Product Information

WorléeAdd 800-Series

Version: 09/2021

Rheology additives for water-based and solvent-based systems

The WorléeAdd 800 grades are generally smectites, which, from a mineralogical point of view, belong to the family of phyllosilicates (laminate silicates).
The WorléeAdd 800 series offers organically modified smectite derivates up to ultrapure smectites, which all find their application as rheology modifiers in a wide variety of systems.
These powdered rheology additives produce thixotropic flow behavior and can be used in solvent-based or solvent-free as well as water-based, low to high polar coating systems.

WorléeAdd 800-Series for water-based systems:

	WorléeAdd 830	WorléeAdd 875	WorléeAdd 885
Composition	Organically modified smectite derivate	Organically modified smectite derivate	Organically modified smectite derivate
Colour	light white	light-beige	light-beige
Appearance	fine powder	fine powder	fine powder
Density	1,8 g/cm³	1,8 g/cm³	1,9 g/cm³
Particle size dispersed	1 - 5 µm	1 - 5 µm	1 - 5 µm
Remaining moisture	≤ 8%	≤ 12%	≤ 12%
Fineness 200µm sieve	≥ 95%	≥ 95%	≥ 98%
Applications	Water-based systems, Paints and coatings, Cosmetics	Emulsion paints, Water-reducible paints, Car under-coatings, Silicate paints, Release coatings, Paint strippers, Liquid cleaners, Polishing and grinding pastes, Printing inks and others	Emulsion paints, Water-reducible paints, Car under-coatings, Silicon paints, Emulsion plasters, Paint strippers, Liquid cleaners, Polishing and grinding pastes, Water-based printing inks
Quantity	0,3 - 3,0%	0,3 - 2,0%	0,1 – 3,0%
Comment	-	Stable within the range pH-Wertes 6 – 11	-

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WorléeAdd 800-Series for solvent-based systems:

	WorléeAdd 810	WorléeAdd 820	WorléeAdd 827
Composition	Organically modified smectite derivate	Organically modified smectite derivate	Organically modified smectite derivate
Colour	light	light	light
Appearance	fine powder	fine powder	fine powder
Density	1,8 g/cm³	1,9 g/cm³	1,9 g/cm³
Particle size dispersed	< 1 µm	< 1 µm	< 1 µm
Remaining moisture	≤ 3,0%	≤ 3,0%	≤ 3,0%
Fineness 200µm sieve	≥ 95%	≥ 95%	≥ 95%
Application field	aliphates / low polar aromates	aliphates / low-medium polar aromates	low-high polar aromates
Applications	Solvent based systems, Paints and coatings, Printing inks, Adhesives, Sealants, Grease, Wax, Plastics	Solvent based systems, Paint and coatings, Printing inks, Adhesives, Sealants, Grease	Solvent based systems, Paints and coatings, Adhesives, Sealants, Grease, Acid catalysed systems, Rubber, Epoxy systems
Quantity	0,2 - 2,0%	0,2 - 2,0%	0,2 - 2,0%

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	WorléeAdd 840	WorléeAdd 845	WorléeAdd 850
Composition	Organically modified smectite derivate	Organically modified smectite derivate	Organically modified smectite derivate
Colour	light	light	light-beige
Appearance	fine powder	fine powder	fine powder
Density	1,7 g/cm³	1,7 g/cm³	1,7 g/cm³
Particle size dispersed	< 1 µm	< 1 µm	< 1 µm
Remaining moisture	≤ 3,0%	≤ 3,0%	≤ 3,0%
Fineness 200µm sieve	≥ 95%	≥ 95%	≥ 95%
Application field	aliphates/ low-medium polar aromates	aliphates/ low-medium polar aromates	aliphates/ low polar aromates
Applications	Solvent based systems, Paints and coatings (special marine paints), Printing inks	Solvent based systems, Paints and coatings, Adhesives, Grease, Joint sealer, Joint filling putty	Solvent based systems Paints & coatings Printing inks Adhesives Sealants
Quantity	0,2 - 2,0%	No data	0,3 - 3,0%
Comment	Activator free	-	-

	WorléeAdd 860	WorléeAdd 880
Composition	Organically modified smectite derivate	Organically modified smectite derivate
Colour	light	light
Appearance	fine powder	fine powder
Density	1,7 g/cm³	1,7 g/cm³
Particle size dispersed	< 1 µm	< 5 µm
Remaining moisture	≤ 3,0%	≤ 3,0%
Fineness 200µm sieve	≥ 95%	≥ 98%
Application field	aliphates/ low-medium polar aromates	aliphates/ low-medium polar aromates
Applications	Solvent based systems Paints & coatings (marine paints, architectural paints, wood stains), Printing inks, Adhesives Sealants	
Quantity	0,2 - 2,0%	0,2 - 2,0%
Comment	Activator free	Activator free

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Advantages and characteristics of the WorléeAdd 800-Series:

Paste manufacture / Incorporation into the systems

- Good solvent absorption
- Easy to disperse
- Easy to incorporate (especially of the paste)
- High efficiency – small quatities

Processing

- Increase of thixotropy
- Reduction of sagging tendency on vertical areas
- Higher coating thicknesses can be achieved
- Sinkage reduction on porous substrates
- No reduction of the layer on the edges
- Improvement of flow and levelling properties

