

**ORIENT PAPER MILLS - CAUSTIC SODA UNIT, AMLAI, ANUPPUR (M.P.)**

**PRODUCT STEWARDSHIP SUMMARY**

**CALCIUM HYPOCHLORITE**

Synonyms : Calcium hypochlorite  
 Chemical Formula : Ca (OCI)<sub>2</sub>  
 Molecular Weight : 143  
 Description : Calcium Hypochlorite has a white color and distinct chlorine odor.

[Refer to the material Safety Data Sheet (MSDS) for additional information and before handling this material.]

**Product Overview**

Calcium Hypochlorite is sold as clear hypo liquor which has a distinct chlorine odor. Calcium Hypochlorite is an effective public health biocide registered for numerous sanitization applications by the U.S. EPA under the Federal Insecticide, Fungicide, and Rodenticide Act, and supported under the European Biocidal Products directive.

**Production**

In the hypochlorite section chlorine gases are utilized from:

- Uncondensed gases from liquefier.
- Exhaust gases from degasifier of membrane cell plant.
- Sniff gases from chlorine receivers, chlorine storage tanks and chlorine toners and Gases from cells as per requirement

These gases are absorbed in a concrete tower with milk of lime which is received from M/S Orient Paper Mills, Amlai. The chlorine gas reacts with milk of lime forming calcium hypochlorite. Unabsorbed gases of I<sup>st</sup> Tower go to II<sup>nd</sup> Hypo Tower to absorbed remaining chlorine gas if any.

Always some excess lime is maintained in the both tower so that the gases leaving the absorption tower do not contain any chlorine. The Hypo Chlorite from tower goes to hypo settler where sludge gets settle and drained out and clear hypo liquor goes to the tank.

**Uses**

Calcium Hypochlorite liquor is a chlorine source, which is used for bleaching of pulp for manufacturing of paper. The calcium hypochlorite may be used for public health treatments such as: the sanitization of drinking water, sewage, waste water, swimming pools. It is also used for treatment of industrial cooling water for slime control (of bacterial, algae and fungal origin) and for disinfection, order control and BOD reduction in sewage water.

**Health Effects**

Calcium Hypochlorite in concentrated form is corrosive to the eyes and skin, and burns may occur within a short time from the onset of exposure. Calcium Hypochlorite in concentrated form is moderately toxic if swallowed. It can cause burns to the digestive tract and has low acute toxicity from skin exposure. In the unlikely event concentrated Calcium Hypochlorite is inhaled for 4 or more hours, it is considered highly toxic. The effects of such inhalation are confined initially to severe irritation

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to the respiratory tract. In diluted form and in its end-use environment, Calcium Hypochlorite does not pose any significant risk to humans and the environment. From repeated inhalation exposure of the concentrate, the primary effect from Calcium Hypochlorite is damage to the upper respiratory tract and lungs. Effects from repeated ingestion are irritation to severe irritation of the gastrointestinal tract. Calcium Hypochlorite is not absorbed through the skin in significant amounts; therefore, the only effect from repeated skin contact with the concentrate would be irritation and/or burns. Calcium Hypochlorite is not a cancer-causing agent. Calcium Hypochlorite does not impair reproductive performance, fertility, or fetal development.

**Environmental Effects**

Calcium Hypochlorite as a concentrate is highly toxic to fish, aquatic invertebrates and aquatic plants; however, once diluted into the end-use applications, it does not pose a significant risk. The potential for absorption of Calcium Hypochlorite by the body is very low. However, if it is absorbed, it is excreted rapidly with no potential for bioaccumulation.

**Exposure Potential**

Although most transfers of the chemical are contained in enclosed spaces, exposure to the chemical could occur at a manufacturing facility, treating plant, and site of an accidental release during transportation. End users of Calcium Hypochlorite are unlikely to be exposed when transferring the product from its storage to OPM storage through a pump.

**Safe Handling and Storage**

Contamination or improper use may cause the release of toxic gases. Do not allow Calcium Hypochlorite to contact any acidic material, including other water treatment products. This product must be stored in a cool, well ventilated area. Calcium Hypochlorite is a strong oxidizing agent.

