

LAVIOSA ARGIMEL® X4

Rheological Additive for Solvent Borne Paint and Coatings

General Information

LAVIOSA ARGIMEL® X4 is a new high performing, highly effective rheological additive for solvent-borne systems of low to medium polarity that gives thixotropic effect, sag control and prevents pigments from long-term storage settling.

The nature of **LAVIOSA ARGIMEL® X4** is a highly purified bentonite clay, organically modified with a quaternary alkylammonium compound able to develop lipophilic behavior in organic media.

Table 1 Chemical-physical properties

Properties	Description
Composition	organically modified smectite
Physical form	white fine powder
Bulk density	0.4-0.6%
Moisture	3%

Applications

LAVIOSA ARGIMEL® X4 is used in a wide range of manufacturing processes, for oil-based paints and stains (either industrial or architectural), printing inks, adhesives, cosmetic and personal care products, to

give the desired rheological control to the system. **LAVIOSA ARGIMEL® X4** shows good performance in solvents like aliphatic mineral spirits and aromatic solvents.

Incorporation

LAVIOSA ARGIMEL® X4 belongs to the conventional type of organoclays group, which requires mechanical energy, shear forces applied with a good dispersion equipment, and a chemical (polar) activator to reach the proper level of delamination of the organo-bentonite platelets. While heat is not essential in most cases, processing temperatures above 20°C are preferred. Suitable polar activators are low molecular weight species. Propylene carbonate can also be used, even in absence of water.

Table 2 Activators' dosage (based on Laviosa ARGIMEL® weight)

Polar activator	%
Acetone/H ₂ O (95:5)	60
Methanol/H ₂ O (95:5)	33
Propylene Carbonate	33
Propylene Carbonate/H ₂ O	33
Ethanol/H ₂ O	50





It is always recommended to determine the proper level of addition with experimental approach because either defect or excess of chemical activator would result in a non-optimal rheology development. Chemical dispersants, able to disperse **LAVIOSA ARGIMEL® X4**, that are available in the market, generally have to be used once organoclay is first dispersed.

Several methods can be used to incorporate **LAVIOSA ARGIMEL® X4**:

1. The “*direct add*” technique. **LAVIOSA ARGIMEL® X4** is added directly in powder form to the solvent/resin mix, before pigment addition and milling. It is advisable to allow the organoclay to wet and disperse at first and to add the polar activator before or after the pigments. Surfactants have to be added the last.
2. The “*pregel*” technique. **LAVIOSA ARGIMEL® X4** is added as described above in a suitable solvent at a 5-10% concentration, with a polar activator. The activated gel is then added to the binder solution and stirred. After pigment addition the mix is finally milled.

Higher activated gel concentrations (15-20%) can be obtained with the aid of suitable dispersing additives, always added after full organoclay dispersion.

Dosage

Level of addition strongly depends on the type of system and on the degree of thickening or other properties desired. For house and industrial paints, typical levels are between 0.1% and 0.5% of **LAVIOSA ARGIMEL® X4**. For primers and printing inks, higher levels are required (0.3-0.8%). For strong anti-sagging properties, up to 3.0% can be used. Compared to other products of its type it is also proved to be more versatile in terms of compatibility to a wide range of formulations.

Storage stability and packing

Storage is advisable in a dry, sheltered place in closed bags. **LAVIOSA ARGIMEL® X4** rheological additive is available in 25 kg net paper bags. **LAVIOSA ARGIMEL® X4** has a shelf life of 3 (three) years from date of manufacture.

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