

# Developing together. Building with each other.

Formulation Additives for Construction

Europe, March 2019

 **BASF**

We create chemistry

## The construction industry benefits from recognized BASF brands and quality products

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The time-honored **Rheovis**<sup>®</sup> range comprises a broad portfolio of synthetic rheology modifiers for aqueous systems, including non-ionic associative (HEUR), anionic associative (HASE) and non-associative thickeners (ASE). Many of these highly efficient products are very environmentally friendly, low in VOC, free of APEO and heavy metals, and also with very low odor.

Providing a range of standard and highly efficient dispersing agents for aqueous systems, the **Dispex**<sup>®</sup> brand portfolio includes polymeric, oligomeric and surfactant-based dispersing agents. Benefits include outstanding viscosity reduction, improved formulation storage stability and environmental aspects, like low VOC and APEO-free.

Offering an outstanding selection of defoamer technologies for aqueous systems, the familiar **Foamaster**<sup>®</sup> and **FoamStar**<sup>®</sup> brands include products based on mineral or native oils, as well as specialty-emulsion defoamers and organo-silicone, silicone-free and star-polymer based defoamers. These defoamers provide a per-

fect balance between excellent foam suppression, high compatibility, long-term efficiency, easy handling and environmental compliance in the form of low VOC, low SVOC and low odor solutions.

Under the **Hydropalat**<sup>®</sup> brand, BASF presents a selection of substrate wetting, flow control and slip control agents for water-based coatings or adhesives formulations.

The **Loxanol**<sup>®</sup> brand stands for film-forming agents for water-based formulations, comprising plasticizers, open-time prolongers and coalescing agents of various technologies.

In this booklet, 24 formulation additives of these brands are highlighted and their benefits explained. These 24 products are part of our recommendation for water-based mastic and cementitious construction chemical formulations.

# Rheology Modifiers

Rheology Modifiers (or ‘thickeners’) fulfil several tasks in water-based construction chemical formulations. In many cases they are needed for the manufacturing process, e.g. to increase the viscosity of the binder system before adding other formulation components like resins or fillers. Rheology modifiers are important to adjust formulation consistency and workability during application. There are several examples where they make a strong contribution to the product performance, e.g. high yield stress thickeners are key for strong initial grab for construction adhesives and for preventing sagging for ceramic tile adhesives.

## Selection Guide

R: Recommended S: Suitable

Product	Applications										
	Flooring adhesives	Construction adhesives	Sealants	Mastic ceramic tile adhesives	Mastic wet room coatings	Flexible flat roof coatings	Mastic EIFS formulations	Primers / bonding aids	2-c cementitious waterproofing	1-c cementitious waterproofing	Repair mortars
Rheovis® AS 1125	R	S	R	S	S	S	R		S		
Rheovis® AS 1130	S	R	R	R	R	S	S	S			
Rheovis® HS 1162	S	S		R				R			
Rheovis® HS 1169	S	R	R	S	S	S		S	R		
Rheovis® HS 1980									R	R	R
Rheovis® AS 1180		R	R	S				S			
Rheovis® PU 1191	S		R		S	S			S		
Rheovis® PU 1270					S	R		S	S		
Rheovis® PU 1280				S	S	R		S	S		

BASF recommends different rheology modifier (thickener) technologies: Alkali-Swellable Emulsion (ASE) type rheology modifiers lead to a significant viscosity increase to the water phase under alkaline conditions. They are suitable for applications where a shear-thinning viscosity profile is needed. Hydrophobically Modified Alkali-Swellable Emulsion (HASE) rheology modifiers combine the mechanism of ASE thickeners with associative effects e.g. between dispersion particles, which enhances their efficiency. Rheovis® AS 1180 represents a special rheology modifier type, where hydrophilic polymers are emulsified in an oil phase. Upon incorporation into an aqueous formulation, the oil becomes the minority phase and the hydrophilic polymers are released and create a strong thickening of the water phase. This thickener type usually brings a high yield stress and is less pH dependent than ASE or HASE type products. Hydrophobic Modified Ethoxylated Urethane (HEUR or just ‘PU’) rheology modifiers are widely pH independent. Their working mechanism is based on associative effects between dispersion particles, filler particles and other formulation components. All products comply with APEO-free claims. APEOs not intentionally added. Product may comprise minor traces as ubiquitously occurring quantities of APEOs cannot be excluded.

## Rheovis® AS 1125

Rheovis® AS 1125 is an alkali swellable emulsion (ASE) which, upon neutralization with a base, imparts strong thickening in water-based formulations.

