

# Powder Additives

## Additives for powder mixtures:

MÜNZING offers a wide range of powder additives for use in dry blends which are mixed with water before application. Defoamers, wetting and dispersing agents and anti-shrinkage agents are easily miscible with other components in powder form like sand, cement, gypsum, e.g.

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## 1. AGITAN® P - Powder Defoamers

- AGITAN® P 800** Blend of liquid hydrocarbons and polyglycols on an inorganic carrier, silicone free.
- Ash content: approx. 33%  
Apparent density: approx. 350 g/l
- AGITAN® P 801** Blend of liquid hydrocarbons, fatty compounds and little silicone on an inorganic carrier.
- Ash content: approx. 33%  
Apparent density: approx. 350 g/l
- AGITAN® P 803** Blend of liquid hydrocarbons and polyglycols on an inorganic carrier, silicone free.  
In many self-leveling formulations AGITAN® P 803 exhibits a supplementary fluidification effect.
- Ash content: approx. 33%  
Apparent density: approx. 330 g/l
- AGITAN® P 804** Polysiloxanes on an inorganic carrier.  
For all systems in which oil containing powder defoamers are less efficient or produce undesired side effects. Generally, AGITAN® P 804 is the most powerful powder defoamer of the AGITAN® P - series.
- Ash content: approx. 34%  
Apparent density: approx. 300 g/l
- AGITAN® P 813** Blend of liquid hydrocarbons and polyglycols on an inorganic carrier, silicone free.  
In many self-leveling formulations AGITAN® P 813 exhibits a supplementary fluidification effect.  
AGITAN® P 813 corresponds to a diluted AGITAN® P 803 and therefore is better dispersible.
- Ash content: approx. 49%  
Apparent density: approx. 350 g/l
- AGITAN® P 823** Blend of liquid hydrocarbons and polyglycols on an inorganic carrier, silicone free.  
In many self-leveling formulations AGITAN® P 823 exhibits a supplementary fluidification effect.  
Due to the grain size (granularity) of the carrier, AGITAN® P 823 shows excellent flow properties and is easy to dose. It is easier to incorporate and creates less dust. Very high density.
- Ash content: approx. 35%  
Apparent density: approx. 580 g/l

**AGITAN® P 833** Blend of liquid hydrocarbons and polyglycols on an inorganic carrier, silicone free.  
In many self-leveling formulations AGITAN® P 833 exhibits a supplementary fluidification effect.

Ash content: approx. 42%  
Apparent density: approx. 390 g/l

**AGITAN® P 840** Combination of oxalkylated compounds on an inorganic carrier, silicone and mineral oil free.  
Due to the grain size (granularity) of the carrier, AGITAN® P 840 shows excellent flow properties and a high bulk density.

AGITAN® P 840 has an outstanding cost/performance ratio.

Ash content: approx. 60%  
Apparent density: approx. 640 g/l

**AGITAN® P 841** Combination of vegetable oils and oxalkylated compounds on an inorganic carrier, silicone and mineral oil free.  
Due to the grain size (granularity) of the carrier, AGITAN® P 841 shows excellent flow properties and a high bulk density.

AGITAN® P 841 is a very versatile defoamer and has an excellent cost/performance ratio.

Ash content: approx. 42%  
Apparent density: approx. 540 g/l

**AGITAN® P 845** Combination of oxalkylated compounds on an inorganic carrier, silicone and mineral oil free.  
Due to the grain size (granularity) of the carrier, AGITAN® P 845 shows excellent flow properties and is easy to dose. It is easier to incorporate and develops less dust. Very high density.

AGITAN® P 845 is characterized by a high ignition energy and therefore provides a well below dust explosion potential.

Ash content: approx. 60%  
Apparent density: approx. 390 g/l

## Applications and Use

AGITAN<sup>®</sup> powder defoamers are recommended for the use in dry powder mixtures which are mixed with water before use. The addition of AGITAN<sup>®</sup> powder defoamers results in low foaming dispersions and aqueous pastes and masses with controlled air content.

In mortar systems some AGITAN<sup>®</sup> powder defoamers show a plasticising effect, meaning that the slump is increased. The efficiency on the defoaming is not affected. This is ideal for joint-less flooring compounds.