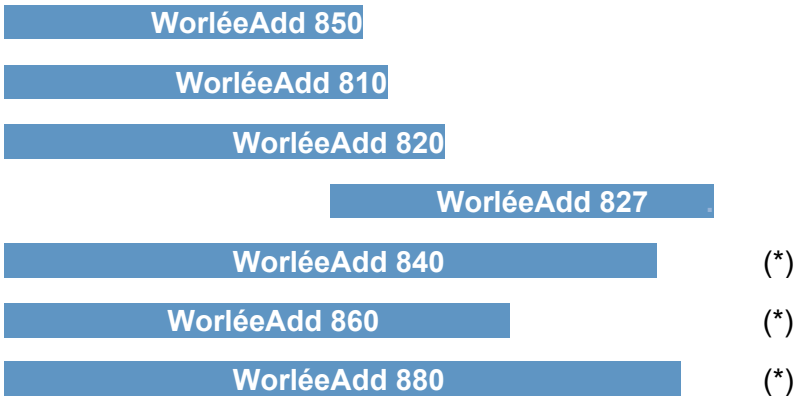
Storage

- Optimizes storage stability
- Prevention from solid sedimentation
- Decreasing separation tendency of multi phase systems
- Minimises floating and prevents hard-setting of pigments

Hints on application fields:

Smectite Product Selector for solvent based Systems

Low polarities			High polarities	
Aliphates	Aromates		Alcohols / Ketones / Ester	
	Low	Higher	high molecular	low molecular
Mineral oils	Paraffines Benzines	Toluene Xylene Styrene Naphtha	Ethyl acetate Propyl acetate Glycol ester Cyclohexanone	Ethanol Acetone Butanol MEK



(*) activator free grades (direct/easy dispensable)

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Application and Properties:

WorléeAdd 830 / 875 / 885 for water-based systems:

These clay based thickener generate a thixotropic flow behavior and are suitable rheology modifier for various water-borne paints and coatings systems.

Incorporation of WorléeAdd 830
WorléeAdd 830 is a rheological Additive based on a high purity smectite. It should be incorporated in the initial dispersion phase. It does not require a minimum activating temperature in the mill and is not heat sensitive. Full development of the gel structure must be achieved through adequate shearing. Complete hydration in water (tepid) prior to addition of the other ingredients is a prerequisite for developing its excellent rheological properties.
The **recommended procedure** is to disperse the additive in water until the gel structure is developed. (This requires at least 15 min.) The remaining ingredients (binder, pigment etc.) can be added afterwards in the usual order.
The preparation of high concentrations (3-10%) of WorléeAdd 830 in water can be achieved by including 10 to 12% of isopropyl alcohol.

Incorporation of WorléeAdd 875 / 885
WorléeAdd 875 is an organically modified bentonite which has been specially developed as a thickening agent for aqueous systems. It develops a strong thixotropy and is particularly suited for improving antisagging properties and storage stability of emulsion paints.
WorléeAdd 885 is a specially selected and activated smectite product and has an increased swelling capacity in water and shows a pronounced thixotropic thickening effect.

To achieve optimal effectiveness, both WorléeAdd-types should be incorporated into the respected system at high shear force (e.g. with a dispersion mill or with a high speed dispersing equipment).
Optimum gelling efficiency is usually achieved through adequate shearing. As a result of mechanical shearing the organoclay platelets are completely dispersed and separated from each other and will form an open three dimensional network.
Both additives can be incorporated as powder at the initial dispersion phase or they can be applied as separate masterbatch in a concentration of approx. 5-10%. To avoid post thickening effects this pregel should be allowed to age over night.
WorléeAdd 875/885 can swell in both cold and warm water. The addition of a chemical activator is not required for the gelling.

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WorléeAdd 810 / 820 / 827 / 840 / 850 / 860 for solvent-based systems:

Incorporation of WorléeAdd 810 /820 / 827 / 850

To achieve optimal effectiveness, the four WorléeAdd-types should be incorporated at high shear force (e.g. with a dispersion mill or with a high speed dispersing equipment) into the respected system. Optimum gelling efficiency is usually obtained when the proper degree of high shear equipment and a polar activator is applied to the system.
The polar activator acts as a wedge to help open up the clay platelets and developing maximum gelation. For optimum effectiveness, a complete separation of the plates is necessary.
Recommended polar activator:

- propylene carbonate
- ethanol/water (95/5) oder
- methanol/water (95/5)
- acetone

The relative amount of polar activator may vary from 30% to 60% by weight of WorléeAdd 800 types depending on the system.

Incorporation of WorléeAdd 840 / 880:

WorléeAdd 840 / 880 are comparably easy to disperse and for incorporation in low to medium polar systems, only low shear forces are required.
To achieve optimal effectiveness a polar activator is not necessary and the preparation of a pregel is not required.
The WorléeAdd-types are not sensitive to high temperatures and can be added directly as a powder to the milling process. The WorléeAdd-types may be used for post correction; in this case, they should be incorporated into the finished system at sufficient shear forces.

Exception; in order to obtain the most excellent rheological efficiency, it is recommended:

- *for low polarity system* (no aliphatic): an addition of a polar activator, after WorléeAdd has been dispersed. (For further information see above under WorléeAdd 810)
- *for higher polarity system* (containing n-butanol): a predispersion of WorleeAdd in the solvent is necessary, prior to the addition of the other formulation components.

Incorporation of WorléeAdd 860:

The advantage of WorléeAdd 860 is, that it is a very easily dispersible additive, which can be added at any point in the manufacturing process and it does not require an activator for gelling. This rheological additive can be incorporated as powder in the dispersion phase under high shear or in the letdown tank under low shear conditions. WorléeAdd 860 can be used for post-correction of the final system.
When nonaliphatic polarity solvents are present, the effectiveness and ease of dispersion of WorléeAdd 860 depends upon the system, and must be evaluated.

Recommended storage conditions

Store under cool dry conditions; storage temperature above 30°C should be avoided.
When stored under proper conditions the products have a shelf life of 2 years from the date of manufacture.

Packaging

25kg bags

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