EF
Melting Point (°C)	90-110	95-105	95-105	108-112	108-112	115-120	115-120	105-115
Acid number (AN)	18-25	15-18	15-18	15-18	15-18	5-6	max 19	max 12
Density at 25 °C (g/cm <sup>3</sup> )	0,990	0,990	0,990	0,990	0,990	0,990	0,990	0,990
Particle size (D50) (µm)	11-12	8-10	11-12	5-6	8-10	8-10	8-10	5-6
Particle size (D99) (µm)	30	20-25	30	11-12	20-25	20-25	20-25	11-12
Mesh (D90)	400	550	400		550	550	550	

Typical properties	PM 640	PM 640 M 400	PM 660 EF	PM 660	PM 318	PM 318 M 020	PM 328	PM 338
Melting Point (°C)	105-115	105-115	105-115	105-115	130-135	130-135	125-130	125-130
Acid number (AN)	max 12	max 12	max 14	max 14	15-18	15-18	23-26	30-40
Density at 25 °C (g/cm <sup>3</sup> )	0,990	0,990	0,990	0,990	0,990	0,990	0,990	0,990
Particle size (D50) (µm)	8-10	11-12	5-6	8-10	8-10	450-500	8-10	8-10
Particle size (D99) (µm)	20-25	30	11-12	20-25	20-25	600-840	20-25	20-25
Mesh (D90)	550	400		550	550	020	550	550

Typical properties	PMT 619 M 100	PMT 619 M 140	PMT 619 M 200	PMT 619 M 230	PMT 619 M 270	PMT 619 M 325
Melting Point (°C)	115-120	115-120	115-120	115-120	115-120	115-120
Acid number (AN)	max 19	max 19	max 19	max 19	max 19	max 19
Density at 25 °C (g/cm <sup>3</sup> )	0,990	0,990	0,990	0,990	0,990	0,990
Particle size (D50) (µm)	80-100	45-55	35-45	32-43	15-25	11-15
Particle size (D99) (µm)	149	105	74	63	53	44
Mesh (D90)	100	140	200	230	270	325



*Texture effect in water based systems can be achieved using the MEGH™PRINT PMT grades; 3% dosage*

# Micronized waxes

## MEGH™PRINT PM

## Oxidized polyolefin waxes

		Applications																																				
		Liquid Inks					Printing Inks								Offset Inks (Oil based)				Paints and Coatings					Stains		Lacquers												
MEGHPRINT		Film : Aqueous	Film : Solvent	Paper : Aqueous	Paper : Solvent	Gravure : Publications	OPV : Overprint varnish	Flexographic : Aqueous	Flexographic : Solvent	Flexographic : UV	Gravure : Aqueous	Gravure : Solvent	Gravure : UV	Digital Ink	Ultraviolet (UV)	Electron Beam (EB)	UV LED	Sheetfed (UV)	Lithography	Heatset	Coldset	Can & Container	Metal : Aqueous	Metal : Solvent	Wood : Aqueous	Wood : Solvent	Powder	Architectural	Trim Paints	Floor	Aqueous	Solvent	Aqueous	Solvent	UV & EB			
PM																																						
PMT																																						

		Surface performance and benefits																																								
		Resistances					Gloss		Slip		Surface effects					others important properties																										
MEGHPRINT		Abrasion resistance	Blocking resistance	Burnishing resistance	Heat resistance	Mar resistance	Metal marking resistance	Rub resistance	Scratch resistance	Gloss control	Gloss retention	Satin gloss	Maximum Slip (low COF)	Slip (low COF)	Slip control (high COF)	Film toughness	Maximum Lubricity	Lubricity	Matting	Silk touch	Smooth feel	Smoothness coating	Soft feel	Texture	Antisettling	Anti-stick	Air release	Blooming properties	Chemical resistance	Hardness	In-can stability	Non skid coating	Recoatibility	Sandability	Scrub ability	Solvent resistance	Water beading effect	Water repellency				
PM		2	1					2	2	2			2										1								3											
PMT																			3											3												

### Recommended dosage :

- = 0,25% - 1,00%
- = 1,00% - 2,00%
- = 1,00% - 3,00%
- = 2,00% - 3,00%
- = above 3,00%

### Surface performance :

- 1 = Effective
- 2 = Very Effective
- 3 = Extremely Effective



## Micronized waxes

### MEGH™PRINT W

### Polypropylene waxes

Micronized polypropylene designed to produce unique **texturizing effects** in paints and coatings, in all solvent-borne coating systems.

The low density (~ 0,900) and insolubility characteristics of **MEGH™PRINT W** will **reduce or eliminate settling** and provide optimum durability in both waterborne and solvent systems.

**MEGH™PRINT W** grades also provide a chemical resistance to the coating.

Coarse **MEGH™PRINT W** grades are ideal for walking surfaces and other **nonskid** coating applications.

Finer particle size **MEGH™PRINT W** grades, as W400 / W500 / W1000 F and W 1000 EF can be used to reduce gloss (**matting**), replacing silica partially, in higher film build coatings.

**MEGH™PRINT W 1000 F** grade is recommended for powder coatings based on polyester, TGIC, Primid / powder link, polyester/epoxy, acrylate, polyurethane and epoxy.

**MEGH™PRINT MW** grades are micronized metallocene polypropylene waxes.

*PS: Consult our sales / technical team about the minimum quantity for each grade.*

### Regulations

The composition of the **MEGH™PRINT W and MW** types are suitable according to the following compositional provisions for food contact applications, as indicated:

#### United States

FDA status - 21 CFR 175.300

FDA regulations Paragraph 21 CFR

175.105 Adhesives

175.125 Pressure-sensitive adhesives

175.300 Resinous and polymeric coatings

175.320 Resinous and polymeric coatings for polyolefin films

176.170 Components of paper and paperboard in contact with aqueous and fatty foods.

176.180 Components of paper and paperboard in contact with dry food.

177.1520 Olefin polymers

#### Europe coatings

Suitable for food contact coatings Yes

Regulation (EU) No. 10/2011 Yes

German BfR XIV 'Polymer Dispersions' Yes

CoE ResAP (2004) 1 Yes

#### Europe printing inks

Suitable for food contact printing inks Yes

Swiss Ordinance 817.023.21, Annex 10 Yes

Nestlé Printing Inks for Food Packaging (07/04/2022) Yes

EuPIA Exclusion List (March 2024) Yes

According to the composition, we can state that the product is in line with the following directives :

Directive 2011/65/EU (EU RoHS 2) as amended by the Delegated Directive (EU) 2015/863 (EU RoHS 3)

EU Directive 2002/96/EC (WEEE)

EU Directive 94/62/EC (Packaging Waste)

CONEG Toxics in Packaging



## Micronized waxes

### MEGH™PRINT W

### Polypropylene waxes

Typical properties	W 30	W 100	W 120	W 140	W 200	W 200 EF	W 230
Melting Point (°C)	max 170	max 170	max 170	max 170	max 170	max 170	max 170
Density at 25 °C (g/cm <sup>3</sup> )	0,900	0,900	0,900	0,900	0,900	0,900	0,900
Particle size (D50) (µm)	250-270	80-100	60-70	45-55	35-45	25-35	32-43
Particle size (D99) (µm)	595	149	125	105	74	74	63
Mesh (D99)	30	100	120	140	200	200	230

Typical properties	W 270	W 325	W 400	W 500	W 1000 F	W 1000 EF
Melting Point (°C)	max 170	max 170	max 170	max 170	max 170	max 170
Density at 25 °C (g/cm <sup>3</sup> )	0,900	0,900	0,900	0,900	0,900	0,900
Particle size (D50) (µm)	15-25	11-15	23-25	8-12	~ 10	~ 5
Particle size (D99) (µm)	53	44	37	31	20	10
Mesh (D99)	270	325	400	500	625	1.250

Typical properties	MW 003
Melting Point (°C)	140-150
Density at 25 °C (g/cm <sup>3</sup> )	0,900
Particle size (D50) (µm)	8-10
Particle size (D99) (µm)	20-25
Mesh (D99)	550



Click on the above QR code and learn a little more about our micronized PP wax range in wood coatings applications



Click on the above QR code and learn a little more about our micronized PP wax range in industrial coatings applications



Click on the above QR code and have access to a complementary table with our micronized PP wax range



Matting effect in solvent based industrial coatings achieve using the MEGH™PRINT W 400 to W 1000 EF grades; 3% dosage



Matting effect in solvent-based wood coatings achieve using the MEGH™PRINT W 400 to W 1000 EF grades; 3% dosage

# Micronized waxes

## MEGH™PRINT W

## Polypropylene waxes

		Applications																																			
		Liquid Inks		Printing Inks								Offset Inks (Oil based)			Paints and Coatings					Stains		Lacquers															
MEGHPRINT		Film : Aqueous	Film : Solvent	Paper : Aqueous	Paper : Solvent	Gravure : Publications	OPV : Overprint varnish	Flexographic : Aqueous	Flexographic : Solvent	Flexographic : UV	Gravure : Aqueous	Gravure : Solvent	Gravure : UV	Digital Ink	Ultraviolet (UV)	Electron Beam (EB)	UV LED	Sheetfed (UV)	Lithography	Heatset	Coldset	Can & Container	Metal : Aqueous	Metal : Solvent	Wood : Aqueous	Wood : Solvent	Powder	Architectural	Trim Paints	Floor	Aqueous	Solvent	Aqueous	Solvent	UV & EB		
W																																					

		Surface performance and benefits																																				
		Resistances				Gloss		Slip		Surface effects				others important properties																								
MEGHPRINT		Abrasion resistance	Blocking resistance	Burnishing resistance	Heat resistance	Mar resistance	Metal marking resistance	Rub resistance	Scratch resistance	Gloss control	Gloss retention	Satin gloss	Maximum Slip (low COF)	Slip (low COF)	Slip control (high COF)	Film toughness	Maximum Lubricity	Lubricity	Matting	Silk touch	Smooth feel	Smoothness coating	Soft feel	Texture	Antisettling	Anti-stick	Air release	Blooming properties	Chemical resistance	Hardness	In-can stability	Non skid coating	Recoatibility	Sandability	Scrub ability	Solvent resistance	Water beading effect	Water repellency
W						2				3					2									3	2				1	3		2				1		

**Recommended dosage :**

- = 0,25% - 1,00%
- = 1,00% - 2,00%
- = 1,00% - 3,00%
- = 2,00% - 3,00%
- = above 3,00%

**Surface performance :**

- 1 = Effective
- 2 = Very Effective
- 3 = Extremely Effective



Texture effect in solvent-based systems can be achieved using the MEGH™PRINT W grades; 3% dosage



Matt effect in solvent-based systems can be achieved using the MEGH™PRINT W grades; 3% dosage

## Micronized waxes

### MEGH™PRINT F

### Synthetic waxes

Straight chain, fully saturated synthetic hydrocarbon waxes produced by the Fischer-Tropsch process and other similar synthetic waxes produced by other processes.

These products provide **extra slip (low COF)**, scratch and rub resistance, in solvent borne and radiation curable printing inks and does so with minimal impact on the gloss level.

MEGH™PRINT F grades work exceptionally well in solvent based flexographic and gravure inks and is also recommended for use in paste inks, paints, coil coatings, paper coatings and other types of surface coatings.

MEGH™PRINT F grades will impart long lasting water beading and weather resistance to exterior alkyd based stains.

They are effective and economical in most ink, paint and coating systems.

PS : Consult our sales / technical team about the minimum quantity for each grade.



#### Regulations

The composition of the MEGH™PRINT F types are suitable according to the following compositional provisions for food contact applications, as indicated:

##### United States

FDA status - 21 CFR 175.250

FDA regulations Paragraph 21 CFR

175.105 Adhesives

175.125 Pressure-sensitive adhesives

175.300 Resinous and polymeric coatings

175.320 Resinous and polymeric coatings for polyolefin films

176.170 Components of paper and paperboard in contact with aqueous and fatty foods.

176.180 Components of paper and paperboard in contact with dry food.

177.1520 Olefin polymers

##### Europe coatings

Suitable for food contact coatings Yes

Regulation (EU) No. 10/2011 Yes

German BfR XIV 'Polymer Dispersions' Yes

CoE ResAP (2004) 1 Yes

##### Europe printing inks

Suitable for food contact printing inks Yes

Swiss Ordinance 817.023.21, Annex 10 Yes

Nestlé Printing Inks for Food Packaging (07/04/2022) Yes

EuPIA Exclusion List (March 2024) Yes

According to the composition, we can state that the product is in line with the following directives :

Directive 2011/65/EU (EU RoHS 2) as amended by the Delegated Directive (EU) 2015/863 (EU RoHS 3)

EU Directive 2002/96/EC (WEEE)

EU Directive 94/62/EC (Packaging Waste)

CONEG Toxics in Packaging

# Micronized waxes

## MEGH™PRINT F

## Synthetic waxes

Typical properties	F 11 EF	F 11	F 16 EF	F 16	F 17 EF	F 17
Melting Point (°C)	105-120	105-120	105-120	105-120	102-106	102-106
Density at 25 °C (g/cm <sup>3</sup> )	0,940	0,940	0,940	0,940	0,940	0,940
Particle size (D50) (µm)	5-6	8-10	5-6	8-10	5-6	8-10
Particle size (D90) (µm)	11-12	20-25	11-12	20-25	11-12	20-25
Mesh (D90)		550		550		550



		Applications																																		
		Liquid Inks			Printing Inks						Offset Inks (Oil based)			Paints and Coatings						Stains		Lacquers														
MEGHPRINT		Film : Aqueous	Film : Solvent	Paper : Aqueous	Paper : Solvent	Gravure : Publications	OPV : Overprint varnish	Flexographic : Aqueous	Flexographic : Solvent	Flexographic : UV	Gravure : Aqueous	Gravure : Solvent	Gravure : UV	Digital Ink	Ultraviolet (UV)	Electron Beam (EB)	UV LED	Sheetfed (UV)	Lithography	Heatset	Coldset	Can & Container	Metal : Aqueous	Metal : Solvent	Wood : Aqueous	Wood : Solvent	Powder	Architectural	Trim Paints	Floor	Aqueous	Solvent	Aqueous	Solvent	UV & EB	
F																																				

		Surface performance and benefits																																				
		Resistances					Gloss		Slip		Surface effects					others important properties																						
MEGHPRINT		Abrasion resistance	Blocking resistance	Burnishing resistance	Heat resistance	Mar resistance	Metal marking resistance	Rub resistance	Scratch resistance	Gloss control	Gloss retention	Satin gloss	Maximum Slip (low COF)	Slip (low COF)	Slip control (high COF)	Film toughness	Maximum Lubricity	Lubricity	Matting	Silk touch	Smooth feel	Smoothness coating	Soft feel	Texture	Antisettling	Anti-stick	Air release	Blooming properties	Chemical resistance	Hardness	In-can stability	Non skid coating	Recoatibility	Sandability	Scrub ability	Solvent resistance	Water beading effect	Water repellency
F		2				2	2	2		1		2	2				1				1					1											1	1

### Recommended dosage :

- = 0,25% - 1,00%
- = 1,00% - 2,00%
- = 1,00% - 3,00%
- = 2,00% - 3,00%
- = above 3,00%

### Surface performance :

- 1 = Effective
- 2 = Very Effective
- 3 = Extremely Effective



## Micronized waxes

### MEGH™PRINT B

### Ethylene bisteramide waxes

Finely micronized EBS waxes.

Our **MEGH™PRINT B** grades feature extremely fine particle control with excellent blooming properties and provide surface slip, scratch and mar resistance as well as some gloss control.

**MEGH™PRINT B** grades can be use in lacquers, coatings and printing inks to modify the surface properties., improving scratch resistance and anti blocking properties.

**MEGH™PRINT B** grades can be use as additive in wood lacquers acting as matting agent and **sanding aid**, impart an excellent “feel” while maintaining excellent blocking resistance.

**MEGH™PRINT B** grades will also reduce the dust buildup on sanding belts and effectively increase longevity when used in sanding sealers.

**MEGH™PRINT B** grades will exhibit excellent solvent resistance and will not affect drying rates of air-dry systems.

**MEGH™PRINT B** grades can be use in powder coatings applications improving in several systems the **de-airing (degassing) properties (Benzoin-Synergist)** , and pigment wetting of powder coatings as well as the electrostatic charge during processing. It is recommended for powder coatings based on polyester, polyester/epoxy, acrylate, polyurethane and epoxies.

**MEGH™PRINT B** grades can be use as **meat release** properties in **can coatings**.

**MEGH™PRINT B** grades can also be utilized as a finely micronized synthetic lubricant for powdered metals.

**MEGH™PRINT B 1110** can also be done in particle sizes suitable for texture range.

The grade **MEGH™PRINT B 1100** is an economical EBS grade made with alternative raw materials.

*PS : Consult our sales / technical team about the minimum quantity for each grade.*

### Regulations

The composition of the **MEGH™PRINT B** types are suitable according to the following compositional provisions for food contact applications, as indicated:

#### United States

FDA regulations Paragraph 21 CFR

175.300 *Resinous and polymeric coatings*

#### Europe coatings

*Suitable for food contact coatings*

Yes

*Regulation (EU) No. 10/2011*

Yes

*German BfR XIV ‘Polymer Dispersions*

Yes

*CoE ResAP (2004) 1*

Yes

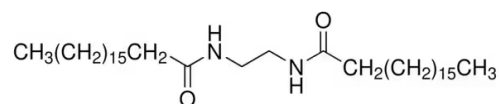
*According to the composition, we can state that the product is in line with the following directives :*

*Directive 2011/65/EU (EU RoHS 2) as amended by the Delegated Directive (EU) 2015/863 (EU RoHS 3)*

*EU Directive 2002/96/EC (WEEE)*

*EU Directive 94/62/EC (Packaging Waste)*

*CONEG Toxics in Packaging*



# Micronized waxes

## MEGH™PRINT B

## Ethylene bisteramide waxes

Typical properties	B 1100 EF	B 1100	B 1110 EF	B 1110	B 1110 M 400	B 1110 M 325	B 1110 M 270	B 1110 M 170
Melting Point (°C)	130-135	130-135	140-145	140-145	140-145	140-145	140-145	140-145
Density at 25 °C (g/cm <sup>3</sup> )	0,970	0,970	0,970	0,970	0,970	0,970	0,970	0,970
Particle size (D50) (µm)	5-6	8-10	5-6	8-10	11-12	11-15	15-25	40-50
Particle size (D99) (µm)	11-12	20-25	11-12	20-25	30	44	53	80
Mesh (D90)		550		550	400	325	270	170

		Applications																																		
		Liquid Inks				Printing Inks						Offset Inks (Oil based)			Paints and Coatings				Stains		Lacquers															
MEGHPRINT		Film : Aqueous	Film : Solvent	Paper : Aqueous	Paper : Solvent	Gravure : Publications	OPV : Overprint varnish	Flexographic : Aqueous	Flexographic : Solvent	Flexographic : UV	Gravure : Aqueous	Gravure : Solvent	Gravure : UV	Digital Ink	Ultraviolet (UV)	Electron Beam (EB)	UV LED	Sheetfed (UV)	Lithography	Heatset	Coldset	Can & Container	Metal : Aqueous	Metal : Solvent	Wood : Aqueous	Wood : Solvent	Powder	Architectural	Trim Paints	Floor	Aqueous	Solvent	Aqueous	Solvent	UV & EB	
B																																				

		Surface performance and benefits																																				
		Resistances				Gloss		Slip		Surface effects				others important properties																								
MEGHPRINT		Abrasion resistance	Blocking resistance	Burnishing resistance	Heat resistance	Mar resistance	Metal marking resistance	Rub resistance	Scratch resistance	Gloss control	Gloss retention	Satin gloss	Maximum Slip (low COF)	Slip (low COF)	Slip control (high COF)	Film toughness	Maximum Lubricity	Lubricity	Matting	Silk touch	Smooth feel	Smoothness coating	Soft feel	Texture	Antisettling	Anti-stick	Air release	Blooming properties	Chemical resistance	Hardness	In-can stability	Non skid coating	Recoatibility	Sandability	Scrub ability	Solvent resistance	Water beading effect	Water repellency
B		2	3	1			1	1	1	1		1	2					1	1	3	3	2	1			1	2							2		3		3

### Recommended dosage :

- = 0,25% - 1,00%
- = 1,00% - 2,00%
- = 1,00% - 3,00%
- = 2,00% - 3,00%
- = above 3,00%

### Surface performance :

- 1 = Effective
- 2 = Very Effective
- 3 = Extremely Effective



## Micronized waxes

### MEGH™PRINT R Polytetrafluoroethylene (PTFE)

Often used in combination with micronized waxes to achieve higher surface lubricity, anti-blocking properties and lower cost. Our micronized PTFE (polytetrafluoroethylene) products e increases surface slip, scratch resistance and heat resistance of the surfaces and is suitable for solvent-borne and solvent-free coating systems.