### **Main applications:**

- Putties
- Levelling compounds
- Screeds (cement and anhydrite based)
- Joint fillers/ grouts
- Gypsum
- Cement
- Mortars
- Powder paints
- Adhesives

## Self-leveling flooring compounds:

- AGITAN<sup>®</sup> P 803, AGITAN<sup>®</sup> P 813, AGITAN<sup>®</sup> P 823, AGITAN<sup>®</sup> P 833, AGITAN<sup>®</sup> P 840, AGITAN<sup>®</sup> P 841 and AGITAN<sup>®</sup> P 845 support flow of self-leveling compounds without affecting the good defoaming properties.  
AGITAN<sup>®</sup> P 801 and AGITAN<sup>®</sup> P 845 are showing this effects also in casein containing formulations.
- AGITAN<sup>®</sup> P 804 generally is the most efficient defoamer. In some cases a viscosity increase may occur.
- In leveling compounds which are modified with re-dispersible polymer powders the following powder defoamers are recommended:
  - Polymer powders from Wacker: AGITAN<sup>®</sup> P 823, AGITAN<sup>®</sup> P 801, AGITAN<sup>®</sup> P 840, AGITAN<sup>®</sup> P 841 and AGITAN<sup>®</sup> P 804.
  - Polymer powders from Elotex: AGITAN<sup>®</sup> P 823, AGITAN<sup>®</sup> P 840, AGITAN<sup>®</sup> P 841 and AGITAN<sup>®</sup> P 804
- AGITAN<sup>®</sup> P 823 is recommended for all formulations in which AGITAN<sup>®</sup> P 833 cannot be sufficiently well incorporated with the available blending equipment.
- AGITAN<sup>®</sup> P 841 is the most versatile powder defoamer.

## Mortars:

- AGITAN<sup>®</sup> P 800, AGITAN<sup>®</sup> P 801 and AGITAN<sup>®</sup> P 804 generally are recommended for use in repair mortars (vertical applications).
- AGITAN<sup>®</sup> P 803, AGITAN<sup>®</sup> P 823, AGITAN<sup>®</sup> P 833, AGITAN<sup>®</sup> P 840, AGITAN<sup>®</sup> P 841 and AGITAN<sup>®</sup> P 845 can be used in mortars in which the plasticising effect of the defoamers does not have a negative effect or is not observed due to formulation properties (horizontal application).

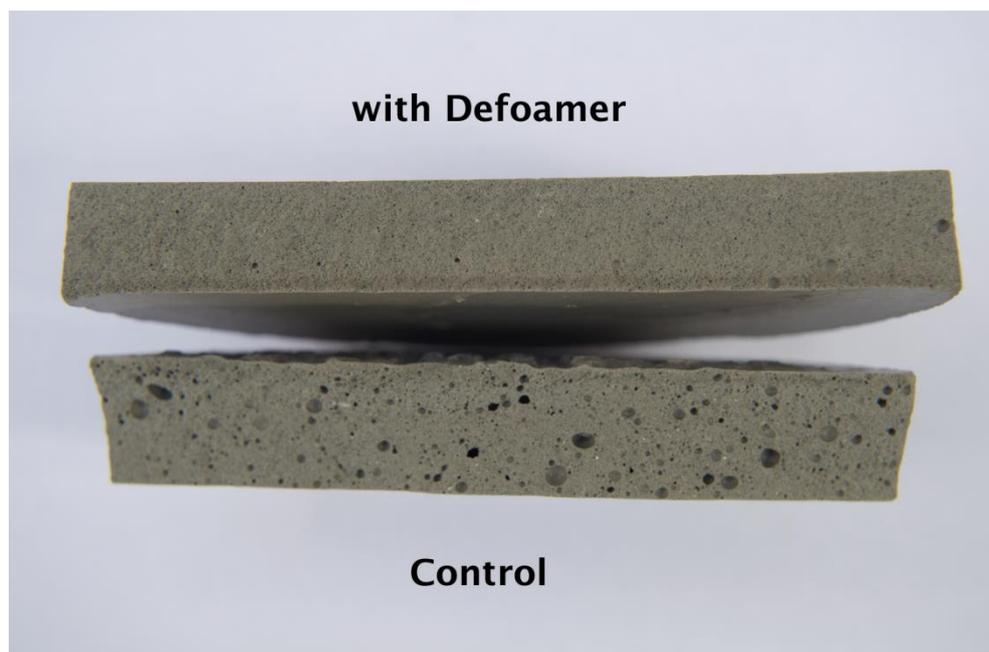
## Other applications:

- AGITAN® P 804 and AGITAN® P 845 are favourably used in systems based on gypsum or anhydrite. In joint fillers the use of AGITAN® P 804 and AGITAN® P 845 are also highly recommended.
- For powder paints and silicate systems AGITAN® P 804 is the recommended defoamer.

