



Right to Know Hazardous Substance Fact Sheet

Common Name: **CALCIUM CARBONATE**

Synonyms: Calcium Salt of Carbonic Acid, Chalk

Chemical Name: Limestone

Date: July 2015

CAS Number: 1317-65-3

RTK Substance Number: 4001

DOT Number: NA

Description and Use

Calcium Carbonate is a white to tan odorless powder or odorless crystals. It is used in human medicine as an antacid, calcium supplement and food additive. Other uses are agricultural lime and as additive in cement, paints, cosmetics, dentifrices, linoleum, welding rods, and to remove acidity in wine.

Reasons for Citation

- ▶ **Calcium Carbonate** is on the Right to Know Hazardous Substance List because it is cited by OSHA, NIOSH, and EPA.

SEE GLOSSARY ON PAGE 5.

FIRST AID

Eye Contact

- ▶ Immediately flush with large amounts of water for at least 15 minutes, lifting upper and lower lids. Remove contact lenses, if worn, while flushing. Seek medical attention immediately.

Skin Contact

- ▶ Remove contaminated clothing and wash contaminated skin with soap and water.

Inhalation

- ▶ Remove the person from exposure into fresh air.
- ▶ Begin rescue breathing using artificial respiration if victim ingested or inhaled substance.

EMERGENCY NUMBERS

Poison Control: 1-800-222-1222

CHEMTREC: 1-800-424-9300

NJDEP Hotline: 1-877-927-6337

National Response Center: 1-800-424-8802

EMERGENCY RESPONDERS >>>> SEE LAST PAGE

Hazard Summary

Hazard Rating	NJDOH	NFPA
HEALTH	1	-
FLAMMABILITY	0	-
REACTIVITY	0	-
REACTIVE		

Hazard Rating Key: 0=minimal; 1=slight; 2=moderate; 3=serious; 4=severe

- ▶ When **Calcium Carbonate** is heated to decomposition, it emits acrid smoke and irritating vapors.
- ▶ **Calcium Carbonate** is incompatible with ACIDS, ALUMINUM, AMMONIUM SALTS, MAGNESIUM, HYDROGEN, FLUORINE and MAGNESIUM.
- ▶ **Calcium Carbonate** mixed with magnesium and heated in a current of hydrogen causes a violent explosion.
- ▶ **Calcium Carbonate** ignites on contact with FLUORINE.
- ▶ **Calcium Carbonate** contact causes irritation to eyes and skin.
- ▶ Inhaling **Calcium Carbonate** causes irritation to nose, throat and respiratory system and can cause coughing.

Workplace Exposure Limits

OSHA: The legal airborne permissible exposure limit (PEL) is **15 mg/m³** (total particulate) averaged over an 8-hour workshift.

The legal airborne permissible exposure limit (PEL) is **5 mg/m³** (respirable fraction) averaged over an 8-hour workshift.

NIOSH: The recommended airborne exposure limit (REL) is **10 mg/m³** (total particulate) averaged over a 10-hour workshift.

The recommended airborne exposure limit (REL) is **5 mg/m³** (respirable fraction) averaged over a 10-hour workshift.

ACGIH: The threshold limit value (TLV) is **10 mg/m³ (total dust)** containing no asbestos and <1% crystalline silica averaged over an 8-hour workshift.

Determining Your Exposure

- ▶ Read the product manufacturer's Material Safety Data Sheet (MSDS) and the label to determine product ingredients and important safety and health information about the product mixture.
- ▶ For each individual hazardous ingredient, read the New Jersey Department of Health Hazardous Substance Fact Sheet, available on the RTK website (<http://nj.gov/health/workplacehealthandsafety/right-to-know/>) or in your facility's RTK Central File or Hazard Communication Standard file.
- ▶ You have a right to this information under the New Jersey Worker and Community Right to Know Act, the Public Employees Occupational Safety and Health (PEOSH) Act if you are a public worker in New Jersey, and under the federal Occupational Safety and Health Act (OSHA) if you are a private worker.
- ▶ The New Jersey Right to Know Act requires most employers to label chemicals in the workplace and requires public employers to provide their employees with information concerning chemical hazards and controls. The federal OSHA Hazard Communication Standard (29 CFR 1910.1200) and the PEOSH Hazard Communication Standard (N.J.A.C. 12:100-7) require employers to provide similar information and training to their employees.

This Fact Sheet is a summary of available information regarding the health hazards that may result from exposure. Duration of exposure, concentration of the substance and other factors will affect your susceptibility to any of the potential effects described below.