**MEGH™PRINT R 1500** is recommended for powder coatings based on polyester, TGIC, Primid/powder link, polyester/epoxide, acrylate, polyurethane and epoxides.

*PS : Consult our sales / technical team about the minimum quantity for each grade.*

#### Regulations

**MEGH™PRINT R 1500** is low PFOA content<sup>(1)</sup> material.

*(1)= Not intentionally added nor expected to be present above limit values specified in Annex I of Regulation (EU) 2019/1021 adding PFOA, its salts and related substances under the Stockholm Convention on POPs effective July 4<sup>th</sup> 2020.*

The composition of the **MEGH™PRINT R** types are suitable according to the following compositional provisions for food contact applications, as indicated:

#### United States

FDA status - 21 CFR 177.1550

FDA regulations Paragraph 21 CFR

175.105 Adhesives

175.300 Resinous and polymeric coatings

176.170 Components of paper and paperboard in contact with aqueous and fatty foods.

176.180 Components of paper and paperboard in contact with dry food.

#### Europe coatings

Suitable for food contact coatings Yes

Regulation (EU) No. 10/2011 Yes

German BfR XIV 'Polymer Dispersions Yes

CoE ResAP (2004) 1 Yes

#### Europe printing inks

Suitable for food contact printing inks Yes

Swiss Ordinance 817.023.21, Annex 10 Yes

Nestlé Printing Inks for Food Packaging (07/04/2022) Yes

EuPIA Exclusion List (March 2024) Yes



# Micronized waxes

## MEGH™PRINT R

## Polytetrafluoroethylene (PTFE)

Typical properties	R 1500
Melting Point (°C)	> 325
Density at 25 °C (g/cm <sup>3</sup> )	2,200
Particle size (D50) (µm)	8-10
Particle size (D90) (µm)	20-25
Mesh (D90)	550



		Applications																																		
		Liquid Inks			Printing Inks							Offset Inks (Oil based)			Paints and Coatings				Stains		Lacquers															
MEGHPRINT		Film : Aqueous	Film : Solvent	Paper : Aqueous	Paper : Solvent	Gravure : Publications	OPV : Overprint varnish	Flexographic : Aqueous	Flexographic : Solvent	Flexographic : UV	Gravure : Aqueous	Gravure : Solvent	Gravure : UV	Digital Ink	Ultraviolet (UV)	Electron Beam (EB)	UV LED	Sheetfed (UV)	Lithography	Heatset	Coldset	Can & Container	Metal : Aqueous	Metal : Solvent	Wood : Aqueous	Wood : Solvent	Powder	Architectural	Trim Paints	Floor	Aqueous	Solvent	Aqueous	Solvent	UV & EB	
R																																				

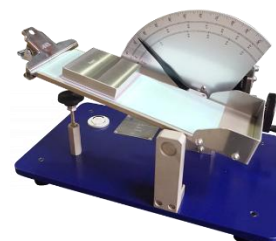
		Surface performance and benefits																																					
		Resistances					Gloss		Slip		Surface effects						others important properties																						
MEGHPRINT		Abrasion resistance	Blocking resistance	Burnishing resistance	Heat resistance	Mar resistance	Metal marking resistance	Rub resistance	Scratch resistance	Gloss control	Gloss retention	Satin gloss	Maximum Slip (low COF)	Slip (low COF)	Slip control (high COF)	Film toughness	Maximum Lubricity	Lubricity	Matting	Silk touch	Smooth feel	Smoothness coating	Soft feel	Texture	Antisettling	Anti-stick	Air release	Blooming properties	Chemical resistance	Hardness	In-can stability	Non skid coating	Recoatibility	Sandability	Scrub ability	Solvent resistance	Water beading effect	Water repellency	
R		3	2	1		2	3	1	1				3	3			3	3							2		2										3		

### Recommended dosage :

<span style="display:inline-block; width:15px; height:15px; background-color:yellow; border:1px solid black;"></span>	= 0,25% - 1,00%
<span style="display:inline-block; width:15px; height:15px; background-color:lightgreen; border:1px solid black;"></span>	= 1,00% - 2,00%
<span style="display:inline-block; width:15px; height:15px; background-color:lightcoral; border:1px solid black;"></span>	= 1,00% - 3,00%
<span style="display:inline-block; width:15px; height:15px; background-color:lightblue; border:1px solid black;"></span>	= 2,00% - 3,00%
<span style="display:inline-block; width:15px; height:15px; background-color:lightpurple; border:1px solid black;"></span>	= above 3,00%

### Surface performance :

- 1 = Effective
- 2 = Very Effective
- 3 = Extremely Effective



## Micronized waxes

### MEGH™PRINT PR and WR Modified polyolefin waxes

Unique combinations of polyolefins waxes and PTFE that provide a high degree of surface lubricity, abrasion resistance and film toughness.

MEGH has a wide range of **MEGH™PRINT PR** grades combining different types of polyolefins with PTFE; covering the total range of possible coatings applications and performances.

These proprietary formulations offer a synergistic combination of properties, for superior formulation flexibility in inks, paints, and coatings.

**MEGH™PRINT PR** maximizes performance efficiency in low viscosity systems.

**MEGH™PRINT PR 09** grades impart a better abrasion, rub and scratch resistance.

**MEGH™PRINT PR 0423** presents the best lubricity, slip and low COF among this product family.

**MEGH™PRINT WR 3092 EF** presents the best lubricity, slip and low COF as so as high melting point among this product family.

*PS : Consult our sales / technical team about the minimum quantity for each grade.*

### Regulations

Our **MEGH™PRINT PR and WR** range materials are low PFOA content<sup>(1)</sup> material.

*(1)= Not intentionally added nor expected to be present above limit values specified in Annex I of Regulation (EU) 2019/1021 adding PFOA, its salts and related substances under the Stockholm Convention on POPs effective July 4<sup>th</sup> 2020.*

*According to the composition, we can state that the product is in line with the following directives :*

*Directive 2011/65/EU (EU RoHS 2) as amended by the Delegated Directive (EU) 2015/863 (EU RoHS 3)*

*EU Directive 2002/96/EC (WEEE)*

*EU Directive 94/62/EC (Packaging Waste)*

*CONEG Toxics in Packaging*

Typical properties	PR 0401 EF	PR 0402 EF	PR 0410 EF	PR 0420 EF	PR 0420	PR 0421 EF	PR 0421	PR 0421 M 400
Melting Point (°C)	110 -118	110 -118	110 -118	110 -118	110 -118	110 -118	110 -118	110 -118
Density at 25 °C (g/cm <sup>3</sup> )	1,050	0,950	0,930	0,950	0,950	1,070	1,070	1,070
Particle size (D50) (µm)	5-6	5-6	5-6	5-6	8-10	5-6	8-10	11-12
Particle size (D90) (µm)	11-12	11-12	11-12	11-12	20-25	11-12	20-25	30
Mesh (D90)					550		550	400

Typical properties	PR 0422 EF	PR 0423 EF	PR 0423	PF 0430 EF	PR 0431	PR 0440 EF	PR 0440	PR 0440 M 400
Melting Point (°C)	110 -118	110 -118	110 -118	110 -118	110 -118	110 -118	110 -118	110 -118
Density at 25 °C (g/cm <sup>3</sup> )	1,200	1,330	1,330	0,960	1,090	0,970	0,970	0,970
Particle size (D50) (µm)	5-6	5-6	8-10	5-6	8-10	5-6	8-10	11-12
Particle size (D90) (µm)	11-12	11-12	20-25	11-12	20-25	11-12	20-25	30
Mesh (D90)			550		550		550	400

## Micronized waxes

### MEGH™PRINT PR and WR Modified polyolefin waxes

Typical properties	PR 0440 M 030	PR 0441	PR 0450 EF	PR 0450	PR 0451	PR 0452 EF	PR 0460 EF	PR 0460
Melting Point (°C)	110 -118	110 -118	110 -118	110 -118	110 -118	110 -118	110 -118	110 -118
Density at 25 °C (g/cm <sup>3</sup> )	0,970	1,100	0,980	0,980	1,110	1,240	1,000	1,000
Particle size (D50) (µm)	250-270	8-10	5-6	8-10	8-10	5-6	5-6	8-10
Particle size (D90) (µm)	595	20-25	11-12	20-25	20-25	11-12	11-12	20-25
Mesh (D90)	30	550		550	550			550

Typical properties	PR 0461 EF	PR 0461	PR 0470 M 080	PR 0471	PR 0480 EF	PR 0480	PR 0490 EF	PR 0491 EF
Melting Point (°C)	110 -118	110 -118	110 -118	110 -118	110 -118	110 -118	110 -118	110 -118
Density at 25 °C (g/cm <sup>3</sup> )	1,120	1,120	1,010	1,140	1,020	1,020	1,040	1,080
Particle size (D50) (µm)	5-6	8-10	110-120	8-10	5-6	8-10	5-6	5-6
Particle size (D90) (µm)	11-12	20-25	177	20-25	11-12	20-25	11-12	11-12
Mesh (D90)		550	080	550		550		

Typical properties	PR 0491 M 400	PR 0920	PR 0921 EF	PR 0921	PR 0921 M 400	PR 0930 EF	PR 0930	PR 0930 M 400
Melting Point (°C)	110 -118	120-135	120-135	120-135	120-135	120-135	120-135	120-135
Density at 25 °C (g/cm <sup>3</sup> )	1,080	0,970	1,090	1,090	1,090	0,970	0,970	0,970
Particle size (D50) (µm)	11-12	8-10	5-6	8-10	11-12	5-6	8-10	11-12
Particle size (D90) (µm)	30	20-25	11-12	20-25	30	11-12	20-25	30
Mesh (D90)	400	550		550	400		550	400

Typical properties	PR 0930 M 140	PR 0941 EF	PR 0950 EF	PR 0951 M 400	PR 0970 M 400	WR 3092 EF
Melting Point (°C)	120-135	120-135	120-135	120-135	120-135	150-160
Density at 25 °C (g/cm <sup>3</sup> )	0,970	1,120	1,000	1,130	1,02	1,310
Particle size (D50) (µm)	45-55	5-6	5-6	11-12	11-12	5-6
Particle size (D90) (µm)	105	11-12	11-12	30	30	11-12
Mesh (D90)	140			400	400	



# Micronized waxes

## MEGH™PRINT PR and WR Modified polyolefin waxes

		Applications																																		
		Liquid Inks		Printing Inks								Offset Inks (Oil based)			Paints and Coatings					Stains		Lacquers														
MEGHPRINT		Film : Aqueous	Film : Solvent	Paper : Aqueous	Paper : Solvent	Gravure : Publications	OPV : Overprint varnish	Flexographic : Aqueous	Flexographic : Solvent	Flexographic : UV	Gravure : Aqueous	Gravure : Solvent	Gravure : UV	Digital Ink	Ultraviolet (UV)	Electron Beam (EB)	UV LED	Sheetfed (UV)	Lithography	Heatset	Coldset	Can & Container	Metal : Aqueous	Metal : Solvent	Wood : Aqueous	Wood : Solvent	Powder	Architectural	Trim Paints	Floor	Aqueous	Solvent	Aqueous	Solvent	UV & EB	
PR																																				

		Surface performance and benefits																																				
		Resistances				Gloss		Slip		Surface effects						others important properties																						
MEGHPRINT		Abrasion resistance	Blocking resistance	Burnishing resistance	Heat resistance	Mar resistance	Metal marking resistance	Rub resistance	Scratch resistance	Gloss control	Gloss retention	Satin gloss	Maximum Slip (low COF)	Slip (low COF)	Slip control (high COF)	Film toughness	Maximum Lubricity	Lubricity	Matting	Silk touch	Smooth feel	Smoothness coating	Soft feel	Texture	Antisettling	Anti-stick	Air release	Blooming properties	Chemical resistance	Hardness	In-can stability	Non skid coating	Recoatibility	Sandability	Scrub ability	Solvent resistance	Water beading effect	Water repellency
PR		3	2		2	2	3	2		1			3		2	1	1	2		1		1			1			1	3							1		

### Recommended dosage :

- = 0,25% - 1,00%
- = 1,00% - 2,00%
- = 1,00% - 3,00%
- = 2,00% - 3,00%
- = above 3,00%

### Surface performance :

- 1 = Effective
- 2 = Very Effective
- 3 = Extremely Effective



## Micronized waxes

### MEGH™PRINT PB Modified polyolefin waxes

Combinations of polyolefins and amides, designed to impart increased toughness, abrasion, scratch resistance and anti-blocking **without the use of PTFE**.

MEGH™PRINT PB also impart an excellent “**silk feel**” or **smoothness** to a coating, and also surface lubricity to printing inks and coatings. Due to the unique nature of this product, **the optimum effect of a smooth silky feel** will be reached approximately 12 to 24 hours after application while all other surface protection characteristics are realized immediately.

MEGH™PRINT PB 0908 , MEGH™PRINT PB 0973 EF are additive that **improves the degassing** of powder coatings, which are applied to **porous substrates**. It reduces the formation of pinholes and air bubbles and optimizes the scratch resistance. Both additives can be used in powder coatings based on polyester, TGIC, Beta-HAA, epoxy-functional glycidyl esters, polyester/epoxy, polyurethane, acrylate, and epoxy.

MEGH™PRINT PB 0441 and PB 0441 EF can provide slip and also **soft feel**.

MEGH™PRINT PB 0975 and PB 0975 EF can have a matt effect to the application.

MEGH™PRINT PB grades can be used in all types of printing inks, paints and coatings. However, it is especially recommended for use in the following areas: solvent and water based printing inks, lacquers and coatings applied on non-porous substrates, wood and leather finishes, coil coatings, industrial finishes, can coatings and low energy heat-set cover inks.

PS : Consult our sales / technical team about the minimum quantity for each grade.

#### Regulations

The composition of the MEGH™PRINT PB types are suitable according to the following compositional provisions for food contact applications, as indicated:

#### United States

FDA regulations Paragraph 21 CFR

175.300 Resinous and polymeric coatings

#### Europe coatings

Suitable for food contact coatings	Yes
Regulation (EU) No. 10/2011	Yes
German BfR XIV 'Polymer Dispersions	Yes
CoE ResAP (2004) 1	Yes

According to the composition, we can state that the product is in line with the following directives :

Directive 2011/65/EU (EU RoHS 2) as amended by the Delegated Directive (EU) 2015/863 (EU RoHS 3)

EU Directive 2002/96/EC (WEEE)

EU Directive 94/62/EC (Packaging Waste)

CONEG Toxics in Packaging



## Micronized waxes

### MEGH™PRINT PB

### Modified polyolefin waxes

Typical properties	PB 0334 EF	PB 0334	PB 0341 EF	PB 0341	PB 0341 M 400	PB 0375 M 100	PB 0417 EF
Melting Point (°C)	135-145	135-145	135-145	135-145	135-145	135-145	135-145
Density at 25 °C (g/cm <sup>3</sup> )	0,930	0,930	0,910	0,910	0,910	0,940	0,960
Particle size (D50) (µm)	5-6	8-10	5-6	8-10	11-12	80-100	5-6
Particle size (D90) (µm)	11-12	20-25	11-12	20-25	30	149	11-12
Mesh (D90)		550		550	400	100	

Typical properties	PB 0426	PB 0441 EF	PB 0457 EF	PB 0475 EF	PB 0902	PB 0908
Melting Point (°C)	135-145	135-145	135-145	135-145	135-145	135-145
Density at 25 °C (g/cm <sup>3</sup> )	0,950	0,930	0,960	0,950	0,950	0,960
Particle size (D50) (µm)	8-10	5-6	5-6	5-6	5-6	5-6
Particle size (D90) (µm)	20-25	11-12	11-12	11-12	11-12	11-12
Mesh (D90)	550					

Typical properties	PB 0917 EF	PB 0917	PB 0943	PB 0966	PB 0973 EF	PB 0975 EF
Melting Point (°C)	135-145	135-145	135-145	135-145	135-145	135-145
Density at 25 °C (g/cm <sup>3</sup> )	0,960	0,960	0,960	0,960	0,960	0,960
Particle size (D50) (µm)	5-6	8-10	5-6	5-6	8-10	8-10
Particle size (D90) (µm)	11-12	20-25	11-12	11-12	20-25	20-25
Mesh (D90)		550			550	550



# Micronized waxes

## MEGH™PRINT PB

## Modified polyolefin waxes

		Applications																																			
		Liquid Inks					Printing Inks							Offset Inks (Oil based)				Paints and Coatings					Stains		Lacquers												
MEGHPRINT		Film : Aqueous	Film : Solvent	Paper : Aqueous	Paper : Solvent	Gravure : Publications	OPV : Overprint varnish	Flexographic : Aqueous	Flexographic : Solvent	Flexographic : UV	Gravure : Aqueous	Gravure : Solvent	Gravure : UV	Digital Ink	Ultraviolet (UV)	Electron Beam (EB)	UV LED	Sheetfed (UV)	Lithography	Heatset	Coldset	Can & Container	Metal : Aqueous	Metal : Solvent	Wood : Aqueous	Wood : Solvent	Powder	Architectural	Trim Paints	Floor	Aqueous	Solvent	Aqueous	Solvent	UV & EB		
PB																																					

		Surface performance and benefits																																				
		Resistances					Gloss		Slip		Surface effects					others important properties																						
MEGHPRINT		Abrasion resistance	Blocking resistance	Burnishing resistance	Heat resistance	Mar resistance	Metal marking resistance	Rub resistance	Scratch resistance	Gloss control	Gloss retention	Satin gloss	Maximum Slip (low COF)	Slip (low COF)	Slip control (high COF)	Film toughness	Maximum Lubricity	Lubricity	Matting	Silk touch	Smooth feel	Smoothness coating	Soft feel	Texture	Antisettling	Anti-stick	Air release	Blooming properties	Chemical resistance	Hardness	In-can stability	Non skid coating	Recoatibility	Sandability	Scrub ability	Solvent resistance	Water beading effect	Water repellency
PB		2	2	1	2	1	2	2	1	1	1	2	2	2	1	2	2	2	2	2	1	1			1	1		3			2		1		1			1

### Recommended dosage :

- = 0,25% - 1,00%
- = 1,00% - 2,00%
- = 1,00% - 3,00%
- = 2,00% - 3,00%
- = above 3,00%

### Surface performance :

- 1 = Effective
- 2 = Very Effective
- 3 = Extremely Effective



## Micronized waxes

### MEGH™PRINT PBF

### Modified polyolefin waxes

MEGH™PRINT PBF grades will impart a better slip (lower COF) than MEGH™PRINT PB grades while maintaining the other characteristics, **without the use of PTFE**.

MEGH™PRINT PBF 95003 was developed to meet the needs of the formulator requiring excellent lubricity properties **without incurring the expense or settling characteristics of PTFE**.

MEGH™PRINT PBF 95003 will impart an excellent "feel" when incorporated into sanding sealers while maintaining excellent blocking resistance. It will also exhibit excellent solvent resistance and will not effect drying rates of air dry systems. Unlike other wax additives for sanding sealers.

MEGH™PRINT PBF grades are suitable to a wide range of application systems like water based, solvent based and energy curable coatings and inks. Industrial coatings (including plastic, metal and leather); wood coatings and sanding sealers; printing inks and OPV's (including flexographic and gravure); powder coatings; interior and exterior can and container coatings.

PS : Consult our sales / technical team about the minimum quantity for each grade.