## Dosage:

The preferred grade and dosage for a system depend highly on type and origin of raw materials used in the formulation. Ladder studies are recommended to determine optimum concentrations.

Normal dosages range from 0.05 to 0.5% calculated on finished product.



## 2. METOLAT® P - Shrinkage Reducing Additives

- METOLAT® P 860** Blend of diols on an inorganic carrier. The active substances are soluble in water.
- Ash content: approx. 31%.  
Apparent density: approx. 280 g/l
- METOLAT® P 861** Blend of glycols on an inorganic carrier. The active substances are soluble in water. The active substances in METOLAT® P 861 are different from that in METOLAT® P 860 but the carrier material is identical.
- Ash content: approx. 32%.  
Apparent density: approx. 260 g/l
- METOLAT® P 871** Blend of glycols on an inorganic carrier. The active substances are soluble in water. The active substances in METOLAT® P 871 are identical to that in METOLAT® P 861. The carrier material is different and allows better desorption of the active substances.
- Ash content: approx. 42%.  
Apparent density: approx. 380 g/l
- METOLAT® P 872** Combination of aliphatic alcohols on an inorganic carrier. The active substances are soluble in water and are VOC free according to 2004/42/EC and 1999/13/EC.
- Ash content: approx. 50%.  
Apparent density: approx. 470 g/l
- METOLAT® P 873** Combination of alkylalkoxylates on inorganic carrier. The active substances are miscible with water and are food contact compliant.
- Ash content: approx. 60%.  
Apparent density: approx. 390 g/l
- METOLAT® P 874** Combination of aliphatic alcohols and glycols on inorganic carrier. The active substances are soluble in water and are VOC free according to 2004/42/EC and 1999/13/EC.
- Ash content: approx. 50%.  
Apparent density: approx. 480 g/l

**Dosage**                      0.5 - 5%                      for shrinkage reduction, calculated on finished product. Depending on the used quantities of the product and the conditions of application, retardation of cement hardening may occur.

   0.1 - 0.2 %                      as coalescent for re-dispersible polymer powders.

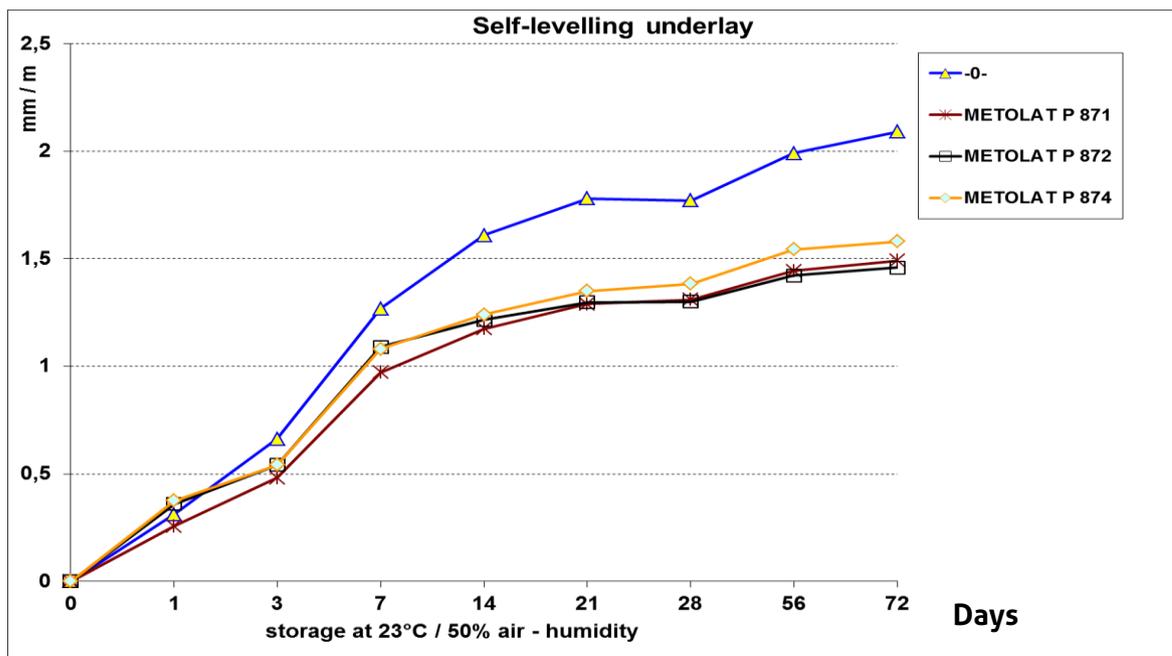
- Main applications**
- Cement based mortars
  - Levelling compounds
  - Screeds (cement based)
  - Powder paints

