



RHEOLOGICAL  
**ADDITIVES**  
FOR COATINGS &  
CONSTRUCTION



VISCOGEL, LAVIOTHIX, LAVIOKOLL



**LAVIOSA**  
*Advanced Mineral Solutions*

**Adding value**  
TO YOUR BUSINESS



## OUR COMPANY



Our core business consists in the research and transformation of bentonites and other clay minerals into **high added-value ideas and solutions.**

Control of raw materials, process technology, production localization around the world, product applicative expertise, integrated with logistic services and a customer oriented approach are our main strengths and capabilities.

We count more than 1500 customers in over 80 countries worldwide.

Other than in **Coatings and Plastics**, our special clays are used in Lining and Waterproofing Technologies, Civil Engineering, Drilling and Tunneling, Cat Litter, Foundry, House and Personal Care, Paper, Beverage and Animal Feed, Waste Water Treatment, Ceramic and others.

The key of our success lies in our people's constant attention to innovation, integrity, sustainability in a participative work environment.



## WHAT IS BENTONITE

Bentonite is a clay mineral of the smectite group and is composed mainly of **montmorillonite**.

The smectites are a group of minerals that swell as they **absorb water or organic molecules** within the structural layers; they also have considerable cationic exchange properties.

The clay mineral they are composed of in the crystalline state is derived from the devitrification, and consequent chemical change, of glass of magmatic origin, usually tuffa or volcanic ash (Ross and Shannon, 1926).

The nature and **volcanic origins** of bentonite deposits give rise to varieties of the mineral that are often extremely heterogeneous. The bentonites that are thus formed can be described as **sodium, calcium and acid bentonites**.

Find out more on our website: [www.laviosa.com](http://www.laviosa.com)





# COATINGS & CONSTRUCTION

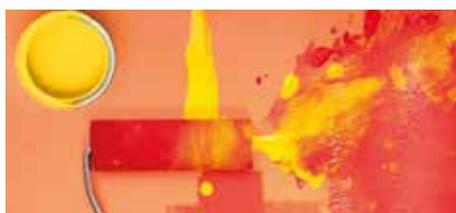
## ADDITIVES FOR COATINGS

### SOLVENT BASED SYSTEMS

Solvent based additives are used in many letterpress, lithographic, rotogravure and offset inks.

Your choice for solvent based systems:

**VISCOGEL®**



### BENEFITS WITH PAINTS

They can greatly enhance the rheological properties of the paint system as:

- pigment settling and prevention sagging on vertical surfaces to ensure the proper thickness of the coating is applied;
- good leveling for the removal of brush marks;
- storage stability even at high temperatures;
- water resistance;
- structure reinforcement with no adverse effect on adhesion and solvent release;
- gloss minimally affected due to the low levels of addition.

### BENEFITS WITH PRINTING INKS

With a correct application, it is possible to:

- adjust the consistency of printing inks to the desired values;
- avoid pigment sedimentation;
- provide good colour distribution;
- obtain desired film thickness;
- reduce in misting, control of tack, water pickup and dot gain control.

### WATER BASED SYSTEMS

Water based additives are particularly effective in household applications.

Your choice for water based systems:

**LAVIOTHIX®**



### BENEFITS WITH PAINTS

- Reduce or replace of current cellulosic thixotropic agents
- Totally replace of current mineral thixotropic agents
- Enzyme resistance
- Temperature resistance
- pH resistance until very high value.

## ADDITIVES FOR CONSTRUCTION

Your choice for construction applications:

**LAVIOKOLL®**



### BENEFITS:

#### Plasters and mortars

- Improved workability and tooling
- Improved sag resistance
- Reduced sticking

#### Screeds/Self levelling compound

- Anti-settling
- Anti-bleeding
- Homogeneous surface

#### EIFS adhesives

- Improved workability and tooling
- Improved sag resistance
- Improved pumpability

#### Tile adhesives

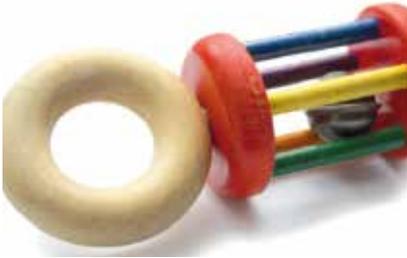
- Sag resistance and vertical hold
- Better workability

# LAVIOTHIX



LAVIOTHIX® is a range of clay-based rheological additives suitable for water-borne coatings: these products are inorganic, based on a **selected, purified and activated clay** with a **very high montmorillonite content** and a high specific surface area. They provide enhanced thickening, thixotropic and antisetling properties, preventing sedimentation of suspended particles; also sag control and storage stability are increased.