### Regulations

The composition of the MEGH™PRINT PBF types are suitable according to the following compositional provisions for food contact applications, as indicated:

#### United States

FDA regulations Paragraph 21 CFR

175.300 Resinous and polymeric coatings

#### Europe coatings

Suitable for food contact coatings	Yes
Regulation (EU) No. 10/2011	Yes
German BfR XIV 'Polymer Dispersions	Yes
CoE ResAP (2004) 1	Yes



According to the composition, we can state that the product is in line with the following directives :

Directive 2011/65/EU (EU RoHS 2) as amended by the Delegated Directive (EU) 2015/863 (EU RoHS 3)

EU Directive 2002/96/EC (WEEE)

EU Directive 94/62/EC (Packaging Waste)

CONEG Toxics in Packaging

Typical properties	PBF 90251 EF	PBF 90251	PBF 95003	PBF 90350 M 400	PBF 95201 M 400
Melting Point (°C)	120-130	120-130	120-130	120-130	120-130
Density at 25 °C (g/cm <sup>3</sup> )	0,950	0,950	0,950	0,950	0,950
Particle size (D50) (µm)	5-6	8-10	8-10	11-12	11-12
Particle size (D90) (µm)	11-12	20-25	20-25	30	30
Mesh (D90)		550	550	400	400

# Micronized waxes

MEGH™PRINT PBF

Modified polyolefin waxes

		Applications																																	
		Liquid Inks		Printing Inks								Offset Inks (Oil based)			Paints and Coatings					Stains		Lacquers													
MEGHPRINT		Film : Aqueous	Film : Solvent	Paper : Aqueous	Paper : Solvent	Gravure : Publications	OPV : Overprint varnish	Flexographic : Aqueous	Flexographic : Solvent	Flexographic : UV	Gravure : Aqueous	Gravure : Solvent	Gravure : UV	Digital Ink	Ultraviolet (UV)	Electron Beam (EB)	UV LED	Sheetfed (UV)	Lithography	Heatset	Coldset	Can & Container	Metal : Aqueous	Metal : Solvent	Wood : Aqueous	Wood : Solvent	Powder	Architectural	Trim Paints	Floor	Aqueous	Solvent	Aqueous	Solvent	UV & EB
PBF																																			

		Surface performance and benefits																																				
		Resistances				Gloss		Slip		Surface effects						others important properties																						
MEGHPRINT		Abrasion resistance	Blocking resistance	Burnishing resistance	Heat resistance	Mar resistance	Metal marking resistance	Rub resistance	Scratch resistance	Gloss control	Gloss retention	Satin gloss	Maximum Slip (low COF)	Slip (low COF)	Slip control (high COF)	Film toughness	Maximum Lubricity	Lubricity	Matting	Silk touch	Smooth feel	Smoothness coating	Soft feel	Texture	Antisettling	Anti-stick	Air release	Blooming properties	Chemical resistance	Hardness	In-can stability	Non skid coating	Recoatibility	Sandability	Scrub ability	Solvent resistance	Water beading effect	Water repellency
PBF		2	2		1	2	1	2	2	1	1	1	2	2	2	2	1	2	2	2	2	1	1		1	1		3			2			1	1	1		

**Recommended dosage :**

- = 0,25% - 1,00%
- = 1,00% - 2,00%
- = 1,00% - 3,00%
- = 2,00% - 3,00%
- = above 3,00%

**Surface performance :**

- 1 = Effective
- 2 = Very Effective
- 3 = Extremely Effective



## Micronized waxes

### MEGH™PRINT PBR

### Modified polyolefin waxes

Combinations of polyolefins, amides and PTFE designed to impart increased lubricity, scratch resistance and anti-blocking.

They also impart an excellent “**feel**” or **smoothness** to a coating.

**MEGH™PRINT PBR 42201 EF** can be used in powder coatings systems to create a highly reproducible fine-texture, **mat** as so as scratch resistance. The obtained textures are uniform, even if the layer thickness is variable.

**MEGH™PRINT PBR 44250 EF** can be used in powder coatings systems to create a highly reproducible fine-texture, **sat**in gloss as so as scratch resistance.

**MEGH™PRINT PBR 94161** can provide **maximum lubricity (slip)** into this product family.

**MEGH™PRINT PBR 3411 EF / 34212 EF / 42201 EF / 94121 EF** present a very good surface lubricity.

*PS : Consult our sales / technical team about the minimum quantity for each grade.*

### Regulations

Our **MEGH™PRINT PBR** range materials are low PFOA content<sup>(1)</sup> material.

*(1)= Not intentionally added nor expected to be present above limit values specified in Annex I of Regulation (EU) 2019/1021 adding PFOA, its salts and related substances under the Stockholm Convention on POPs effective July 4<sup>th</sup> 2020.*

*According to the composition, we can state that the product is in line with the following directives :*

*Directive 2011/65/EU (EU RoHS 2) as amended by the Delegated Directive (EU) 2015/863 (EU RoHS 3)*

*EU Directive 2002/96/EC (WEEE)*

*EU Directive 94/62/EC (Packaging Waste)*

*CONEG Toxics in Packaging*

Typical properties	PBR 34111 EF	PBR 34121 EF	PBR 34150	PBR 34190 EF	PBR 42201 EF	PBR 44250 EF
Melting Point (°C)	101-105	101-105	101-105	101-105	110 -118	110 -118
Density at 25 °C (g/cm <sup>3</sup> )	1,050	1,070	0,970	1,030	1,06	1,000
Particle size (D50) (µm)	5-6	5-6	8-10	5-6	5-6	8-10
Particle size (D90) (µm)	11-12	11-12	20-25	11-12	11-12	20-25
Mesh (D90)			550			550

Typical properties	PBR 94121 EF	PBR 94160 EF	PBR 94160	PBR 94161
Melting Point (°C)	120-135	120-135	120-135	120-135
Density at 25 °C (g/cm <sup>3</sup> )	1,100	1,020	1,020	1,150
Particle size (D50) (µm)	5-6	5-6	8-10	8-10
Particle size (D90) (µm)	11-12	11-12	20-25	20-25
Mesh (D90)			550	550

# Micronized waxes

## MEGH™PRINT PBR

## Modified polyolefin waxes

		Applications																																			
		Liquid Inks				Printing Inks								Offset Inks (Oil based)				Paints and Coatings				Stains		Lacquers													
MEGHPRINT		Film : Aqueous	Film : Solvent	Paper : Aqueous	Paper : Solvent	Gravure : Publications	OPV : Overprint varnish	Flexographic : Aqueous	Flexographic : Solvent	Flexographic : UV	Gravure : Aqueous	Gravure : Solvent	Gravure : UV	Digital Ink	Ultraviolet (UV)	Electron Beam (EB)	UV LED	Sheeted (UV)	Lithography	Heatset	Coldset	Can & Container	Metal : Aqueous	Metal : Solvent	Wood : Aqueous	Wood : Solvent	Powder	Architectural	Trim Paints	Floor	Aqueous	Solvent	Aqueous	Solvent	UV & EB		
PBR																																					

		Surface performance and benefits																																				
		Resistances					Gloss		Slip		Surface effects						others important properties																					
MEGHPRINT		Abrasion resistance	Blocking resistance	Burnishing resistance	Heat resistance	Mar resistance	Metal marking resistance	Rub resistance	Scratch resistance	Gloss control	Gloss retention	Satin gloss	Maximum Slip (low COF)	Slip (low COF)	Slip control (high COF)	Film toughness	Maximum Lubricity	Lubricity	Matting	Silk touch	Smooth feel	Smoothness coating	Soft feel	Texture	Antisettling	Anti-stick	Air release	Blooming properties	Chemical resistance	Hardness	In-can stability	Non skid coating	Recoatibility	Sandability	Scrub ability	Solvent resistance	Water beading effect	Water repellency
PBR		2	2		1	1	1	2	2	1	1	1	2	3		2	2	2	1	1	2	1	1		1	1	1	3				2		1		1		

### Recommended dosage :

- = 0,25% - 1,00%
- = 1,00% - 2,00%
- = 1,00% - 3,00%
- = 2,00% - 3,00%
- = above 3,00%

### Surface performance :

- 1 = Effective
- 2 = Very Effective
- 3 = Extremely Effective



## Micronized waxes

### MEGH™PRINT PBW Modified polyolefin waxes

Combinations of polyolefins and amides, designed to impart increased general coatings resistances and anti-blocking properties **without the use of PTFE**.

**MEGH™PRINT PBW 94101** is an appropriate material to scratch resistance. Provides very good antiblocking properties; improves metal mark resistance; increase resistance to scuff; offer good color fastness and heat resistance. **Greatly improves matting in UV coatings.**

**MEGH™PRINT PBW 95052** shows a high hardness in combination with a good matting efficiency and an **especially good resistance against burnishing**. Ideal for **UV coatings** formulations.

**MEGH™PRINT PBW 95650** can be primarily use for low COF, matting and improvement of scratch resistance. In paints, foil coatings and printing inks it can confers **silky smooth surfaces** if a special polymer combination is used.

*PS : Consult our sales / technical team about the minimum quantity for each grade.*

#### Regulations

The composition of the **MEGH™PRINT PBW** types are suitable according to the following compositional provisions for food contact applications, as indicated:

##### United States

FDA regulations Paragraph 21 CFR

175.300 Resinous and polymeric coatings

##### Europe coatings

Suitable for food contact coatings	Yes
Regulation (EU) No. 10/2011	Yes
German BfR XIV 'Polymer Dispersions	Yes
CoE ResAP (2004) 1	Yes

According to the composition, we can state that the product is in line with the following directives :

Directive 2011/65/EU (EU RoHS 2) as amended by the Delegated Directive (EU) 2015/863 (EU RoHS 3)

EU Directive 2002/96/EC (WEEE)

EU Directive 94/62/EC (Packaging Waste)

CONEG Toxics in Packaging

Typical properties	PBW 94101	PBW 95052	PBW 95650 EF	PBW 95650
Melting Point (°C)	140-150	140-150	140-150	140-150
Density at 25 °C (g/cm <sup>3</sup> )	0,940	0,930	0,930	0,960
Particle size (D50) (µm)	8-10	8-10	5-6	8-10
Particle size (D90) (µm)	20-25	20-25	11-12	20-25
Mesh (D90)	550	550		550



UV systems

## Micronized waxes

### MEGH™PRINT PBW

### Modified polyolefin waxes

		Applications																																			
		Liquid Inks				Printing Inks								Offset Inks (Oil based)				Paints and Coatings				Stains		Lacquers													
MEGHPRINT		Film : Aqueous	Film : Solvent	Paper : Aqueous	Paper : Solvent	Gravure : Publications	OPV : Overprint varnish	Flexographic : Aqueous	Flexographic : Solvent	Flexographic : UV	Gravure : Aqueous	Gravure : Solvent	Gravure : UV	Digital Ink	Ultraviolet (UV)	Electron Beam (EB)	UV LED	Sheetfed (UV)	Lithography	Heatset	Coldset	Can & Container	Metal : Aqueous	Metal : Solvent	Wood : Aqueous	Wood : Solvent	Powder	Architectural	Trim Paints	Floor	Aqueous	Solvent	Aqueous	Solvent	UV & EB		
PBW																																					

		Surface performance and benefits																																				
		Resistances					Gloss		Slip		Surface effects					others important properties																						
MEGHPRINT		Abrasion resistance	Blocking resistance	Burnishing resistance	Heat resistance	Mar resistance	Metal marking resistance	Rub resistance	Scratch resistance	Gloss control	Gloss retention	Satin gloss	Maximum Slip (low COF)	Slip (low COF)	Slip control (high COF)	Film toughness	Maximum Lubricity	Lubricity	Matting	Silk touch	Smooth feel	Smoothness coating	Soft feel	Texture	Antisettling	Anti-stick	Air release	Blooming properties	Chemical resistance	Hardness	In-can stability	Non skid coating	Recoatibility	Sandability	Scrub ability	Solvent resistance	Water beading effect	Water repellency
PBW		2	2	1	2	1	2	2	2	2	1		2	1	2		1	2	2	2	2	1	1		1	1		1	3	1		2		1			1	

**Recommended dosage :**

- = 0,25% - 1,00%
- = 1,00% - 2,00%
- = 1,00% - 3,00%
- = 2,00% - 3,00%
- = above 3,00%

**Surface performance :**

- 1 = Effective
- 2 = Very Effective
- 3 = Extremely Effective



UV printing systems

## Micronized waxes

### MEGH™PRINT PMB Modified oxidized polyethylene waxes

Combinations of oxidized polyolefins and amide, designed to impart slip and scratch resistance, antiblocking and matting properties in lacquers, coatings and graphic arts.

**MEGH™PRINT PMB** increased lubricity with a **smooth surface feel in aqueous systems**.

**MEGH™PRINT PMB** also imparts maximum lubricity (after 12 to 24 hours); slip; blocking and scratch resistance; as so as improves scuff and mar resistance **without the use of PTFE**.

**MEGH™PRINT PMB 655** also provide an excellent **soft/silky handle**, e.g. in wood lacquers.

**MEGH™PRINT PMB 676 EF** improve scratch resistance of paints and coatings, matting agent, sanding aid, additive for powder coatings. Antiblocking agent for printing packaging inks.

*PS : Consult our sales / technical team about the minimum quantity for each grade.*

#### Regulations

The composition of the **MEGH™PRINT PMB** types are suitable according to the following compositional provisions for food contact applications, as indicated:

##### United States

FDA regulations Paragraph 21 CFR

175.105 Adhesives

175.300 Resinous and polymeric coatings

##### Europe coatings

Regulation (EU) No. 10/2011

Yes

According to the composition, we can state that the product is in line with the following directives :

Directive 2011/65/EU (EU RoHS 2) as amended by the Delegated Directive (EU) 2015/863 (EU RoHS 3)

EU Directive 2002/96/EC (WEEE)

EU Directive 94/62/EC (Packaging Waste)

CONEG Toxics in Packaging

Typical properties	PMB 655	PMB 676 EF
Melting Point (°C)	135-145	135-145
Acid number (AN)	7-10	4-5
Density at 25 °C (g/cm <sup>3</sup> )	0,970	0,970
Particle size (D50) (µm)	8-10	5-6
Particle size (D90) (µm)	20-25	11-12
Mesh (D90)	550	



## Micronized waxes

### MEGH™PRINT PMB

### Modified oxidized polyethylene waxes

		Applications																																			
		Liquid Inks			Printing Inks							Offset Inks (Oil based)			Paints and Coatings				Stains		Lacquers																
MEGHPRINT		Film : Aqueous	Film : Solvent	Paper : Aqueous	Paper : Solvent	Gravure : Publications	OPV : Overprint varnish	Flexographic : Aqueous	Flexographic : Solvent	Flexographic : UV	Gravure : Aqueous	Gravure : Solvent	Gravure : UV	Digital Ink	Ultraviolet (UV)	Electron Beam (EB)	UV LED	Sheetfed (UV)	Lithography	Heatset	Coldset	Can & Container	Metal : Aqueous	Metal : Solvent	Wood : Aqueous	Wood : Solvent	Powder	Architectural	Trim Paints	Floor	Aqueous	Solvent	Aqueous	Solvent	UV & EB		
PMB																																					

		Surface performance and benefits																																				
		Resistances				Gloss		Slip		Surface effects				others important properties																								
MEGHPRINT		Abrasion resistance	Blocking resistance	Burnishing resistance	Heat resistance	Mar resistance	Metal marking resistance	Rub resistance	Scratch resistance	Gloss control	Gloss retention	Satin gloss	Maximum Slip (low COF)	Slip (low COF)	Slip control (high COF)	Film toughness	Maximum Lubricity	Lubricity	Matting	Silk touch	Smooth feel	Smoothness coating	Soft feel	Texture	Antisettling	Anti-stick	Air release	Blooming properties	Chemical resistance	Hardness	In-can stability	Non skid coating	Recoatibility	Sandability	Scrub ability	Solvent resistance	Water beading effect	Water repellency
PMB		2	2		1		2	2	2	2		1	2				1	1	2	2	1	1			1	1			3				2		1		1	

**Recommended dosage :**

- = 0,25% - 1,00%
- = 1,00% - 2,00%
- = 1,00% - 3,00%
- = 2,00% - 3,00%
- = above 3,00%

**Surface performance :**

- 1 = Effective
- 2 = Very Effective
- 3 = Extremely Effective



## Micronized waxes

### MEGH™PRINT BR

### Modified ethylene bisteramide waxes

Finely micronized modified EBS waxes. Our **MEGH™PRINT BR** grades feature extremely fine particle control with excellent blooming properties. These waxes provide surface slip, scratch and mar resistance as well as some gloss control.

**MEGH™PRINT BR 2030 EF** improves the **degassing** of powder coatings with  $\beta$ -hydroxyalkyl amide curing agents. It also improves leveling, pigment wetting, provides a **scar effect** in UV powder coatings.

**MEGH™PRINT BR 2030 EF** is recommended for powder coatings based on epoxy, polyester, polyurethane and acrylate resins and also polyester/epoxy combinations

**MEGH™PRINT BR 2070 EF** provides abrasion and scratch resistance, improves heat resistance, imparts lubricity, tape release and a smooth surface feel after 12 to 24 hours.

**MEGH™PRINT BR 2070 EF** is suitable to water based coatings. Industrial coatings (including plastic, metal and leather); wood coatings; printing inks and OPV's (including flexographic and gravure); coil coatings; soft touch coatings.

*PS : Consult our sales / technical team about the minimum quantity for each grade.*

### Regulations

Our **MEGH™PRINT BR** range materials are low PFOA content<sup>(1)</sup> material.

*(1)= Not intentionally added nor expected to be present above limit values specified in Annex I of Regulation (EU) 2019/1021 adding PFOA, its salts and related substances under the Stockholm Convention on POPs effective July 4<sup>th</sup> 2020.*

*According to the composition, we can state that the product is in line with the following directives :*

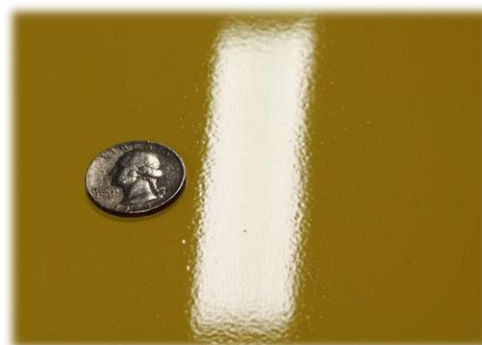
*Directive 2011/65/EU (EU RoHS 2) as amended by the Delegated Directive (EU) 2015/863 (EU RoHS 3)*

*EU Directive 2002/96/EC (WEEE)*

*EU Directive 94/62/EC (Packaging Waste)*

*CONEG Toxics in Packaging*

Typical properties	BR 2030 EF	BR 2070
Melting Point (°C)	135-145	135-145
Density at 25 °C (g/cm <sup>3</sup> )	1,020	1,060
Particle size (D50) (µm)	5-6	8-10
Particle size (D90) (µm)	11-12	20-25
Mesh (D90)		550



*Surface scar effect, similar than orange peel effect*

# Micronized waxes

MEGH™PRINT BR

Modified ethylene bisteramide waxes

		Applications																																	
		Liquid Inks				Printing Inks								Offset Inks (Oil based)			Paints and Coatings					Stains		Lacquers											
MEGHPRINT	BR	Film : Aqueous	Film : Solvent	Paper : Aqueous	Paper : Solvent	Gravure : Publications	OPV : Overprint varnish	Flexographic : Aqueous	Flexographic : Solvent	Flexographic : UV	Gravure : Aqueous	Gravure : Solvent	Gravure : UV	Digital Ink	Ultraviolet (UV)	Electron Beam (EB)	UV LED	Sheetfed (UV)	Lithography	Heatset	Coldset	Can & Container	Metal : Aqueous	Metal : Solvent	Wood : Aqueous	Wood : Solvent	Powder	Architectural	Trim Paints	Floor	Aqueous	Solvent	Aqueous	Solvent	UV & EB

		Surface performance and benefits																																				
		Resistances					Gloss		Slip		Surface effects						others important properties																					
MEGHPRINT	BR	Abrasion resistance	Blocking resistance	Burnishing resistance	Heat resistance	Mar resistance	Metal marking resistance	Rub resistance	Scratch resistance	Gloss control	Gloss retention	Satin gloss	Maximum Slip (low COF)	Slip (low COF)	Slip control (high COF)	Film toughness	Maximum Lubricity	Lubricity	Matting	Silk touch	Smooth feel	Smoothness coating	Soft feel	Texture	Antisettling	Anti-stick	Air release	Blooming properties	Chemical resistance	Hardness	In-can stability	Non skid coating	Recoatibility	Sandability	Scrub ability	Solvent resistance	Water beading effect	Water repellency

Recommended dosage :

- = 0,25% - 1,00%
- = 1,00% - 2,00%
- = 1,00% - 3,00%
- = 2,00% - 3,00%
- = above 3,00%

Surface performance :

- 1 = Effective
- 2 = Very Effective
- 3 = Extremely Effective



Different surfaces scar effect

## Micronized waxes

### MEGH™PRINT FB Modified synthetic waxes

Combinations of synthetic waxes and amides that provides surface lubricity, scratch resistance and anti-blocking **without the use of PTFE**.