Health Hazard Information

Acute Health Effects

The following acute (short-term) health effects may occur immediately or shortly after exposure to **Calcium Carbonate**:

- ▶ Contact can irritate the skin and eyes.
- ▶ Inhaling **Calcium Carbonate** can irritate the nose, throat and lungs causing coughing.

Chronic Health Effects

The following chronic (long-term) health effects can occur at some time after exposure to **Calcium Carbonate** and can last for months or years:

Cancer Hazard

- ▶ While **Calcium Carbonate** has been tested, it is not classifiable as to its potential to cause cancer.

Reproductive Hazard

- ▶ According to the information presently available to the New Jersey Department of Health and Senior Services, **Calcium Carbonate** has been tested and has not been shown to affect reproduction.

Other Effects

- ▶ Persons with pre-existing eye or respiratory diseases might have increased sensitivity.

Medical

Medical Testing

For persons exposed to high levels:

- ▶ Monitoring serum calcium and serum electrolytes might be useful

Any evaluation should include a careful history of past and present symptoms with an exam. Medical tests that look for damage already done are not a substitute for controlling exposure.

Request copies of your medical testing. You have a legal right to this information under the OSHA Access to Employee Exposure and Medical Records Standard (29 CFR 1910.1020).

Workplace Controls and Practices

Very toxic chemicals, or those that are reproductive hazards or sensitizers, require expert advice on control measures if a less toxic chemical cannot be substituted. Control measures include: (1) enclosing chemical processes for severely irritating and corrosive chemicals, (2) using local exhaust ventilation for chemicals that may be harmful with a single exposure, and (3) using general ventilation to control exposures to skin and eye irritants. For further information on workplace controls, consult the NIOSH document on Control Banding at www.cdc.gov/niosh/topics/ctrlbanding/.

The following work practices are also recommended:

- ▶ Label process containers.
- ▶ Provide employees with hazard information and training.
- ▶ Monitor airborne chemical concentrations.
- ▶ Use engineering controls if concentrations exceed recommended exposure levels.
- ▶ Provide eye wash fountains and emergency showers.
- ▶ Wash or shower if skin comes in contact with a hazardous material.
- ▶ Always wash at the end of the workshift.
- ▶ Change into clean clothing if clothing becomes contaminated.
- ▶ Do not take contaminated clothing home.
- ▶ Get special training to wash contaminated clothing.
- ▶ Do not eat, smoke, or drink in areas where chemicals are being handled, processed or stored.
- ▶ Wash hands carefully before eating, smoking, drinking, applying cosmetics or using the toilet.

Personal Protective Equipment

The OSHA Personal Protective Equipment Standard (29 CFR 1910.132) requires employers to determine the appropriate personal protective equipment for each hazard and to train employees on how and when to use protective equipment.

Currently there are no NIOSH recommendations for skin, eye or respiratory protection

The following recommendations are only guidelines and may not apply to every situation.

Gloves and Clothing

- ▶ Avoid skin contact with **Calcium Carbonate**. Wear personal protective equipment made from material which can not be permeated or degraded by this substance. Safety equipment suppliers and manufacturers can provide recommendations on the most protective glove and clothing material for your operation.
- ▶ The recommended glove material for **Calcium Carbonate** is Nitrile.
- ▶ The recommended protective clothing material for **Calcium Carbonate** is Tyvek.
- ▶ All protective clothing (suits, gloves, footwear, headgear) should be clean, available each day, and put on before work.

Eye Protection

- ▶ Wear direct vent goggle, safety glasses or face shield when airborne particles or dust are present.

Respiratory Protection

Improper use of respirators is dangerous. Respirators should only be used if the employer has implemented a written program that takes into account workplace conditions, requirements for worker training, respirator fit testing, and medical exams, as described in the OSHA Respiratory Protection Standard (29 CFR 1910.134).

- ▶ Where the potential exists for exposure over **5 mg/m³** (respirable fraction) or over **10 mg/m³** (total particulate), use a NIOSH approved air-purifying, particulate filter respirator with an N95 filter. More protection is provided by a full facepiece respirator than by a half-mask respirator, and even greater protection is provided by a powered-air purifying respirator.
- ▶ Where the potential exists for exposure over **45 mg/m³** (total particulate), use a NIOSH approved supplied-air respirator with a full facepiece operated in a pressure-demand or other positive-pressure mode. For increased protection use in combination with an auxiliary self-contained breathing apparatus operated in a pressure-demand or other positive-pressure mode.
- ▶ OSHA considers **Calcium Carbonate** a nuisance particulate.

