

Technical Data Sheet

Octopirox[®]

CLARIANT INTERNATIONAL LTD

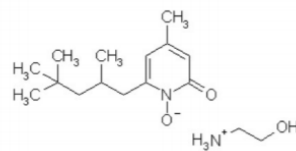
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Anti- dandruff agent and preservative for the cosmetic industry

Chemical structure



Chemical name	1-Hydroxy-4-methyl-6-(2,4,4-trimethylpentyl)-2(1H)-pyridone; with 2-aminoethanol (1:1)
INCI name	Piroctone Olamine

Product properties ¹

Appearance (20 °C) White to slightly yellowish-white, crystalline powder

Chemical and physical data:

Content (Potentiometry) min. 99 %

Content of Monoethanolamine (Potentiometry) ca. 20.5 %

Melting point 133 – 136 °C under decomposition

pKa value 7.4

Solubility: (Ph.Eur.2, USP 23)

Water	Very slightly soluble
Ethanol	Freely soluble
Chloroform	Freely soluble
Ether	Very slightly soluble

¹ These characteristics are for guidance only and not to be taken as product specification. The tolerances are given in the product specification sheet. For further product properties, specifications, safety and ecological data, please refer to the MSDS.

Uses

Octopirox® is an anti-dandruff agent and a broad-spectrum antimicrobial agent, suitable for anti-dandruff shampoos and hair care products such as hair tonics and cream rinses with an antidandruff action. It is very effective for preservation of a wide range of cosmetics and toiletries.

Handling Information for Octopirox®

Due to the good solubility in aqueous surfactant systems as well as alcohol / water mixtures (preferred), Octopirox® is especially suitable for the formulation of clear products. Aqueous or alcoholic solutions of Octopirox® have a pH of 9-10 which can be adjusted using organic acids like citric acid or lactic acid. Octopirox® may have an influence on the viscosity of the formulation in that it can increase the viscosity significantly in surfactant systems. During the formulation process, Octopirox® can be heated up to 80 °C, if necessary but should not exceed this temperature for a longer time period. Traces of iron can lead to the formation of yellow complexes which may lead to a colored end product. This is important when selecting dyes for the formulation.

Solubility

Generally, the solubility of Octopirox® is highly depending on the pH value of the solution. As a rule of thumb, it is better dissolved in neutral and slightly alkaline aqueous solutions than in acidic solutions. It is possible to dissolve between pH values from 5 to 8 in surfactant solutions and alcohol/water mixtures.

Light stability

Octopirox® is sensitive towards UV light and might be decomposed depending on the amount of irradiation. Therefore, it is recommended to use non-transparent or colored packaging, ideally the original packaging.

Compatibility with cosmetic raw materials

Octopirox® is compatible with most surfactants, additives and active ingredients used in cosmetics. Compatibility with perfume oils with aldehyde and ketone functionality may be limited in some cases. Despite the anionic character of the active ingredient molecule, Octopirox® can be used together with most cationic surfactants (quaternary ammonium compounds) and cationic active ingredients and in some cases, the solubility of Octopirox® in water is increased. Nevertheless, it is advisable to carry out compatibility and stability tests when using these substances. Attention must be drawn to the product's property of forming complexes with metal ions, especially iron and copper ions. For example, with mere traces of iron (1 ppm Fe) a clearly visible yellow iron complex is formed. Formation of the complex is not prevented by adding the usual complexing agents (see section on processing information).

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Influence on viscosity in surfactant systems

In some surfactant systems, Octopirox® may cause an increase in viscosity which can be considered in order to economize on consistency modifiers during formulation development.

Influence of the pH value and thermal stability

With a pKa value of ca. 7.4, Octopirox® is present as free acid in neutral solutions and is chemically stable over a wide pH range. It can be formulated in a pH range of 3-9. Higher temperatures up to 80 °C which are normally used during production do not cause decomposition of the product or loss of efficacy. Nevertheless, prolonged heating for an extended time period should be avoided.

Storage

Octopirox® should be stored in its original container at ambient temperature protected from moisture and light. If stored correctly in its original sealed container, Octopirox® can be kept for at least five years. A safety data sheet is available on request.

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