

# Fixate™ PLUS Polymer

## Novel, Acrylates Copolymer for Film-Forming, Fixative PLUS Rheology Modifying Properties

INCI Name: Polyacrylate-14

# Quick Start Guide

Fixate™ PLUS polymer was designed to improve style longevity while enhancing aesthetics and sensory properties. Fixate PLUS polymer enables the creation of cost-effective, medium-to-high viscosity styling products with exceptional humidity resistance and weightless, touchable hold. For comprehensive information including starting formulation concepts with processing instructions and supplier references, visit [www.lubrizon.com/personalcare](http://www.lubrizon.com/personalcare).

### Introduction:

Fixate PLUS polymer is a patent-pending, anionic acrylate copolymer.

This Alkali-Swellable Associative Polymer (ASAP) combines hydrophilic, semi-hydrophobic (capable of controlling associative structure) and hydrophobic components. It delivers an optimized balance of properties, such as excellent hold and solubility; clear, uniform films with good adhesion; enhanced humidity resistance; and a smooth, natural feel on hair.

The controlled association of this ASAP provides thickening efficiency, while maintaining smooth, aesthetically-pleasing gels having shear-thinning rheology.

### Chemistry:

Fixate PLUS polymer is a slightly crosslinked acrylate copolymer of C<sub>1-4</sub> alkyl(meth)acrylate, (meth)acrylic acid and a proprietary mixed hydrophobe package.

### Form:

Fixate PLUS polymer is supplied as a low viscosity, milky white emulsion which contains approximately 30% total polymer solids.

### Typical Properties:

Viscosity (mPa·s), as supplied <sup>1</sup>	15
Total Solids (%), as supplied	~30
pH, as supplied	2.5 - 3.5
1.0% Gel** Viscosity <sup>2</sup> (mPa·s)	7,000
1.0% Gel** Clarity <sup>3</sup> (%T)	≥89

<sup>1</sup> Brookfield LV @ 60 rpm

<sup>2</sup> Brookfield RVT @ 20 rpm

<sup>3</sup> Brinkman 920 Colorimeter, % transmittance

\*\* 1.0% polymer solids in water, neutralized with AMP-95® to pH 6.8 -7.2

Lubrizon Advanced Materials, Inc. / 9911 Brecksville Road, Cleveland, Ohio 44141-3247 / TEL: 800.379.5389 or 216.447.5000

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## **Benefits:**

- Exceptional humidity resistance
- Style support with weightless, touchable hold
- No tack or stickiness
- Easily removed, with no residue or buildup on hair
- Superior clarity and viscosity in gels
- Non-yellowing
- Excellent compatibility with Carbopol® polymers, other natural or synthetic thickeners and many commonly used styling product additives
- Efficient thickening with Carbopol copolymers
- Efficient, cost effective and easy-to-use

## **Applications:**

- Tube Styling Gels
- High Viscosity Molding Gels
- Conditioning Styling Gels
- Smoothing and Straightening Crèmes
- Styling Putties and Pastes
- Waxes and Pomades
- Mousses and Styling Foams

## **Formulating Guidelines:**

**Recommended Use Level:** 0.5 - 1.0% solids (1.7 - 3.3 wt% as supplied). Fixate PLUS polymer can provide “2-in-1” (fixative PLUS rheology modifier) performance when used at concentrations above 1.0% solids.

**Recommended pH:** >6.5; optimal viscosity and clarity achieved at pH 6.5 - 7.5

**Neutralization:** Inorganic bases and water/alcohol-soluble amines (NaOH, TEA, AMP-95®, etc.)

**Rheology Modifier Compatibility:** Carbopol polymers (940, 980, ETD 2020, Ultrez 21) or other natural or synthetic thickeners

**Recommended Carbopol Polymer Use Level:** 0.2 - 0.8 wt%, or as needed for desired viscosity.

## **Recommended Order of Addition:**

- Add desired Carbopol polymer or thickener to the deionized water of the formulation, following recommended processing instructions.
- After hydration, and using gentle agitation, add Fixate PLUS polymer and mix well.
- Add conditioning and ancillary ingredients (such as silicones, cationics, EDTA), mixing after the addition of each.
- If desired, add appearance modifying ingredients (such as pearling agents), mixing after addition of each.
- Add UV stabilizer, fragrance, dyes and preservatives, mixing after each addition.
- Neutralize to desired pH. For best clarity, neutralize to pH 6.5 - 7.5.

