

Global Product Strategy

Product Stewardship Summary

Organic Phosphonate Salts

Chemical Identity and Synonyms

- Organic phosphonate salts
- Organophosphonates
- Organophosphonic acid salts
- The chemical identity of this material is considered proprietary information

Physical Chemical Properties

- Clear, yellow liquid
- Non-volatile
- Highly soluble in water

Nalco Products

- NALSTRIP 2634, Nalco EL-5600 (This list only represents some products with high sales volume that contain these specific materials).

Product Uses

- Organic phosphonate salts function as chelating agents and scale inhibitors. Scale is caused by the deposition of insoluble salts such as calcium carbonate. Boiler scale acts like insulation and, as it accumulates, can result in higher energy costs to maintain water temperature. The organic phosphonate salts effectively bind metal, calcium and magnesium ions thereby reducing scale formation. Energy costs can be maintained and boiler life prolonged with proper management of scale formation.
- The chelating property of the organic phosphonate salts is also beneficial in removing rust.
- Nalco primarily uses organic phosphonate salts in industrial cooling and boiler water applications.
- Organic phosphonate salts are also used by the soap and detergent, photographic, paper, pulp and textile industries. They are commonly found in laundry detergents, dish washing products and hard surface cleaners and reverse osmosis water treatment applications.

Chemical Related Health Information

- These organic phosphonate salts have moderate toxicity if swallowed and a very low toxicity if applied to the skin.

- These chemicals are minimally irritating to the eyes and skin.
- These organic phosphonate salts are not expected to produce skin sensitization
- These chemicals do not cause damage to genetic material (DNA).
- These types of chemicals do not damage the nervous system.
- These organic phosphonate salts are not carcinogenic in animal studies.
- There is no evidence that this type of chemical harms the unborn child or impairs fertility.

Chemical Related Environmental Information

- These organic phosphonate salts have a low toxicity to fish and invertebrates.
- These chemicals can inhibit algae growth in test studies due to binding of essential nutrients. If additional nutrients are provided, the effect is reversed.
- The biodegradation of organic phosphonate salts in the environment is slow. However, these chemicals adsorb strongly to soils and particles, which greatly reduces the exposure to organisms in the environment. Soil microbes can use phosphonates as a phosphate source.
- U.S. EPA software does not predict that these organic phosphonate salts will bioaccumulate.

Chemical Exposure Potential

- Engineering controls are in place at Nalco facilities to reduce exposures of these chemicals to employees, stakeholders, and the environment.
- These chemicals are not released to the air.
- The packaged products are warehoused and any spills in the warehouse that are not immediately contained, naturally drain to our process water waste treatment. The spilled material is then segregated to different tanks for disposal or treatment, depending on the severity of the spill. All treated wastewater is monitored and analyzed continually for compliance with state and local regulation.
- These organic phosphonate salts used in industrial applications and potential exposure is limited to those individuals working at the facility.
- Nalco products are usually diluted at the customer's site to achieve the final use concentration.
- These organic phosphonate salts are acceptable by FDA for use in boiler water applications where the boiler water may contact food. They are also authorized by FDA for use in federally inspected meat and poultry plants. Authorized use is under category G6.

Chemical Risk Mitigation

- Risk is measured as a function of hazard and exposure. These organic phosphonate salts have a moderate hazard for humans based on toxicity and irritancy and a low hazard for the environment.
- When handled properly, utilizing appropriate personal protection equipment (PPE), potential exposure to these organic phosphonate salts is significantly reduced.
- Under normal conditions of anticipated use and when used with appropriate handling procedures and PPE, the overall potential risk of these organic phosphonate salts to human health and the environment is low.
- As with all products, care must be taken to prevent its release to the environment. In the event of a chemical release or spill Nalco has procedures in place that will reduce the potential human and/or environmental exposure through containment and remediation efforts.

Legal Statements

This product stewardship summary provides only basic health and safety information for general public use. Product stewardship summaries are not to be used in lieu of any regulatory or legal documentation and are not to be substituted for any right-to-know notifications.