

October 4, 2013

Backgrounder

OxyChem is the World's Largest Producer of Calcium Chloride, a Natural Product that Contributes to Public Safety, Health, Commerce and Quality of Life

Occidental Chemical Corporation (OxyChem), a subsidiary of Occidental Petroleum Corporation, is the world's largest producer of calcium chloride (CaCl_2), one of nature's uncommon wonders. Calcium chloride is a specialty salt with unique properties that are used to improve driving conditions and pedestrian safety, prevent unhealthy dust in the air we breathe, and enhance the performance of products and processes that contribute to the supply of energy, food, and other essentials of life. OxyChem's production facility in Ludington, Michigan, utilizes the abundant supply of naturally occurring brine to produce a variety of liquid and solid calcium chloride products, each processed to meet specific application requirements.

Calcium chloride from OxyChem is refined from natural brines found in sandstone formations underground. By processing naturally occurring brine, reactions with chemicals such as hydrochloric acid or ammonia used in other CaCl_2 manufacturing processes can be avoided. The national Organic Standards Board noted this distinction when it classified the brine process OxyChem uses to produce CaCl_2 as "non-synthetic."

An established Michigan brine supply and rigorous process control measures enable OxyChem to protect product quality from raw material through processing, packaging and delivery. OxyChem calcium chloride products support compliance with the *Buy American* provisions of the American Recovery and Reinvestment Act of 2009.

Calcium Chloride Properties

Calcium chloride contributes three unique and highly valuable performance properties unmatched by sodium chloride (rock salt) and other chloride materials:

1. It is hygroscopic, strongly attracting moisture from its surroundings.
2. Solid calcium chloride is deliquescent, meaning it can absorb enough moisture to convert to liquid brine.
3. When dissolved in water, solid calcium chloride releases heat in an exothermic reaction.

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Benefits of Calcium Chloride

The value of these calcium chloride properties is apparent in key applications. The ability of CaCl_2 to attract water – because it is a hygroscopic material – makes it a highly effective dust suppressant when applied to the surface of gravel roads. It is also an effective stabilizing agent in gravel road bases and in mixtures of road base gravel and pulverized asphalt created during the full-depth reclamation process. In these applications, calcium chloride also attracts moisture from the air (and retained moisture applied during construction and maintenance operations) to bind fine and coarse gravel particles together, preventing road degradation.

The hygroscopic properties of calcium chloride, as well as the material's deliquescent and exothermic properties, are highly beneficial for quickly melting ice on sidewalks and steps. Ice melter speed of action is determined by how easily the deicing agent dissolves when exposed to snow or ice to form a brine solution. The brine lowers the freezing point of water to melt additional snow and ice on contact.

By attracting moisture from its surroundings, CaCl_2 speeds up the creation of brine compared to rock salt and other ice melt materials. Also contributing to the rapid formation of brine is calcium chloride's deliquescence – the material's tendency to dissolve by absorbing moisture from the air under very cold conditions when the surface of ice is relatively dry. Finally calcium chloride releases considerable heat when dissolved in water. This exothermic reaction contributes to faster ice melting at colder temperatures than rock salt and other products which must draw heat from their surroundings to dissolve and form brine.

Similarly, liquid calcium chloride is applied to pre-wet rock salt and abrasive materials used to keep highways safe and open for traffic during and after winter storms. Prewetting rock salt with calcium chloride provides salt with the moisture it needs to form liquid brine and initiate melting, particularly when temperatures drop below the effective working range of straight rock salt. Prewetting with liquid calcium chloride has also been proven to reduce bounce and scatter of rock salt, which means more deicer stays on the pavement to melt ice and up to 40% less is introduced into the surrounding environment.

The beneficial properties of calcium chloride are also used to improve a wide range of other products and processes including oil and gas exploration and production, food processing, production of concrete, and formulation of animal feeds.

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Leading CaCl₂ Brands

OxyChem calcium chloride products are among the leading brands in the industry. The company supplies CaCl₂ products in a range of forms and concentrations including:

- PELADOW™ Premier Snow & Ice Melter, the sidewalk snow and ice management industry's leading brand, featuring a unique spherical shape to accelerate penetration and melting of ice.
- LIQUIDOW™ Technical Grade Calcium Chloride Solution, a dust control product with a more than 100-year track record of performance. It is also used in road base stabilization and full depth reclamation, and for prewetting road salt and abrasive materials used in highway winter maintenance programs.
- DOWFLAKE™ Xtra 83-87% Calcium Chloride Flakes, a solid product containing 10% more calcium chloride than conventional flake CaCl₂ products to provide more pound-for-pound performance in ice melting, dust control, and other applications.
- COMBOTHERM™ Blended Deicer, an economical, high-performance blended deicer containing at least 70% calcium chloride.
- BRINERS CHOICE™, a product used in food processing for treatment of fruits and vegetables, as a deicer in cold storage and processing facilities, and as a secondary refrigerant or immersion freezing fluid.
- And other specialized grades.

Commitment to Support

OxyChem is committed to the successful and responsible use of its calcium chloride products, providing Material Safety Data Sheets (MSDS) and other detailed information to assist customers in their effective and proper use. OxyChem supports its broad network of experienced distributors across North America in providing local assistance to customers who purchase and use OxyChem products. Distributors include experts in road improvement, winter highway maintenance, and janitorial, sanitation and landscape supplies, as well as other industry specialists.

The OxyChem calcium chloride website at **OxyCalciumChloride.com** was developed to offer in-depth educational and instructional information to assist facility managers, road officials, engineers and other stakeholders in understanding application needs and making more informed product selection and application decisions.

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Occidental Chemical Corporation

A subsidiary of Occidental Petroleum Corporation

About Occidental Chemical Corporation

Occidental Chemical Corporation (OxyChem) is the world's largest producer of calcium chloride, a specialty salt that contributes unique performance properties in a diverse range of applications. OxyChem's calcium chloride production facility in Ludington, Michigan, utilizes the abundant supply of naturally occurring brine to produce a variety of liquid and solid calcium chloride products, each processed to meet specific application requirements. OxyChem calcium chloride products are all made in the United States and marketed under brands including PELADOW™, LIQUIDOW™ and DOWFLAKE™ Xtra. They are also incorporated in products marketed under independent brand names. OxyChem is a subsidiary of Occidental Petroleum Corporation (NYSE: OXY), an international oil and gas exploration and production company. OxyChem has been an active participant in the American Chemistry Council's Responsible Care® initiative since its inception in 1988, demonstrating a commitment to attaining the highest levels of safety and environmental achievement. Learn more at OxyCalciumChloride.com and OxyChem.com.

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