CALCIUM (METAL) GRANULAR

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
CALCIUM

OTHER NAMES

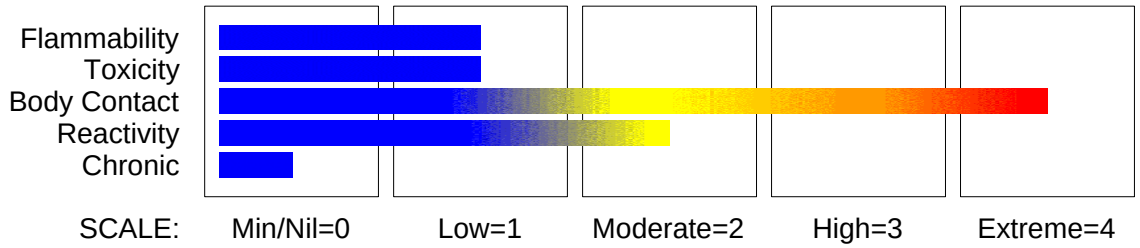
Ca, "metallic calcium", "calcium metal", "calcium, non-pyrophoric", "calcium turnings", ingots, crowns

PROPER SHIPPING NAME
CALCIUM

PRODUCT USE
Alloying agent for aluminium, copper and lead, reducing agent for beryllium; deoxidizer for alloys; dehydrating oils; decarburisation and desulfurisation of iron and its alloys; getter in vacuum tubes; separation of nitrogen from argon; reducing agent in preparation of chromium metal powder; thorium, zirconium and uranium.

SUPPLIER
Company: S D FINE- CHEM LIMITED
Address:
315- 317, T.V. INDUSTRIAL ESTATE,
248, WORLI,
MUMBAI- 400030.INDIA.
technical@sdfine.com
Telephone: 91- 22- 24959898
Telephone: 91- 22- 24959899
Fax: 91- 22- 24937232

HAZARD RATINGS



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Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Emit Flammable Gases with Water Category 2
Skin Corrosion/Irritation Category 1C

EMERGENCY OVERVIEW

HAZARD

DANGER
Determined by
using GHS criteria:
H261 H314
In contact with water releases flammable gases
Causes severe skin burns and eye damage

PRECAUTIONARY STATEMENTS

Prevention

Do not breathe dust or mist.
Wash thoroughly after handling.
Wear protective gloves/clothing and eye/face protection.
Handle under inert gas, protect from moisture.
Keep from any possible contact with water, because of violent reaction and possible flash fire.

Response

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Wash contaminated clothing before reuse.
If on skin or hair: remove/take off immediately all contaminated clothing. Rinse with water/shower.
Immediately call a POISON CENTER or doctor/physician.
IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

Storage

Store in a dry place and/or in a closed container
Store locked up.

Disposal

Dispose of contents and container in accordance with relevant legislation.

continued

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
calcium	7440-70-2	> 98

Section 4 - FIRST AID MEASURES

SWALLOWED

DO NOT delay.
For advice, contact a Poisons Information Centre or a doctor.
· If swallowed do NOT induce vomiting.
· If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
· Observe the patient carefully.
· Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious
· Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
· Seek medical advice.

EYE

DO NOT delay. If this product comes in contact with the eyes:
· Immediately hold eyelids apart and flush the eye continuously with running water.
· Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
· Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
· Transport to hospital or doctor without delay.
· Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

If skin or hair contact occurs:
· Quickly but gently, wipe material off skin with a dry, clean cloth.
· Immediately remove all contaminated clothing, including footwear.
· Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.
· Transport to hospital, or doctor.
In case of burns:
· Quickly immerse affected area in cold running water for 10 to 15 minutes.
· Bandage lightly with a sterile dressing. Treat for shock if required.
· Lay patient down. Keep warm and rested.
· Transport to hospital, or doctor.

INHALED

· If fumes or combustion products are inhaled remove from contaminated area.
· Lay patient down. Keep warm and rested.
· Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
· Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.

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· Transport to hospital, or doctor.

NOTES TO PHYSICIAN
Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA
Metal dust fires need to be smothered with sand, inert dry powders.
DO NOT USE WATER, CO2 or FOAM.
· Use DRY sand, graphite powder, dry sodium chloride based extinguishers, G-1 or Met L-X to smother fire.
· Confining or smothering material is preferable to applying water as chemical reaction may produce flammable and explosive hydrogen gas.
· Chemical reaction with CO2 may produce flammable and explosive methane.
· If impossible to extinguish, withdraw, protect surroundings and allow fire to burn itself out.

FIRE FIGHTING
Alert Fire Brigade and tell them location and nature of hazard.
· May be violently or explosively reactive.
· Wear full body protective clothing with breathing apparatus.
· Prevent, by any means available, spillage from entering drains or water courses.
DO NOT approach containers suspected to be hot.
If safe to do so, remove containers from path of fire.