### Performance Highlights:

- Pronounced thickening in low shear rate range accompanied by a yield point
- Shear-thinning viscosity characteristics enabling good workability
- Easy handling due to low viscosity

### Sustainability Highlights:

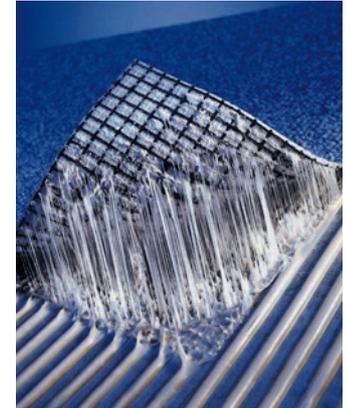
- Low VOC content
- Suitable for several Ecolabels like EMICODE® EC1Plus or the Blue Angel (DE-UZ 113)
- High dosing efficiency

### Applications:

Rheovis® AS 1125 is very versatile. It is particularly recommended for flooring adhesives, sealants and mastic EIFS formulations. Rheovis® AS 1125 is also suitable for construction adhesives, mastic ceramic tile adhesives, flexible flat roof coating, mastic wet room coating formulations and 2-component cementitious waterproofing membranes.

### Characteristic Values:

Solids content (ISO 3251)	24 – 26%
Viscosity (ISO 2555)	15 – 20 mPas
Viscosity (ISO 3219)	2 – 10 mPas
pH value (DIN ISO 976)	2.3 – 3.3



## Rheovis® AS 1130

Rheovis® AS 1130 is an alkali swellable emulsion (ASE) which, upon neutralization with a base, imparts strong thickening in water-based formulations.

### Performance Highlights:

- Low-shear thickening accompanied by shear-thinning viscosity characteristics
- High yield stress leading to very good sag resistance
- Easy handling due to low viscosity

### Sustainability Highlights:

- Low VOC content
- Suitable for several Ecolabels like EMICODE® EC1Plus or the Blue Angel (DE-UZ 113)
- High dosing efficiency

### Applications:

Due to its high yield stress Rheovis® AS 1130 is particularly recommended for construction adhesives, mastic ceramic tile adhesives and for sealant formulations. Furthermore it is recommended for mastic wet room coatings. Rheovis® AS 1130 is also suitable for flooring adhesives, flexible flat roof coatings, mastic EIFS formulations and for primers and bonding aids.

### Characteristic Values:

Solids content	~ 30%
Brookfield viscosity at 25°C	~ 40 mPas
pH value	~ 3.5



## Rheovis® HS 1162

Rheovis® HS 1162 is an hydrophobically modified alkali swellable emulsion (HASE). Upon neutralization with a base, it imparts strong thickening in water-based formulations. This effect is coupled with associative thickening caused by hydrophobic groups.

### Performance Highlights:

- Low-shear thickening and strong shear-thinning
- Very high yield stress and high sag resistance
- Thixotropic rheology behavior
- Easy handling due to low viscosity

### Sustainability Highlights:

- Low VOC content
- Suitable for several Ecolabels like EMICODE® EC1Plus or the Blue Angel (DE-UZ 113)
- Very high dosing efficiency

### Applications:

Rheovis® HS 1162 is particularly recommended for mastic ceramic tile adhesives and primers / bonding aids. It is also suitable for flooring and construction adhesives.

### Characteristic Values:

Solids content	~ 35%
Brookfield viscosity at 25°C, 20 rpm	~ 5 mPas
pH value	~ 3.5



## Rheovis® HS 1169

Rheovis® HS 1169 is a hydrophobically modified alkali swellable emulsion (HASE). Upon neutralization with a base, it imparts strong thickening in water-based formulations. This effect is coupled with associative thickening caused by hydrophobic groups.

### Performance Highlights:

- Low-shear thickening accompanied by shear-thinning viscosity characteristics
- High yield stress and high sag resistance
- Easy handling due to low viscosity
- Reduced water uptake

### Sustainability Highlights:

- Low VOC content
- Suitable for several Ecolabels like EMICODE® EC1Plus or the Blue Angel (DE-UZ 113)
- Very high dosing efficiency

### Applications:

Rheovis® HS 1169 is very versatile. It is particularly recommended for sealants, construction adhesives and 2-component cementitious waterproofing membranes. It is also suitable for flooring adhesives, mastic ceramic tile adhesives, mastic wet room coatings, flexible flat roof coatings and primers / bonding aids.