LAVIOTHIX® are suitable for a wide range application: **emulsion paint, ceramics glazed, latex paint, sealants, inks** and other water-borne paint systems.

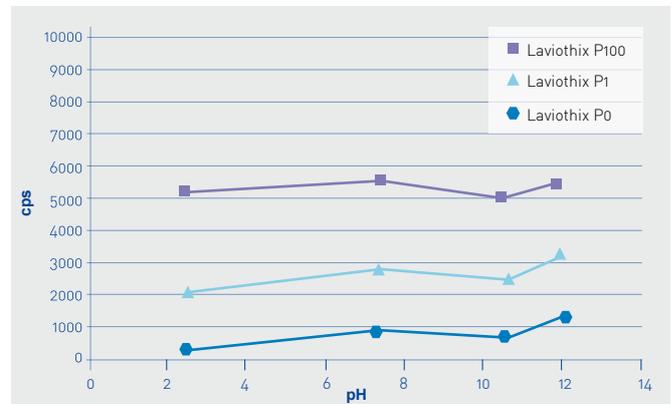


## LAVIOTHIX® BENEFITS:

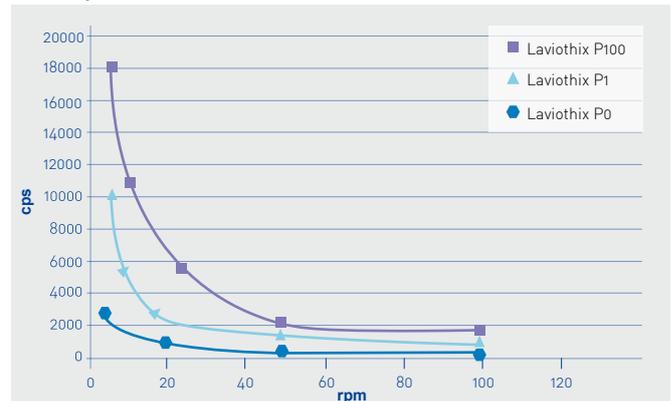
- Reduce or replace of current cellulosic thixotropic agents
- Totally replace of current mineral thixotropic agents
- Enzyme resistance
- Temperature resistance
- pH resistance until very high value



LAVIOTHIX® additives show a stability of pre-gel at different pH values as the actual performances depend on the final system



All LAVIOTHIX® products develop a pseudoplastic rheology in water based systems



## LAVIOTHIX® products applicative guide

	P0	P1	P100
Emulsion Paints	◐	●	●
Epoxy System	◐	●	●
Acrylic System		◐	●
Sealant			◐
Foundry Coating	●	◐	●
Architectural Coating	◐	●	●
Antisetling in impregnation wood product	●	◐	
Antisagging in wood opaque topcoat		◐	●

● Recommended  
◐ Suitable



On our website you can find Technical Data Sheets of all our products.



# LAVIOKOLL



LAVIOKOLL range are powerful rheological additives developed to meet the demands of construction systems. The product advantages can be found in **improving workability, waterproofing and free-flowing characteristics**. This is due to thixotropic, antisepting and sag resistance given by processed bentonite that prevents the sedimentation of the aggregates and the bleeding of the surface.

LAVIOKOLL® range are suitable for use in all mineral-based systems as **mortars, plasters, tile adhesives, renders**.

In construction systems such as mortars, renderings, stuccos, flooring systems and building adhesives, **flow control** is very important and the main additive used to provide **thickening and water retention** is cellulose ether. However, the system performance and application behaviour can be significantly improved by using clay based thickeners in combination with cellulose ethers.

Economic considerations also play an increasingly important role and using bentonite clays you can also have a **reduction in the cost formula**.

## Thanks to its unique characteristics with bentonite clays you can have:

**SLIP EFFECT:** the clay platelets, slipping one on the other, can reduce stickiness on tools caused by cellulose ethers or redispersion powders and also improve the application behaviour concerning the surface quality and application speed

**ANTISAGGING EFFECT:** thanks to its yield point (the minimum shear stress applied to a system to induce flow ) bentonite clay builds a network with a high yield value which can improve sag and slump resistance and controls settling and bleeding

**ANTISETTLING EFFECT:** bentonite clays are used as a stabiliser to prevent settling of coarse particles and reduce bleeding of water on the surface, leading to smoother finishes