FIRE/EXPLOSION HAZARD
· Metal powders, while generally regarded as non-combustible, may burn when metal is finely divided and energy input is high.
· DO NOT use water or foam as generation of explosive hydrogen may result.
· May be ignited by friction, heat, sparks or flame.
· Metal dust fires are slow moving but intense and difficult to extinguish.
· Will burn with intense heat.
· DO NOT disturb burning dust. Explosion may result if dust is stirred into a cloud, by providing oxygen to a large surface of hot metal.
· Containers may explode on heating.
· Dusts or fumes may form explosive mixtures with air.
· May REIGNITE after fire is extinguished.
· Gases generated in fire may be poisonous, corrosive or irritating.

FIRE INCOMPATIBILITY
Avoid any contamination of this material as it is very reactive and any contamination is potentially hazardous.
Keep dry, as ignition may result.
Solid in contact with water or moisture may generate sufficient heat to ignite combustible materials.

Personal Protective Equipment
Breathing apparatus.
Chemical splash suit.

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Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS
Clean up all spills immediately. DO NOT touch the spill material.
Remove all ignition sources.
DO NOT handle directly. Wear gloves and use scoop / tongs / tools.
Wear protective clothing, impervious gloves and safety glasses.
Avoid contact with skin and eyes. Sweep up.
Place spill material in a clean, dry labelled container under dry kerosene

MAJOR SPILLS
Restrict access to area. DO NOT touch the spill material.
Clear area of personnel and move upwind . DO NOT use water.
Alert Fire Brigade and tell them location and nature of hazard.
· May be violently or explosively reactive.
· Wear full body protective clothing with breathing apparatus.
· Prevent, by any means available, spillage from entering drains or water and water courses.
Shut off all possible sources of ignition and increase ventilation.
DO NOT use water. Sweep up.
Place spill material in a clean, dry labelled container under dry kerosene
After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
If contamination of drains or waterways occurs, advise emergency services.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)
The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:
calcium 250 mg/m³

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:
calcium 50 mg/m³

other than mild, transient adverse effects without perceiving a clearly defined odour is:
calcium 30 mg/m³

The threshold concentration below which most people will experience no appreciable risk of health effects:
calcium 10 mg/m³

American Industrial Hygiene Association (AIHA)

Ingredients considered according to the following cutoffs

Very Toxic (T+)	>= 0.1%	Toxic (T)	>= 3.0%
R50	>= 0.25%	Corrosive (C)	>= 5.0%
R51	>= 2.5%		
else	>= 10%		

where percentage is percentage of ingredient found in the mixture

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SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS

\+ + + + + +

+: May be stored together
O: May be stored together with specific preventions
X: Must not be stored together

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

Handle and open container with care.
Keep dry. Reacts violently with water.
Keep containers securely sealed when not in use.
Avoid all personal contact, including inhalation.
Wear protective clothing when risk of exposure occurs.
Avoid generating and breathing dust. Use in a well-ventilated area.
Avoid sources of heat. Avoid all ignition sources.
Avoid contact with incompatible materials.
Avoid physical damage to containers.
When handling, DO NOT eat, drink or smoke.
Wash hands with soap and water after handling.
Work clothes should be laundered separately: NOT at home.
Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.
Use good occupational work practice. Observe manufacturer's storing and handling recommendations.

SUITABLE CONTAINER

Container must be air-tight . Glass container.
· Metal can or drum
· Packaging as recommended by manufacturer.
· Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY

Reacts vigorously with water . Keep dry.
Contact with water may generate highly flammable hydrogen gas.
Segregate from acids, alkalies, finely divided combustible materials.

STORAGE REQUIREMENTS

Keep dry.
· Store in original containers.
· Keep containers securely sealed.
· No smoking, naked lights or ignition sources.
· Store in a cool, dry, well-ventilated area.
· Store away from incompatible materials and foodstuff containers.
· Protect containers against physical damage and check regularly for leaks.

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· Observe manufacturer's storing and handling recommendations.

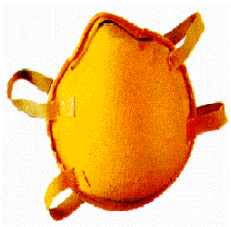
Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

MATERIAL DATA

No exposure limits set by NOHSC or ACGIH.

PERSONAL PROTECTION

EYE

· Chemical goggles.
· Full face shield may be required for supplementary but never for primary protection of eyes
· Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET

DO NOT handle directly. Wear gloves and use scoop / tongs / tools.
Impervious, gauntlet length gloves or Rubber Gloves or Neoprene gloves.
Rubber boots or PVC safety gumboots.