Fire Hazards

If employees are expected to fight fires, they must be trained and equipped as stated in the OSHA Fire Brigades Standard (29 CFR 1910.156).

- ▶ **Calcium Carbonate** is not combustible. When heated to decomposition it emits an acid smoke and irritating vapors.
- ▶ Use dry chemical, CO₂, water spray or foam as extinguishing agents.

Spills and Emergencies

If employees are required to clean-up spills, they must be properly trained and equipped. The OSHA Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910.120) may apply.

If **Calcium Carbonate** is spilled, take the following steps:

Small Spills:

- ▶ Collect powdered material in the most convenient and safe manner and place into sealed containers for disposal.

Large Spills:

- ▶ Use N95 respirator, protective gloves (nitrile) and protective clothing to avoid inhalation and skin contact.
- ▶ It may be necessary to contain and dispose of **Calcium Carbonate** as a HAZARDOUS WASTE. Contact your state Department of Environmental Protection (DEP) or your regional office of the federal Environmental Protection Agency (EPA) for specific recommendations.

Handling and Storage

Prior to working with **Calcium Carbonate** you should be trained on its proper handling and storage.

- ▶ **Calcium Carbonate** ignites on contact with FLUORINE.
- ▶ **Calcium Carbonate** is not compatible with ACIDS, ALUMINUM, AMMONIUM SALTS, HYDROGEN, FLUORINE and MAGNESIUM.
- ▶ Store in tightly closed containers in a cool, well-ventilated area away from ACIDS, ALUMINUM, AMMONIUM SALTS, HYDROGEN, FLUORINE and MAGNESIUM.

**Occupational Health Information
Resources**

The New Jersey Department of Health offers multiple services in occupational health. These services include providing informational resources, educational materials, public presentations, and industrial hygiene and medical investigations and evaluations.

For more information, please contact:

New Jersey Department of Health
Right to Know
PO Box 368
Trenton, NJ 08625-0368
Phone: 609-984-2202
Fax: 609-984-7407
E-mail: rtk@doh.nj.gov
Web address:
<http://nj.gov/health/workplacehealthandsafety/right-to-know/>

***The Right to Know Hazardous Substance Fact Sheets
are not intended to be copied and sold
for commercial purposes.***

GLOSSARY

ACGIH is the American Conference of Governmental Industrial Hygienists. They publish guidelines called Threshold Limit Values (TLVs) for exposure to workplace chemicals.

Acute Exposure Guideline Levels (AEGs) are established by the EPA. They describe the risk to humans resulting from once-in-a-lifetime, or rare, exposure to airborne chemicals.

Boiling point is the temperature at which a substance can change its physical state from a liquid to a gas.

A **carcinogen** is a substance that causes cancer.

The **CAS number** is unique, identifying number, assigned by the Chemical Abstracts Service, to a specific chemical.

CFR is the Code of Federal Regulations, which are the regulations of the United States government.

A **combustible** substance is a solid, liquid or gas that will burn.

A **corrosive** substance is a gas, liquid or solid that causes destruction of human skin or severe corrosion of containers.

The **critical temperature** is the temperature above which a gas cannot be liquefied, regardless of the pressure applied.

DEP is the New Jersey Department of Environmental Protection.

DOT is the Department of Transportation, the federal agency that regulates the transportation of chemicals.

EPA is the Environmental Protection Agency, the federal agency responsible for regulating environmental hazards.

ERG is the Emergency Response Guidebook. It is a guide for emergency responders for transportation emergencies involving hazardous substances.

Emergency Response Planning Guideline (ERPG) values provide estimates of concentration ranges where one reasonably might anticipate observing adverse effects.

A **fetus** is an unborn human or animal.

A **flammable** substance is a solid, liquid, vapor or gas that will ignite easily and burn rapidly.

The **flash point** is the temperature at which a liquid or solid gives off vapor that can form a flammable mixture with air.

IARC is the International Agency for Research on Cancer, a scientific group.

Ionization Potential is the amount of energy needed to remove an electron from an atom or molecule. It is measured in electron volts.

IRIS is the Integrated Risk Information System database on human health effects that may result from exposure to various chemicals, maintained by federal EPA.

LEL or Lower Explosive Limit, is the lowest concentration of a combustible substance (gas or vapor) in the air capable of continuing an explosion.

mg/m³ means milligrams of a chemical in a cubic meter of air. It is a measure of concentration (weight/volume).