**Properties**

The active ingredients of METOLAT® shrinkage reducing agents reduce shrinkage in cementitious systems (portland cement and fly ash based cement, as well as ternary systems). METOLAT® shrinkage reducing agents do not work on expansion neither absorb water. The consistency and structure of the mass remains unaltered.

Which of the additives is the most efficient has to be determined in experiments. Depending on the dosage of the additives a retardation of cement hardening may occur.

METOLAT® P 860. METOLAT® P 861, METOLAT® P 871 and METOLAT® P 872 also act as coalescent for re-dispersible polymer powders.



### 3. METOLAT<sup>®</sup> P – Powder Wetting and Dispersing Agents

#### METOLAT<sup>®</sup> P 530

<b>Composition</b>	High molecular weight sulfonated naphthalene condensation product, anionic. Water soluble.  Active ingredients: approx. 91%
<b>Properties</b>	Additive for support of grinding and dispersant for pigments and fillers in aqueous media. Especially recommended for grinding of carbon black. In aqueous emulsions it shows stabilizing and protection of colloid properties.  In construction applications METOLAT <sup>®</sup> P 530 is used as dispersant and plasticiser in cement containing formulations. There it improves workability and rises density without lowering mechanical strength.
<b>Dosage</b>	0.5 - 1 %      as dispersant for powders, pigments and fillers  10 %            as dispersant for carbon black, to obtain a 35% stable suspension  0.4 - 0.5 %    as plasticiser in concrete, calculated on cement

## METOLAT® P 588

**Composition** Polyglycol ester on an inorganic carrier, non-ionic, water soluble.

Ash content: approx. 30.5 %  
Apparent density: approx. 270 g/l

**Properties** METOLAT® P 588 is an APEO free, powdery wetting agent. It accelerates the wetting of all solid particles in powder mixtures which are blended with water. The colour strength of pigments increases and re-agglomeration and floating of pigments to the surface can be suppressed. The homogeneous distribution of pigments is more efficient; as a result the aspect and the conditions of the surface are significantly improved. A more homogeneous surface without spots is obtained.

In powder paints METOLAT® P 588 prevents rub-out effects.

**Application**

- joint fillers
- leveling compounds
- screeds
- plasters
- powder paints
- premix of pigment powder

**Dosage** 0.2 – 1.0 % as wetting agent calculated on total of the formulation



control



METOLAT® P 588

## METOLAT® P 590

<b>Composition</b>	Blend of glycols on an inorganic carrier, non-ionic, easy to emulsify in water.  Ash content: approx. 45 % Apparent density: approx. 470 g/l
<b>Properties</b>	METOLAT® P 590 is an APEO free wetting agent in powder form. It accelerates the wetting of all solid particles in powder mixtures, including sand, cement and fibres, thus an improved levelling can be obtained. The colour strength of pigmented systems increases and re-agglomeration and floating of pigments to the surface can be suppressed. A more homogeneous surface without spots is obtained. In powder paints METOLAT® P 590 prevents rub-out effects.
<b>Application</b>	<ul style="list-style-type: none"><li>• joint fillers</li><li>• levelling compounds</li><li>• screeds</li><li>• plasters</li><li>• powder paints</li><li>• premix of pigment powder</li></ul>
<b>Dosage</b>	0.1 – 1.0 % as wetting agent calculated on total of the formulation

