

## Calcium Chloride *Market Reviews*

### Industrial Uses

## 7 Distillate and LPG Drying

Cal-Dry calcium chloride, a proprietary General Chemical formulation, is an enhanced product that removes haze and dissolved water that can cause haze from finished refinery distillates.

#### DESCRIPTION

Refiners cool steam-stripped hydrocarbon streams to remove much of the water in the product. The product then goes to salt dryers, most of which operate between 90 and 100°F. Refiners have traditionally used rock salt (NaCl) or CaCl<sub>2</sub> to dry distillate and cracked-product streams.

Rock salt removes only water droplets and reduces haze point 15 to 20°F below the operating temperature of the salt dryer. Calcium chloride, as a hygroscopic material, removes soluble and insoluble water from hydrocarbon streams, so it gives greater hazepoint reduction than salt, i.e., 20°F or more.

Unfortunately CaCl<sub>2</sub> particles tend to fuse and form bridges. The channels formed create an uneven hydrocarbon flow through the vessel. Cal-Dry CaCl<sub>2</sub> minimizes bridging while preserving the benefits of CaCl<sub>2</sub>. It also can be used at lower temperatures than rock salt, so it has greater drying effectiveness.

Cal-Dry CaCl<sub>2</sub> reduces or eliminates distillate haze problems caused by high throughputs or excessive salt-dryer temperature and further cooling in storage. It is pH adjusted to reduce the possibility of dryer corrosion.

#### APPLICATION

Most refiners use upflow salt dryers with a maximum average velocity of less than 10 in./min. Upward velocities with heavier, more viscous stocks average about 6 in./min. The inlet of the distribution system should ensure even plug

flow up the vessel through the salt bed, which is usually supported by gravel. Salt crystal precipitation or fouling in the gravel bed can be eliminated by placing a 2-in. layer of sand on top of the gravel prior to charging Cal-Dry CaCl<sub>2</sub>.

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