Caprylic/capric triglyceride is a type of

ester derived from the glycerol esterification of caprylic (C8) and capric (C10) fatty acids. These fatty acids are medium-chain triglycerides (MCTs), and the term "triglyceride" refers to a molecule composed of three fatty acid chains esterified to a glycerol backbone.

CHEMICAL PROPERTIES

- **Triglyceride Formation**: It consists of a glycerol molecule esterified with a mix of caprylic and capric fatty acids. The general formula can be expressed as $C_{18}H_{34}O_4$, reflecting the combination of these medium-chain fatty acids.

2. **Hydrolysis**:
   - **Saponification**: In the presence of a strong base (such as sodium hydroxide), caprylic/capric triglyceride can undergo saponification to produce glycerol and the corresponding fatty acid salts. This reaction is typical of triglycerides.
3. **Oxidation Stability**:
   - **Resistance to Oxidation**: Caprylic/capric triglyceride is relatively stable against oxidation compared to unsaturated oils. This is due to the saturated nature of the medium-chain fatty acids, which makes it less prone to rancidity and longer-lasting in formulations.
4. **Solubility**:
   - **Solubility in Organic Solvents**: It is soluble in organic solvents like ethanol, acetone, and most oils. It is not soluble in water, reflecting its hydrophobic nature.
5. **Thermal Properties**:
   - **Melting Point**: Caprylic/capric triglyceride has a low melting point, typically around 2-4°C (36-39°F), which contributes to its liquid state at room temperature.
   - **Boiling Point**: It has a relatively high boiling point, which can vary depending on the specific fatty acids present, but is generally higher than its melting point.
6. **Chemical Stability**:

    - **Chemical Stability**: It is stable under a range of conditions due to its low susceptibility to hydrolysis and oxidation. This stability is beneficial for its use in various formulations, including those with long shelf lives.
7. **Reactivity**:
    - **Reactivity with Acids and Bases**: Caprylic/capric triglyceride can react with strong acids or bases under certain conditions, leading to the formation of fatty acids and glycerol. However, these reactions are typically less common in standard formulations where it is used.
8. **Intermolecular Forces**:
    - **Van der Waals Forces**: The triglyceride molecules are held together in part by van der Waals forces, which influence its physical state and how it interacts with other substances.
9. **Compatibility**:
    - **Mixing with Other Ingredients**: It is highly compatible with other oils and fats and is often used to solubilize or disperse other ingredients in cosmetic and pharmaceutical formulations.