### Characteristic Values:

Solids content (ISO 3251)	29 – 31%
Viscosity (ISO 2555)	5 – 50 mPas
pH value (DIN ISO 976)	4.5 – 5.5



## Rheovis® HS 1980

Rheovis® HS 1980 is a powder thickener. After re-dispersion in aqueous formulations, it works like a HASE-type thickener. Under alkaline conditions it imparts strong thickening by unfolding of the polymer chains, coupled with associative effects caused by hydrophobic groups.

### Performance Highlights:

- Low-shear thickening and shear-thinning viscosity characteristics
- High yield stress
- Thixotropic rheology behavior

### Sustainability Highlights:

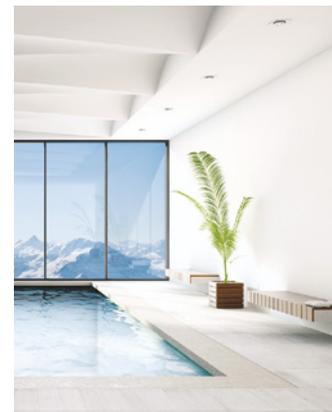
- Low VOC content
- Suitable for several Ecolabels like EMICODE® EC1Plus or the Blue Angel (DE-UZ 113)
- Excellent dosing efficiency

### Applications:

Rheovis® HS 1980 is recommended particularly for 1- or 2-component cementitious waterproofing systems and repair mortars. Rheovis® HS 1980 shows excellent performance in combination with Acronal® dispersions and dispersion powders.

### Characteristic Values:

Solids content (ISO 3251)	97 – 100%
Bulk density (ISO 60)	300 – 500 kg/m <sup>3</sup>
pH value (DIN ISO 976)	4.5 – 6.0



## Rheovis® AS 1180

Rheovis® AS 1180 is based on an acrylic copolymer carried in mineral oil. When this thickener is added into aqueous formulations, the carrier oil becomes the minority phase and the high molecular weight polymer provides the rheological control effect through extensive swelling in the presence of water.

### Performance Highlights:

- Pronounced low-shear thickening and shear-thinning viscosity characteristics
- Outstanding yield stress

### Sustainability Highlights:

- Excellent dosing efficiency

### Applications:

Due to its high yield stress Rheovis® AS 1180 is particularly suited for construction adhesives with high initial grab. It is also recommended for mastic tile adhesives (good sag resistance), sealants and primers / bonding aids.

### Characteristic Values:

Solids content (ISO 3251)	26 – 32%
Viscosity (ISO 3219)	100 – 300 mPas
pH value (DIN ISO 976)	7.5 – 9.0



## Rheovis® PU 1191

Rheovis® PU 1191 is a hydrophobic modified ethoxylated urethane (HEUR) polymer in water / diluent, leading to associative thickening in water-based formulations.

### Performance Highlights:

- Strong low-shear thickening and shear-thinning viscosity characteristics
- Widely pH independent
- Low impact on water sensitivity
- Easy handling

### Sustainability Highlights:

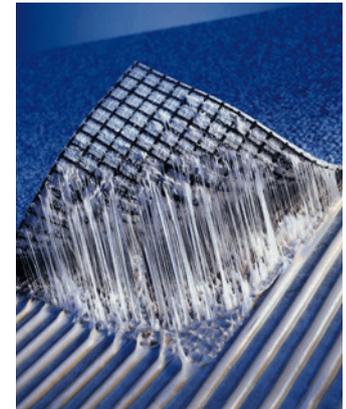
- Low VOC content
- Low odor
- Suitable for several Ecolabels like EMICODE® EC1Plus or the Blue Angel (DE-UZ 113)

### Applications:

Rheovis® PU 1191 is recommended when a shear-thinning viscosity profile is needed and when the formulation is not under alkaline conditions. Possible applications are flooring adhesives, sealants, mastic wet room coating, flexible flat roof coating and 2-component cementitious formulations.

### Characteristic Values:

Dry residue (DIN ISO 1625)	28 – 32%
Viscosity (25°C, Brookfield RVT, ISO 2555)	1500 – 4000 mPas



## Rheovis® PU 1270

Rheovis® PU 1270 is a hydrophobic modified ethoxylated urethane (HEUR) polymer in a water / isopropanol / propylene glycol mixture, leading to associative thickening in water-based formulations.

