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Laguna Clay Company
14400 Lomitas Ave
City of Industry, CA 91746
1-800-4Laguna
info@lagunaclay.com
www.lagunaclay.com

MATERIAL SAFETY DATA SHEET (MSDS)
COPPER CARBONATE

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY

IDENTIFICATION OF THE SUBSTANCE OR PREPARATION

Substance:	COPPER CARBONATE
Alternative names:	copper carbonate basic, basic cupric carbonate, copper carbonate hydroxide, dicopper dihydroxycarbonate, basic copper (II) carbonate, copper (II) carbonate hydroxide, copper hydroxide carbonate, cupric carbonate dihydroxide
IUPAC name:	dicopper carbonate dihydroxide
CAS name:	copper carbonate basic
Molecular formula:	$CH_2Cu_2O_5$
Structural formula:	$CuCO_3Cu(OH)_2$
CAS RN:	12069-69-1
RTECS number:	GL6910000
EC number:	235-113-6

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Date Prepared – April 2012

Emergency Telephone: 1-800-424-9300 CHEMTREC (Customer #24837)

2. HAZARDS IDENTIFICATION

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

MATERIAL SAFETY DATA SHEET (MSDS)
COPPER CARBONATE

According to European Directive 67/548/EEC or 1999/45/EC.

Harmful if swallowed.
Irritating to eyes and skin.
Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

According to Regulation (EC) No 1272/2008 (EU/GHS/CLP).

Acute toxicity, Oral (category 4): Harmful if swallowed.
Skin irritation (category 2): Causes skin irritation.
Eye irritation (category 2A): Causes serious eye irritation.
Aquatic acute (category 1): Very toxic to aquatic life.
Aquatic chronic (category 1): Very toxic to aquatic life with long lasting effects.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Component Name	CAS No	EC No	Concentration
Copper carbonate	12069-69-1	235-113-6	>98%

4. FIRST AID MEASURES

If swallowed:

Drink promptly a large quantity of milk, egg white, gelatin solution. If these are not available, large quantities of water. Never give anything by mouth to an unconscious person. Do not induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. Get medical attention immediately.

If skin contact:

Remove contaminated clothing and shoes. Wash with plenty of soap and gently lukewarm running water until no evidence of chemical remains (approximately 5 minutes). Make sure the water is clean. Give medical attention. Launder contaminated clothing before reuse.

If eye contact:

Hold eyelids open and flush with gently running lukewarm water, until no evidence of chemical remains (at least 20 minutes). Make sure the water is clean. If the affected person wears a contact lens, do not hesitate removing it. Get medical attention immediately.

If inhaled:

Remove victim to fresh air. Supply fresh air. If breathing is difficult, give oxygen. If required, provide artificial respiration, preferably mouth-to-mouth. Consult doctor if symptoms persist.

4. FIRST AID MEASURES (Continued)

Most important symptoms and effects, both acute and delayed:

MATERIAL SAFETY DATA SHEET (MSDS)
COPPER CARBONATE

Cough, difficulty in breathing, gastrointestinal disturbance, nausea, vomiting. Symptoms of systemic copper poisoning may include: capillary damage, headache, cold sweat, weak pulse, and kidney and liver damage, central nervous system excitation followed by depression, jaundice, convulsions, paralysis, and coma. Death may occur from shock or renal failure. Chronic copper poisoning is typified by hepatic cirrhosis, brain damage and demyelination, kidney defects, and copper deposition in the cornea as exemplified by humans with Wilson's disease. It has also been reported that copper poisoning has lead to hemolytic anemia and accelerates arteriosclerosis.

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5. FIRE FIGHTING MEASURES

GENERAL HAZARD:

Negligible fire and explosion hazard when exposed to heat or flame.

SUITABLE EXTINGUISHING MEDIA:

Use extinguishing media suitable to the environment. Use dry chemical, carbon dioxide, water spray, alcohol-resistant foam. If stored with other combustible products use water, CO2 or dry chemical.

FIGHTING EQUIPMENT:

Firefighters should use self contained breathing apparatus and protective clothing and gloves to prevent contact with eyes and skin.

SPECIFIC HAZARDS:

Thermal decomposition products include highly toxic gases. Copper oxides. Carbon monoxide. Carbon dioxide. Acrid smoke and fumes. Copper fumes.

ADDITIONAL INFORMATION:

In case of fire, prevent by any means possible spillage from entering drains or water courses.