### LAVIOKOLL® products applicative guide

	C0	C1	C4	C10	C100
<b>Dry mix</b>					
Cement plaster	●	●	●		●
Lime-cement renders	◐				●
Gypsum renders			●	●	●
EIFS (Exterior Insulation and Finish Systems)		●		●	
Tile adhesive (cement based)		◐	◐		●
Masonry mortars	◐			◐	●
Self levelling mortars		●		◐	●
<b>Paste System</b>					
Resin Plaster			●		●
Lathex tile adhesives			◐	●	●

● Recommended  
◐ Suitable



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# VISCOGEL



VISCOGEL® organoclays are rheological additives that provide **thixotropy**: ie **thickening, anti-settling and anti-sagging properties** within solvent based systems. In particular they give:

- good pigment anti-settling, which allows homogeneous pigment dispersion and distribution;
- good leveling and coating thickness properties to the formulation;
- right thixotropic properties to solvent-based systems by delivering the proper viscosity control during the manufacture, storage and application processes;
- good temperature stability;
- very easy to incorporate in the formulation, they do not require heating or special equipment.

**These properties depend on the effective dispersion of the VISCOGEL® and the polarity of the formulation.**

**Our company manufactures two distinct types of VISCOGEL® organoclays for solvent-borne coatings:**

**PREGEL ADDITION** requires mechanical energy and a chemical activator to delaminate the individual platelets of each stack. The rheological behavior development is obtained through the application of shear forces and the addition of a polar substance. **The typical “pregel” technique assures** full development of product properties which means **full deagglomeration of the bentonite platelet stacks.**



It is preferred when the resin has a poor wetting capacity (epoxies, polyesters, short-oil alkyds, acrylics, etc.) and the mill base has poor thixotropy.

**SELF-ACTIVATING GRADES** (easy dispersible) require relatively low mechanical energy to disperse, and do not need any chemical activators to delaminate their platelets. They can be added directly as dry powders at most stages of the manufacturing process, eliminating the need of making a pregel, **greatly simplifying the incorporation procedure and reducing the possibility of mistakes.**

The “in-situ” technique implies the addition of the Viscogel® organoclay in an early stage of the paint manufacture, directly in powder form to the solvent/resin mix, before pigment addition and milling.



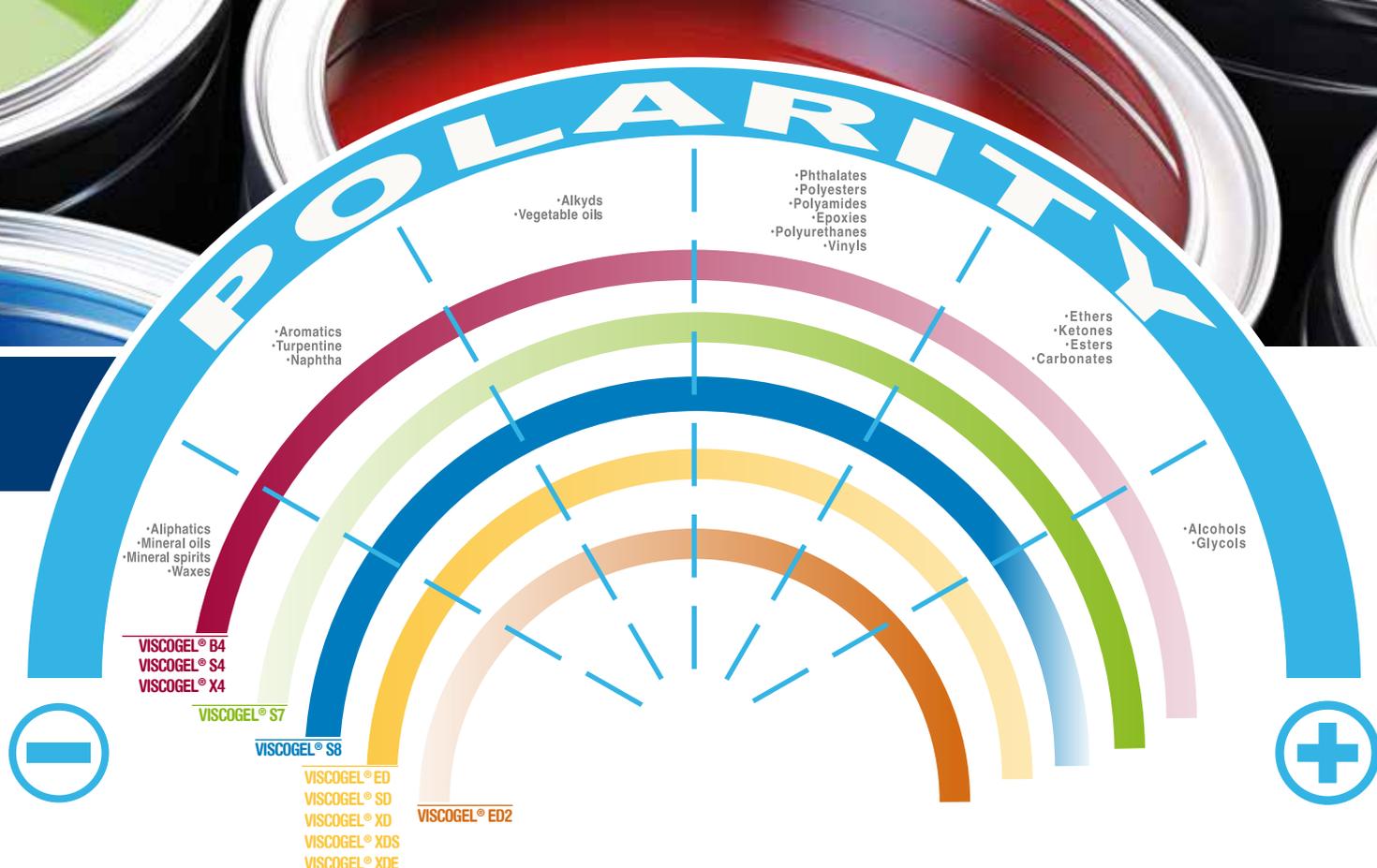
This procedure is advisable when resins with good wetting characteristics are used and/or the mill base has acceptable thixotropy. It might become useful also when the “pregel” technique is too much time consuming and/or solvent addition has to be avoided.