### Performance Highlights:

- Low to mid-shear thickener
- Widely pH independent
- Low impact on water sensitivity

### Sustainability Highlights:

- High dosing efficiency

### Applications:

Rheovis® PU 1270 is recommended for flexible flat roof coating formulations. It is also suitable for primers / bonding aids, mastic wet room coating formulations and 2-component cementitious waterproofing systems.

### Characteristic Values:

Solids content (ISO 3251)	24 – 28%
Viscosity (ISO 3219)	1200 – 3900 mPas
pH value (DIN ISO 976)	8.5 – 10.5



## Rheovis® PU 1280

Rheovis® PU 1280 is a hydrophobic modified ethoxylated urethane (HEUR) polymer in water / diethylene glycol monobutyl ether mixture, leading to associative thickening in water-based formulations.

### Performance Highlights:

- Low to mid-shear thickener
- Precise viscosity control possible
- Widely pH independent
- Low impact on water sensitivity

### Sustainability Highlights:

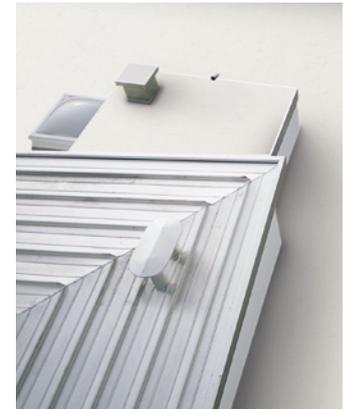
- Very high dosing efficiency

### Applications:

Rheovis® PU 1280 is recommended for flexible flat roof coating formulations. It is also suitable for primers / bonding aids, mastic wet room coating, mastic ceramic tile adhesives formulations and 2-component cementitious waterproofing systems.

### Characteristic Values:

Solids content (ISO 3251)	24 – 28%
Viscosity (ISO 3219)	1600 – 6000 mPas
pH value (DIN ISO 976)	8.5 – 10.5



## Dispersing agents

Dispersing agents keep inorganic filler particles “evenly spaced” i.e. they support the dispersion of filler particles and prevent their re-agglomeration and sedimentation. Dispersing agents are important during the manufacture of construction chemical products and strongly impact the performance of the final formulation: storage stability is improved and rheological properties like workability and consistency can be effectively controlled.

### Selection Guide

R: Recommended S: Suitable

Product	Applications								
	Flooring adhesives	Construction adhesives	Sealants	Mastic ceramic tile adhesives	Mastic wet room coatings	Flexible flat roof coatings	Primers / bonding aids	Mastic EIFS formulations	Water dispersable powder systems
Dispex® AA 4135	R	R	R	R	S	R	R	S	
Dispex® AA 4030	S	R	R	S					
Dispex® AA 4935	S	S							R
Dispex® CX 4320	S	R	R	R	R	R	R	R	
Dispex® CX 4231		R	R			R			
Dispex® CX 4248	S	S	S	R	S				

When looking for high value-in-use in a broad application range, BASF recommends polyacrylic acid type dispersing agents like Dispex® AA 4135, AA 4030 and the powder type Dispex® AA 4935. In applications where enhanced water resistance is needed, modified polycarboxylates like Dispex® CX 4320, CX 4231 and CX 4248 will be the better choice. All recommended dispersing agents act mainly through electrostatic interactions. All products comply with APEO-free claims. APEOs not intentionally added. Product may compromise minor traces as ubiquitously occurring quantities of APEOs cannot be excluded.

## Dispex® AA 4135

Dispex® AA 4135 is a polymeric dispersing agent based on acrylic acid sodium salt in water.

### Performance Highlights:

- Excellent dispersing efficiency for inorganic fillers and pigments
- Broad application range

### Sustainability Highlights:

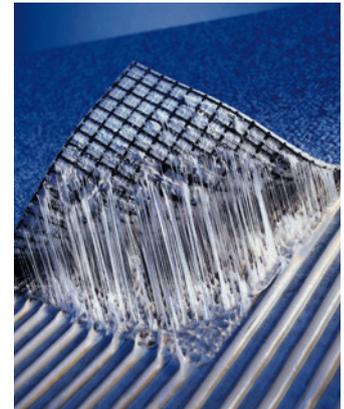
- Low VOC content
- Low odor
- Suitable for several Ecolabels like EMICODE® EC1Plus or the Blue Angel (DE-UZ 113)
- High cost performance

### Applications:

Dispex® AA 4135 is very versatile. It is mainly recommended for flooring adhesives, sealants and construction adhesives, mastic ceramic tile adhesives, flexible flat roof coatings and primers / bonding aids. It is also suitable for mastic wet room coating and mastic EIFS formulations.

