



ACRYSOL™ RM-825 Rheology Modifier

Hydrophobically-modified Ethylene oxide Urethane (HEUR)

Regional Product Availability

- Europe, Middle East and Africa

Description

ACRYSOL™ RM-825 Rheology Modifier is a non-ionic urethane rheology modifier, showing a very good balance of low and high shear viscosity. This allows the formulation of inks meeting a variety of rheological requirements.

ACRYSOL™ RM-825 Rheology Modifier can be used as a co-thickener. It has excellent water and alkali resistance.

Typical Applications

High performance inks formulation

Key Features

- Excellent water and alkali resistance
- Excellent balance of low and high shear viscosity
- Use over a wide pH range
- Ease of handling

Typical Physical Properties

(These properties are typical but do not constitute specifications.)

Property	Value
Appearance	Hazy liquid
Active Solids Content (%)	25
Viscosity Brookfield (mPa.s), LV, Spindle #2, 6 rpm, 25°C	1250
Specific gravity (wet polymer)	1.04
Solvent	Water / Butyl Carbitol (75/25)
Chemistry	HEUR (Hydrophobically modified polyethylene oxide urethane)

Recommended Operating Conditions

The rheology modifying mechanism of ACRY SOL™ RM-825 Rheology Modifier is associative. Hydrophobic elements of the molecular structure tend to associate with other hydrophobic elements in the ink. These other hydrophobic elements are mostly binders and opaque polymers. Association with inorganic pigments is less frequent, but can exist. This network of associations modifies the rheological profile of the ink and gives the desired flow.

However, associative also means that the rheology of the ink is influenced by a whole range of elements other than the thickener itself. The following factors have a direct impact on the efficiency of ACRY SOL™ RM-825 Rheology Modifier:

- Polymer Particle Size And Distribution

The primary site for the associative characteristics of a rheology modifier is the surface of the binder particles. As a consequence, a greater surface area will lead to stronger association. Greater association leads to an increased efficiency. For a given volume of unimodal polymer, a small particle size binder will have a greater total surface area than a larger particle size binder.

⇒ Thus, the rheology modifier will work more efficiently with the smaller particle size binder.

- Polymer Composition

ACRY SOL™ RM-825 Rheology Modifier is most efficient with hydrophobic latexes. This hydrophobicity may vary with the binder composition or the stabilizing system.

- Surfactants, Wetting Agents and Cosolvents

Excessive amounts of surfactants, wetting agents or cosolvents can slow down the viscosity equilibration by competing with rheology modifier hydrophobes for association sites, or in the case of cosolvents interfering with micelle formation.

However, these mechanisms can be manipulated in order to adjust the rheological profile of the formulation. The thickener interactions which contribute to the low shear viscosity can be reduced through the use of water miscible cosolvents or surfactants.

- Dispersing Agents

Dispersing agents with low ionic content have proven to work well with ACRY SOL™ RM-825 Rheology Modifier.

⇒ In most formulations OROTAN™731E ER Pigment Dispersant has been found to give good results.

- pH Control

In some formulations a high pH can cause polymer swelling. This can lead to high viscosity and instability.

⇒ For this reason, inks thickened with ACRY SOL™ RM-825 Rheology Modifier should be formulated at around pH 8.0

Recommended Operating Guidelines

ACRYSOL™ RM-825 Rheology Modifier is supplied as a pourable and pumpable liquid and should not need dilution.

It can be added to the grinding phase or into the letdown. Addition to the grind, prior to dispersing, can accelerate the speed of viscosity equilibration.

- Rheology Profile - High Shear

ACRYSOL™ RM-825 Rheology Modifier is moderately efficient in raising the high shear viscosity. Viscosity in this region is not very dependent on thickener interactions, and is mainly a function of the amount of ACRYSOL™ RM-825 Rheology Modifier present.

Should a higher viscosity be desired, then a blend with ACRYSOL™ RM-2020 rheology modifier is recommended.

- Rheology Profile - Low Shear

ACRYSOL™ RM-825 Rheology Modifier efficiently increases low shear viscosity, and the ratio of low shear to high shear viscosity will vary depending on the choice of binder and other formulation components.

Handling Precautions

Before using this product, consult the Material Safety Data Sheet (MSDS)/Safety Data Sheet (SDS) for details on product hazards, recommended handling precautions and product storage.

Storage

Store products in tightly closed original containers at temperatures recommended on the product label.

Disposal Considerations

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Technical Representative for more information.

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