



Arbutin is a naturally occurring compound found in various plants, notably in the leaves of bearberry, pear, and cranberry plants. It is widely used in the cosmetic industry as a skin-brightening agent due to its ability to inhibit melanin production, which can help reduce the appearance of dark spots and hyperpigmentation.

Chemical Properties of Arbutin:

- 1. Chemical Structure:**
 - **Molecular Formula:** C₁₂H₁₆O₇
 - **Molecular Weight:** 272.25 g/mol
 - **Structure:** Arbutin is a glycosylated hydroquinone, meaning it consists of a hydroquinone molecule linked to a glucose molecule. This structure allows it to be more stable and less irritating than hydroquinone itself.
- 2. Forms:**
 - **Alpha-Arbutin:** A synthetic form of arbutin that is more stable and effective than its natural counterpart. It has better solubility and is used in more advanced formulations.
 - **Beta-Arbutin:** The naturally occurring form found in plants. It is less stable compared to alpha-arbutin but still widely used in skincare products.
- 3. Physical Appearance:**
 - **Form:** Arbutin typically appears as a white, crystalline powder.

- **Solubility:** It is soluble in water and alcohol, which makes it easy to incorporate into various cosmetic formulations.
- 4. **Stability:**
 - **pH Stability:** Arbutin is stable in a pH range of 3.5 to 6.5, which is compatible with the pH levels of most skincare products.
 - **Temperature Stability:** It is stable at lower temperatures but can degrade when exposed to high temperatures for extended periods, which may reduce its effectiveness