GARAMITE-7305

Powdered rheology additive for polar solvent-based and solvent-free systems to increase storage duration and sagging resistance.

Product data

Composition
Organophilic phyllosilicates

Typical properties
The values indicated in this data sheet describe typical properties and do not constitute specification limits.

Loose bulk density: 23–113 kg/m³
Delivery form: powder

Storage and transportation
A temperature of 40 °C should not be exceeded during storage and transport.

Applications

Coatings industry

Special features and benefits
GARAMITE-7305 is a rheology additive that delivers advantages over conventional organophilic phyllosilicates (organoclays). Conventional phyllosilicates usually require high shear forces and polar activators to support dispersion during incorporation. In comparison, GARAMITE-7305 can be incorporated and activated very easily in solvents and binders using moderate shear forces. The additive features a strong pseudoplastic viscosity profile. The use of GARAMITE-7305 allows formulations with high viscosity to be achieved in the low shear range, resulting in excellent anti-settling features and antisyneresis properties. When shear forces are applied, a major reduction in viscosity takes place, which significantly improves the application properties.

Recommended use
GARAMITE-7305 is best suited for mid-polar to polar systems in the following applications:

Architectural coatings	■
Protective coatings	■
Industrial coatings	■
Coil coatings	□
Powder coatings	■

■ especially recommended □ recommended

Recommended levels
0.5–2 % additive (as supplied) based on the total formulation.

The above recommended levels can be used for orientation. The optimum dosage should be determined by application-related test series.

Incorporation and processing instructions
The additive can be incorporated in various ways. GARAMITE-7305 is either dispersed directly in the millbase or added as a 10 to 15 % paste in solvent to the millbase or letdown. It should be incorporated into the solvent using adequate shear forces. When adding during the grinding process, it should be pre-dispersed in the binder and solvent with moderate shear forces before adding the pigments and fillers. The effect of GARAMITE-7305 can be increased by adding a booster or small quantities of a polar solvent or water.

Powder coatings

Incorporation and processing instructions
GARAMITE-7305 is a rheology additive that can be used to increase melt viscosity in powder coatings. Even at low dosage, the melt viscosity is increased during extrusion and cross-linking reaction. The resulting coating will maintain very good flow properties despite its increased viscosity. The combination of different morphological structures in the mineral component results in particularly easy dispersibility with high efficiency. Higher dosages result in a fine texture finish and a reduction in the gloss level. GARAMITE-7305 can be used to modify the surface structure in finely textured systems. The increased melt viscosity improves edge coverage. This results in better corrosion resistance.

Recommended use
The additive is recommended for powder coatings based on epoxy, polyester, polyurethane and acrylate resins as well as polyester/epoxy combinations.

Recommended levels
0.5–4 % additive (as supplied) based on the total formulation.

The above recommended levels can be used for orientation. The optimum dosage should be determined by application-related test series.

Incorporation and processing instructions
The additive should be mixed with resin, curing agents, pigments and other raw materials in a high-speed mixer and then extruded.

Thermosets

Special features and benefits

GARAMITE-7305 is a solid rheology additive based on a composition of organically modified phyllosilicates. The combination of different morphological structures in the mineral component results in particularly easy dispersibility with high efficiency. GARAMITE-7305 delivers the following advantages over conventional rheology additives in various resins based on unsaturated polyester, vinyl esters, polyurethanes, acrylates and epoxy resins:

- Allows adjustment of low to higher viscosities and various layer thicknesses
- Prevents filler settling
- Systems with GARAMITE have very good shear-thinning flow properties
- Higher efficiency or lower application volume, especially in combination with booster additives
- Reduced dust generation in production compared to fumed silica
- Easy to incorporate as extremely low shear forces are required. The processing time can be significantly reduced compared to conventional fumed silica.
- No activation by heat or activators required
- Less storage area due to higher bulk density compared to fumed silica

Recommended levels

0.5–5 % additive (as supplied) based on the resin content.

The above recommended levels can be used for orientation. The optimum dosage should be determined by application-related test series.

Incorporation and processing instructions

GARAMITE-7305 can be incorporated directly into the resin.

A premixture in styrene is recommended to achieve full efficacy in UP/VE resins (dosages 0.5–2 %). For this purpose, 8 to 12 % GARAMITE-7305 must be incorporated into styrene. At this concentration, the mixture can still be pumped and will still flow and can be later dosed to the resin. The use of deaerators in such resins is advisable to reduce the quantity of air bubbles.

The content in resins can be reduced and higher layer thicknesses can be achieved by combining GARAMITE-7305 with booster additives such as RHEOBYK-R 605/R 606 (UP/VE/PUR) or RHEOBYK-R 607 (EP/PUR). In UP/VE, a combination of GARAMITE-7305 and booster additives allows the rheology profile to change from pseudoplastic to thixotropic properties and for the reduction of thixotropic drift over time.

