

Uses of Limestone in Modern Life



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Limestone is calcium carbonate mined from the ground to produce quicklime and hydrated lime for a variety of industrial and construction purposes.

Construction

- **Roads**– Hydrated lime has long been used in asphalt pavement to reduce stripping (breaking of the bond between cement and aggregate), cracking and aging. Lime improves asphalt durability in extreme temperatures, heavy rains and traffic.
- **Building Foundations** – Lime is a primary ingredient in masonry mortars and plasters. Lime enhances the strength, durability and workability of cement, plasters and stuccos and reduces water leakage. Lime is also used to stabilize soil beneath construction sites.



Sources: National Lime Association (www.lime.org); Singleton Birch Ltd (<http://www.singletonbirch.co.uk/lime/uses>)

Crushed Limestone



Water & Wastewater Treatment

- **Drinking Water** - Lime softens potable water and removes impurities.
- **Municipal Wastewater** - Due to its high alkalinity, municipal wastewater treatment plants use lime to neutralize the low pH of acids, dissolve organic matter and facilitate compliance with environmental regulations for wastewater discharge.
- **Industrial Wastewater** – In steel and rayon plants, lime neutralizes sulfuric acid wastes. In cotton textile finishing plants and canning operations, lime neutralizes dissolved solids from wastewater and helps process by-products.

Steel Manufacturing & Metallurgy

- **Steel Manufacturing** – Lime is used to remove impurities in steel such as silica, phosphorus, and sulfur. Lime is also useful in secondary refining to adjust temperature and final chemistry of steel for specialized uses.
- **Ore Concentration** – Lime aids in the concentration of non-ferrous ores such as copper, mercury, zinc and nickel. This process transforms the mined metals into purer and more usable forms.



Sugar Refining

- **Sugar Beet and Sugar Cane** – These operations require hydrated lime for extracting sugar. The lime raises the pH of the extract and enables removal of impurities.