

Slaked lime, also known as calcium hydroxide ( $\text{Ca}(\text{OH})_2$ ), has a variety of uses across different industries. Here are some of its common applications:

1. **Construction:**
  - **Mortar and Plaster:** Slaked lime is used to make lime mortar and lime plaster, which are traditional building materials known for their breathability and durability.
  - **Soil Stabilization:** It is used to improve the load-bearing properties of soil in construction projects.
2. **Water Treatment:**
  - **pH Adjustment:** Slaked lime is added to water to neutralize acidity and adjust the pH levels.
  - **Softening Water:** It helps in removing temporary hardness in water by precipitating calcium and magnesium ions.
3. **Agriculture:**
  - **Soil Amendment:** It is used to raise the pH of acidic soils, improving soil structure and nutrient availability.
  - **Pest Control:** Slaked lime can be used as a natural pesticide and fungicide.
4. **Food Industry:**
  - **Food Preparation:** It is used in the preparation of foods like tortillas (nixtamalization process) and certain pickled foods.
  - **Sugar Refining:** It helps in the purification process of sugar from sugarcane or sugar beets.
5. **Chemical Industry:**
  - **Production of Chemicals:** Slaked lime is used as a raw material in the production of various chemicals such as calcium stearate, calcium chloride, and calcium hypochlorite (bleaching powder).
  - **Paper Industry:** It is used in the Kraft process for paper manufacturing.
6. **Environmental Applications:**
  - **Flue Gas Treatment:** It is used to remove sulfur dioxide ( $\text{SO}_2$ ) from flue gases in power plants and industrial facilities, reducing air pollution.
  - **Waste Treatment:** Slaked lime is used to treat sewage and industrial waste, aiding in the removal of impurities and neutralization of acids.
7. **Leather Industry:**
  - **Hide Processing:** It is used in the process of dehairing hides and skins during leather production.
8. **Medical and Personal Care:**
  - **Dental Products:** It is used in some dental pastes and powders.
  - **Cosmetics:** It can be found in some skincare products for its astringent properties.

Slaked lime's versatility makes it a valuable material across these diverse fields.