



# LIME HELPS TO LIMIT THE ENVIRONMENTAL IMPACTS OF STEELMAKING



Lime is an important part of the steelmaking process, and its use can be found in both the primary and secondary stages, lessening a number of environmental impacts of steel production.

Included among the many impacts lime has on the environment are:

## WASTEWATER

Lime is the most available and cost-effective neutralizing agent among all alkali materials that treat wastewater. It can neutralize many organic and inorganic pollutants, including heavy metals and fluorine, and it meets the requirements for pH adjustments necessary for discharge from steel mills.

Carmeuse has extensive experience in chemical processes to treat wastewater from a variety of industrial sectors. Our solutions can help minimize costs while conforming to strict environmental standards for purified water not only in North America, but also throughout the world.



## RESIDUAL SLUDGE AND SOLID WASTE

Lime neutralizes free acids in chemical waste products and forms insoluble, chemically stable salts that are safe from leaching into the environment. Lime reacts with active silica/alumina in mineral sludge to stabilize the materials and form a solid and low-permeable matrix, contributing to the blocking of leaching contaminants. The use of quicklime helps dry and solidify sludge for final disposal or reuse; and lime-based binders provide highly permeable properties to solidified sludge and stabilized waste, keeping them safe from leaching contaminants.

Carmeuse's lime products can be used in customized solutions for various types of sludge or waste disposal, particularly depending on the end reuse such as fertilizers. We offer lime products and binders that fit all types of processes to treat specific waste generated by the iron and steel industry.





## FLUE GAS CLEANING

Lime enables manufacturers to comply with regulations on emission levels. Its use provides customized flue gas cleaning solutions based on variable processes including sinter plants, coke oven, boilers and more, all of which have their own specifications and requirements.

Emissions levels for steel mills vary greatly. Carmeuse helps companies carefully evaluate the flue gas cleaning process and develop the best and most cost-effective solutions available for them.

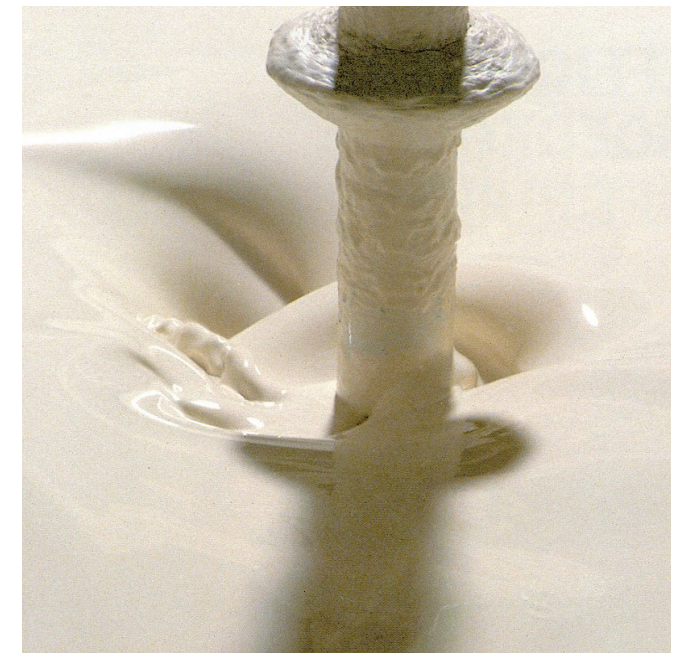


## LIME VS CAUSTIC SODA

Lime isn't the only compound used in the steelmaking process to help mitigate environmental impacts. Caustic soda is also used. However, lime offers a multitude of advantages, both in terms of ease of use and efficiency, because it:

- Is not as hazardous as caustic soda
- Is the most economically favorable alkaline reagent for acid neutralization, pH adjustment and removal of metals
- Neutralizes more quickly and completely
- Has a slower reaction time than caustic soda, allowing for better control
- Offers a stronger base than caustic soda
- Is delivered dry, therefore the end user does not pay for water content
- Creates a sludge that is low volume and easy to handle
- Has a pH range that is optimal for metals removal
- Does not freeze

To learn more about Carmeuse's lime products and processes in the steelmaking process, including how lime is an effective product for limiting environmental impact, visit: [www.carmeuse.com](http://www.carmeuse.com)



## IMPACTING EVERY DAY LIFE

Carmeuse Americas is a leading manufacturer of lime, limestone and mineral-based products used in a variety of industrial, construction, soil improvement applications, and benefits the environment by providing cleaner air and safer water. Carmeuse and its subsidiaries also offer equipment and services to optimize our customers' processes, improve safety, and provide reliable supply. Carmeuse Americas is headquartered in Pittsburgh, PA and has over three dozen production facilities across the Eastern U.S., Canada, and Latin America, with over 2,000 employees. For more information, visit our website.



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