### Characteristic Values:

Solids content (ISO 3251)	34 – 36%
Viscosity (ISO 3219, 23°C, 100 s <sup>-1</sup> , 60 s)	100 – 300 mPas
pH value (DIN ISO 976)	6 – 8



## Dispex® AA 4030

Dispex® AA 4030 is a polymeric dispersing agent based on acrylic acid ammonium salt in water.

### Performance Highlights:

- Excellent dispersing efficiency for inorganic fillers and pigments
- Reduced water sensitivity due to ammonia neutralization
- Broad application range

### Sustainability Highlights:

- Low VOC content
- Suitable for several Ecolabels like EMICODE® EC1Plus or the Blue Angel (DE-UZ 113)
- High cost performance

### Applications:

Dispex® AA 4030 is recommended for sealants and construction adhesives. It is also suitable for flooring adhesives and mastic ceramic tile adhesives.

### Characteristic Values:

Solids content (ISO 3251)	29 – 31%
pH value (DIN ISO 976)	7.5 – 9.5
Flow time (ISO 2431)	20 – 50 s



## Dispex® AA 4935

Dispex® AA 4935 is a polymeric dispersing agent based on acrylic acid sodium salt in powder form.

### Performance Highlights:

- Excellent dispersing efficiency for inorganic fillers and pigments
- Broad application range

### Sustainability Highlights:

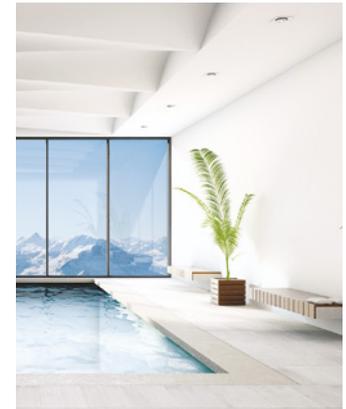
- Low VOC content
- Low odor
- Suitable for several Ecolabels like EMICODE® EC1Plus or the Blue Angel (DE-UZ 113)
- High cost performance

### Applications:

Dispex® AA 4935 is preferably recommended for water dispersible powder systems. It is also suitable for construction adhesives and flooring adhesives.

### Characteristic Values:

Solids content (ISO 3251)	91 – 100%
pH value (DIN ISO 976)	6.5 – 8.0



## Dispex® CX 4320

Dispex® CX 4320 is a polymeric dispersing agent based on sodium salt of modified polycarboxylate in water.

### Performance Highlights:

- Excellent dispersing efficiency for inorganic fillers and pigments
- High water resistance
- Broad application range

### Sustainability Highlights:

- Low VOC content
- Low odor
- Suitable for several Ecolabels like EMICODE® EC1Plus or the Blue Angel (DE-UZ 113)

### Applications:

Dispex® CX 4320 is recommended for construction adhesives, sealants, mastic ceramic tile adhesives, mastic wet room coatings, flexible flat roof coatings, primers / bonding aids and mastic EIFS formulations. It is also suitable for flooring adhesives. Dispex® CX 4320 is recommended particularly for applications where improved water resistance is needed.

### Characteristic Values:

Solids content (ISO 3251)	24 – 26%
Viscosity (ISO 2555)	<= 250 mPas
pH value (DIN 19268)	10.5 – 11.5



## Dispex® CX 4231

Dispex® CX 4231 is a polymeric dispersing agent based on ammonium salt of modified polycarboxylate in water.

### Performance Highlights:

- Good dispersing efficiency for inorganic fillers and pigments
- Pronounced hydrophobic characteristics
- Reduces water uptake

### Sustainability Highlights:

- Low VOC content
- Suitable for several Ecolabels like EMICODE® EC1Plus or the Blue Angel (DE-UZ 113)

### Applications:

Dispex® CX 4231 is recommended for sealants, construction adhesives and flexible flat roof coating formulations. It is also recommended particularly for applications where high water resistance, water-repellent surfaces or early rain resistance are needed.

### Characteristic Values:

Solids content (ISO 3251)	29 – 31%
Viscosity	~ 900 mPas
pH value (DIN ISO 976)	9 – 10



## Dispex® CX 4248

Dispex® CX 4248 is a polymeric dispersing agent based on ammonium salt of acrylic copolymer in water.

