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Pinch Valves and Lime : How the pinch Valve Holds up in the Chemical and Wastewater Treatment Industries

By: Jane Muder

Lime is a generic term for several types of mineral compounds that have a calcium base. Most types of lime are calcium oxides, calcium hydroxides, or calcium carbonates. Typically, lime is mined in nature in the calcium carbonate form (CaCO_3), and is converted into calcium hydroxide (its liquid form) or calcium carbonate (its crystalline solid form) through an intense heating process. The compounds produced by the heating process are alkaline (or, basic) and quite caustic. The causticity of these calcium compounds means they can be corrosive to the handling materials used in various industries.

After treatment, lime slurry can be used in many different industries, such as chemical treatment and wastewater treatment applications. It is a valuable compound for controlling the Ph of a substance (essentially, how acidic or basic a solution or compound is), as well as for other cleaning and processing purposes. Lime is an extremely abrasive and caustic compound, and it has the potential to do great damage to machine components, gears, or even the valves themselves. Of course, keeping all machine parts in good working order and well lubricated is imperative to the continued functioning of the lime slurry handling equipment. However, choosing the right type of valve for such an application is important, too.

Why use pinch valves with lime slurry applications?

Pinch valves are better engineered for tough slurry applications. Part of the reason they are superior is integral to the design of the valves. Inside each valves is an elastomer sleeve containing a round interior. The inside of this sleeve has no crevices or indentations to allow slurry compounds to collect and dry into hard, sharp materials. If a pinch valve sleeve is damaged by slurry applications, it can usually be replaced very easily and inexpensively. Also, the closing patterns of these sleeves allow lime slurry throttle control to be as precise as possible.

Pinch valves can be operated by handwheels, pneumatic actuators, hydraulic actuators or electrical actuators. Often affordable, pinch valves also can be easily replaced. More importantly, there exists a wide variety of pinch valve sleeves from which to choose that will suit all kinds of chemical applications. These pinch valve sleeves are made of a variety of elastomers that work in different temperature ranges and are able to handle different levels of causticity.

The valve sleeve is, in fact, another critical reason why pinch valves are ideal for lime slurry applications. When the valve is closed, the flexible rubber sleeve will stretch. Lime buildup chips off as a result of the stretching and flexing; meanwhile, the velocity of fluid against the closing valve helps wash off additional debris. The chemical and wastewater treatment industries often define these valves as "self-cleaning," a characteristic that further reduces machine downtime.

Because of its causticity and texture, lime slurry is a tough application that can clog a piping system. Pinch valves are well suited for these tough applications because they resist clogging – their lack of a packing box and smooth interior construction lessen the chances of clogging considerably. The hot, caustic, jagged-edged lime slurry can also be accommodated by a pinch valve sleeve constructed of an elastomer material suited to that specific application. This extends the life of the valve sleeve, promoting

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processing system safety and efficiency.

Red Valve is a leading industry manufacturer of [pinch valves for the wastewater, mining, and chemical processing industries](#). The company also sells a variety of [pinch valve sleeves](#), as well as other valve products, such as knife gate valves, pressure sensors, and pinch valve sleeves. For more information, or to find valves suitable for your toughest applications, visit the official Red Valve Web site.

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