They also impart an excellent “**surface feel**” or smoothness to a coating.

**MEGH™PRINT FB 1033** has a good balance properties, improving “**surface feel**” and hardness in coatings films. It may be used on its own or in combination with silica matting agents.

**MEGH™PRINT FB 1075 and 1075 EF** can be used in wood coatings. It offers improved slip, scratch and metal mark resistance. Exhibits easy dispersibility and anti-blocking properties. It also impart “**surface feel**”.

**MEGH™PRINT FB 1082** provides scratch resistance, antiblocking and surface lubricity and a “**smooth surface feel**”. It imparts the best surface lubricity (**low COF**) into this product family.

*PS : Consult our sales / technical team about the minimum quantity for each grade.*

#### Regulations

The composition of the **MEGH™PRINT FB** types are suitable according to the following compositional provisions for food contact applications, as indicated:

##### United States

FDA regulations Paragraph 21 CFR

175.300 Resinous and polymeric coatings

##### Europe coatings

Suitable for food contact coatings	Yes
Regulation (EU) No. 10/2011	Yes
German BfR XIV 'Polymer Dispersions	Yes
CoE ResAP (2004) 1	Yes

According to the composition, we can state that the product is in line with the following directives :

Directive 2011/65/EU (EU RoHS 2) as amended by the Delegated Directive (EU) 2015/863 (EU RoHS 3)

EU Directive 2002/96/EC (WEEE)

EU Directive 94/62/EC (Packaging Waste)

CONEG Toxics in Packaging

Typical properties	FB 1033	FB 1075 EF	FB 1075	FB 1082
Melting Point (°C)	135-145	135-145	135-145	135-145
Acid number (AN)	3-4	4-5	4-5	2-3
Density at 25 °C (g/cm <sup>3</sup> )	0,950	0,960	0,960	0,960
Particle size (D50) (µm)	8-10	5-6	8-10	8-10
Particle size (D90) (µm)	20-25	11-12	20-25	20-25
Mesh (D90)	550		550	550



# Micronized waxes

## MEGH™PRINT FB

## Modified synthetic waxes

		Applications																																			
		Liquid Inks					Printing Inks								Offset Inks (Oil based)			Paints and Coatings					Stains		Lacquers												
MEGHPRINT		Film : Aqueous	Film : Solvent	Paper : Aqueous	Paper : Solvent	Gravure : Publications	OPV : Overprint varnish	Flexographic : Aqueous	Flexographic : Solvent	Flexographic : UV	Gravure : Aqueous	Gravure : Solvent	Gravure : UV	Digital Ink	Ultraviolet (UV)	Electron Beam (EB)	UV LED	Sheetfed (UV)	Lithography	Heatset	Coldset	Can & Container	Metal : Aqueous	Metal : Solvent	Wood : Aqueous	Wood : Solvent	Powder	Architectural	Trim Paints	Floor	Aqueous	Solvent	Aqueous	Solvent	UV & EB		
FB																																					

		Surface performance and benefits																																					
		Resistances					Gloss		Slip		Surface effects					others important properties																							
MEGHPRINT		Abrasion resistance	Blocking resistance	Burnishing resistance	Heat resistance	Mar resistance	Metal marking resistance	Rub resistance	Scratch resistance	Gloss control	Gloss retention	Satin gloss	Maximum Slip (low COF)	Slip (low COF)	Slip control (high COF)	Film toughness	Maximum Lubricity	Lubricity	Matting	Silk touch	Smooth feel	Smoothness coating	Soft feel	Texture	Antisettling	Anti-stick	Air release	Blooming properties	Chemical resistance	Hardness	In-can stability	Non skid coating	Recoatibility	Sandability	Scrub ability	Solvent resistance	Water beading effect	Water repellency	
FB		2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2			1	1		1				1		1		1		1

### Recommended dosage :

- = 0,25% - 1,00%
- = 1,00% - 2,00%
- = 1,00% - 3,00%
- = 2,00% - 3,00%
- = above 3,00%

### Surface performance :

- 1 = Effective
- 2 = Very Effective
- 3 = Extremely Effective



## Micronized waxes

### MEGH™PRINT FR

### Modified synthetic waxes

Special combinations of synthetic wax and PTFE designed to impart **high levels of surface lubricity (low COF)** and scratch resistance to printing inks, paints and coatings.

MEGH™PRINT FR is especially recommended for use in high gloss lacquers, can and coil coatings, as well as powder coatings.

The surface lubricity of this product family is :

FR 1040 < FR 1050 < FR 1060 < FR 1070 < FR 1090 < FR 1031 ; been MEGH™PRINT FR 1031 the best combination to achieve high surface lubricity (low COF).

MEGH™PRINT FR 1031 also has the best heat and solvent resistance.

MEGH™PRINT FR 1070 M 400 can be used in water dispersions systems.

MEGH™PRINT FR 1090 and FR 1090 M 400 are ideal texture effect additives for powder coatings.

Care must be taken when using this products with aromatic solvents due to the synthetic waxes solubilities parameters.

### Regulations

Our MEGH™PRINT FR range materials are low PFOA content<sup>(1)</sup> material.

(1)= Not intentionally added nor expected to be present above limit values specified in Annex I of Regulation (EU) 2019/1021 adding PFOA, its salts and related substances under the Stockholm Convention on POPs effective July 4<sup>th</sup> 2020.

According to the composition, we can state that the product is in line with the following directives :

Directive 2011/65/EU (EU RoHS 2) as amended by the Delegated Directive (EU) 2015/863 (EU RoHS 3)

EU Directive 2002/96/EC (WEEE)

EU Directive 94/62/EC (Packaging Waste)

CONEG Toxics in Packaging

Typical properties	FR 1031 EF	FR 1031	FR 1040	FR 1050	FR 1060 EF	FR 1060	FR 1061 EF
Melting Point (°C)	105-120	105-120	105-120	105-120	105-120	105-120	105-120
Density at 25 °C (g/cm <sup>3</sup> )	1,110	1,110	1,000	1,010	1,030	1,030	1,120
Particle size (D50) (µm)	5-6	8-10	8-10	8-10	5-6	8-10	5-6
Particle size (D90) (µm)	11-12	20-25	20-25	20-25	11-12	20-25	11-12
Mesh (D90)		550	550	550		550	

Typical properties	FR 1070 EF	FR 1070	FR 1070 M 400	FR 1090	FR 1090 M 400
Melting Point (°C)	105-120	105-120	105-120	105-120	105-120
Density at 25 °C (g/cm <sup>3</sup> )	1,040	1,040	1,040	1,060	1,060
Particle size (D50) (µm)	5-6	8-10	11-12	8-10	11-12
Particle size (D90) (µm)	11-12	20-25	30	20-25	30
Mesh (D90)		550	400	550	400



# Micronized waxes

MEGH™PRINT FR

Modified synthetic waxes

		Applications																																	
		Liquid Inks					Printing Inks										Offset Inks (Oil based)				Paints and Coatings					Stains		Lacquers							
MEGHPRINT		Film : Aqueous	Film : Solvent	Paper : Aqueous	Paper : Solvent	Gravure : Publications	OPV : Overprint varnish	Flexographic : Aqueous	Flexographic : Solvent	Flexographic : UV	Gravure : Aqueous	Gravure : Solvent	Gravure : UV	Digital Ink	Ultraviolet (UV)	Electron Beam (EB)	UV LED	Sheetfed (UV)	Lithography	Heatset	Coldset	Can & Container	Metal : Aqueous	Metal : Solvent	Wood : Aqueous	Wood : Solvent	Powder	Architectural	Trim Paints	Floor	Aqueous	Solvent	Aqueous	Solvent	UV & EB
FR		Green	Green	Red	Green	Yellow	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Green	Red	White	White	Green	Green	Yellow	Yellow	Yellow

		Surface performance and benefits																																					
		Resistances					Gloss		Slip		Surface effects					others important properties																							
MEGHPRINT		Abrasion resistance	Blocking resistance	Burnishing resistance	Heat resistance	Mar resistance	Metal marking resistance	Rub resistance	Scratch resistance	Gloss control	Gloss retention	Satin gloss	Maximum Slip (low COF)	Slip (low COF)	Slip control (high COF)	Film toughness	Maximum Lubricity	Lubricity	Matting	Silk touch	Smooth feel	Smoothness coating	Soft feel	Texture	Antisettling	Anti-stick	Air release	Blooming properties	Chemical resistance	Hardness	In-can stability	Non skid coating	Recoatibility	Sandability	Scrub ability	Solvent resistance	Water beading effect	Water repellency	
FR		2	1	1	1	1	2	1	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Recommended dosage :

- = 0,25% - 1,00%
- = 1,00% - 2,00%
- = 1,00% - 3,00%
- = 2,00% - 3,00%
- = above 3,00%

Surface performance :

- 1 = Effective
- 2 = Very Effective
- 3 = Extremely Effective



## Micronized waxes

### MEGH™PRINT WB and WBF High melting point modified polyolefin waxes

Modified polypropylene waxes characterized by higher melt points and toughness **without the use of PTFE**.

**MEGH™PRINT WB** exhibit excellent abrasion, burnishing, mar and scratch resistance, anti-blocking and gloss control, while improving metal marking resistance.

**MEGH™PRINT WB 3017** is a finely micronized, modified polypropylene wax formulated to provide gloss control as well as mar and abrasion resistance when added to all types of paints or coatings. It will improve mar, scratch, and metal marking resistance as well as impart burnishing resistance when used in low or medium gloss finishes.

**MEGH™PRINT WB 3026** is a micronized wax for solvent and water based coatings, powder coatings, and inks. It creates an excellent scratch and abrasion resistance. In wood coatings it provides additionally soft touch and anti blocking performance. It is also used as an additive to improve the sand ability. It also helps to prevent metal markings. In powder coatings it acts as a degassing agent. It enhances scratch resistance and reduces gloss of the cured powder coating.

**MEGH™PRINT WB 3034 / WB 3075** presents high melting point wax and solubility resistance along with ease of dispersion in both polar and non polar systems.

**MEGH™PRINT WBF** exhibit similar characteristics to **MEGH™PRINT WB** plus good surface lubricity (low COF) and heat resistance.

**MEGH™PRINT WBF 0152 / WBF 0202** will impart an excellent “**feel**” when incorporated into wood coatings, while maintaining excellent blocking resistance and excellent solvent resistance. They are useful for suspending silica additives and provide a non-abrasive smooth surface.

*PS : Consult our sales / technical team about the minimum quantity for each grade.*

### Regulations

The composition of the **MEGH™PRINT WB and WBF** types are suitable according to the following compositional provisions for food contact applications, as indicated:

#### United States

FDA regulations Paragraph 21 CFR

175.300 *Resinous and polymeric coatings*

#### Europe coatings

<i>Suitable for food contact coatings</i>	Yes
<i>Regulation (EU) No. 10/2011</i>	Yes
<i>German BfR XIV 'Polymer Dispersions</i>	Yes
<i>CoE ResAP (2004) 1</i>	Yes

*According to the composition, we can state that the product is in line with the following directives :*

*Directive 2011/65/EU (EU RoHS 2) as amended by the Delegated Directive (EU) 2015/863 (EU RoHS 3)*

*EU Directive 2002/96/EC (WEEE)*

*EU Directive 94/62/EC (Packaging Waste)*

*CONEG Toxics in Packaging*








# Micronized waxes

## MEGH™PRINT WB and WBF

## High melting point modified polyolefin waxes

Typical properties	WB 3017 EF	WB 3017 M 400	WB 3026	WB 3034 EF	WB 3034	WB 3075	WB 3075 M 400
Melting Point (°C)	160-170	160-170	160-170	160-170	160-170	160-170	160-170
Density at 25 °C (g/cm³)	0,950	0,950	0,940	0,930	0,930	0,940	0,940
Particle size (D50) (µm)	5-6	11-12	8-10	5-6	8-10	8-10	11-12
Particle size (D90) (µm)	11-12	30	20-25	11-12	20-25	20-25	30
Mesh (D90)		400	550		550	550	400

Typical properties	WBF 0152	WBF 0202	Recommended dosage :	Surface performance :
Melting Point (°C)	160-170	160-170	 = 0,25% - 1,00%	1 = Effective
Density at 25 °C (g/cm³)	0,920	0,920	 = 1,00% - 2,00%	2 = Very Effective
Particle size (D50) (µm)	8-10	8-10	 = 1,00% - 3,00%	3 = Extremely Effective
Particle size (D90) (µm)	20-25	20-25	 = 2,00% - 3,00%	
Mesh (D90)	550	550	 = above 3,00%	

		Applications																																			
		Liquid Inks		Printing Inks								Offset Inks (Oil based)			Paints and Coatings					Stains		Lacquers															
MEGHPRINT		Film : Aqueous	Film : Solvent	Paper : Aqueous	Paper : Solvent	Gravure : Publications	OPV : Overprint varnish	Flexographic : Aqueous	Flexographic : Solvent	Flexographic : UV	Gravure : Aqueous	Gravure : Solvent	Gravure : UV	Digital Ink	Ultraviolet (UV)	Electron Beam (EB)	UV LED	Sheetfed (UV)	Lithography	Heatset	Coldset	Can & Container	Metal : Aqueous	Metal : Solvent	Wood : Aqueous	Wood : Solvent	Powder	Architectural	Trim Paints	Floor	Aqueous	Solvent	Aqueous	Solvent	UV & EB		
WB																																					
WBF																																					

		Surface performance and benefits																																				
		Resistances					Gloss		Slip		Surface effects						others important properties																					
MEGHPRINT		Abrasion resistance	Blocking resistance	Burnishing resistance	Heat resistance	Mar resistance	Metal marking resistance	Rub resistance	Scratch resistance	Gloss control	Gloss retention	Satin gloss	Maximum Slip (low COF)	Slip (low COF)	Slip control (high COF)	Film toughness	Maximum Lubricity	Lubricity	Matting	Silk touch	Smooth feel	Smoothness coating	Soft feel	Texture	Antisettling	Anti-stick	Air release	Blooming properties	Chemical resistance	Hardness	In-can stability	Non skid coating	Recoatibility	Sandability	Scrub ability	Solvent resistance	Water beading effect	Water repellency
WB		2	1			2	1		1	1			1						2	2	2	2	1											1				
WBF		2	1			2	1		1	1			2						2	2	2	2	1											1				

## Micronized waxes

### MEGH™PRINT PS / WS / FSR / PSR

Modified

#### polyolefin waxes

The use of silica as matting agent impart in some typical characteristics: silica is sensitive to scratches, imparts water sensitivity at high concentration, causes “stress cracking” on flexible substrates, very light and difficult to add during manufacturing , can show hard settling in the coating after time , limited matting, they are far less efficient in modern high solid- or solvent-free systems.

Comparing the silica vs. waxes application, in "conventional" systems, waxes are approximately 50% less effective when compared to silica. In other words, if an addition of 2% silica is needed to accomplish the desired gloss, approximately 4% of a good matting wax is required to arrive at the same matting. However, in the case of high-solid or solvent-free systems, especially for deep matt coatings, the amount of silica needed is significantly high which causes a strong increase in viscosity and add additional thixotropy. Therefore, in such systems, the right selected wax shows better matting compared to silica. This is due to the ability of the wax to float to the surface. This means that with low additions of wax, good matting can be achieved while keeping the viscosity of the system at acceptable levels.

In this way the **MEGH™PRINT PS and WS** grades are efficient matting agent for solvent and water borne coatings, especially wood coatings. Based on silica with an organic surface treatment, it combines uniform matting control with excellent dispersability, scratch resistance and mar resistance.

**MEGH™PRINT PS 0454** contains a balance composition of wax and silica providing abrasion, burnishing, rub and scratch resistance with a good matting effect.

**MEGH™PRINT WS 3032** contains high molecular weight polymers and micro silica in order to provide optimum mar and abrasion resistance while providing uniform and efficient gloss reduction. It is a very efficient matting agent that stays in suspension, resists burnishing and will not lose its effectiveness over extended periods of time. In UV coatings, at levels of 2,0% to 10,0%, it will impart consistent gloss control at lower viscosities than conventional matting agents.

**MEGH™PRINT PSR 98750** has a reduced tendency towards hard settling, unlike many untreated silica systems. This provides **excellent in-can** stability.

*PS : Consult our sales / technical team about the minimum quantity for each grade.*

### Regulations

The composition of the **MEGH™PRINT PS / WS / FSR / PSR** types are suitable according to the following compositional provisions for food contact applications, as indicated:

#### United States

FDA regulations Paragraph 21 CFR

175.300 *Resinous and polymeric coatings*

#### Europe coatings

<i>Suitable for food contact coatings</i>	Yes
<i>Regulation (EU) No. 10/2011</i>	Yes
<i>German BfR XIV ‘Polymer Dispersions</i>	Yes
<i>CoE ResAP (2004) 1</i>	Yes

*According to the composition, we can state that the product is in line with the following directives :*

*Directive 2011/65/EU (EU RoHS 2) as amended by the Delegated Directive (EU) 2015/863 (EU RoHS 3)*

*EU Directive 2002/96/EC (WEEE)*

*EU Directive 94/62/EC (Packaging Waste)*

*CONEG Toxics in Packaging*

# Micronized waxes

## MEGH™PRINT PS and WS Modified polyolefin waxes

Typical properties	PS 0454 EF	WS 3032	PSR 98750	FSR 108750
Melting Point (°C)	110 -118	160-170	110-135	105-120
Density at 25 °C (g/cm <sup>3</sup> )	1,700	1,300	2,340	2,340
Particle size (D50) (µm)	8-10	8-10	5-7	5-7
Particle size (D99) (µm)	20-25	20-25	12-14	12-14
Mesh (D99)	550	550		



Surface matt effect

		Applications																																			
		Liquid Inks			Printing Inks								Offset Inks (Oil based)			Paints and Coatings				Stains		Lacquers															
MEGHPRINT		Film : Aqueous	Film : Solvent	Paper : Aqueous	Paper : Solvent	Gravure : Publications	OPV : Overprint varnish	Flexographic : Aqueous	Flexographic : Solvent	Flexographic : UV	Gravure : Aqueous	Gravure : Solvent	Gravure : UV	Digital Ink	Ultraviolet (UV)	Electron Beam (EB)	UV LED	Sheetfed (UV)	Lithography	Heatset	Coldset	Can & Container	Metal : Aqueous	Metal : Solvent	Wood : Aqueous	Wood : Solvent	Powder	Architectural	Trim Paints	Floor	Aqueous	Solvent	Aqueous	Solvent	UV & EB		
PS/WS																																					

		Surface performance and benefits																																					
		Resistances				Gloss		Slip		Surface effects						others important properties																							
MEGHPRINT		Abrasion resistance	Blocking resistance	Burnishing resistance	Heat resistance	Mar resistance	Metal marking resistance	Rub resistance	Scratch resistance	Gloss control	Gloss retention	Satin gloss	Maximum Slip (low COF)	Slip (low COF)	Slip control (high COF)	Film toughness	Maximum Lubricity	Lubricity	Matting	Silk touch	Smooth feel	Smoothness coating	Soft feel	Texture	Antisettling	Anti-stick	Air release	Blooming properties	Chemical resistance	Hardness	In-can stability	Non skid coating	Recoatibility	Sandability	Scrub ability	Solvent resistance	Water beading effect	Water repellency	
PS/WS		2	1			2		2	2	3			1		1				3											3	3								

### Recommended dosage :

- = 0,25% - 1,00%
- = 1,00% - 2,00%
- = 1,00% - 3,00%
- = 2,00% - 3,00%
- = above 3,00%

### Surface performance :

- 1 = Effective
- 2 = Very Effective
- 3 = Extremely Effective



## Micronized waxes

### MEGH™PRINT N

### Natural waxes

Through continuous technological progress, MEGH's range of waxes and emulsions is constantly being developed to meet the market's growing demands for ecologically sustainable materials. In line with this philosophy, MEGH focuses its efforts on developing products that are fully aligned with such environmental requirements.