### Performance Highlights:

- Highly efficient dispersing efficiency for inorganic fillers and pigments
- High water resistance

### Sustainability Highlights:

- Low VOC content
- Low odor
- Suitable for several Ecolabels like EMICODE® EC1Plus or the Blue Angel (DE-UZ 113)

### Applications:

Dispex® CX 4248 is recommended for mastic ceramic tile adhesives. It is also suitable for several other mastic formulations like flooring adhesives, sealants, construction adhesives and mastic wet room coatings.

### Characteristic Values:

Non-volatile components (QA-2-1)	30.5 – 33.5%
Viscosity (QA-2-2)	1300 – 2200 mPas
pH (QA-2-3)	8.0 – 8.5



## Defoamers

Defoamers enable accurate filling levels of reactors and vessels during manufacture of construction chemical products. Additionally, they reduce foaming of the formulation during application. Defoamers make an important contribution to the appearance, workability and consistency of the final product. In the case of waterproofing applications, they are essential to enable the necessary sealing performance.

### Selection Guide

R: Recommended S: Suitable

Product	Applications								
	Flooring adhesives	Construction adhesives	Mastic ceramic tile adhesives	Mastic wet room coatings	Flexible flat roof coatings	Mastic EIFS formulations	Primers / bonding aids	2-c cementitious waterproofing	Repair mortars
Foamaster® NO 2306			R	R		R	R	R	
Foamaster® WO 2310	S							S	
FoamStar® ED 2522	S	S			S			S	
FoamStar® SI 2210	R	S	S		R		S	S	
FoamStar® SI 2213	S		R	R	R			R	
FoamStar® PB 2706			R	S	S	R	S	S	R

Defoamers disturb the bubble stabilizing effect of surfactants in construction chemical formulations. They must be able to enter the foam lamellae, spread there and finally disrupt them. The right balance between efficacy and compatibility in the formulation is key. To serve various applications and formulations, BASF offers a broad portfolio of defoamers of different technologies: oil-based defoamers, emulsion defoamers, siloxane-based defoamers or defoamers based on special polymers. All products comply with APEO-free claims. APEOs not intentionally added. Product may comprise minor traces as ubiquitously occurring qualities of APEOs cannot be excluded.

## Foamaster® NO 2306

Foamaster® NO 2306 is a native-oil based defoamer based on alkyl polyalkoxy esters and fatty esters.

### Performance Highlights:

- Universal defoamer for water-based formulations
- Effectively removes micro-foam

### Sustainability Highlights:

- Low VOC and SVOC content
- Suitable for low emission Ecolabels like EMICODE® EC1Plus
- Based on renewable raw materials

### Applications:

Foamaster® NO 2306 is recommended for mastic ceramic tile adhesives, mastic wet room coatings and mastic EIFS formulations. It is also suitable for primers / bonding aids and 2-component cementitious waterproofing systems. Foamaster® NO 2306 shows excellent defoaming effectivity with a broad variety of acrylic and styrene-acrylic dispersions.

### Characteristic Values:

Density (ISO 2811-3, 25°C)	0.96 – 1.0 g/cm <sup>3</sup>
Viscosity (ISO 2555, Brookfield LVF, 25°C)	50 – 800 mPas
pH value (ISO 4316, 20°C, 10%, H <sub>2</sub> O)	7.5 – 9.5



## Foamaster® WO 2310

Foamaster® WO 2310 is a defoamer formulated with white oil and non-ionic surfactants.

### Performance Highlights:

- Good defoaming and long-term persistency in water-based formulations
- High compatibility

### Sustainability Highlights:

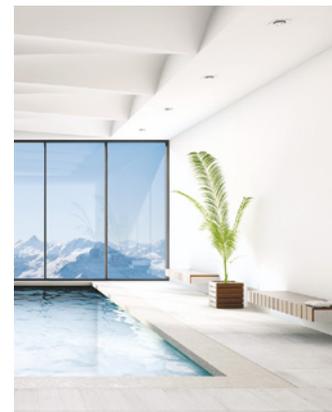
- Broad food contact (and drinking water) compliance: FDA, BfR, EU 10/2011, Swiss Ordinance, GB 9685 (refer to our actual food contact compliancy statement for details)
- Low VOC content and low odor
- Suitable for several Ecolabels like EMICODE® EC1Plus or the Blue Angel (DE-UZ 113)

### Applications:

Foamaster® WO 2310 is suitable for 2-component cementitious waterproofing membranes and other applications, where food contact / drinking water compliance is needed. Foamaster® WO 2310 shows good defoaming effectivity with a broad variety of acrylic and styrene-acrylic dispersions.

