



EXCEPTIONAL PERFORMANCE AT AN ECONOMICAL COST – MIN-U-GEL® 400

Min-U-Gel® 400 rheology modifier is an exceptionally effective gellant, thixotrope, syneresis control and suspending agent that provides consistent performance over a wide range of liquid systems. Manufacturers use it in place of more expensive rheology agents, wholly or partially, to gain the many benefits it offers during a product's life cycle. Min-U-Gel® 400 has a distinct advantage over other commonly used thickening and suspending agents.

Min-U-Gel® 400 product offers an excellent balance of cost and performance. It is functional in a broad range of pH and temperature and is compatible with almost all other additives. It is not subject to bacterial attack, nor affected by salts, acids or bases – except in extreme cases. Min-U-Gel® 400 does not swell nor need special solvents, activators or modifiers. Some organic liquid applications may need surfactants.

Min-U-Gel® 400 thickener and suspending agent provides many other benefits, including easy dispersion, formulating latitude and long-term stability.

The thixotropy added by Min-U-Gel® 400 is invaluable in a wide variety of aqueous and organic liquid systems, from consumer to industrial applications. For instance, it enables paints, inks, adhesives and other products coated on surfaces to spread easily when rolled, sprayed or brushed, and then stiffen at a controlled rate to prevent sags and drips. It can also improve film build, tint strength, hiding, leveling and spatter resistance, while reducing water sensitivity and preventing syneresis.

As a suspending agent, Min-U-Gel® 400 can hold relatively large or dense particles in liquids for an extended time. It is especially useful where mixing capability is limited. If settling does occur, the sediment formed tends to be soft and easily re-suspended. Typical applications include pigment and ceramic slurries, refractory coatings, liquid soaps, foundry wash, fertilizers and liquid animal feed supplements.

How Much to Use

The amount of **Min-U-Gel® 400** used depends on the consistency desired, what other pigments or additives are present, the solids of the system and the free water available. Min-U-Gel® 400 can be used as the sole thickener if only thixotropic rheology is needed, as is often the case with adhesives, liquid detergents, and polishes. Such systems do not have high viscosity at high shear, so they flow easily during application.

DISTRIBUTED BY VAN HORN, METZ & COMPANY, INC.

201 East Elm Street, Conshohocken, PA 19428 | Toll Free: +1 800-523-0424 | Direct: +1 (610) 828-4500 | Fax: +1 (610) 828-0936

Email: info@vanhornmetz.com | Web: www.vanhornmetz.com

In smooth-brushing coatings that use Min-U-Gel® 400 as a co-thickener the typical addition is 3 to 10 lbs Min-U-Gel® 400 per 100 gal. batch (4 to 12 g/l or 0.3 to 1.0%). Levels as high as 25 lbs/100 gal. are used in high-viscosity coatings, caulks, detergents and tape joint compounds.

Partial replacement of cellulose thickeners

When using **Min-U-Gel® 400** to reduce cellulosic thickeners in emulsion coating systems, at least 3 lbs cellulosic per 100 gal. batch (3.5 g/l) must remain in the formulation to provide freeze-thaw stability and open time. In reducing cellulosic in an existing formulation, 4 to 6 parts by weight of Min-U-Gel® 400 is generally used to replace 1 part of cellulosic. The optimal Min-U-Gel® 400 level in these applications usually is 5 to 10 lbs/100 gal. (6 to 12 g/l), which helps to improve splattering and sag resistance.

Min-U-Gel® 400 thickener is best used with high-viscosity cellulose derivatives like HEC and HPMC (hydroxyethyl cellulose and hydroxypropyl methyl cellulose). If a ropey or livered appearance occurs with HEC, replace it with HPMC. Ropeiness can also be prevented by avoiding phosphate dispersants using a blend of polyacrylate and AMP-95™ dispersants, or lowering replacement ratio to less than 5 parts Min-U-Gel 400 per part of cellulosic.

Adding value to associative thickener systems

Min-U-Gel® 400 product is used as a co-thickening thixotrope in paints together with urethane-based rheology modifiers. These associative thickeners provide excellent leveling and improved gloss. They keep viscosity high at high shear, as with roller application, so paints spatter less and have excellent film build for improved one-coat hiding. However, associative thickeners can cause problems with syneresis, pigment settling, organic pigment flooding and floating, hiding, color development and sag resistance. Manufacturers often use Min-U-Gel® 400 thickener to overcome these deficiencies at a rate of 3 to 5 lbs/100 gal. (4 to 6 g/l) in semi-gloss paints and 3 to 7 lbs/100 gal. (4 to 8.5 g/l) in interior flat paints.

Min-U-Gel® 400 product is also used as a co-thickening thixotrope with alkali swellable and hydrophobically-modified HEC thickeners to remedy sag resistance, pigment settling and dripping problems. Typical addition levels is 3 to 5 lbs/100 gal. (4 to 6.0 g/l).

Easy, Consistent and Stable Suspensions

Min-U-Gel® 400 product provides long-term stability to liquid systems. It is essentially chemically inert and stable under a wide range of pH and in the presence of most known additives. Its particles remain suspended indefinitely given their small size and interaction with themselves and other pigments. The gel it forms can suspend relatively large or dense pigment or extender particles. If any particles do settle they usually form a soft sediment that is easily re-suspended. The amount of Min-U-Gel® 400 needed is reduced as solids rise. Systems containing pigmentation may need less than 0.5% for suspension or soft-settle and those with large particles may need 0.5% to 2.0%.

AMP-95 is a trademark of Angus Chemical Corporation, a wholly-owned subsidiary of Dow Chemical

DISTRIBUTED BY **VAN HORN, METZ & COMPANY, INC.**

201 East Elm Street, Conshohocken, PA 19428 | Toll Free: +1 800-523-0424 | Direct: +1 (610) 828-4500 | Fax: +1 (610) 828-0936

Email: info@vanhornmetz.com | Web: www.vanhornmetz.com