Hazardous Material Information System (HMIS)

HEALTH	**2**	
FLAMMABILITY	**0**	
REACTIVITY	**0**	
PROTECTIVE EQUIPMENT	**E**	

HAZARD RATINGS: 4 = severe, 3 = serious, 2 = moderate, 1 = slight, 0 = minimal
E= Safety glasses, gloves, dust respirator

5. FIRE FIGHTING MEASURES (Continued)

National Fire Protection Association (NFPA) 704 standard

MATERIAL SAFETY DATA SHEET (MSDS)
COPPER CARBONATE

0

2 0

- Flammability 0: will not burn.
- Health 2: intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury.
- Reactivity 0: normally stable, even under fire exposure conditions, and is not reactive with water.

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6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:

Ensure adequate ventilation. Avoid formation of dust. Personnel involved in clean-up require adequate respiratory, skin and eye protection.

ENVIRONMENTAL PRECAUTIONS:

Pollution may be caused by runoff from fire control or dilution water.
Prevent the material from entering drains or water courses. High concentrations of copper on lakes, rivers and streams are toxic to aquatic ecosystems.

METHODS FOR CLEANING UP:

Spill on ground:

Small spills:	Isolate the spill area to prevent people from entering. Avoid dust formation. May be mopped and wiped off. Arrange disposal without creating dust. Wash area with plenty water.
Large spills:	Isolate the spill area to prevent people from entering. Avoid dust formation. Recover the material and deposit in a polypropylene bag. Arrange disposal without creating dust. Wash ground with plenty water. Properly dispose the waste materials after and according with the local regulations.
Spill on water:	Isolate the spill area. Recover the material because the material is insoluble in cold water. Deposit in a suitable container and according with the local regulations. Do not drink the contaminated water. High concentrations of copper on lakes, rivers and streams are toxic to aquatic ecosystems.

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7. HANDLING AND STORAGE

GENERAL INFORMATION:

Store above 0°C and below 35°C (95°F). Average shelf life under proper storage conditions is at least two (2) years.

PRECAUTIONS FOR SAVE HANDLING:

Working areas must be well aerated. Provide suction extractors if dust is formed. Avoid eye, skin contact and breathing dust. Use safety goggles, protective clothing, gloves and dust respirator covering nose and mounth. Keep container tightly closed and dry. Remove contaminated clothing and protective equipment before entering eating areas. Carefully wash hands after using the compound and most especially before eating or drinking.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:

It should not be stored in metal containers. May be corrosive to metal after a long period of time.

Store in a clean, cool, dry, and well ventilated area and out of direct sunlight. Do not store near feed, food or within the reach of children. Protect from rain and excessive heat. Keep container tightly closed and dry. Do not store in a unlabeled container. Strong acids, sodium hypobromite, acetylene, hydrazine, nitromethane are some of the substances copper carbonate can not be kept with.

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8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

CONTROL PARAMETERS:

Control enclosed spaces with adequate ventilation to prevent exceedance of ACGIH Threshold Limit Value (TLV) (1mg/m^3 for copper dusts and mists as Cu) and OSHA Permissible Exposure Limit (PEL) (1mg/m^3 for copper dusts and mists as Cu).

APPROPRIATE ENGINEERING CONTROLS:

Ventilation: Use local ventilation if dusting is a problem, to maintain air levels below the recommended exposure limit.

PERSONAL PROTECTIVE EQUIPMENT:

Respiratory protection: In enclosed spaces where the TLV or PEL may be exceeded, wear approved dust or mist respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection: Wear PVC gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION (continued)

Eye protection: Wear splashproof of dust resistant safety goggles to prevent eyes contact with this substance. Use equipment for eye protection

	tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin protection:	Employees must wear appropiate protective (impervious) clothing to prevent repetead or prolonged skin contact with this substance.
Other recommendations:	After handling this product always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.

9. PHYSICAL AND CHEMICAL PROPERTIES

Molecular weight :	221,12 g/mole
Appearance:	fine homogeneous powder
Color:	light green.
Odor:	odorless.
Physical state:	powder.
Water solubility:	insoluble in cold water and alcohol.
Solubility:	soluble in acids.
Melting point:	descomposes above 200°C (392°F)
Density(compacted):	0,60 g/cc to 1,00g/cc
Boiling point:	333,6°C at 760 mmHg
Flash point:	169,8°C
Flammability:	Not flammable. Not combustible.
Explosive properties:	Not explosive.
Auto-ignition temperature:	Not auto-ignition

10. STABILITY AND REACTIVITY

STABILITY AND REACTIVITY:

This material is stable and not considered reactive under normal temperatures and pressures.