### Characteristic Values:

Viscosity (ISO 2555 (MOD), Brookfield LVF, 25°C)	500 – 2000 mPas
Density (ISO 2811-3, 20°C)	0.85 – 0.90 g/cm <sup>3</sup>



## FoamStar® ED 2522

FoamStar® ED 2522 is an emulsion defoamer based on organo-modified silicones in water.

### Performance Highlights:

- Universal defoamer for water-based formulations
- High performance
- Excellent storage stability
- Easy to incorporate

### Sustainability Highlights:

- Low VOC and SVOC content
- Suitable for several Ecolabels like EMICODE® EC1Plus or the Blue Angel (DE-UZ 113)

### Applications:

FoamStar® ED 2522 is suitable for flooring adhesives, construction adhesives, flexible flat roof coating formulations and 2-component cementitious waterproofing membranes.

### Characteristic Values:

Dry residue (DIN ISO 1625)	19.5 – 21.5%
Viscosity (ISO 2555, Brookfield LVF, 25°C)	1000 – 2000 mPas
Density (ISO 2811-3, 25°C)	0.95 – 1.05 g/cm <sup>3</sup>



## FoamStar® SI 2210

FoamStar® SI 2210 is a defoamer based on a modified polydimethylsiloxane.

### Performance Highlights:

- Universal defoamer for water-based formulations
- Strong spontaneous defoaming effect
- Good long-term efficiency

### Sustainability Highlights:

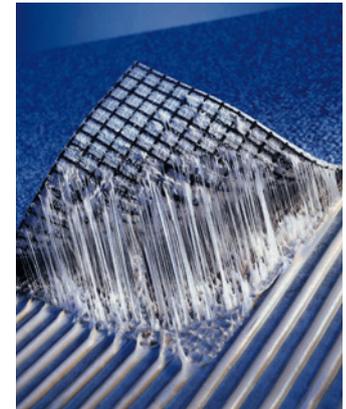
- Low VOC content
- Highly efficient
- Suitable for several Ecolabels like EMICODE® EC1Plus or the Blue Angel (DE-UZ 113)

### Applications:

FoamStar® SI 2210 is specially recommended for flooring adhesives and flexible flat roof coating formulations. It is also suitable for construction adhesives, mastic ceramic tile adhesives, primers / bonding aids and 2-component cementitious waterproofing membranes.

### Characteristic Values:

Viscosity (ISO 2555, Brookfield RVT, 20°C)	50 – 100 mPas
Density (ISO 2811-3, 20°C)	0.93 – 0.97 g/cm <sup>3</sup>



## FoamStar® SI 2213

FoamStar® SI 2213 is a defoamer based on a modified polydimethylsiloxane.

### Performance Highlights:

- Universal defoamer for water-based formulations
- Excellent compatibility
- Highly effective

### Sustainability Highlights:

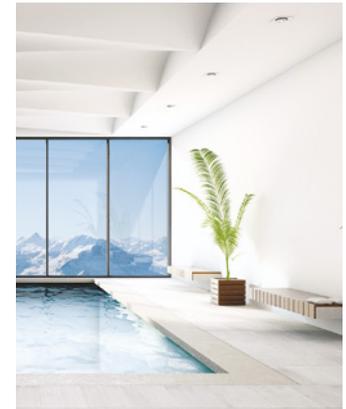
- Low VOC content
- Suitable for low emission Ecolabels like EMICODE® EC1Plus

### Applications:

FoamStar® SI 2213 is recommended for mastic ceramic tile adhesives, mastic wet room coatings, flexible flat roof coatings and 2-component cementitious waterproofing membranes. It is also suitable for flooring adhesives formulations.

### Characteristic Values:

Viscosity (ISO 2555, Brookfield RVT, 20°C)	350 – 500 mPas
Density (ISO 2811-3, 20°C)	0.98 – 1.02 g/cm <sup>3</sup>



## FoamStar® PB 2706

FoamStar® PB 2706 is a defoamer with a polyether derivative of a fatty acid as its chemical basis.

### Performance Highlights:

- Universal defoamer for aqueous construction chemistry formulations
- No negative impact on adhesion properties
- Good water emulsifiability

### Sustainability Highlights:

- High efficiency
- Suitable for low emission Ecolabels like EMICODE® EC1Plus

### Applications:

FoamStar® PB 2706 is recommended for mastic ceramic tile adhesives, mastic EFIS formulations and repair mortars. It is also suitable for mastic wet room coatings, flexible flat roof coatings, primers / bonding aids and 2-component cementitious waterproofing formulations.