PVC plastisols

Special features and benefits

GARAMITE-7305 is a powdered thixotropic additive based on a composition of organically modified phyllosilicates. It is particularly suitable for the formulation of PVC plastisols. The combination of different morphological structures in the mineral component results in particularly easy dispersibility in the liquid phase.

The use of GARAMITE-7305 delivers the following advantages:

- Pseudoplastic flow
- No influence on VOC content
- Easy to incorporate
- Wide compatibility with different plasticizers
- Higher efficacy than precipitated fillers

Recommended levels
1–5 % additive (as supplied) based on the total formulation.

The above recommended levels can be used for orientation. The optimum dosage should be determined by application-related test series.

Incorporation and processing instructions
GARAMITE-7305 can be incorporated directly in the liquid phase or retrospectively using moderate shear forces. We recommend that you test the influence of the product on haze, color and heat stability in series of tests.

Detergents, cleaning and care products

Special features and benefits
GARAMITE-7305 is a powdered rheology additive for medium-polar to high-polar solvent systems that contain aromatic substances, alcohols, glycols, glycerol, esters, ketones, etc. as solvents. It can also be used in nonionic surfactants (alcohol ethoxylates). GARAMITE-7305 is very easy to disperse and can be processed using low shear forces. It does not require an activator to achieve efficacy. GARAMITE-7305 delivers excellent anti-sagging, anti-settling and anti-syneresis properties.

Recommended use
GARAMITE-7305 is suitable for various solvent-based systems, in particular:

Industrial cleaning products (polar)	■
Non-aqueous liquid detergents	■

■ especially recommended □ recommended

Recommended levels
0.5–3 % additive (as supplied) based upon the total formulation, depending on the properties of the formulation to be achieved.

The above recommended levels can be used for orientation. The optimum dosage should be determined by application-related test series.

Incorporation and processing instructions
GARAMITE-7305 can be incorporated either as a pregel or in situ.

Pregel can be produced as follows:
1. Place the organic solvent in the dispersion vessel
2. Slowly add the GARAMITE-7305 (up to 20 % based on the pregel) while stirring
3. Mix for 15 minutes while stirring

Direct induction during production can be carried out as follows:
1. Place the organic solvent or oil in the dispersion vessel
2. Slowly add the GARAMITE-7305 while stirring
3. Mix for 15 minutes while stirring
4. Continue to add the other recipe components

The retrospective incorporation of GARAMITE-7305 to a finished system is also possible. Then higher shear forces are required and the temperature of the mix must be below 50 °C.

Adhesives and sealants

Special features and benefits

GARAMITE-7305 is a powdered rheology additive for use in adhesives and sealants, which contributes to improving sagging resistance whilst also enabling easy processing. The additive is characterized by its particularly easy dispersibility with high efficiency in various binder systems based on epoxides, acrylates and polyurethanes.

The use of GARAMITE-7305 delivers the following advantages:

- High sagging resistance
- Improves anti-settling properties
- Extreme shear thinning
- Fast viscosity buildup after shearing
- Easy to incorporate
- Insensitive to high shear forces
- No activation by heat or activators required

Recommended levels

0.5–5 % additive (as supplied) based on the total formulation.

The above recommended levels can be used for orientation. The optimum dosage should be determined by application-related test series.

Incorporation and processing instructions

GARAMITE-7305 can be incorporated directly into the formulation. Care must be taken to ensure that GARAMITE-7305 is either pre-dried or dried by means of chemical water catchers in one-pack moisture-curing systems. Drying can be done in both cases in combination with the usual fillers, such as $CaCO_3$.

Non-aqueous drilling fluids

Special features and benefits

GARAMITE-7305 is a special rheology additive that can be used as a suspension agent in all oil-based drilling fluids.

The use of GARAMITE-7305 delivers the following properties and benefits:

- Reduced rheology in cold fluids
- Compatible with high-polar solvents and oils
- High low-shear viscosity
- Improved sagging resistance and anti-settling properties of solids
- Compatibility and synergy with conventional organic phyllosilicates

Recommended use

GARAMITE-7305 is recommended for the following applications:

Diesel-based drilling fluids	☐
Oil-based drilling fluids	☐
Synthetic oil-based drilling fluids	☐
Polar solvents and oils	■

■ especially recommended ☐ recommended

Recommended levels

1.4–2.8 kg/m³ additive (as supplied) based on the total formulation.

The above recommended levels can be used for orientation. The optimum dosage should be determined by application-related test series.

Incorporation and processing instructions

The additive can be incorporated at various points. GARAMITE-7305 can be mixed in the rinsing system using standard mixing conditions. If this is done on the drilling rig, GARAMITE-7305 can be added using the chemical funnel.

Special note

GARAMITE-7305 is incorporated much faster than conventional organic phyllosilicate additives.

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Your local contact

BYK-Chemie GmbH
Abelstraße 45
46483 Wesel
Germany
Tel +49 281 670-0
Fax +49 281 65735

info@byk.com
www.byk.com

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