CONDITIONS TO AVOID:

Excessive heat, direct sunlight, dust generation, incompatible materials, strong oxidants.

INCOMPATIBLE MATERIALS:

Strong acids, sodium hypobromite, acetylene, hydrazine, nitromethane.

HAZARDOUS DESCOMPOSITION PRODUCTS:

Descomposes, giving off highly toxic gases. Copper oxides. Carbon monoxide. Carbon dioxide. Acrid smoke and fumes. Copper fumes.

POSSIBILITY OF HAZARDOUS REACTIONS:

This material will not react or polymerize.

11. TOXICOLOGICAL INFORMATION

RTECS number: GL6910000

MATERIAL SAFETY DATA SHEET (MSDS)
COPPER CARBONATE

OSHA Permissible Exposure Limit (PEL): 1mg/m^3 (TWA) for copper dusts and mists as Cu.
ACGIH Threshold Limit Value (TLV): 1mg/m^3 (TWA) for copper dusts and mists as Cu.

ROUTES OF EXPOSURE:

Ingestion:	Harmful if swallowed. Ingestion has often irritating effect on the gastrointestinal tract. Symptoms are severe if copper is retained in the stomach, as in the unconscious victim. Some of the signs of poisoning which occurred after swallowed include a metallic taste in the mouth, burning pain in the chest and abdomen, intense nausea, vomiting, diarrhea, headache, sweating, shock, discontinued urination leading to yellowing of the skin. Also may occur injury to the brain, liver, kidneys and stomach and intestinal linings.
Skin contact:	Causes skin irritation. Excessive exposure, will produce skin irritation with pain, itching and redness. Severe over exposure cause skin burns. Prolonged exposure may cause dermatitis .
Eye contact:	Causes serious eye irritation. Exposure will cause redness and pain. Prolonged exposure may cause conjunctivitis, turbidity, ulceration and corneal abnormalities.
Inhalation:	May cause respiratory irritation. Workers exposed to copper salts in dust form complained of metallic taste with irritation of nasal and oral mucous. Acute exposure inhalation of dusts and mist of copper salts may cause irritation of upper respiratory tract with coughing, burns, breathing difficulty.

CHRONIC TOXIC EFFECTS:

Individuals with Wilson's disease are unable to metabolize copper. Thus, copper accumulates in various tissues. Chronic copper poisoning is typified by hepatic cirrhosis, brain damage and demyelination, kidney defects, and copper deposition in cornea as exemplified by humans with Wilson's disease. It has also been reported that copper poisoning has lead to hemolytic anemia and accelerates arteriosclerosis.

CARCINOGENICITY:

Not known. None of the components in this product is listed by IARC, U.S. NTP, California Prop 65, U.S. EPA Carcinogens, TRI Carcinogen, ACGIH, NIOSH and OSHA as a potential carcinogen.

MUTAGENICITY:

Not known.

TOXICOLOGICAL INFORMATION (continued)

TERATOGENICITY:

CA Prop 65 Developmental Toxin: Not listed.
U.S. TRI Developmental Toxin: Not listed.
CA Prop 65 Female Reproductive Toxin: Not listed.
CA Prop 65 Male Reproductive Toxin: Not listed.
U.S. TRI Reproductove Toxin: Not listed

ACUTE TOXICITY:

Oral LD50 (rat) :	> 1350 mg/kg
Dermal LD50 (rat):	> 2000 mg/kg
Inhalation LC50(rat):	> 25 mg/L (4 h)
Skin irritation:	Yes
Eye irritation:	Yes, serious.
Sensitization:	None expected.

12. ECOLOGICAL INFORMATION

ECOTOXICITY:

Very toxic to aquatic life with long lasting effects.

Fish (Onchorineus mykiss):	LC50 (96h): 0,017 mg/L.
Freshwater invertibrate (Daphnia magna):	LC50 (48h): 0,250 mg/L.
Algae (Scenedesmus Subspicatus):	EC50 (72h): 45 mg/L.

Very toxic:	to fish, molluscs, crustaceans, insects.
Harmful:	to terrestrial fauna, birds, algaes.
Not toxic:	to bees

PHYTOTOXICITY:

Non phytotoxic at the recommended rates.