## CUSTOMER TECHNICAL ASSISTANCE

To provide our customers with the desired performances in the final paint or ink, the following properties are evaluated for each lot number in our laboratories: **moisture, particle size, loss on ignition, viscosity in different polar solvents and dispersibility.**

The **viscosity** is measured with different pieces of equipment (Brookfield Viscosimeter and Ford Cup 4) in order to forecast the **settling behavior** (during the permanence in the warehouse) and the **sagging performance** (soon after the disposal on the vertical wall). The **dispersibility** is checked by Hegman test and by the disposal on the glass of a thin film. These tests provide a forecast of the **levelling properties**. These tests are carried out in **White Spirit, Xilene, Toluene** and **short and long oil resins**. The organoclay concentration is included in the following range: 3-10% in order to stress at maximum the potential drawbacks or underperformance of every lot number.

**Our main goal is to meet our customers' needs** and for this reason a huge number of **tests** have been selected **for each field of application** (wood coating, industrial paints, road marking, inks, greases, etc). Together with the high quality of Viscogel® grades, we offer technical assistance and comparison tests with competitors' products avoiding time consuming activities for the customers.



#### HIGHLY PURIFIED VISCOGEL® S and VISCOGEL® X RANGE

Our line of **high-quality, high performing, highly effective rheological additives** for solvent-borne systems, **VISCOGEL® S** and **VISCOGEL® X** range, gives the following **advantages**:

- higher pseudoplastic and thixotropic effect;
- better anti-sagging control;
- excellent levelling;
- higher anti-settling effect in long-term storage.

Compared to traditional organowolays, **VISCOGEL® S** and **VISCOGEL® X** range, thanks to their higher purity, minimally affect the gloss and can be used at lower levels of addition.

		PREGEL grades			EASY DISPERSIBLE grades		
		Standard	Purified	Highly Purified	Standard	Purified	Highly Purified
Low to medium polarity	Performances	Viscogel® B4	Viscogel® S4 Viscogel® S8	Viscogel® X4	Viscogel® ED	Viscogel® SD	Viscogel® XD Viscogel® XDS Viscogel® XDE (for grease application)
	Sagging	●●	●●●	●●●●	●●	●●●	●●●●
	Settling Storage durability	●●	●●●	●●●●	●●	●●●	●●●●
	Leveling and flowability	●	●●	●●●	●	●●	●●●
	Dispersibility	●	●●	●●●	●	●●	●●●

		PREGEL grades		EASY DISPERSIBLE grades	
		Standard	Purified		Purified
Medium to high polarity	Performances		Viscogel® S7		Viscogel® ED2
	Sagging		●●●		●●
	Settling / Storage durability		●●●		●●
	Levelling and flowability		●●		●●
	Dispersibility		●●		●●

● Recommended  
● Suitable

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**LAVIOSA**  
*Advanced Mineral Solutions*

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ITALY

Laviosa Sanayi Ve Ticaret Ltd Sti  
TURKEY

Laviosa MPC sas  
FRANCE

Laviosa Trimex Industries Pvt Ltd  
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Find out more about our  
certification standards on  
our web site.