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## HAJLYN 301

### Opacifier (Hair Care, Skin Care)

#### Description

- Anionic styrene/acrylic copolymer supplied at 40% solids
- pH: 2.1 to 2.5
- Particle size: 0.18 microns
- Preservative: none, self-preserved

#### Advantages

- Imparts uniform opacity and lotionized appearance to formulations
- Effectively hides amber cast or haziness in formulations
- Imparts high whiteness or a pastel color effect to formulation when used with dyes
- Excellent compatibility allows for use in a wide variety of applications
- Effective at low use levels
- Easy-to-use liquid

#### Applications

HAJLYN 301 is a highly versatile opacifier for anionic surfactant-based systems. Best suited for formulations with slightly acid to moderate pH range, containing up to moderate levels of inorganic electrolytes, such as,

- Mild shower gels and shampoos
- Fatty-acid based liquid hand soaps

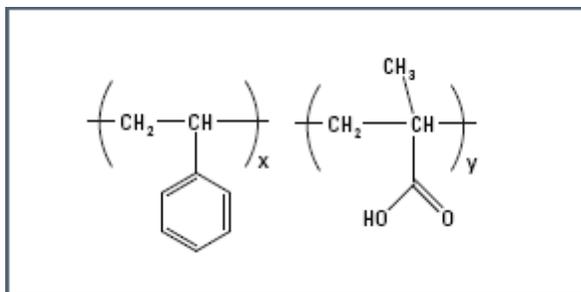
#### Use Levels

- 0.5% to 1.0%, as supplied depending on desired appearance of final product

INCI Name: Styrene/Acrylates Copolymer

## Technology

Styrene acrylate emulsion that modifies the appearance of formulations through efficient light scattering.



## Formulation Guidelines

Formulation components, ionicity and pH should be chosen for optimal formulation stability.

### Order of Addition

For maximum results, it is recommended that HAJLYN Opacifiers are diluted with product water (held out of the formulation) added slowly as the final component to the formulation (after pH adjustments, addition of dye, salt, perfume, etc.). Good agitation should be maintained throughout the addition process. If pre-dilution is not possible or desired, HAJLYN Opacifiers can also be added directly to formulation slowly and with good agitation. If desired, HAJLYN Opacifiers can also be added directly after the formulation initial water charge.

### Neutralization

Due to low dosage rates, the low pH of HAJLYN 301 should not affect the pH of the final formulation. Note: if tap water is used to pre-dilute, the pH will automatically increase to pH 4-5 and neutralization may not be required.

### Compatibility

There are several formulation parameters that can affect the stability of an opacified formulation, such as level of electrolytes and cationic ingredients, the pH and choice of surfactants. All of the HAJLYN Opacifiers behave differently in these systems. HAJLYN 301 has the broadest compatibility across a variety of applications. Both HAJLYN 303B and HAJLYN 305 offer a very good compatibility in the presence of high levels of inorganic electrolytes. In addition, HAJLYN 303B also has very good compatibility with cationic-based systems with low levels of anionic surfactants. HAJLYN 302B is the preferred choice for formulations with soft preservatives due to its compatibility in the lower pH range.

### Evaluating Formulation Stability

Four week stability tests under high, low and room temperature conditions as well as 3 cycles of freeze/thaw stability are recommended as a best practice for any formulation containing opacifiers.

### Overcoming Depletion Flocculation

Flocculation and sedimentation are the two most common symptoms of formulation instability. Certain conditions, such as high betaine levels, high electrolyte levels or the presence of cationic ingredients, can pose additional stability challenges in a formulation. For these specific conditions, HAJLYN 28 or HAJLYN 88 Rheology Modifiers are the preferred choice as a primary or secondary thickening agent. Their high efficiency and excellent suspension performance will both build viscosity and help to prevent flocculation or sedimentation.

### Cleaning

After use, process equipment should be cleaned with high pressure washing or an appropriate cleaning solution.

### Safety

HAJLYN 301 has a safe toxicological profile for a broad range of personal care products. A summary of the toxicity information is available on request.

### Storage

HAJLYN 301 is supplied as a 40% solids emulsion with a maximum viscosity of <50 cps at room temperature (25° C). The recommended storage temperature for this material is 4°C to 40°C. Keep from freezing. If exposed to temperatures below 4°C or above 40°C for extended periods, material may become unusable.