MEGH is the unique company capable to offer a wide product range based on natural waxes. It´s include natural waxes like:

- Carnauba T1
- Carnauba T3
- Rice bran wax
- Modified rice bran wax (Ester wax carnauba T1 replace material)
- Hydrogenated castor oil

as so as **MEGH´s proprietary technology of ester waxes material.**

- SEW 100 (Ester wax carnauba T3 replace material)
- SEW 200 (Ester wax beeswax replace material)
- SEW 400 (Ester wax candelilla replace material)

**MEGH™PRINT N 101, N 101 EF, N103 and N 103 EF** are carnauba T1 and T3 micronized waxes can be used in a variety of different coating applications including can coatings and leads to improved scratch resistance and reduced coefficient of friction. In addition due to its high density (~ 1,000) they show good stability in many water coating systems.

It will allow the ink or paint formulator to provide surface protection characteristics in critical applications where clarity and high gloss are critical. They´re typical applications are solvent and waterborne flexographic and gravure inks, internal and external can and container coatings. High gloss UV can and industrial coatings.

**MEGH™PRINT N 120, N 120 EF, N 350 and N 350 EF** are micronized waxes from Rice Bran waxes use in industrial coatings and agrochemical products. It imparts excellent burnish and abrasion resistance compared to synthetic wax additives. They improve lubricity, dust-off, and block resistance in seed coatings. They are also effective dry powder binding agent, been a microplastic alternative. They can be apply to water based, solvent based and energy curable coatings and inks. Industrial coatings (including plastic and metal); stains, sealers and varnishes; wood coatings; printing inks and OPV's (including flexographic and gravure); powder coatings interior and exterior can and container coatings; coil coatings.

**MEGH™PRINT N 500, N 500 EF** can be use in industrial coatings and agrochemical products. They add slip, lubricity and rub resistance to industrial and graphic arts coatings and provide anticaking, dry flow and release to fertilizer products. They can be apply to water based, solvent based and energy curable coatings and inks. Industrial coatings (including plastic and metal); stains, sealers and varnishes; wood coatings; printing inks and OPV's (including flexographic and gravure); powder coatings interior and exterior can and container coatings; coil coatings.



*Click on the above QR code and learn a little more about our Ester waxes technology*

## Micronized waxes

### MEGH™PRINT N

### Natural waxes

Through continuous technological progress, MEGH's range of waxes and emulsions is constantly being developed to meet the market's growing demands for ecologically sustainable materials. In line with this philosophy, MEGH focuses its efforts on developing products that are fully aligned with such environmental requirements.

**MEGH™PRINT N 100, N 100 EF** are micronized waxes, based on **MEGH´ s proprietary technology of ester waxes material** suitable as carnauba wax T3 replace material.

**MEGH™PRINT N 200, N 200 EF** are micronized waxes, based on **MEGH´ s proprietary technology of ester waxes material** suitable as Beeswax replace material.

**MEGH™PRINT N 400, N 400 EF** are micronized waxes, based on **MEGH´ s proprietary technology of ester waxes material** suitable as candelilla wax replace material.

*PS : Consult our sales / technical team about the minimum quantity for each grade.*

### Regulations

The composition of the **MEGH™PRINT N** types are suitable according to the following compositional provisions for food contact applications, as indicated:

#### United States

FDA regulations Paragraph 21 CFR

#### **N 101, N 101 EF, N 103, N 103 EF**

*175.300 Resinous and polymeric coatings*

#### **N 120, N 120 EF, N 350, N 350 EF**

*Natural food grade wax conforming to 21CFR 172.890;*

*Natural food grade wax conforming to 21CFR 172.615;*

*Natural food grade wax conforming to 21CFR 178.3860;*

*Natural food grade wax conforming to 40CFR Part 180*



*Click on the above QR code and learn a little more about our new sustainable product range technology*



# Micronized waxes

## MEGH™PRINT N

### Natural waxes

Typical properties	N 100 EF	N 100	N 101 EF	N 101	N 103 EF	N 103
Type of wax	Ester wax Carnauba T3	Ester wax Carnauba T3	CT1	CT1	CT3	CT3
Biobased content	Yes	Yes	Yes	Yes	Yes	Yes
Melting Point (°C)	80-90	80-90	80-90	80-90	80-90	80-90
Density at 25 °C (g/cm <sup>3</sup> )	0,980	0,980	0,980	0,980	0,980	0,980
Particle size (D50) (µm)	5-6	8-10	5-6	8-10	5-6	8-10
Particle size (D90) (µm)	11-12	20-25	11-12	20-25	11-12	20-25
Mesh (D90)		550		550		550

Typical properties	N 120 EF	N 120	N 200 EF	N 200	N 350 EF	N 350
Type of wax	Modified Rice bran wax	Modified Rice bran wax	Ester wax Beeswax	Ester wax Beeswax	Rice Bran wax	Rice bran wax
Biobased content	Yes	Yes	Yes	Yes	Yes	Yes
Melting Point (°C)	80-90	80-90	60-70	60-70	80-90	80-90
Density at 25 °C (g/cm <sup>3</sup> )	0,980	0,980	0,96	0,960	0,980	0,980
Particle size (D50) (µm)	4-5	8-10	4-5	8-10	4-5	8-10
Particle size (D90) (µm)	11	20-25	11	20-25	11	20-25
Mesh (D90)		550		550		550

Typical properties	N 400 EF	N 400	N 500 EF	N 500
Type of wax	Ester wax Candelilla	Ester wax Candelilla	Hydrogenated Castor oil	Hydrogenated Castor oil
Biobased content	Yes	Yes	Yes	Yes
Melting Point (°C)	70-80	70-80	80-90	80-90
Density at 25 °C (g/cm <sup>3</sup> )	0,980	0,980	0,980	0,980
Particle size (D50) (µm)	5-6	8-10	5-6	8-10
Particle size (D90) (µm)	11-12	20-25	11-12	20-25
Mesh (D90)		550		550

# Micronized waxes

## MEGH™PRINT N

## Natural waxes

		Applications																																			
		Liquid Inks		Printing Inks								Offset Inks (Oil based)				Paints and Coatings				Stains		Lacquers															
MEGHPRINT		Film : Aqueous	Film : Solvent	Paper : Aqueous	Paper : Solvent	Gravure : Publications	OPV : Overprint varnish	Flexographic : Aqueous	Flexographic : Solvent	Flexographic : UV	Gravure : Aqueous	Gravure : Solvent	Gravure : UV	Digital Ink	Ultraviolet (UV)	Electron Beam (EB)	UV LED	Sheetfed (UV)	Lithography	Heatset	Coldset	Can & Container	Metal : Aqueous	Metal : Solvent	Wood : Aqueous	Wood : Solvent	Powder	Architectural	Trim Paints	Floor	Aqueous	Solvent	Aqueous	Solvent	UV & EB		
Z																																					

		Surface performance and benefits																																				
		Resistances					Gloss		Slip		Surface effects						others important properties																					
MEGHPRINT		Abrasion resistance	Blocking resistance	Burnishing resistance	Heat resistance	Mar resistance	Metal marking resistance	Rub resistance	Scratch resistance	Gloss control	Gloss retention	Satin gloss	Maximum Slip (low COF)	Slip (low COF)	Slip control (high COF)	Film toughness	Maximum Lubricity	Lubricity	Matting	Silk touch	Smooth feel	Smoothness coating	Soft feel	Texture	Antisettling	Anti-stick	Air release	Blooming properties	Chemical resistance	Hardness	In-can stability	Non skid coating	Recoatibility	Sandability	Scrub ability	Solvent resistance	Water beading effect	Water repellency
Z		2	2	2	2	2	2	2	3			2	2	2	1	2								1					2								2	2

**Surface performance :**

- 1 = Effective
- 2 = Very Effective
- 3 = Extremely Effective

**Recommended dosage :**

- = 0,25% - 1,00%
- = 1,00% - 2,00%
- = 1,00% - 3,00%
- = 2,00% - 3,00%
- = above 3,00%

## Micronized waxes

### MEGH™PRINT NT

### Natural waxes

Micronized natural waxes designed to produce unique **texturizing effects** in paints and coatings.

The density (~ 0,980) environmentally water and insolubility characteristics of MEGH™PRINT NT will **reduce or eliminate settling** and provide optimum durability in both waterborne and solvent systems.

Coarse grades of MEGH™PRINT NT grades, like NT 060 / NT 040 / NT 030 and NT 020 can also act as exfoliant agents, replacing the synthetic material in this application.

Finer particle size MEGH™PRINT NT 400 and NT 325 can be used to reduce gloss (**matting**) , replacing synthetic waxes or even silica partially , in higher film build coatings.

MEGH™PRINT NT grades are environmentally friendly and are in accordance with ESG trends.

**All MEGH natural waxes can be done as MEGH™PRINT NT grades into the below particle sizes.**

**PS : Consult our sales / technical team about the minimum quantity for each grade.**

Typical properties	NT Wax M 400	NT Wax M 325	NT Wax M 270	NT Wax M 230	NT Wax M 200	NT Wax M 140	NT Wax M 120	NT Wax M 100
Type of wax	Natural Ester wax	Natural Ester wax	Natural Ester wax	Natural Ester wax	Natural Ester wax	Natural Ester wax	Natural Ester wax	Natural Ester wax
Biobased content	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Melting Point (°C)								
Density at 25 °C (g/cm <sup>3</sup> )								
Particle size (D50) (µm)	11-12	11-15	15-25	32-43	35-45	45-55	60-70	80-100
Particle size (D99) (µm)	30	44	53	63	74	105	125	149
Mesh (D99)	400	325	270	230	35-45	140	120	100

Typical properties	NT Wax M 060	NT Wax M 040	NT Wax M 030	NT Wax M 020
Type of wax	Natural Ester wax	Natural Ester wax	Natural Ester wax	Natural Ester wax
Biobased content	Yes	Yes	Yes	Yes
Melting Point (°C)				
Density at 25 °C (g/cm <sup>3</sup> )				
Particle size (D50) (µm)	105-110	185-200	250-270	340-360
Particle size (D99) (µm)	250	420	595	841
Mesh (D99)	60	40	30	20



# Micronized waxes

## MEGH™PRINT NT

## Natural waxes

		Applications																																			
		Liquid Inks					Printing Inks							Offset Inks (Oil based)				Paints and Coatings					Stains		Lacquers												
MEGHPRINT		Film : Aqueous	Film : Solvent	Paper : Aqueous	Paper : Solvent	Gravure : Publications	OPV : Overprint varnish	Flexographic : Aqueous	Flexographic : Solvent	Flexographic : UV	Gravure : Aqueous	Gravure : Solvent	Gravure : UV	Digital ink	Ultraviolet (UV)	Electron Beam (EB)	UV LED	Sheetfed (UV)	Lithography	Heatset	Coldset	Can & Container	Metal : Aqueous	Metal : Solvent	Wood : Aqueous	Wood : Solvent	Powder	Architectural	Trim Paints	Floor	Aqueous	Solvent	Aqueous	Solvent	UV & EB		
NT																																					

		Surface performance and benefits																																					
		Resistances					Gloss		Slip		Surface effects						others important properties																						
MEGHPRINT		Abrasion resistance	Blocking resistance	Burnishing resistance	Heat resistance	Mar resistance	Metal marking resistance	Rub resistance	Scratch resistance	Gloss control	Gloss retention	Satin gloss	Maximum Slip (low COF)	Slip (low COF)	Slip control (high COF)	Film toughness	Maximum Lubricity	Lubricity	Matting	Silk touch	Smooth feel	Smoothness coating	Soft feel	Texture	Antisettling	Anti-stick	Air release	Blooming properties	Chemical resistance	Hardness	In-can stability	Non skid coating	Recoatibility	Sandability	Scrub ability	Solvent resistance	Water beading effect	Water repellency	
NT		2	2	2		2		2	2	3			2		1		2								3													2	2

### Recommended dosage :

- = 0,25% - 1,00%
- = 1,00% - 2,00%
- = 1,00% - 3,00%
- = 2,00% - 3,00%
- = above 3,00%

### Surface performance :

- 1 = Effective
- 2 = Very Effective
- 3 = Extremely Effective

## Micronized waxes

### MEGH™PRINT NP

### Modified natural waxes

MEGH is the unique company capable to offer a wide product range based on natural waxes.

MEGH is also able to offer a wide range of modified natural waxes, according to market needs.

MEGH™PRINT NP grades are combinations of natural waxes with polyolefins and/or synthetic waxes.

These modifications in addition to preserving the natural waxes characteristics, can add different kind of extra performances like abrasion resistance, lubricity and slip (low COF), anti blocking among others.

MEGH™PRINT NP grades are ideally suited where excellent slip, gloss and clarity are required.

MEGH™PRINT NP grades are suitable to use in coil coating, radiation curable coating, solvent borne coatings, solvent borne inks, varnishes, waterborne coatings, waterborne Inks.

MEGH™PRINT NP 40107 and NP 40107 EF grades produce satin or flat finishes with excellent slip and scuff resistance. Applied in wood and industrial coatings.

MEGH™PRINT NP 40305 and NP 40305 EF grades are ideally suited for use in areas where excellent gloss and clarity are essential such as in clear lacquers and topcoats. They will impart an excellent combination of slip and abrasion/scratch resistance in printing inks, can coatings and most coating applications.

MEGH™PRINT NP 40333 EF grade is ideally suited for use in areas where excellent gloss and clarity are essential such as in clear lacquers and topcoats. It will also impart an excellent combination of slip and abrasion/scratch resistance.

MEGH™PRINT NP 4038048 EF grade is specially formulated for **thin film** inks and coatings to provide increased lubricity, hardness, antiblocking characteristics and abrasion and scuff resistance. It does **not impact intercoat adhesion** and has minimal effect on gloss and clarity. It can use in solvent and water based inks. In inks, it is especially useful for wet rub and abrasion resistance. It also good for can coatings, powder coatings and industrial coatings applications.

*PS : Consult our sales / technical team about the minimum quantity for each grade.*

### Regulations

The composition of the MEGH™PRINT NP types are suitable according to the following compositional provisions for food contact applications, as indicated:

#### United States

FDA regulations Paragraph 21 CFR

175.105 Adhesives

175.300 Resinous and polymeric coatings

175.320 Resinous and polymeric coatings for polyolefin films

176.170 Components of paper and paperboard in contact with aqueous and fatty foods.

176.180 Components of paper and paperboard in contact with dry food.

#### Europe

*EINECS (Europe): All components of this product (or its monomers) are listed in the European Chemical Inventory.*

#### World

*The components of this product are listed on the TSCA (USA), DSL (Canada), AICS (Australia) Chemical Inventories.*

# Micronized waxes

## MEGH™PRINT NP





## Modified natural waxes

Typical properties	NP 40107 EF	NP 40107	NP 40305 EF	NP 40305	NP 40333 EF	NPR 4038048 EF
Melting Point (°C)	110 -118	110 -118	110 -118	110 -118	110 -118	110 -118
Density at 25 °C (g/cm <sup>3</sup> )	0,960	0,960	0,950	0,950	0,940	1,030
Particle size (D50) (µm)	4-5	8-10	4-5	8-10	4-5	4-5
Particle size (D90) (µm)	11	20-25	11	20-25	11	11
Mesh (D90)		550		550		

		Applications																																			
		Liquid Inks		Printing Inks						Offset Inks (Oil based)		Paints and Coatings				Stains	Lacquers																				
MEGHPRINT		Film : Aqueous	Film : Solvent	Paper : Aqueous	Paper : Solvent	Gravure : Publications	OPV : Overprint varnish	Flexographic : Aqueous	Flexographic : Solvent	Flexographic : UV	Gravure : Aqueous	Gravure : Solvent	Gravure : UV	Digital Ink	Ultraviolet (UV)	Electron Beam (EB)	UV LED	Sheetfed (UV)	Lithography	Heatset	Coldset	Can & Container	Metal : Aqueous	Metal : Solvent	Wood : Aqueous	Wood : Solvent	Powder	Architectural	Trim Paints	Floor	Aqueous	Solvent	Aqueous	Solvent	UV & EB		
NP																																					

		Surface performance and benefits																																				
		Resistances				Gloss		Slip		Surface effects				others important properties																								
MEGHPRINT		Abrasion resistance	Blocking resistance	Burnishing resistance	Heat resistance	Mar resistance	Metal marking resistance	Rub resistance	Scratch resistance	Gloss control	Gloss retention	Satin gloss	Maximum Slip (low COF)	Slip (low COF)	Slip control (high COF)	Film toughness	Maximum Lubricity	Lubricity	Matting	Silk touch	Smooth feel	Smoothness coating	Soft feel	Texture	Antisettling	Anti-stick	Air release	Blooming properties	Chemical resistance	Hardness	In-can stability	Non-skid coating	Recoatibility	Sandability	Scrub ability	Solvent resistance	Water beading effect	Water repellency
NP		2	2	2	2	1	2	2	3			2	1	1	1	1			1	1	1	1							3								2	2

### Recommended dosage :

	= 0,25% - 1,00%
	= 1,00% - 2,00%
	= 1,00% - 3,00%
	= 2,00% - 3,00%
	= above 3,00%

### Surface performance :

1	= Effective
2	= Very Effective
3	= Extremely Effective



## Micronized waxes

### MEGH™PRINT BIO

### Natural biopolymers additives

MEGH™PRINT BIO grades are a revolutionary class of micronized additives developed by MEGH, using biobased raw materials to achieve excellent performances in different applications.

Those grades are based on proprietary biopolymers technology which contains both biobased materials and special chemical chains to achieve the desired final results.

MEGH™PRINT BIO S 1090 is a micronized biobased proprietary polymer specifically intend for powder coatings where loss of gloss or formation of haze cannot be tolerated, as for example in dark colors and clear coatings. This material is FDA compliance.

MEGH™PRINT BIO A 0905 is a micronized biobased proprietary polymer for printing inks. This micronized biopolymers provides **outstanding rub resistance**, good scratch and abrasion resistance, high transparency, good anti blocking properties.

It is suitable for water and solvent based systems.

Depending on application it´s **dosage can be reduced 30% to 50%** in gravure and flexographic inks.

MEGH™PRINT BIO S 0351 is a powder biobased proprietary polymer specially designed for Traffic paints.