## METOLAT® P 854

<b>Composition</b>	Non-ionic surfactant on an inorganic carrier.  Ash content: approx. 35%. Apparent density: approx. 320 g/l
<b>Properties</b>	The use of METOLAT® P 854 accelerates significantly the wetting of fillers (sand, calcite, fibres etc.) while mixing with water. Pigments (e.g. iron oxide pigments) are well dispersed using METOLAT® P 854 as dispersant. A fast and homogeneous distribution of pigments is obtained even at low motion mixing.
<b>Application</b>	<ul style="list-style-type: none"><li>• Joint Filler/ Grouts</li><li>• Self-leveling floor screeds</li><li>• plaster</li><li>• Powder wall paints</li><li>• premix of pigment powder</li></ul>
<b>Dosage</b>	0.15 – 0.5 % as dispersant for powders, pigments and fillers calculated on total of the formulation.

## 4. Guide formulations

### Guide formulation

- Based on Wacker-Chemie GmbH redispersible polymer powder -

**- Joint filler (flexible for wide joints) -**

based on Vinnapas 7034N

No.	Compounds	Weight percentage	Function	Supplier
1	White cement	250.0		
2	Vinnapas 7034N	50.0	Redispersible polymer powder	Wacker Chemie GmbH
3	Secar 71	30.0		Fondu Lafarge Int
4	Kronos 2056	30.0	Titanium dioxide	Kronos Titan
5	<b>AGITAN® P 801</b>	<b>3.0</b>	<b>Defoamer</b>	<b>MÜNZING CHEMIE GmbH</b>
6	HDK V 13	5.0		Wacker Chemie GmbH
7	Culminal MC 3000 p	0.3	HMC	Herkules-Aqualon
8	Tartaric acid	1.1		
9	Silres BS powder A	5.0		Wacker Chemie GmbH
10	Durcal 130	400.0	Filler	Omya
11	Durcal 65	300.0	Filler	Omya
12	Durcal 15	50.0	Filler	Omya
	<b>Total</b>	<b>1124.4</b>		

Water quantity for mixing: approx. 205 ml on 1000 g dry mixture

The quantity of tartaric acid has to be calculated depending on the reactivity of the cement.

## Guide formulation

- MÜNZING CHEMIE GmbH -

Based on Dow Latex Powder (DLP)

### - Self levelling floor compound -

based on DLP 2001

No.	Compounds	Weight percentage	Function	Supplier
1	Portland cement	40-45		
2	Fondu Lafarge	3-5		
3	Hydrated lime	2		
4	Lime stone flour	8-10		
5	Quartz sand	40-45		
6	Melment F 10	0.7	Plasticizer	BASF Construction Polymers
7	DLP 2001	1.5-2.0	Polymer powder	Dow/ Wolff Cellulosics
8	Tylose H 20p	0.15-0.16	Thickener	ShinEtsu
9	<b>AGITAN® P 845</b>	0.15-0.20	Defoamer	<b>MÜNZING CHEMIE GmbH</b>
10	<b>METOLAT® P 872</b>	0.5-0.8	Shrinkage reduction	<b>MÜNZING CHEMIE GmbH</b>
11	Sodium citrate	0.05-0.08		
		<b>100.00</b>		

Water quantity for mixing: approx. 250 to 300 ml on 1000 g dry mixture

## Guide formulation

- MÜNZING CHEMIE GmbH -

based on Wacker Chemie GmbH redispersible polymer powder

### - Self levelling floor compound -

based on auf Vinnapas 5023L

No.	Compounds	Weight percentage	Function	Supplier
1	Portland cement	329.5		
2	Quartz sand	354.5		
3	Lime stone flour	260.0		
4	VINNAPAS 5023L	15.0	Powder Polymer	Wacker Chemie GmbH
5	Melment F 10	10.0	Plasticizer	BASF Construction Polymers
6	Gypsum	20.0		
7	Tylose MH 300P2	1.5	water retention/ thickener	ShinEtsu, Tylose
8	Lithium-carbonate	0.5	Accelerator	
9	<b>AGITAN® P 803</b>	1.5	Defoamer	<b>MÜNZING CHEMIE GmbH</b>
10	<b>METOLAT® P 872</b>	7.5	Shrinkage reduction	<b>MÜNZING CHEMIE GmbH</b>
	<b>Total</b>	<b>1000.0</b>		

Water quantity for mixing: approx. 18% - 20% on weight of dry mixture