**Packaging and Transportation**



OPM-CSU only transfer to M/S Orient Paper Mills, Amlai through pipeline.

**Fire and Explosion Hazards**

Contamination or improper use may cause the release of toxic gases. Do not allow Calcium Hypochlorite to contact any foreign matter, including other water treatment products. Exposure to heat can cause this product to rapidly decompose, leading to intense fire, explosion, and the release of toxic gases. This product must be stored in a cool, well ventilated area. Calcium Hypochlorite is a strong oxidizing agent. This product can increase fire intensity. This product must be kept away from heat, flame, and burning material.

**Risk Management**

The likelihood of exposure to the chemical is low when the end-user carefully reads and follows all label directions for proper use. The risk of adverse effect to health could potentially occur if the

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concentrated product comes in contact with the skin or if there is significant, direct inhalation, when a container of the concentrated material is opened or during addition to the pool. Once dissolved in pool water, Calcium Hypochlorite will cause no harm to the bathers in the water and actually protects bathers from harmful waterborne pathogens.

**Physical and Chemical Properties**

Properties of Calcium Hypochlorite	
State	Liquor
Specific Gravity of Liquid @ 30 °C	1.02 ~ 1.10
Concentration of available chlorine, Gm/L	20 ~ 35
Decomposition of chlorine	It decomposes exothermically when heated to 175°C releasing oxygen.

**Regulatory Information**

The Calcium Hypochlorite Material Safety Data Sheet contains regulatory information.

**Additional Product Information**

**Source** – Calcium Hypo chlorite liquor is manufactured by reaction of chlorine gas with milk of lime.



**Allergenic Materials** Calcium Hypo chlorite is not manufactured using any of the following allergenic materials: carmine/cochineal extracts, celery, colors/color additives, dyes/food dyes, eggs/egg products, seafood/fish/shellfish/crustaceans, flavors, glutens, legumes, milk, monosodium glutamate (MSG), mollusks, mustards, plant nuts/seeds/oils (sesame, sunflower, safflower, canola, etc.), peanuts/peanut products, protein hydrolysates, soy/soybeans/soybean products, spices, sulfites, sulfates, tree nuts/tree nut oils and wheat.



**Bovine Spongiform Encephalopathy** - Calcium Hypo chlorite is not of animal origin, and, to OPM-CSU’s knowledge, does not contribute to Transmissible Spongiform Encephalopathy (TSE)/Bovine Spongiform Encephalopathy (BSE).

**Genetically Modified Organisms (GMOs)** - Calcium Hypo chlorite is not manufactured with and does not contain genetically modified organisms.

**Natural Latex Rubber** - Calcium Hypo chlorite is not manufactured with and does not contain natural latex rubber.

**Nutritional Value** - Calcium Hypo chlorite does not have nutritional value.

**Product Stewardship**

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OPM-CSU is committed to managing Calcium Hypo chlorite so that it can be safely used by its employees and customers. OPM-CSU’s relationships with its customers encourage communication about safety and environmental stewardship.

**Additional Information**

For more information regarding OPM-CSU’s Calcium Hypochlorite, contact our customer service department by calling 07652-286179 or, in Orient Paper Mills – Caustic Soda Unit, Distt. Anuppur, Madhya Pradesh – 484 117 India.



**Notice**

Prior to its use, the user is responsible for determining the suitability of the product or products covered by this Product Stewardship Summary and for complying with state, local laws and regulations in connection with its use. Neither OPM-CSU nor any of its affiliates shall be responsible for any damages of any kind whatsoever resulting from the use of or reliance on this Product Stewardship Summary or product or products to which it refers.

This Product Stewardship Summary is intended only to provide a general summary of the potential hazards associated with the product or products described herein. It is not intended to provide detailed information about potential health effects and safe use and handling information and, although OPM-CSU believes this information is correct, OPM-CSU makes no warranties as to its completeness or accuracy. Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling the OPM-CSU product(s) mentioned in this document. Before working with any of these products, users must read and become familiar with the available information on product hazards, proper use, and handling. Information is available in several forms, such as Material safety data sheets (MSDS) and product labels. A copy of OPM-CSU’s MSDS for Calcium Hypochlorite can be obtained by the company.

This information is subject to change without notice.

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