*PS : Consult our sales / technical team about the minimum quantity for each grade.*

Typical properties	BIO A 0905	BIO S 0351 M 018	BIO S 1090
Melting Point (°C)	120-135	100-105	60-65
Density at 25 °C (g/cm³)	1,220	0,833	0,920
Particle size (D50) (µm)	8-10	650-750	8-10
Particle size (D90) (µm)	20-25	840 – 1.000	20-25
Mesh (D90)	550	018	550




# Micronized waxes

## MEGH™PRINT BIO

## Natural biopolymers additives

	Applications																																		
	Liquid Inks		Printing Inks								Offset Inks (Oil based)			Paints and Coatings					Stains		Lacquers														
MEGHPRINT	Film : Aqueous	Film : Solvent	Paper : Aqueous	Paper : Solvent	Gravure : Publications	OPV : Overprint varnish	Flexographic : Aqueous	Flexographic : Solvent	Flexographic : UV	Gravure : Aqueous	Gravure : Solvent	Gravure : UV	Digital Ink	Ultraviolet (UV)	Electron Beam (EB)	UV LED	Sheetfed (UV)	Lithography	Heatset	Coldset	Can & Container	Metal : Aqueous	Metal : Solvent	Wood : Aqueous	Wood : Solvent	Powder	Architectural	Trim Paints	Floor	Aqueous	Solvent	Aqueous	Solvent	UV & EB	
BIO																																			

	Surface performance and benefits																																				
	Resistances				Gloss		Slip		Surface effects					others important properties																							
MEGHPRINT	Abrasion resistance	Blocking resistance	Burnishing resistance	Heat resistance	Mar resistance	Metal marking resistance	Rub resistance	Scratch resistance	Gloss control	Gloss retention	Satin gloss	Maximum Slip (low COF)	Slip (low COF)	Slip control (high COF)	Film toughness	Maximum Lubricity	Lubricity	Matting	Silk touch	Smooth feel	Smoothness coating	Soft feel	Texture	Antisettling	Anti-stick	Air release	Blooming properties	Chemical resistance	Hardness	In-can stability	Non skid coating	Recoatibility	Sandability	Scrub ability	Solvent resistance	Water beading effect	Water repellency
BIO	2	1					3	2		1		1																2									

### Recommended dosage :

- = 0,25% - 1,00%
- = 1,00% - 2,00%
- = 1,00% - 3,00%
- = 2,00% - 3,00%
- = above 3,00%

### Surface performance :

- 1 = Effective
- 2 = Very Effective
- 3 = Extremely Effective



# Micronized waxes

## APPLICATION GENERAL OVERVIEW

Below we can find out a general overview of each MEGH micronized wax family and the main applications for each one.

Our costumers are free to try out other possible wax quantities according their own experience.

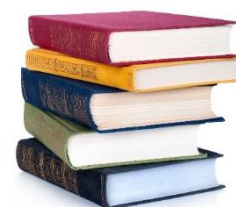
MEGHPRINT	Applications																																				
	Liquid Inks					Printing Inks										Offset Inks (Oil based)				Paints and Coatings						Stain s		Lacquers									
	Film : Aqueous	Film : Solvent	Paper : Aqueous	Paper : Solvent	Gravure : Publications	OPV : Overprint varnish	Flexographic : Aqueous	Flexographic : Solvent	Flexographic : UV	Gravure : Aqueous	Gravure : Solvent	Gravure : UV	Digital Ink	Ultraviolet (UV)	Electron Beam (EB)	UV LED	Sheetfed (UV)	Lithography	Heatset	Coldset	Can & Container	Metal : Aqueous	Metal : Solvent	Wood : Aqueous	Wood : Solvent	Powder	Architectural	Trim Paints	Floor	Aqueous	Solvent	Aqueous	Solvent	UV & EB			
P																																					
PM																																					
PMT																																					
W																																					
F																																					
B																																					
R																																					
PR																																					
PB																																					
PBF																																					
PBR																																					
PBW																																					
PMB																																					
BR																																					
FB																																					
FR																																					
WB																																					
WBF																																					
PS																																					
N																																					
NT																																					
NP																																					
BIO																																					

Recommended dosage :

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- = 2,00% - 3,00%
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Surface performance :

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# Micronized waxes

## SURFACE PERFORMANCE GENERAL OVERVIEW

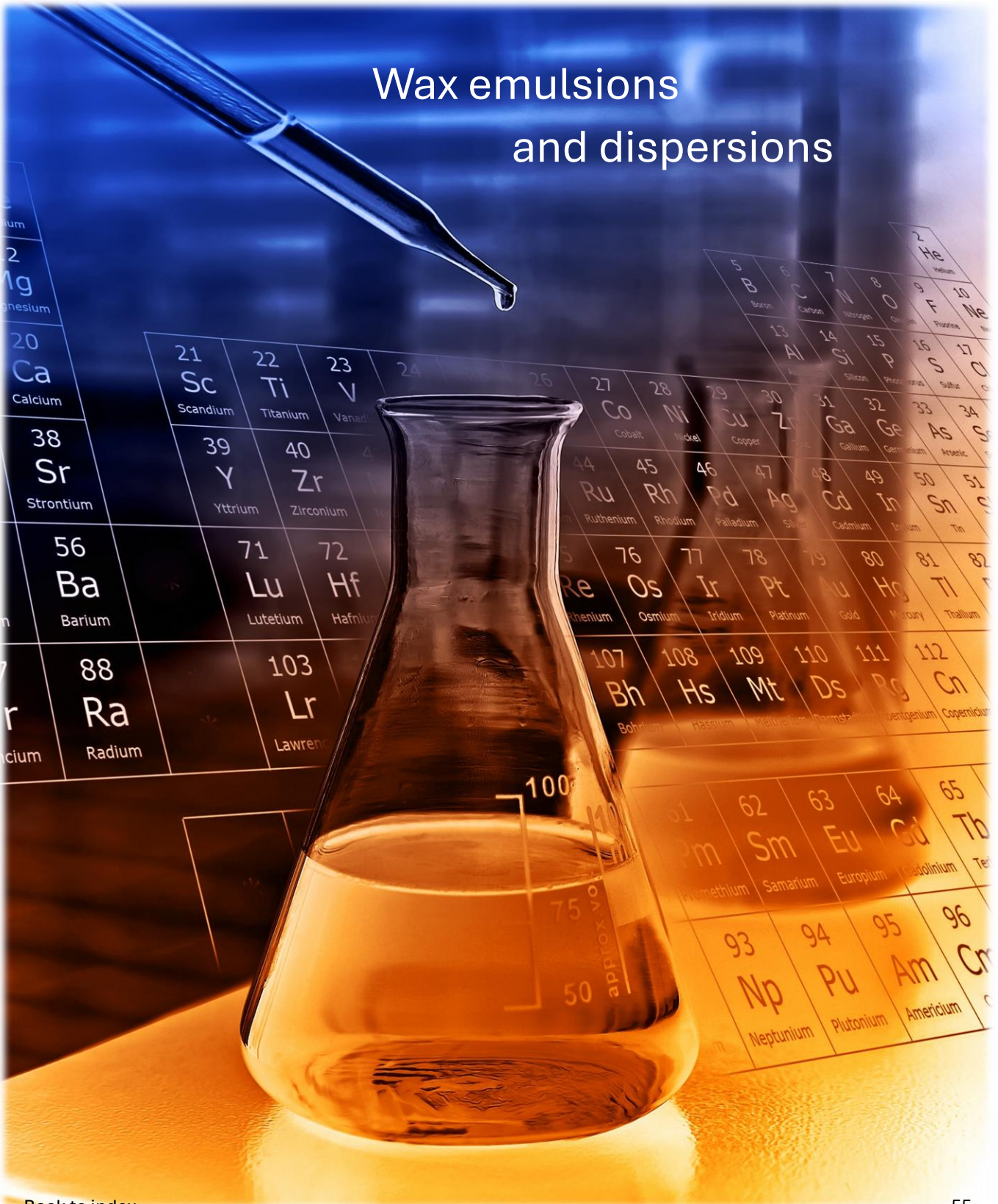
Below we can find out a general overview of each MEGH micronized wax family and the main benefits each one can achieve to the surface coating where it will be apply.

Our costumers are free to try out other possible wax combinations according their own experience, trying to achieve a better surface performance.

Surface performance and benefits																																								
MEGHPRINT	Resistances							Gloss			Slip		Surface effects							others important properties																				
	Abrasion resistance	Blocking resistance	Burnishing resistance	Heat resistance	Mar resistance	Metal marking resistance	Rub resistance	Scratch resistance	Gloss control	Gloss retention	Satin gloss	Maximum Slip (low COF)	Slip (low COF)	Slip control (high COF)	Film toughness	Maximum Lubricity	Lubricity	Matting	Silk touch	Smooth feel	Smoothnesscoating	Soft feel	Texture	Antisettling	Anti-stick	Air release	Blooming properties	Chemical resistance	Hardness	In-can stability	Non skid coating	Recoatibility	Sandability	Scrub ability	Solvent resistance	Water beading effect	Water repellency			
P	2	1			2	1	2	2		1		2		2			2		1		1								3										•	
PM	2	1					2	2	2			2										1							3											
PMT																		3											3											•
W					2					3			2					3						3	2			1	3		2					1				
F	2				2		2	2		1		2	2			1				1									2								1	1		
B	2	3		1			1	1	1	1		2				1	1	3	3	2	1					1	2							2		3		3		
R	3	2		1		2	3	1	1			3	3		3	3							2	2			2									3				
PR	3	2			2	2	3	2		1			3		2	1	1	2		1		1				1			1	3						1		•		
PB	2	2		1	2	1	2	2	1	1		2		2		1	2	2	2	1	1					1	1								2		1	1		
PBF	2	2		1	2	1	2	2	1	1	1	2		2		1	2	2	2	1	1					1	1								2		1	1		
PBR	2	2		1	1	1	2	2	1	1	2	3		2	2	2	1	1	2	1	1					1	1								2		1	1		
PBW	2	2		1	2	1	2	2	2	1		2	1	2		1	2	2	2	1	1					1	1			1	3		1		2		1	1		
PMB	2	2		1			2	2	2	1		2				1	1	2	2	1	1					1	1								2		1	1		
BR	2	2		1		1	2	1	1	1	1	2			1	2	1	2	2	1	1	1	1			1	1							2		2		1		
FB	2	2		1	1		1	1	1	1		1				1	1	1	2	2	2					1	1								1		1	1		
FR	2	1		1	1		2	1		2		3	3		3	3									1											2	1	1		
WB	2	1			2	1		1	1			1						2	2	2	2	1																		
WBF	2	1			2	1		1	1			2						2	2	2	2	1													1					
PS	2	1			2		2	2	3			1		1			3																					2	2	
N	2	2	2		2		2	2		3		2		1	2											1												2	2	
NT	2	2	2		2		2	2		3		2		1	2																							2	2	
NP	2	2	2		2	1	2	2		3		2		1	1					1		1																2	2	
BIO	2	1										1																												



# Wax emulsions and dispersions



## Wax emulsions and dispersions

### MEGH™PRINT E / MEGH™EMULSION / MEGH™WAX

### Wax emulsions

Sub-micron aqueous emulsions formulated using a combination of waxes.

The MEGH™PRINT E 12 and MEGH™PRINT EEW 5030 grades are designed to produce a water beading effect as well as long-lasting water repellency in aqueous paints, stains, and coatings.

MEGH™PRINT E 2 is a anionic carnauba FDA compliance.

MEGH™EMULSION 601 A 15 and MEGH™WAX EBA 251 are non ionic carnauba FDA compliance.

The MEGH™PRINT E and MEGH™EMULSION grades, base on oxidized polyethylene waxes, provide excellent scrub ability and burnish resistance in architectural interior and exterior wall paints, coatings, stains, and sealers.

MEGH™PRINT E 5 is a polypropylene emulsion designed to increase COF in water borne floor finishes, inks, and OPV's.

PS : Consult our sales / technical team about the minimum quantity for each grade.

Typical properties	E 12	EEW 5030	E 2	601 A 15	EBA 250	EBA 251
Type of wax	Paraffin	Ester wax	Carnauba T3	Carnauba T1	Carnauba T3	Carnauba T1
Solids content (%)	min 44	min 42	29-30	14-16	24-26	24-26
Viscosity at 25 °C (cPs)	max 150	max 350	max 20	max 20	max 20	max 20
pH	9-10	9-10	5,5-7,0	10-12	4,5-6,5	5,5-7,5
Density at 25 °C (g/cm <sup>3</sup> )	0,970	0,985	1,000	1,006	1,004	1,004
Freeze/Thaw Stability	moderate	good	excellent	excellent	excellent	excellent

Typical properties	E 10	E 21	E 216	E 416	E 619	E 318
Type of wax	LDPEOx	LLDPEOx	LDPEOx	LLDPEOx	HDPEOx	HDPEOx
Solids content (%)	34-36	34-36	34-36	34-36	34-36	34-36
Viscosity at 25 °C (cPs)	max 50	max 50	max 50	max 50	max 50	max 50
pH	8,5-10,5	9-11	8-10	8-10	9-12	8-10
Density at 25 °C (g/cm <sup>3</sup> )	0,993	0,995	0,995	0,998	0,998	0,998
Freeze/Thaw Stability	excellent	excellent	excellent	excellent	excellent	excellent

Typical properties	E 5
Type of wax	PP graft
Solids content (%)	39-41
Viscosity at 25 °C (cPs)	max 170
pH	8,5-9,5
Density at 25 °C (g/cm <sup>3</sup> )	0,995
Freeze/Thaw Stability	excellent





# Wax emulsions and dispersions

## MEGH™SPERSE Aqueous wax dispersions

MEGH™SPERSE grades are a group of macro (large particle size) and micro (small particle size) waxes dispersions for aqueous inks and coatings.

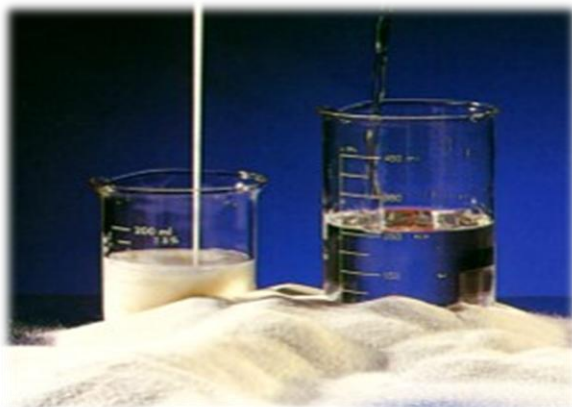
MEGH™SPERSE AC 5120 A 25 is a modified PE micro dispersion that provides optimum surface protection while maintaining excellent gloss and film clarity.

MEGH™SPERSE A 1540 is a specialty PE wax macro dispersion, super additive, for paints formulation improving abrasion resistance, increasing wheatear resistance, decreasing water absorption and also **improving the sandability of putties**, making the putties softer and turning the sand easier. It's also reduce the tack and adhesion of particles into the paint surface.

MEGH™SPERSE A 1230 is a specialty EBS water dispersion that can provide water repellency, slip and release in architectural finishes.

PS : Consult our sales / technical team about the minimum quantity for each grade.

Typical properties	A 1540	AC 5120 A 25	E 15	A 1230
Type of wax	PE	Acrylic Ethylene	Acrylic Ethylene	EBS
Solids content (%)	39-41	24-26	29-31	30-32
Viscosity at 25 °C (cPs)	max 1.500	max 250	max 500	max 50
pH	9-12	9-10	8-9	8,5-11,0
Density at 25 °C (g/cm <sup>3</sup> )	0,970	0,990	1,023	0,998
Freeze/Thaw Stability	excellent	excellent	excellent	excellent



Micro and macro dispersion of different kind of waxes

**MEGH™SPERSE A 1540**  
Modified Polyethylene Dispersion

Physical characteristics	Product	White liquid
Color at 25°C	Product	White liquid
Color	Product	White liquid to yellowish
Emulsification	Product	Stable - 48h/25°C
Crystallinity (at 25°C)	Product	0,0 - 10,0

**POW!**  
a super additive for your paints

Click on the above QR code and have access to a complementary table with MEGH™SPERSE A 1540 applications



## Wax emulsions and dispersions

### MEGH™SPERSE SP and SPR

### Non aqueous wax dispersions

MEGH™SPERSE SP and SPR is a group of macro (large particle size) PE dispersions in vegetable oil developed for inks applications.

MEGH™SPERSE SP 100 acts as a slip control agent. Provides very good rub resistance and slip performance. It can be used in heatset inks.

MEGH™SPERSE SPR 100 EF exhibits excellent rub resistance, relative slip and good gloss retention. Its higher level of PTFE imparts several advantages over straight PE compounds, such as lower static, dynamic COF and better heat resistance. It can be used in sheetfed inks, laser printing and hot foil stamping.

MEGH™SPERSE SPR 200 is used in sheetfed inks at a recommended level of 4.0-6.0%. This compound can also be used in UV topcoats. It is a high performance paste compound that provides excellent rub and slip properties along with good gloss retention. This product has a soft rheology, and will easily and uniformly disperse in lithographic compositions at any stage of the ink processing.

*PS : Consult our sales / technical team about the minimum quantity for each grade.*

Typical properties	SP 100 EF	SPR 100 EF	SPR 200
Type of wax	PE	modified PE	Modified PE
Wax content (%)	50%	50%	50%
Viscosity at 25 °C (cPs)	~ 30.000	~ 26.000	~ 17.000
pH	n/a	n/a	n/a
Density at 25 °C (g/cm³)	0,990	0,990	0,990
Freeze/Thaw Stability	excellent	excellent	excellent



Sheetfed Offset Printing Ink



Laser Printing Ink



hot foil stamping



## How to disperse micronized waxes



## Micronized waxes

# How to disperse micronized waxes

### Introduction

MEGH manufactures micronized wax powders, many of which are based on polymers that have low surface energies. It is important to understand the proper techniques to use when incorporating micronized powders into a coating.

To successfully “wet” the wax particles, the liquid used requires a lower surface tension than the surface energy of the wax.

The term “wet” or “wetting” refers to completely dispersing individual micro-fine particles into a liquid medium.

The process medium to disperse micronized waxes are:

- Melted wax
- Solvent based
- Water based
- Energy curable
- 100% solids and reactive systems



### General concept

It is generally recommended to avoid adding micronized wax directly into the final liquid formulation, as this typically will lead to poor wetting, insufficient dispersion, agglomerated wax particles, coating defects, and poor end use performance. It is usually difficult to wet out a small percentage of dry wax in a large batch of liquid material. Ideally, a concentrated dispersion is first prepared using the wax powder and one or more components of the coating formulation.

The appropriate amount of this pre-dispersion is then added to the final coating.



## How to disperse micronized waxes

### Difference of wax dispersion vs emulsion

Classification	Subdivision	Average particle size	Appearance
Wax emulsion	Micro emulsion	< 100 nm	Translucent
	Emulsion	< 500 nm	Milky white with a bluish color at the edges
Wax dispersion	Micro dispersion	< 1 - 2 mm	Milk white
	Dispersion	> 2 mm	Milky white with possible granularity

### Dispersion technique

For best results, it is recommended to use a high speed impeller disk such as a Conn Blade type ITT to provide sufficient shear energy to wet and disperse the wax and to break down any agglomerates that may be generated during the dispersion process.

The effective shear energy is dependent on the shear rate and viscosity.

Using an impeller disk that provides pumping action will give circulation of the total mass and wet out the particles more thoroughly.

In the laboratory, dispersion of dry wax can be achieved with a disk tip speed of 1.000 – 1.500 feet per minute (FPM), or around 5 – 7 meters per second (m/s).

In a production environment, a tip speed of 4.000 – 5.000 FPM, or around 22 – 26 m/s, is a good target.



### How to verify a well dispersed wax

It is relatively easy to check a coating or pre-dispersion to ensure that the wax particles have been fully dispersed and wetted out.

A grind gauge such as a NPRI gauge is the easiest way to evaluate the material. MEGH micronized wax products have a NPRI gauge specification that you can use as a reference point. Other gauges such as a Hegman may also be useful in confirming the degree of dispersion.

Of course, the best way to check will be to prepare a laboratory scale batch of your coating and evaluate the dried film for surface uniformity, gloss level, COF, or other surface property measurements.

### How to stabilize a water based wax dispersion

As discussed earlier, many micronized wax grades will float in a water based system because the particle density is lower than that of water (1,000). This flotation process occurs faster in lower viscosity systems.

To slow this process, the viscosity of a wax dispersion can be increased through the incorporation of a thickening agent. Polyacrylic acid thickening agents or xanthan gum can be used.