### Characteristic Values:

Acid value (ISO 2114)	<= 8 mg/g
pH value (EN 1262)	3.5 – 4.5



## Film-forming Agents and Wetting Agents

BASF recommends coalescing agents, like Loxanol® CA 5308, in order to reduce the minimum film forming temperature of dispersion-based formulations. Coalescents enable a lowered application temperature of the final product. Wetting agents, like Hydropalat® WE 3185 EL and WE 3485, are used in adhesive formulations to improve adhesion and bonding strength to a variety of surfaces. In some cases, the wetting agent also contributes to the stabilization of the formulation.

### Selection Guide

R: Recommended S: Suitable

Product	Additive Type	Applications				
		Flooring adhesives	Construction adhesives	Mastic ceramic tile adhesives	Flexible flat roof coatings	Primers / bonding aids
Loxanol® CA 5308	Coalescent			S	S	S
Hydropalat® WE 3185 EL	Wetting agent	R	S	R		
Hydropalat® WE 3485	Wetting agent	S	S	S		

All products comply with APEO-free claims. APEOs not intentionally added. Product may comprise minor traces as ubiquitously occurring quantities of APEOs cannot be excluded.

## Loxanol® CA 5308

Loxanol® CA 5308 is a highly effective coalescing agent based on dicarboxylic acid-diisobutyl ester.

### Performance Highlights:

- Very effective reduction of the minimum film forming temperature of acrylic and styrene-acrylic dispersions
- Improvement of open time and adhesion

### Sustainability Highlights:

- Very low VOC content (boiling point 250–285°C)
- Low odor
- Highly efficient

### Applications:

Loxanol® CA 5308 is especially suitable for primers / bonding aids, mastic ceramic tile adhesives and flexible flat roof coating formulations.

### Characteristic Values:

Density (ISO 3675 / DIN 51757)	0.954 – 0.963 g/cm <sup>3</sup>
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Viscosity	~ 6 mPas
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Acid value (ISO 3682 / DIN 53402)	<= 1.0 mg/g
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## Hydropalat® WE 3185 EL

Hydropalat® WE 3185 EL is a non-volatile, non-ionic wetting agent based on alcohol ethoxylate (100%).

### Performance Highlights:

- Improves the dynamic wetting of water-based formulations
- Improves adhesion to difficult substrates
- Significant wetting improvement of textile and elastic floorings
- Enables low viscosity formulations
- Low impact on water resistance

### Sustainability Highlights:

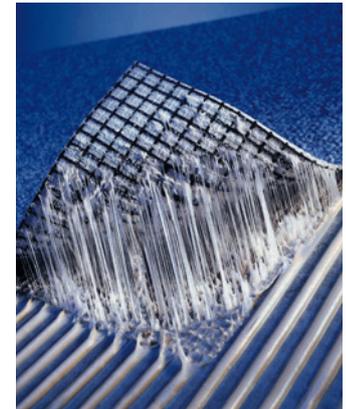
- Low VOC content
- Suitable for several Ecolabels like EMICODE® EC1Plus or the Blue Angel (DE-UZ 113)

### Applications:

Hydropalat® WE 3185 EL is recommended for flooring adhesives and mastic ceramic tile adhesives. It is also suitable for construction adhesives.

### Characteristic Values:

Viscosity (EN 12092, 23°C)	~ 20 mPas
pH value (EN 1262, solution B)	~ 7
Density (DIN 51757, 23°C)	~ 0.996 g/cm <sup>3</sup>



## Hydropalat® WE 3485

Hydropalat® WE 3485 is a highly efficient wetting agent for aqueous formulations, based on sulfosuccinate.

### Performance Highlights:

- Strong reduction of dynamic surface tension
- Improves adhesion to difficult substrates
- Especially improved PVC peel in flooring adhesives

### Sustainability Highlights:

- Low VOC content
- Suitable for several Ecolabels like EMICODE® EC1Plus or the Blue Angel (DE-UZ 113)

### Applications:

Hydropalat® WE 3485 is suitable for flooring adhesives, construction adhesives and mastic ceramic tile adhesive formulations.

### Characteristic Values:

Dry residue (QP 3859.0, 115°C, 2h)	84 – 86%
pH value (QP 1042.1, 10%)	5.5 – 7.5



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