Note: For best results, add ingredients which are sensitive to acid pH and ingredients which contain electrolytes (such as botanicals, water soluble actives, etc.) after the polymer dispersion has been neutralized.

## **Formulations Available:**

S-G0015	Long-Lasting, Weightless Hold Styling Gel
S-G0016	High Viscosity Molding Gel
S-G0017	Conditioned Control Styling Gel
S-G0027	Firm Control Styling Gel
S-G0028	High Viscosity Grooming Gel
S-G0031	Long-Lasting Styling Gel
S-G0033	Hard-Hold and Long-Lasting Styling Gel
S-G0038(EU)	Melting Hair Gel
S-G0039(EU)	Hocus Pocus Hair Gel
S-G0040(EU)	Marmalade Savourous Hair Gel
S-X0008	Fiber Putty for Pliable Styling
S-X0009	Humidity Resistant Smoothing and Straightening Cream
S-X0016	Volumizing Root Lifter
S-X0017	Scrunching Balm
S-X0019	Curling Spray Potion

## **Storage & Handling:**

- Packaging: 55 gallon, 480 pound (217 kilogram) net weight plastic drums
- For best results, Fixate PLUS polymer should be filtered prior to use and transferred with low shear pumps
- To prevent "skinning" on surface of the liquid, drums should not be opened until used
- For storage tanks, agitated stainless steel storage and mixing tanks are recommended
- Shelf life: twelve (12) months
- Storage temperature: Ambient room temperature conditions, 15-30°C (60-86°F); away from direct heat and light
- DO NOT FREEZE\*

\*Fixate PLUS polymer is not freeze thaw stable as supplied. The polymer in finished applications, however, is freeze-thaw stable.

## **Toxicology:**

The toxicity profile of Fixate PLUS polymer, as supplied, indicates that it has a low potential for causing irritation or sensitization. These data indicate that it is suited for personal care applications where there is contact with skin or where there is a potential for contact with the eyes. A complete summary of toxicological effects is available upon request.

## **Microbiology:**

Fixate PLUS polymer, as supplied, contains no preservative. The as-supplied polymer has passed a Mixed Inoculum Preservative Efficacy Test (Challenge Test). Formulators are advised to conduct normal microbial testing of formulated products.

## **Regulatory Status:**

Fixate PLUS polymer is exempt from TSCA when used in cosmetic applications.

Fixate PLUS polymer qualifies as a polymer exempt from EINECS or ELINCS registration; all monomers used in Fixate PLUS polymer are listed on EINECS. Fixate PLUS polymer complies with the European Union Cosmetics Directive 76/768/EEC, 7<sup>th</sup> Amendment.

Registration is pending in Canada and Australia, and a Japanese INCI name will be provided once proposed INCI name has been finalized.

## **Genetically Modified Organisms (GMO):**

Fixate PLUS polymer is prepared solely from synthetic material and does not contain, and is not derived from, any material of plant or animal origin.

## **Other General Information:**

- Fixate PLUS polymer technology is patent-pending.
- The Harmonized Tariff System (Schedule B) number for Fixate PLUS polymer is 3906.90.6000.

## **Other Literature Available:**

- Product Summary Brochure (TDS-317)
- Temporary Product Specifications
- Test Procedures
- Material Safety Data Sheet (MSDS)
- Toxicological Summary (TOX-076)
- Microbial Summary (TOX-079)
- Formulations FP-0001 through FP-0004