## How to disperse micronized waxes

### Waxes application systems

Waxes can be apply in a surface by several methods:

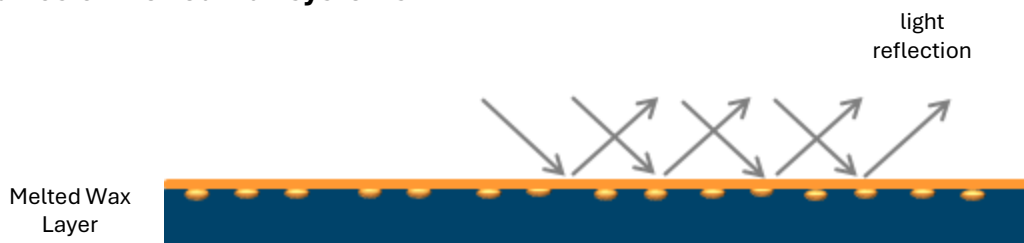
- Melted
- Solvent based system (liquid system)
- Water based system (liquid system)

### Melted waxes application system

Waxes can be apply in a surface by several methods:

The melting system is normally apply in heat curing systems (e.g. coil coatings, can coatings and powder coatings). The high temperature during the curing process automatically melts the wax particles in the film. Because of its density and polarity, the molten wax floats to the top and forms a more or less closed wax layer on top of the coating.

### Infographics of melted wax systems



### Solvent borne systems

In a solvent borne systems the costumer must fully utilize the characteristics of micronized wax powder and must have a good dispersion process to ensure. There are some common methods of dispersion:

#### **Melt Dispersion Method:**

After the micronized wax powder is melted at a high temperature, it is slowly sprayed in a cold solvent (generally a non-polar solvent such as toluene is used), so that the wax liquid is suddenly cooled, and small particles are precipitated.

***If the cooling rate is faster, the wax emulsion formed is finer.***

The wax powder thus dispersed has the best abrasion resistance, the least slip, and the least influence on the gloss.

The disadvantage is that special equipment is required and there is a risk of fire. It is mainly used in the production of high-grade paint.

#### **Cold dispersion method:**

The method of cold dispersion can be used to prepare a high concentration of a fine powder wax dispersion.

The solids content depends on the solvent used. Commonly used non-polar or weakly polar solvents such as mineral oil, toluene and the like is used to disperse wax powder to obtain a high concentration of wax slurry.

The wax paste has good fluidity and high storage stability and can be directly added to inks and paints.

## How to disperse micronized waxes

### Precautions for dispersion of cold-ground micronized wax powder

#### Temperature control:

If the temperature of the low molecular weight polyethylene wax is too high during the dispersion process, it may cause partial dissolution of the wax powder. The solvent infiltrates the wax powder to cause swelling, resulting in re-flocculation and coarsening, forming coarse particles, and the wax powder is ineffective. Generally, the dispersion temperature is not higher than 40 °C.

Generally, esters, ketones or ether alcohols are used as the dispersion solvent of the wax powder, and it is preferable to avoid the use of the benzene solvent, because the benzene solvent has strong penetrating power to the wax powder, and it is easy to cause the wax powder to swell at a high temperature.

Since the surface tension of solvent based liquids is typically low, it is relatively easy to disperse micronized wax powders into these types of formulations.

Although it may be more efficient to prepare a concentrated pre-dispersion using one or more of the solvent based formula components, it may also be possible (with efficient mixing) to add micronized waxes directly into the final coating.

It is important to note that when dispersing a micronized wax (especially grades based on lower melting polymers such as synthetic wax or carnauba wax) into a solvent based formulation, the formulator should use caution so as not to soften or dissolve the wax.

Overheating the dispersion can cause the micronized wax to become soluble and possibly recrystallize as it is cooled to room temperature.

The dispersion temperature should be kept below 40 °C (104 °F) to prevent it from dissolving.

Also, the use of aromatic or other strong solvents can lead to similar issues with dissolution and recrystallization, so avoid these solvents where possible with lower melting waxes.

In fact, many solvent based coating formulators prefer to avoid lower melting wax grades because of these potential production issues, instead opting for a more temperature-robust polyethylene wax additive.

The following is a typical procedure for making a stable wax pre-dispersion in a solvent based system:

As the wax is dispersed, the viscosity of the mixture will decrease, and the final dispersed material will have a glossy appearance.

65%	Solvent (such as alcohols, esters, glycols, etc ...)
	Add wax slowly while mixing
35%	MEGH micronized wax
	Mix until fully dispersed (~10 min.)

Add the appropriate amount of this pre-dispersion to provide the addition level you desire in your coating.



## How to disperse micronized waxes

### Water borne systems

In waterborne coating systems, waxes as additives are mainly available in solid form as waterborne micronized waxes and in liquid form as wax emulsions and wax dispersions.

The advantage of water-based micronized wax is that it does not contain emulsifier and has no effect on the water resistance of coating ink after film formation, but in some cases (water-based) wax dispersions contain additional additives for wetting and deaeration, these can lead to problems with compatibility or chemical resistance in the formulation.

The disadvantage is that the dispersion in aqueous system has high technical condition requirements and the ease of application is poor. It is irregular, and the hand feel and gloss are generally poor.

The advantages of wax emulsions and wax dispersions are ease of use, many product specifications and a wide range of options. The disadvantage is that the matching relationship with the pH value and ionicity of the water-based resin system should be fully considered, and the shelf life of the wax emulsion products and the storage and transportation of high and low temperature resistance should be considered.

As shown in the table below, in general, products with an average particle size of less than 500 nm are called wax emulsions, of which products less than 100 nm are called microemulsions.

Products with an average particle size greater than 500 nm are called wax dispersions, of which those less than 1um are called micro dispersions.

Since the surface tension of water based liquids is high, it can be difficult to disperse micronized wax powders directly into these types of formulations.

It is highly recommended that a concentrated pre-dispersion be prepared using one or more of the water based formula components.

There are several different ways to prepare a wax pre-dispersion for a water based formula:

#### Method A

Disperse 40 to 50% of the micronized wax into a water/surfactant mixture, the surfactant ideal amount for this approach is ~ 4% addition level).

#### Method B

Disperse 20 to 30% of the micronized wax into a water based resin or vehicle (with defoamer if needed).

The following are two typical procedures for making a stable wax dispersion in a water based system:

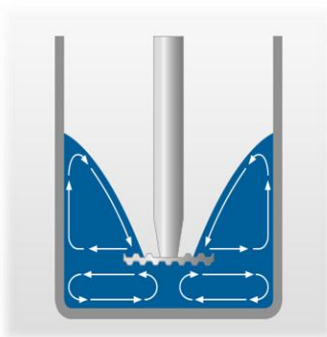
Method A : Using surfactants	
45,5%	Water
4,0%	Surfactant
0,5%	Defoamer
	Mix the water and the additives before adding the wax (~ 5 min.) Add the wax slowly, while mixing
50,0%	MEGH micronized wax Mixing with a high shear energy until it is fully dispersed (~ 20 min.)

Method A : Using resins	
60,0%	Water based vehicle (acrylic, PUD, etc ...) solids content ~ 40%
0,5%	Defoamer
	Mix vehicle and the additives before adding the wax (~ 5 min.) Add the wax slowly, while mixing
25,0%	MEGH micronized wax Mixing with a high shear energy until it is fully dispersed (~ 20 min.)
14,5%	Water (add last)

## How to disperse micronized waxes

As the wax is dispersed, the viscosity of the mixture will decrease, and the final dispersed material will have a glossy appearance. Add the appropriate amount of this pre-dispersion to provide the addition level you desire in your coating.

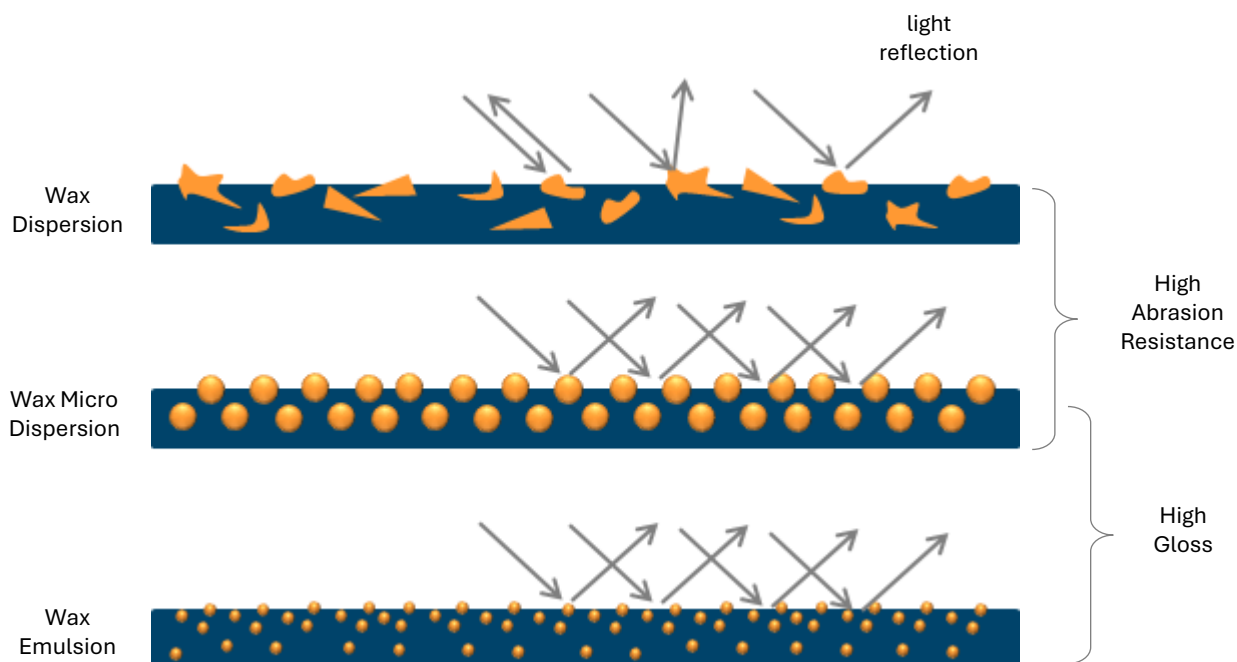
For further information on extending shelf stability of a water based wax dispersion, please read “How to Stabilize a Water Based Wax Dispersion” at the end of this guide.



### Defoaming

If the wax dispersion process generates excessive foam, a defoamer can be added, typically at 0,5 %.

### Infographics of water based was systems



## How to disperse micronized waxes

### Mechanisms of wax action in a water borne systems

To have a significant impact on the coating or ink properties, the wax must migrate to the surface and be present in sufficient quantity to impart the desired characteristic.

Several migration mechanisms are generally proposed.

These are outlined in the following sections.

### The Blooming Mechanism Molten

Molten wax particles float (or bloom) to the surface.

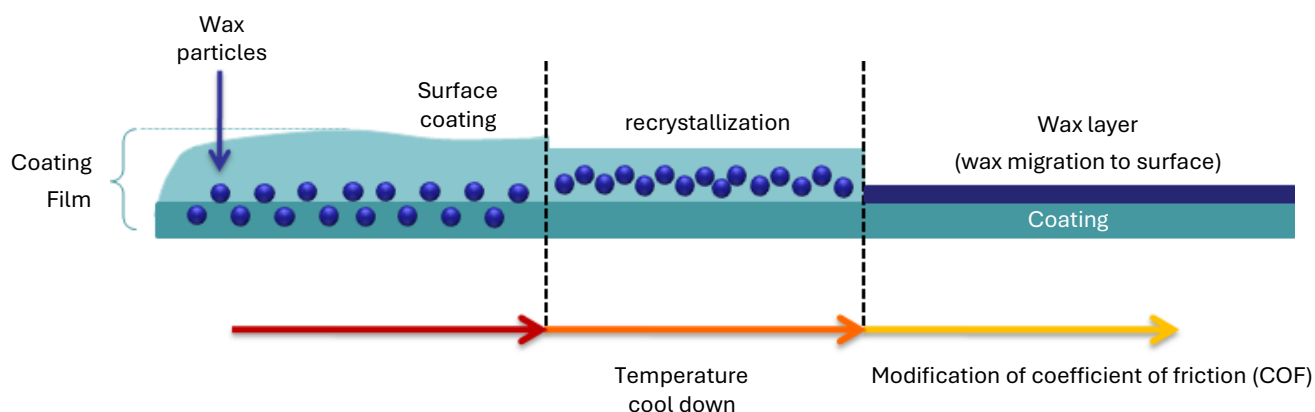
The coating cools and recrystallization of wax particles takes place, forming a thin but continuous wax-enriched surface layer. Generally, the softer the wax or lower the melting point, the more predominant is the blooming mechanism. The compatibility between the wax emulsion and other formulation components determines the wax migration rate.

#### Surface migration mechanism

1. The wax particles migrate to the surface.
2. The surface coating cool down and the wax particles re-crystallize , forming a continuous thin film.
3. As a general rule, as “softener” the wax, lower will be its melting point and the migration will occur faster.
4. The wax compatibility with the coating formulation is crucial in the migration of the same.

### Blooming

*Formation of a thin re-solidified wax layer*



## How to disperse micronized waxes

### The Ball Bearing Mechanism

In this case, solid wax particles migrate individually or protrude through to the surface.

By protruding slightly above the coating surface like ping-pong balls floating on a pool of water, they act as a physical spacer and prevent another surface from coming into close contact.

Hard and high melting point waxes like HDPE, as well as PTFE which exhibits wax like characteristics, operate using this mechanism under certain conditions.

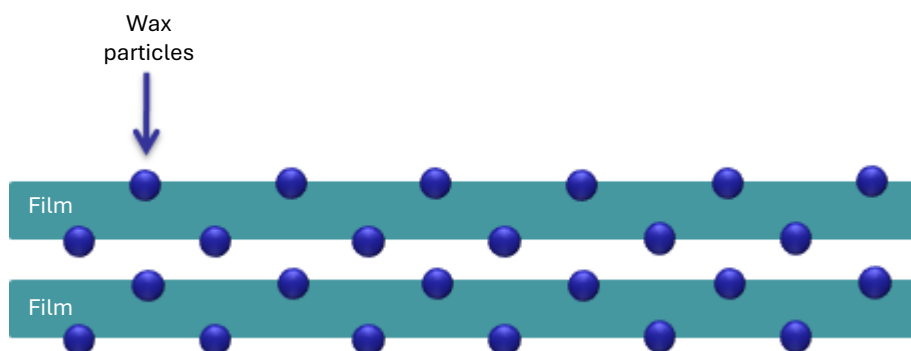
Both the particle density and the extent of protrusion influence the magnitude of the effect.

Once at the surface, the layer of wax particles has the ability to modify the Coefficient of Friction (COF) of the substrate, imparting the desired characteristics.

This explains why waxes are often classified as "Surface Conditioner Additives."

#### Ball Bearing

*Physical and protruding spacer*



Modification of surface properties at 3% – 5% solids, based on polymer solids

- Slip & Lubricity
- Abrasion resistance
- Anti blocking

### Energy curable systems

Follow the procedure and formula for solvent based systems, replacing the solvent component with monomer and/or oligomer from the energy curable formula.

Then add the appropriate amount of this pre-dispersion to provide the addition level you desire in your coating. Use caution during the dispersion process to avoid excessive shear and/or heat development that may cause the energy curable materials to be affected.

### 100% Solids reactive systems

Follow the procedure and formula for solvent based systems, replacing the solvent component with a low viscosity component from the 100% solids formula.

Low reactivity diluents such as polyaldimine or exempt solvents such as propylene carbonate are useful in preparing pre-dispersions.

Then add the appropriate amount of this pre-dispersion to provide the addition level you desire in your coating.

## How to disperse micronized waxes

### Density plays a role

To have a better understanding about wax dispersion we need to consider not only the wax densities but also the liquid medium density where the wax will be add.

The density of a wax additive affects how the wax behaves once dispersed into a liquid.

If the density of the wax is lower than the density of the liquid, the wax will want to rise to the surface and float. If the density of the wax is higher than the density of the liquid, the wax will want to sink to the bottom.

Viscosity will affect the rate of this flotation or settling; higher viscosity systems will respond more slowly than lower viscosity systems.

Formulators should be aware of this when preparing pre-dispersed wax compounds since the homogeneity of the dispersed wax can change over time.

Our product recommendations take this phenomenon into account to recommend the best product for your specific application (where possible).

Many of our products have been designed with densities slightly over 1,000 to optimize in-can stability in most types of coating systems.



### Density in an oil dispersion liquid

Mineral oil as so as some vegetable oils like linseed oil and soybean oil are used in offset inks. The correlation among waxes density and oils density will impart the stability of each dispersion as follow:

Solvent Type	Oil based Formulation (Density)	Result	Wax Type	Density
Linseed Oil	0,930	Stable	Polypropylene	0,890 - 0,900
Soybean Oil	0,917	Stable	Microcrystalline	0,900 - 0,930
Mineral Oil	0,910	Stable	Polyethylene	0,900 - 0,940
		Stable/Sink	Fischer Tropsch	0,920 - 0,960
		Sink	Amides	0,800 - 1,000
		Sink	Carnauba	0,980 - 1,000
		Sink	Oxidized Polyethylene	0,930 - 1,020
		Sink	PTFE	2,200 - 2,300
		Sink	Silica	2,600 - 2,650

## How to disperse micronized waxes

### Density in a solvent based dispersion liquid

Solvents are used in lot of printing inks systems. Solvents, as the name implies, offer solvency to inks and are used to dissolve pigment and vehicle into a solution that's able to be easily applied to paper. Solvents used in the ink world have low boiling points and evaporate quickly after application.

In the printing world, consistent and predictable solvent evaporation is critical, and printers prefer solvents with a narrow boiling range.

For a solvent to perform well as a carrier for ink, it must have a small amount of aromatic content.

The correlation among waxes density and solvents density will impart the stability of each dispersion as follow:

Solvent Type	Solvent based Formulation (Density)	Result	Wax Type	Density
Dichloromethane	1,330	Float	↑	
Dichloroethane	1,250	Float		
Dichloropropane	1,160	Float		
Ethylene Glycol	1,110	Float		
Methyl Acetate Ethyl Acetate Butyl Acetate	0,932 0,902 0,882	Stable	Oxidized Polyethylene	0,930 - 1,020
		Stable	Carnauba	0,980 - 1,000
		Stable	Amides	0,800 - 1,000
		Stable	Fischer Tropsch	0,920 - 0,960
		Stable	Polyethylene	0,900 - 0,940
		Stable	Microcrystalline	0,900 - 0,930
		Stable	Polypropylene	0,890 - 0,900
Toluene	0,867	Stable/Sink	↓	
p-Xylene	0,857	Stable/Sink		
Mineral Oil	0,830	Sink		
Methyl ethyl ketone (MEK)	0,805	Sink		
Isobutanol	0,802	Sink		
Ethanol	0,789	Sink		
Isopropanol	0,786	Sink		
Acetone	0,784	Sink		
		Sink	PTFE	2,200 - 2,300
		Sink	Silica	2,600 - 2,650

## How to disperse micronized waxes

### Density in a water based dispersion liquid

Aqueous, water-based inks are particularly useful for printing onto non-porous surfaces and those which may come into contact with items for human consumption. They are also much kinder to the environment and equipment.

Water-based ink formulations are kinder and limit safety risks for operators as well as end users, and for printing on food packaging. It is also environmentally friendly products. Coatings printed using these inks can also be widely recycled.

Aqueous inks are versatile, meaning they can deliver high-quality prints for a range of applications. This includes porous substrates, such as papers, corrugated boards, and cardboard.

The correlation among waxes density and solvents density will impart the stability of each dispersion as follow:

Wax Type	Density	Water based Formulation (Density)	Result
Amides	0,800 - 1,000	1,000	Float
Polypropylene	0,890 - 0,900	1,000	Float
Microcrystalline	0,900 - 0,930	1,000	Float
Polyethylene	0,900 - 0,940	1,000	Float
Fischer Tropsch	0,920 - 0,960	1,000	Float
Oxidized Polyethylene	0,930 - 1,020	1,000	Stable
Carnauba	0,980 - 1,000	1,000	Stable
PTFE	2,200 - 2,300	1,000	Sink
Silica	2,600 - 2,650	1,000	Sink



## How to disperse micronized waxes

### Density case study : PTFE

Polytetrafluoroethylene (PTFE) is a substance with a unique behavior in coatings applications.