OTHER

· Overalls.
· PVC Apron.
· PVC protective suit may be required if exposure severe.
· Eyewash unit.
· Ensure there is ready access to a safety shower.

RESPIRATOR

Protection Factor	Half- Face Respirator	Full- Face Respirator	Powered Air Respirator
10 x ES	P1 Air- line*	- -	PAPR- P1 -
50 x ES	Air- line**	P2	PAPR- P2
100 x ES	-	P3	-

continued...

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

		Air- line*	-
100+ x ES	-	Air- line**	PAPR- P3

* - Negative pressure demand ** - Continuous flow.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.
For further information consult your
Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

Use in a well-ventilated area.
If risk of inhalation or overexposure exists, wear SAA approved respirator or work in fume hood.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Moderately soft, silver white, crystalline metal. Stored under kerosene or neutral oil. Oxidises in air to form adherent protective film.
Readily ignites on contact with water, which it decomposes to give flammable hydrogen which may be ignited by the heat of the reaction.
Also reacts rapidly / violently with acids, alcohols.
Note: Powdered calcium (pyrophoric) is Class 4.2 Spontaneously Combustible UN No. 1855.

PHYSICAL PROPERTIES

Solid.

Molecular Weight: 40.08
Melting Range (°C): 845
Solubility in water (g/L): Reacts
pH (1% solution): 11- 12 saturated
Volatile Component (%vol): Nil @ 38 C.
Relative Vapour Density (air=1): Not applicable
Lower Explosive Limit (%): Not available.
Autoignition Temp (°C): Not available.
State: Divided solid

Boiling Range (°C): Not applicable.
Specific Gravity (water=1): 1.57
pH (as supplied): Not applicable
Vapour Pressure (kPa): Negligible
Evaporation Rate: Not applicable
Flash Point (°C): Not available
Upper Explosive Limit (%): Not available.
Decomposition Temp (°C): Not available

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

Presence of water, i.e. · Presence of incompatible materials.
· Product is considered stable.
· Hazardous polymerisation will not occur.

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Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED
The material can produce severe chemical burns within the oral cavity and gastrointestinal tract following ingestion.
Considered an unlikely route of entry in commercial/industrial environments.

EYE
The material can produce severe chemical burns to the eye following direct contact.
Vapours or mists may be extremely irritating.
When applied to the eye(s) of animals, the material produces severe ocular lesions which are present twenty-four hours or more after instillation.

SKIN
The material can produce severe chemical burns following direct contact with the skin.
WARNING!
Bare unprotected skin should not be exposed to this material.

INHALED
Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system in a substantial number of individuals following inhalation.
Fumes from the burning material are irritating and harmful if inhaled.

CHRONIC HEALTH EFFECTS
The material is considered to be harmful by all exposure routes.
Principal routes of exposure are usually by skin contact with the material.
The solid may react violently on contact with wet skin tissue, i.e. eyes, mouth, causing chemical and thermal burns.
The acute effects include burns, ulceration, or tissue death, severe eye damage (corneal burns or opacification), and probable blindness.
Inhalation of dust or fumes (especially from a fire involving calcium) will cause shortness of breath, nausea, headache, nose and respiratory tract irritation and in extreme, pneumonitis.

TOXICITY AND IRRITATION
No significant acute toxicological data identified in literature search.

Section 12 - ECOLOGICAL INFORMATION

No data for calcium.

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Section 13 - DISPOSAL CONSIDERATIONS

- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Management Authority for disposal.
- Treat and neutralise with dilute acid at an effluent treatment plant.
- Recycle containers, otherwise dispose of in an authorised landfill.

Section 14 - TRANSPORTATION INFORMATION

Labels Required: DANGEROUS WHEN WET
HAZCHEM: 4W

UNDG:

Dangerous Goods Class:	4.3	Subrisk:	None
UN Number:	1401	Packing Group:	II

Shipping Name:CALCIUM

Air Transport IATA:

ICAO/IATA Class:	4.3	ICAO/IATA Subrisk:	None
UN/ID Number:	1401	Packing Group:	II
ERG Code:	4W		

Shipping name:CALCIUM

Maritime Transport IMDG:

IMDG Class:	4.3	IMDG Subrisk:	None
UN Number:	1401	Packing Group:	II
EMS Number:	F- G, S- O		

Shipping name:CALCIUM

Section 15 - REGULATORY INFORMATION

REGULATIONS

calcium (CAS: 7440-70-2) is found on the following regulatory lists;
OECD Representative List of High Production Volume (HPV) Chemicals

No data available for calcium as CAS: 8047-59-4.

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Section 16 - OTHER INFORMATION

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name	CAS
calcium	7440- 70- 2, 8047- 59- 4

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

Issue Date: 30-Mar-2018