

COATING RESINS

TECHNICAL DATA

FLOWTONE GR

SALES SPECIFICATION

Particle size distribution: 99.5% <45µm
(Malvern Mastersizer S laser particle size analyser) (CR 005)

OTHER PROPERTIES

Density at 25°C (77°F), g/cm ³ (CR 006)	1.47
Bulk density, g/cm ³ (CR 016)	0.4-0.6
Appearance	Off white powder
Capillary Melting Point (CR 003)	83-88°C (181-190°F)

PRODUCT INFORMATION

FLOWTONE GR is a micronised blend of hydrogenated castor oil and kaolin. This rheology modifier is intended for use in aliphatic solvent-based coatings. The performance benefits of this product are:

- Imparts shear-thinning rheology with thixotropic viscosity recovery
- Very good sag resistance
- Very good anti-settle properties
- Good recoatability

RECOMMENDED AMOUNTS

Anti-settling and sag resistance 0.3–2.5%

INCORPORATION METHODS AND PROCESSING INSTRUCTIONS

The presence of kaolin clay makes **FLOWTONE GR** easier to disperse and activate compared to **FLOWTONE R**. A consequence of this increased efficiency is that **FLOWTONE GR** can be used at less than twice the level of **FLOWTONE R** to obtain the same level of activation.

FLOWTONE GR is suited to coating systems based on aliphatic hydrocarbons. **FLOWTONE GR** is best incorporated during the pigment dispersion stage using a high-speed disperser operating at no greater than 55°C (131°F). In order to obtain the maximum performance from **FLOWTONE GR**, the dispersion process should be maintained for a period of 20–40 minutes at a temperature of 30–55°C (86–131°F).

The use of high-speed dispersers is ideal in that they generate both the necessary shear and temperature required for full dispersion and activation. The activation process involves the conversion of the **FLOWTONE GR** particles into an interacting network of fibre-like particles.

It is this network that gives rise to the shear-thinning rheology of the final coating. This shear-thinning characteristic provides a very high viscosity under the low shear rates associated with sedimentation, and a low viscosity at the much higher application shear rates. The net result is excellent control of sedimentation combined with ease of application.

Immediately following application, where low shear conditions again predominate, the viscosity of the coating undergoes a time dependent recovery as the network re-establishes itself. This time dependence is known as thixotropy and enables the final coating to attain very good levelling.

Activation at temperatures less than 30°C (86°F), greater than 55°C (131°F), or for too short a time will result in the formation of an inefficient interacting network. Too low a temperature and too short a time results in under-activation, while too high a temperature results in the network dissolving.

Partial dissolving of **FLOWTONE GR** during coating manufacture manifests itself on cooling in the form of seeding. This is the result of dissolved material crystallising out in an uncontrolled manner.

As with all rheology modifiers based on hydrogenated castor oil, coatings prepared using **FLOWTONE GR** may sometimes develop an excessively high structure, or false-body. This results when the hot coating is allowed to cool in the absence of stirring. This effect is minimised by cooling the coating with stirring to less than 40°C (104°F), or more preferably to less than 30°C (86°F), prior to discharge. Fortunately, this false-body phenomenon is a temporary effect and can be removed by the application of shear.

Due to the potential for false-body to occur, care must be taken to ensure that process and quality control tests are not carried out on affected samples. This is best achieved by pre-conditioning all samples by mechanical stirring for several minutes prior to testing.

COATING RESINS

TECHNICAL DATA

FLOWTONE GR

In addition to coatings applications, **FLOWTONE GR** has also been used successfully in a multitude of other applications such as inks, adhesives, mastics, caulks, sealants, fillers, greases and lubricants.

Due to the multitude of formulations, processing methods and application conditions used in the field, we strongly recommend that all products containing **FLOWTONE GR** be tested thoroughly to ensure their suitability for their intended end use. In particular, application in poorly ventilated areas, on hot substrates, or by hot spray, may require additional attention.

PRECAUTIONS FOR STORAGE

FLOWTONE GR should be stored in the original containers in a dry place at temperatures between 5°C (41°F) and 30°C (86°F). Avoid exposure to direct sunlight or frost. Under these conditions the product may be stored for up to 12 months.

PRECAUTIONS FOR USE

Please refer to the corresponding Safety Data Sheet.