BIOACCUMULATIVE POTENTIAL:

Copper is strongly bioaccumulated. Must be used in a manner that minimizes accumulation of copper in the soil.
Copper is stored primarily in the liver, brain, heart, kidney and muscles. After ingestion, more than 99% of copper is excreted in the feces.

MOBILITY:

The degree of mobility of copper in the environment depends upon the pH of ambient soils and waters. The higher the acidity, the more soluble copper salts are and, hence, the more mobile. The distance that it can travel in soil is limited by its strong adsorption to many types of surfaces. Partitioning of copper into air is negligible due to the low vapor pressure of copper salts.

12. ECOLOGICAL INFORMATION (continued)

ENVIRONMENTAL FATE:

Small amounts of copper are necessary for the life and health of plants, animals and humans.

Animals:	Excessive doses are excreted in the feces. Small amounts may be incorporated in natural proteins
Soil:	Strongly absorbed by soil. Copper carbonsate is partly washed down to lower levels, partly bound by soil components, and partly oxidatively transformed.

13. DISPOSAL CONSIDERATIONS

Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional and local authority requirements.
The generation of waste should be avoided or minimized wherever possible.
Avoid dispersal of spilled material, runoff and contact soil, waterways, drains and sewers.
Disposal of copper wastes into waterways is not allowed.
Do not contaminate water, food or feed by disposal.
Avoid excessive heat and incompatible materials such as strong acids, sodium hypobromite, acetylene, hydrazine, nitromethane.
Use registered transporters.

14. TRANSPORT INFORMATION

DOT SHIPPING NAME – COPPER CARBONATE – NON REGULATED

MARITIME TRANSPORT (IMDG Code): not dangerous goods.
ROAD/RAILWAY TRANSPORT (ADR/RID Code): not dangerous goods.
AIR TRANSPORT (IATA-DGR Code): not dangerous goods.

15. REGULATORY INFORMATION

MATERIAL SAFETY DATA SHEET (MSDS)
COPPER CARBONATE

Regulatory requirements are subject to change and may differ from one location to another. It is the buyer's responsibility to ensure that its activities comply with federal, state, local and country laws.

INTERNATIONAL REGULATORY:

UNEP Persistent Organic Pollutant (POP): Not listed.
UNEP Prior Informed Consent Chemical (PIC): Not listed.
WHO Obsolete Pesticide: Not listed.
WHO Acute Hazard: Not listed.
PAN Bad Actors: Yes.
PAN Dirty Dozen list: Not listed.

UNITED STATES OF AMERICA:

U.S. EPA Registered: Yes
Acute rating from EPA product label: Highly Toxic.
U.S. EPA Hazardous Air Pollutant: Not listed.
TRI Acute Hazard: Not listed.
CA Registered: Yes
CA Groundwater Contaminant: Not listed.
CA Toxic Air Contaminant: Not listed.
OSHA Status: This product is hazardous under the criteria of the OSHA Hazardous Communication Standard 29 CFR 1910.1200.
TSCA Chemical Inventory: Listed.
CERCLA: Hazardous substances: Cupric carbonate, basic.
SARA 302 Extremely Hazardous Substances: Not listed.
SARA 311/312 Hazardous Categories: Immediate (acute) Health Hazard, Delayed (chronic).
SARA 313 Reportable Ingredients: This product contains a percentage of metallic copper (CAS No. 7440-50-8) which is listed in Section 313 above minimis concentrations (40 CFR 372).
California Prop 65: Not listed.
Pennsylvania RTK: Listed.
Massachusetts RTK: Listed.

CANADA:

WHMIS: D2B.
Canadian Ingredient Disclosure List: Listed

EUROPEAN ECONOMIC COMMUNITY

This substance is not classified in the Annex I of Directive 67/548/EEC as such up to ATP 31 dated Jan/15/2009, but it may be included in one of the group entries.
This substance is not listed in the Annex I of Regulation (EC) No. 689/2008 (Export and Import of Dangerous Chemicals)
This substance is not listed in a priority list (as foreseen under Council Regulation (EEC) No 793/93 on the evaluation and control of the risks of existing substances)

MATERIAL SAFETY DATA SHEET (MSDS)
COPPER CARBONATE

16. OTHER INFORMATION

The information contained herein is furnished without warranty of any kind. Users should consider these data only as a suppliment to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers and the protection of the environment. Any information relating to usage is for guidance purposes only.

----------end of the Safety Data Sheet----------

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