Formulation challenges and product recommendations

BASF offers a broad range of rheology modifiers, each one designed for specific application areas and customer requirements.

Typical challenges customers encounter while formulating paints are:

- **Leveling** – Good leveling is needed to ensure a smooth finish, to avoid brush and roller marks.
- **High shear thickeners help to improve leveling.**
- **Brush drag** – A well balanced brush drag is needed to provide perfect hiding power.
- **Mid shear thickeners help to adjust the “resistance” needed to process the paint.**
- **Sagging** – Sagging leads to gravity-driven irregularities in thickness and can be prevented by rendering the paint pseudo-plastic in behavior.
- **Low shear thickeners promote pseudo-plastic behavior and improve sag resistance.**
- **Spattering characteristics**
  - **Associative thickeners allow for low spatter characteristics.**
  - **Anti-settling** - Homogenous distribution of components of paint allow for a ready-to-use paint without stirring / mixing.
  - **Attagel clay provides anti-settling characteristics.**

A. Rheology control in aqueous systems, low shear thickening, strong pseudoplasticity

**Rheovis PU 1191**
Latest generation strong low-shear associative thickener with excellent performance and easy handling. Strong pseudoplasticity Low VOC, heavy metal and APEO free.

**Rheovis HS 1162**
Low VOC, hydrophobically modified alkali-swellable emulsion (HASE); strong thixotropic flow-behavior; low water uptake; no impact on wet adhesion even after long water contact; highly recommended for non-dripping stains and paints.

**Rheovis HS 1152**
Low VOC, hydrophobically modified alkali-swellable emulsion (HASE) for paints and plasters; improves anti-sagging; prolongs open time.

**Rheovis AS 1130**
Low VOC alkali-swellable emulsion (ASE); highly efficient low-shear thickener; high shear thinning, anti-sagging and anti-settling; highest yield point; used in pigment and filler slurries but also highly successful in industrial and automotive formulations for spray applications.

**Rheovis AS 1125**
Low VOC alkali-swellable emulsion (ASE); low-shear thickener; highly shear thinning; anti-sagging; high yield point; lower water uptake.

**Attagal 50**
The Attagal 50 grade is a premium attapulgite clay product with low residue, small particle size and uniquely rounded particle edges. It is most desired in applications where fineness, surface smoothness and sprayability of the end-use product are critical.

B. Rheology control in aqueous systems, mid shear thickening, medium to low pseudoplasticity

**Rheovis PU 1291**
Low VOC, odor-free, associative thickener that shows high efficiency in mid-shear viscosity at lower dosage. This well-balanced mid-shear rheology modifier allows for improved film build and excellent film appearance. It is suitable for all types of aqueous paints and coatings: premium flat & eggshell, semi-gloss and gloss coatings.

**Rheovis PU 1250**
Associative mid-shear thickener that is used for modification of the flow properties of water-based coatings. Offers good spatter resistance and the potential to increase film build.

**Rheovis PU 1251**
Low VOC associative mid-shear thickener with good contribution to low shear viscosity. Recommended for high volume solids paints and offers improved compatibility and ease of incorporation.

**Rheovis AS 1237**
Low VOC alkali-swellable emulsion (ASE); mid-shear thickener for high PVC systems. Recommended for paints requiring good flow and leveling.

C. Rheology control in aqueous systems, high shear thickening, Newtonian

**Rheovis PE 1320**
Associative thickener designed to modify the high shear viscosity in water-based coatings. Offers good flow and leveling properties and is also recommended for use in high-gloss and semi-gloss coatings.

**Rheovis PE 1331**
Highly efficient associative thickener for high shear viscosity. Excellent flow and leveling and high film build. Best in class ICI performance. Low VOC, heavy metal and APEO-free.

**Rheovis HS 1332**
Low VOC, hydrophobically modified alkali-swellable emulsion (HASE) for high shear viscosity build. The most Newtonian ICI builder in the product range, used when excellent flow and leveling is required with a HASE thickener.

**Rheovis AS 1337**
Low VOC alkali-swellable emulsion (ASE); high-shear thickener for aqueous systems. Recommended for paint which require high flow with low influence on viscosity upon colorant addition.

D. Rheology control in non-aqueous systems

**Elka RM 1900**
Castor oil based micronized powder offering a strong thickening effect; high thixotropy, anti-sagging, improved working and flow properties.

**Attagal 50**
The Attagal 50 grade is a premium attapulgite clay with low residue, small particle size and uniquely rounded particle edges. It is most desired in applications where fineness, surface smoothness and sprayability of the end-use product are critical.