It is used in all types of coatings to modify total mechanical performance and improve values for scratch resistance and abrasion resistance, while simultaneously lowering surface friction.

If PTFE is used as an additive for paints and coatings, it has only a minor influence on gloss values or other optical properties, and is suitable for food contact applications.

The substance itself is chemically inert, temperature resistant, and has a higher density in comparison to other wax additives, such as carnauba wax or polyethylene wax.

Thanks to the higher density of PTFE, he will orientate throughout the entire coating film, in contrast to a number of other wax additives that orientate to the paint surface and only interact within the interfaces between the coating and the air .

When used in combination with other wax particles , like our **MEGH™PRINT PR** and **MEGH™PRINT FR** grades those other waxes can help the PTFE particle to flow better into surface direction . When used in this manner, PTFE must have a very fine particle size and narrow particle size distributions.

### Infographics of micronized PTFE in a coating



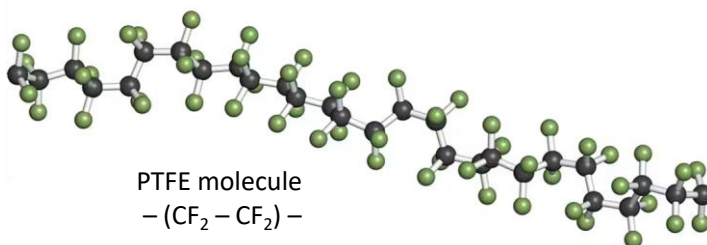
Standard wax additives



PTFE based wax additives  
higher density



PTFE in combination with lower density waxes additives



## How to disperse micronized waxes

### Surface tension in a water based dispersion liquid

According to the definition of surface tension, it is the phenomenon that occurs when the surface of a liquid is in contact with another phase (it can be a liquid as well).

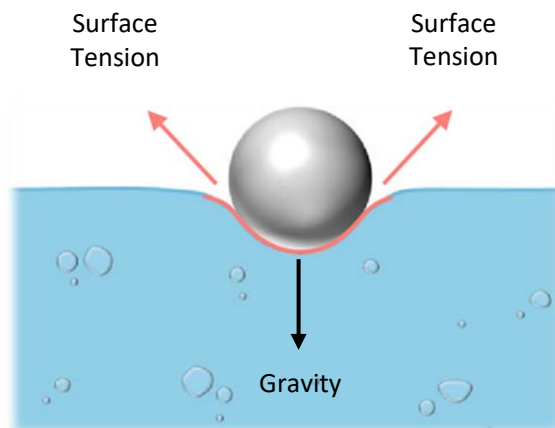
Liquids tend to acquire the least surface area possible. The surface of the liquid behaves like an elastic sheet.

Surface tension not only depends upon the forces of attraction between the particles within the given liquid but also on the forces of attraction of solid, liquid or gas in contact with it.

The energy responsible for the phenomenon of surface tension may be thought of as approximately equivalent to the work or energy required to remove the surface layer of molecules in a unit area.

Surface tension is typically measured in dynes/cm, the force in dynes is required to break a film of length 1 cm.

The water has a surface tension of 72,0 dynes/cm at 25°C.



Wax Type	Temperature (oC)	Superficial Tension (dyna/cm)
Water	25	72,8
Japan wax	25	59,6
Beeswax	25	45,1
Oxidized polyethylene	25	44,0
Fischer Tropsch	25	35,0
Microcrystalline	25	34,7
Paraffin	25	33,0
Carnauba	25	32,0
Polyethylene (PE)	25	31,6
Ethylene Bisteramide	25	31,0
Polypropylene (PP)	25	30,5
Silica	25	30,0
PTFE	25	19,4

As we can see left, all waxes have much lower surface tension than water.

For this reason a dispersion or emulsion system will need extra components that will help the aqueous medium to lower its surface tension as closest as possible to the wax range in use.

Doing that the wax particles will be closer to their surface tension and will be able to be disperse in the medium in a better way.

We can see that functionalized waxes have a closer surface tension than water, against those non functionalized. This happen due the polar groups existing into the waxes, turning them closer to water polarity.

## Waxes and it's properties in paints, varnishes and inks



## Micronized waxes – Important coating properties

### Coefficient of friction (COF)

Coefficient of friction (COF) is a kind of “slip” measure, an important property in the printing inks application. An appropriated slip is important to avoid problems in the printing

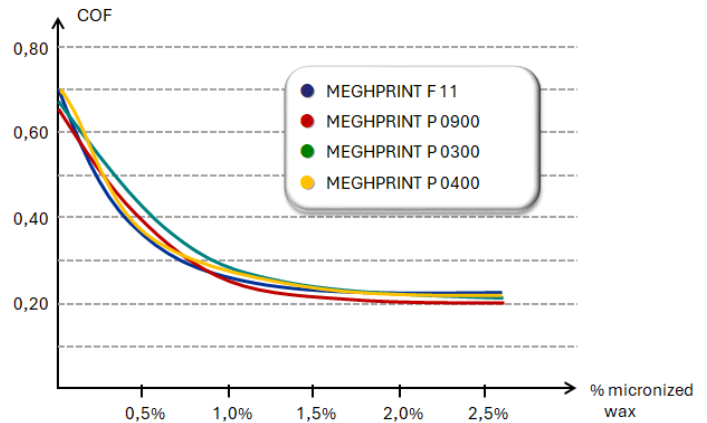
machine rolls.

The COF value has an upper and lower limit.

That means one surface with much slip (low COF), will not print good, while a surface with low slip (high COF) will also present printing problems.

PTFE is the best material to impart COF surface performance, but MEGH waxes **MEGH™PRINT F 11**, **P 0900**, **P 0400**, **P 0300** also act good in COF performance.

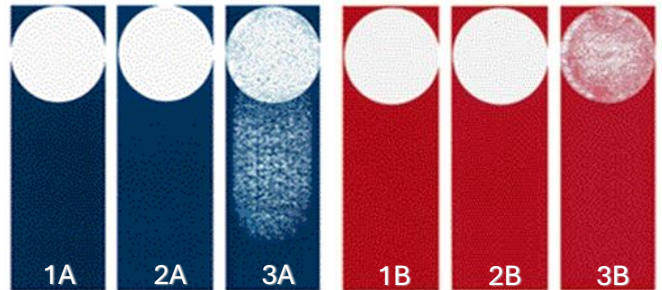
typical flexographic water base ink  
(film applied by handproofer - rollertest)



### Abrasion resistance

Is the surface ability to retain its appearance and gloss even under an abrasive action (Rub or friction).

It happen through promoting surface abrasion by friction an abrasive material like a Quartant testing machine, which will produce a damage in the surface ; and so measuring, for example, the gloss in the surface that suffer the damage, with a glossmeter and comparing the results with an area that do not suffer damage or friction.



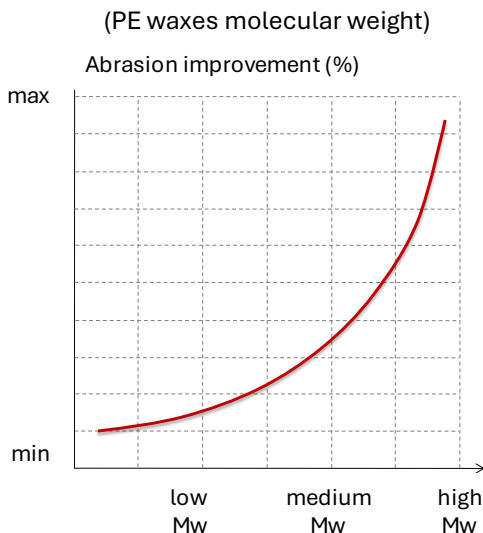
Abrasion resistance results of 2 flexographic inks with the following wax content :

1A / 1B = 1 % of MEGH™PRINT P 0400 dispersion (dry base, 200 abrasion cycles)

2A / 2B = 1 % of MEGH™PRINT P 0400 micronized wax (dry base, 200 abrasion cycles)

3A / 3B = without wax

(dry base, 200 abrasion cycles)



#### Important notes :

- Above 3% of wax the abrasion resistance improvement is minimal.
- Above 4% of wax other kind of problems can happen , like layers' adhesion , block and gloss reduction.
- The abrasion resistance increase with an increase of PE wax Mw.

HDPE >> LLDPE >> LDPE

Mw = Molecular Weight

## Micronized waxes – Important coating properties

### Rub resistance

Rub resistance is a kind of mechanical resistance that occurs when a printed coating to withstand marking, scuffing or smudging during hand- ling in conversion, packaging, distribution and use.

The most often equipment used to measure the rub resistance is the Sutherland 2000.



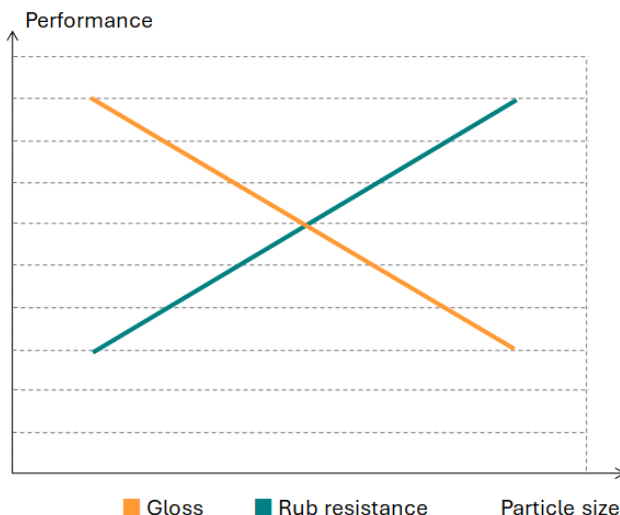
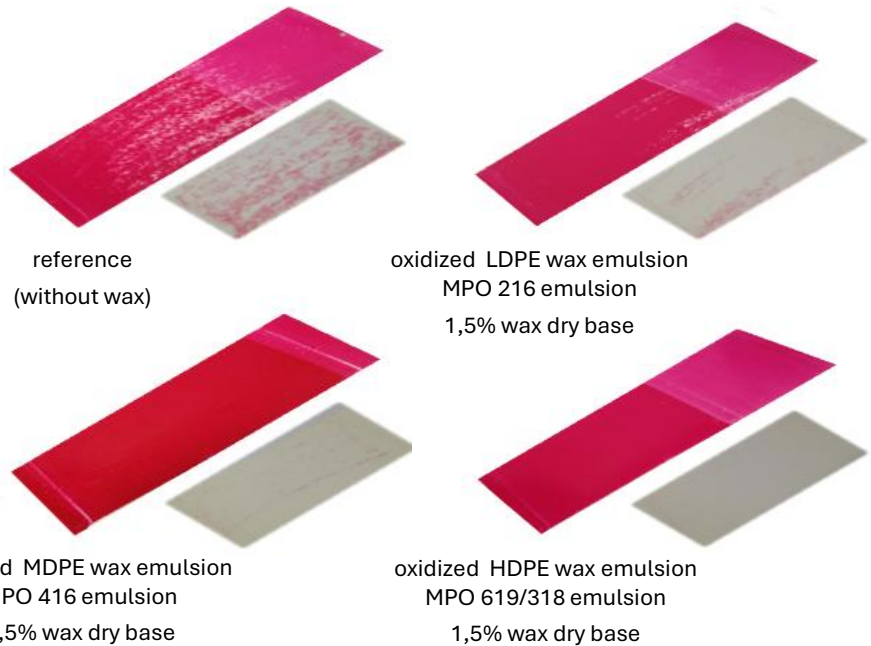
Sutherland Rub Resistance test made with MEGH oxidized polyethylene emulsions in a typical flexographic ink formulation

(100 cycles, weight = 4 lb)  
film thickness = 10 microns

The rub resistance can be measure by 2 ways :

Dry rub resistance : is the coating ability to withstand a mechanical action on its surface.

Wet rub resistance : is the coating ability to resist to softening or even peeling due the act of rubbing its surface in a wet condition.



The graph left demonstrate the rub resistance performance trend based on a surface modifier at varying particle sizes.

The performance trend is based on an industrial coating containing an equivalent amount of a specific surface modifier applied to a common substrate at the same dry film thickness (dft).

As we can see the **rub resistance performance is rightly depended with high particle size.**

**As higher the particle size, better is the rub resistance, on the opposite, the brightness will decrease.**

## Micronized waxes – Important coating properties

### Anti blocking resistance and soft feel

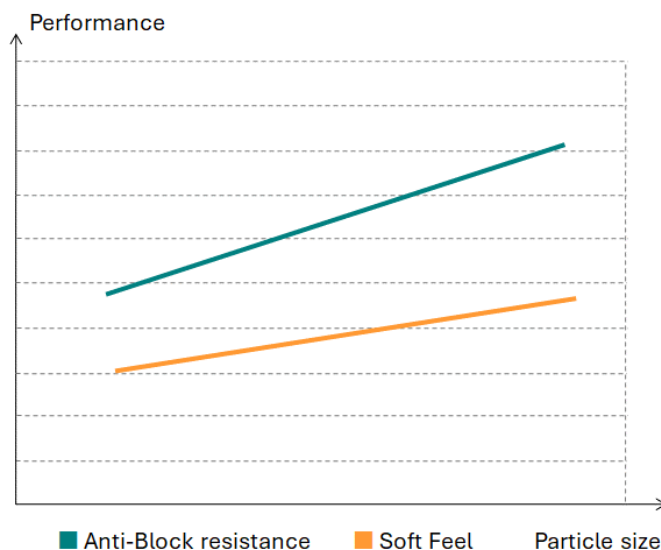
Anti blocking resistance is the coating ability to prevent adhesion to other substrates placed on it, either immediately after the manufacture process or after a storage time.

Soft feel coatings can provide a wide range of surface effects to help the products provide a superior customer surface experience.

Soft feel coatings are desired in many industries.

Soft-touch coatings provide a unique feel, or haptic effect, to surfaces with natural characteristics that tend to be unappealing to most consumers. By other side softer coatings tend to have reduced chemical and abrasion resistance.

**Both effects, anti blocking and soft feel will enhance with higher the particle size.**



*Soft feel is well desired in packaging industry.*



*cardboard boxes stacking and logistics have a trend to present blocking problems during usage.*

### Mar resistance

According to ASTM D5178-13, mar resistance of coating is the ability of a coating to resist damage caused by light abrasion.

Mar resistance has also been defined as a kind of physical damage to a coating that affects only the first couple micrometers of the coating surface.

In many applications, coatings require resistance to accidental damage, such as scratches or dents caused by moving objects on them.

One of such applications are coatings of furniture paints, which, in addition to a number of properties such as blocking resistance or resistance to household chemicals, also need resistance to accidental scratches caused by moving various objects.

However, this is not about damage causing complete destruction of the coating, such as cutting through the entire thickness of the coatings by scratching to the substrate, but damage causing visually unsightly changes, e.g. not scratching through the entire thickness of the coating. The resistance of coatings to such damage is called mar resistance.

## Micronized waxes – Important coating properties

### Mar resistance and scratch resistance

Below, schematically shows the differences between the classic scratch to the substrate, which determines the load caused by the cut of the coating to the substrate (on the right), and the mar, which refers to only partial damage to the coating (on the left).

Mar resistance refers to coatings that are really hard. In water-based paints intended for furniture, it is particularly important, especially when selecting polymer dispersion for one-component acrylic systems.

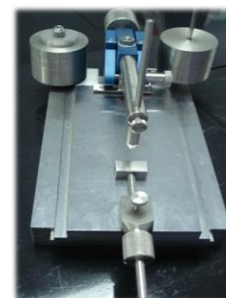
When a surface is damage by a friction of a thin material causing a risk that can be deep in and as a result usually leaves the surface with a white spot into the “cut”.

We can measure the scratch resistance of a surface using a machine called sclerometer, where a coating film is submitted by a spin action using a preset weight.



Mar

Scratch



sclerometer

Increasing force →



No damage

Mar damage

Scratch damage



Paint coating testing mar resistance

### Burnishing resistance

Burnish resistance is a painted surface's ability to hold up against wiping, cleaning, washing, and objects and furniture rubbing up against it.

The result is describe in surface gloss damage units; as lower the number is better, we do not look at gloss with the burnishing but avoid changes in the original surface aspects.

The burnish resistance can also be a measure of changes that occur in a coating after a number of burnishing cycles did with a softener flannel.



## Micronized waxes – Important coating properties

### Stain resistance

Is the coating ability to support pressure or marks for a period of time, without suffer permanent lost on it's characteristics.

This is related with the use of materials that promote a kind of “sticky” property in to the coating surface.



### Moisture resistance

Moisture resistance is mainly concerned with a medium's ability to maintain dimensional stability when exposed to high humidity and changes in humidity. Is the surface ability to resist to swelling, blistering, mold or any other damage caused by exposure to weather and or rain.



### Water resistance and water repellency (Drew point)

Water repellency or water resistance is another important property obtained with waxes.

As the name implies, this characteristic is the protection of a surface against water penetration.

The magnitude of protection can be temporary or limited (water resistance or repellency) up to a nearly infinite period of time or unlimited based upon the kind of exposure (waterproof).

Water resistance generally implies resistance to water in the liquid state, whereas moisture resistance refers to protection against water in a gaseous or vapor state.

Usually, paraffin waxes, including scale waxes (a lower refined paraffin grade containing up to 5 % oil), perform very well, particularly on porous surfaces.

The oil penetrates easily and quickly into the pores and fissures of the substrate, imparting a very hydrophobic character to the treated surface.

**MEGH™SPERSE A 1540** is a special wax dispersion develop to act against the water in general applications.



*Drew point*

## Micronized waxes – Important coating properties

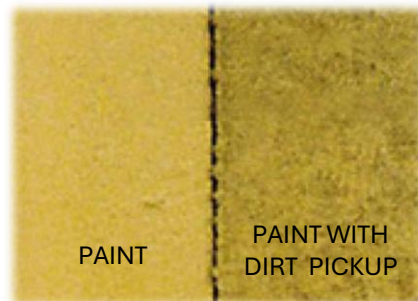
### Dirty pick up resistance

Dirt pickup resistance is an important performance attribute for exterior architectural coatings, especially in growing, highly populated markets that have poor air quality.

Dirt pickup resistance refers to the ability of a surface to resist discoloration due to the deposition of particles from the environment.

Durable exterior coatings of high Dirt pickup resistance maintain their attractiveness for longer periods of time and offer more sustainable coating solutions due to reduced consumption of coating ingredients and related waste generation.

Waxes with high penetration index (softener) usually have greater stickiness to dirt pick up than harder one.



### Texture (Tactile properties)

Although coatings are usually applied to provide optical effects (color, gloss or matting etc.), or to protect a substrate, some applications also require the surface to have tactile properties.

By employing a coating that incorporates coarse wax particles, a rough and uneven surface is created at the microscopic level that is very similar to that observed with matting agents.

Because tactile properties are largely dependent on the coating formulation, it is important that the wax particles protrude through the coating layer and this requires a particle size larger than the film thickness.

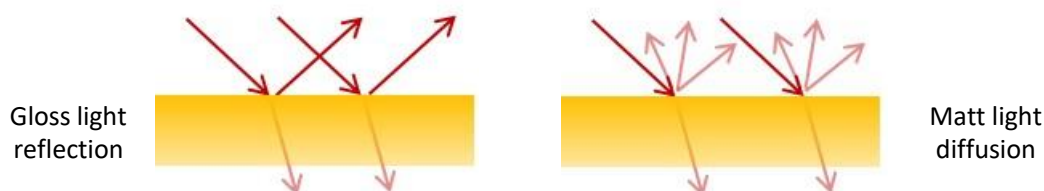


### Matting effect

Matting is a property of coatings that delivers a smooth, subtle look and shows little-to-no sheen. Matting lowers the gloss/sheen by scattering the light in many directions leading to surface appearance less glossy.

There are several options to the coatings formulator to create a matt coating. Matting agents, such as silica, waxes and fillers are mixed with coatings and paints in order to impart a matt finish to the substrate.

**MEGH™PRINT W 400, W 500, W 1000 F, W 1000 EF** and **MEGH™PRINT PS and PSR** grades will impart good matting conditions when applied to coatings.





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