

General information:

INCI Name	Polyurethane-93
Ingredient category	Film former
Chemical description	Water- based polyurethane polymer (anionic) with 1.5% antimicrobial additive
Appearance	Translucent to milky white dispersion
Solid content	30.0±2.0
pH	7.5±1.0
Viscosity	≤500 mPa.s



Sustainability profile:

- **Naturality:** 55% naturally-derived (ISO 16128)
- **Biodegradability:** Reached a mean biodegradation rate of 82% within 28 days (OECD 301 readily biodegradability test*).
- **Microplastics status:** out of scope (2019 ECHA restriction proposal)

*Test performed on the polymer itself.

Applications:

- **Hair styling:** styling pumpspray, lotion, cream, gel cream & aerosol mousse
- **Hair care:** hair treatment & leave-on conditioner

Technical benefits:

- Strong hold
- Reduced hair frizz
- Straightening
- Heat protection
- Conditioning
- Non-tacky
- Low flaking

Others:

- Suitable for **vegan** products.
- Suitable for **cruelty-free** products.
- Suitable for **biodegradable** formulas.

Recommendations/Formulating tips:

Use level

- 3-10% as supplied

Compatibility

- **pH:** Products with pH between 4.5-8.0 can be formulated; ideally, we recommend adjusting the pH to the 6.0-8.0 range.
- **Salts:** Supports only low level of electrolytes; we recommend the use of maximum 0.5% sodium chloride.
- **Chelating agents:** Compatible with state-of-the-art chelating agents.
- **Ethanol:** Limited compatibility with 20-30% ethanol; forms milky solutions.
- **Cationics:** Limited compatibility depending on charge density. We recommend adding an amphoteric polymer (e.g. polyquaternium-39) to increase the compatibility with cationic polymers.
- **Non-ionic polymers:** Compatible with non-ionic film formers such as PVP, VP/VA copolymer.
- **Anionic polymers:** Limited compatibility depending strongly on neutralization grade and charge density.

Process

- Add Baycusan® eco E 1000 at the end of the formulation process below 40 °C.
- We recommend homogenizing before addition of Baycusan® eco E 1000.
- We recommend adjusting the pH before the addition of Baycusan® eco E 1000. If necessary, pH could be adjusted with a diluted solution (at 10%) of either citric acid or sodium hydroxide after the addition of Baycusan® eco E 1000.

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