A **mutagen** is a substance that causes mutations. A **mutation** is a change in the genetic material in a body cell. Mutations can lead to birth defects, miscarriages, or cancer.

NFPA is the National Fire Protection Association. It classifies substances according to their fire and explosion hazard.

NIOSH is the National Institute for Occupational Safety and Health. It tests equipment, evaluates and approves respirators, conducts studies of workplace hazards, and proposes standards to OSHA.

NTP is the National Toxicology Program which tests chemicals and reviews evidence for cancer.

OSHA is the federal Occupational Safety and Health Administration, which adopts and enforces health and safety standards.

PEOSHA is the New Jersey Public Employees Occupational Safety and Health Act, which adopts and enforces health and safety standards in public workplaces.

Permeated is the movement of chemicals through protective materials.

ppm means parts of a substance per million parts of air. It is a measure of concentration by volume in air.

Protective Action Criteria (PAC) are values established by the Department of Energy and are based on AEGs and ERPGs. They are used for emergency planning of chemical release events.

A **reactive** substance is a solid, liquid or gas that releases energy under certain conditions.

STEL is a Short Term Exposure Limit which is usually a 15-minute exposure that should not be exceeded at any time during a work day.

A **teratogen** is a substance that causes birth defects by damaging the fetus.

UEL or Upper Explosive Limit is the highest concentration in air above which there is too much fuel (gas or vapor) to begin a reaction or explosion.

Vapor Density is the ratio of the weight of a given volume of one gas to the weight of another (usually *Air*), at the same temperature and pressure.

The **vapor pressure** is a force exerted by the vapor in equilibrium with the solid or liquid phase of the same substance. The higher the vapor pressure the higher concentration of the substance in air.

Common Name: **CALCIUM CARBONATE**

Synonyms: Calcium Salt of Carbonic Acid, Chalk, Limestone

CAS No: 1317-65-3

Molecular Formula: CaCO₃

RTK Substance No: 4001

Description: White to tan odorless powder or colorless crystals

HAZARD DATA

Hazard Rating	Firefighting	Reactivity
1 - Health 0 - Fire 0 - Reactivity	Calcium Carbonate is non-combustible, but when heated, decomposes to emit an acrid smoke and irritating vapors. Use dry chemical, CO ₂ , water spray or foam as extinguishing agents.	Calcium Carbonate ignites on contact with FLUORINE. Calcium Carbonate when heated with mixture of magnesium and hydrogen causes violent explosion. Calcium Carbonate is not compatible with ACIDS, ALUMINUM, AMMONIUM SALTS, FLUORINE and MAGNESIUM and HYDROGEN.

SPILL/LEAKS

Isolation Distance:
 Spill: 25 meters (75 feet)
 Fire: 800 meters (1/2 mile)

Use damp methods to control dust. Test for trace levels of radioactivity after clean-up.
 Collect powdered material in the most convenient and safe manner and place into sealed containers for disposal.
 DO NOT wash into sewer.

PHYSICAL PROPERTIES

Vapor Pressure: 0 mm Hg
Specific Gravity: 2.7% - 2.9%
Water Solubility: 0.001%
Boiling Point: Decomposes
Melting Point: 1,517°F – 2,442°F (Decomposes)
Molecular Weight: 100.1

EXPOSURE LIMITS

OSHA: 15 mg/m³ (total particulate)
 5 mg/m³ (respirable fraction) averaged over an 8-hour workshift

NIOSH: 10 mg/m³ (total particulate)
 5 mg/m³ (respirable fraction) averaged over a 10-hour workshift

The Protective Action Criteria values are:
 PAC-1 = 45 mg/m³
 PAC-2 = 500 mg/m³
 PAC-3 = 3,000 mg/m³

PROTECTIVE EQUIPMENT

Gloves: Nitrile
Coveralls: DuPont Tyvek®
Respirator: > 5 mg/m³ - N95 or higher
 >45 mg/m³ – Supplied Air

HEALTH EFFECTS

Eyes: Irritation
Skin: Irritation
Inhalation: Cough, sneezing, rhinorrhea (discharge of nasal mucus)

FIRST AID AND DECONTAMINATION

Remove the person from exposure.
Flush eyes with large amounts of water for at least 15 minutes. Remove contact lenses if worn.
Quickly remove contaminated clothing and wash contaminated skin with large amounts of water.
Begin artificial respiration if breathing has stopped and CPR if necessary.
Transfer promptly to a medical facility.