



Octinoxate (also known as **Octyl Methoxycinnamate** or **OMC**)

is a widely used organic compound found in many sunscreen and cosmetic products. It is used for its ability to absorb UV-B rays from the sun, which helps in protecting the skin from sunburn and other harmful effects of UV radiation.

Chemical Properties of Octinoxate:

1. **Chemical Structure:**

- **IUPAC Name:** Ethylhexyl Methoxycinnamate
- **Chemical Formula:** C₁₈H₂₆O₃
- **Molecular Weight:** 290.40 g/mol
- **Structure:** Octinoxate is an ester formed from methoxycinnamic acid and 2-ethylhexanol. It has a methoxy group (-OCH₃) attached to the benzene ring, which is part of the cinnamate backbone, providing UV absorption properties.

2. **Physical Properties:**

- **Appearance:** It is a clear, colorless, or pale yellow liquid.
- **Solubility:** Soluble in organic solvents like alcohols and oils, but insoluble in water.
- **Melting Point:** Approximately 65-67°C.
- **Boiling Point:** Approximately 198°C at 3 mmHg.

3. **UV Absorption:**

- **Maximum Absorption Wavelength (λ_{max}):** Around 310-315 nm. Octinoxate effectively absorbs UV-B rays in this range, preventing them from penetrating the skin.
- 4. **Stability:**
 - Octinoxate is relatively stable when exposed to UV light but can degrade over time, leading to reduced efficacy. It may be combined with other UV filters to enhance stability.
- 5. **Reactivity:**
 - Octinoxate can undergo photodegradation when exposed