

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-R1387

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME MALLINCKRODT, INC.		EMERGENCY TELEPHONE NO. 314-231-8980
ADDRESS (Number, Street, City, State, and ZIP Code) P.O. Box 5439 St. Louis, Mo. 63147		
CHEMICAL NAME AND SYNONYMS CALCIUM STEARATE		TRADE NAME AND SYNONYMS Calcium Stearate RSN 11-4, Code 2126
CHEMICAL FAMILY Organometallic compound	FORMULA Ca(C₁₈H₃₅O₂)₂	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES -			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	--	SPECIFIC GRAVITY (H ₂ O=1)	
VAPOR PRESSURE (mm Hg.)	--	PERCENT VOLATILE BY VOLUME (%)	--
VAPOR DENSITY (AIR=1)	--	EVAPORATION RATE (--=1)	--
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	white to yellow-white fine powder with a characteristic odor		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	LMI	UEL
EXTINGUISHING MEDIA CO₂, dry powder, or fog nozzle			
SPECIAL FIRE FIGHTING PROCEDURES Pressure from the extinguishing media may cause severe dusting. Do not use water as melted fatty acid will float on the surface and spread.			
UNUSUAL FIRE AND EXPLOSION HAZARDS Melted fatty acid can give a "grease" type fire. Dust can cause potential dust explosions. Avoid ignition sources. See factory Insurance Association publication "Dust Explosions Analysis and Control".			

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	None indicated
EFFECTS OF OVEREXPOSURE	May cause mechanical irritation of the eyes
EMERGENCY AND FIRST AID PROCEDURES	Remove from area. If eyes are irritated see a physician. Wear protective goggles.

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	XXXXXX	
INCOMPATIBILITY (Materials to avoid)			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	XXXXXX	

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
Sweep up. Inert material.	
WASTE DISPOSAL METHOD	
May be incinerated or used in a land fill.	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) Dust respirator if necessary			
VENTILATION	LOCAL EXHAUST		SPECIAL
	MECHANICAL (General)	XX	OTHER
PROTECTIVE GLOVES Rubber		EYE PROTECTION Goggles	
OTHER PROTECTIVE EQUIPMENT Clothing because of the tendency to coat everything			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Store in a cool place. Avoid dusting.	
OTHER PRECAUTIONS	

CALCIUM OXIDE

Material Safety Data Sheet

Emergency Telephone Number
314-982-5000

Mallinckrodt, Inc.
P.O. Box 5439
St. Louis, Mo. 63147

Effective Date: 08/16/85

Product Identification:

Synonyms: Lime unslaked; lime burnt; quicklime, calx

Formula CAS No.: 1305-78-8

Molecular Weight: 56.08

Hazardous Ingredients:
Not applicable.

Chemical Formula: CaO

PRECAUTIONARY MEASURES

Do not get in eyes, on skin, or on clothing.
Avoid breathing dust.
Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.

EMERGENCY/FIRST AID

In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes.
If swallowed, DO NOT INDUCE VOMITING! Give large quantities of water or milk if available. Never give anything by mouth to an unconscious person.
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
In all cases call a physician.

SEE SECTION 5.

DOT Hazard Class: ORM-B

Physical Data

SECTION 1

Appearance: White to slightly yellow powder.
Odor: Odorless.
Solubility: Slightly soluble in water with release of heat, formation of calcium hydroxide.
Boiling Point: 2850°C (5162°F).
Melting Point: 2572°C (4662°F).
Specific Gravity: 3.37
Vapor Density (Air=1): No information found.
Vapor Pressure (mm Hg): No information found.
Evaporation Rate: No information found.

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CAOXI - CALCIUM OXIDE

Mallinckrodt, Inc.

Fire and Explosion
Information

SECTION 2

FIRE:

Not considered to be a fire hazard.
Lime and water can react exothermically with
sufficient heat to ignite combustible materials in
certain instances.

Explosion:

Not considered to be an explosion hazard.
The combination of lime and water at high
temperatures may be explosive.

Fire Extinguishing Media:

Use any means suitable for extinguishing
surrounding fire.

Special Information:

In the event of a fire, wear full protective
clothing and NIOSH-approved self-contained breathing
apparatus with full facepiece operated in the
pressure demand or other positive pressure mode.

Reactivity Data

SECTION 3

Stability:

Stable at room temperature in sealed containers.
Will react with moisture and carbon dioxide in air.

Hazardous Decomposition
Products:

None.

Hazardous Polymerization:

This substance does not polymerize.

Incompatibilities:

Water, acids, humid air, hydrogen fluoride,
phosphorous pentoxide, boric oxide, steam, many
organic substances.

Leak/Spill Disposal Information SECTION 4

Clean-up personnel require protective clothing and respiratory protection from dust.

Spills: Pick up and place in a suitable container for reclamation or disposal in a
method that does not generate dust.

Disposal: Whatever cannot be saved for reclamation may be disposed in a RCRA approved
hazardous waste facility.

Ensure compliance with local, state and federal regulations.

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Health Hazard Information

SECTION 5

A. Exposure/Health Effects

Inhalation: Inhalation of dust is highly irritating and possibly corrosive to the upper respiratory tract. May cause coughing, sneezing, labored breathing, and possibly burns.

Ingestion: Corrosive. May attack the esophagus. Abdominal pain, nausea, vomiting may result. May cause serious alkali burns in mouth and throat.

Skin contact: Irritant; may cause severe corrosive damage.

Eye contact: Severe irritant, may damage eye tissues. Causes redness, tearing, blurred vision, pain.

Chronic Exposure: Chronic inhalation of dust may cause inflammation of the respiratory passages, ulcers of the mucous membranes, and possible perforation of nasal septum.

Aggravation of Pre-existing Conditions: Persons with pre-existing skin disorders or eye problems or impaired respiratory function may be more susceptible to the effects of the substance.

B. FIRST AID

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion: DO NOT INDUCE VOMITING! Give large quantities of water or milk if available. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Call a physician immediately.

Eye contact: Wash thoroughly with running water. Get medical advice if irritation develops.

C. TOXICITY DATA (RTECS, 1982)

No LD50/LC50 information found relating to normal routes of occupational exposure.

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Occupational Control Measures

SECTION 6

(14) Airborne Exposure Limits:

-OSHA Permissible Exposure Limit (PEL):
5 mg/m³ ppm (TWA).
-ACGIH Threshold Limit Value (TLV):
2 mg/m³ (TWA).

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

Personal Respirators:
(NIOSH Approved)

If the TLV is exceeded, a dust/mist respirator with chemical goggles may be worn, in general, up to ten times the TLV. Consult respirator supplier for limitations. Alternatively, a supplied air full facepiece respirator or airlined hood may be worn.

Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls to prevent skin contact.

Eye Protection:

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facilities in work area.

(Storage and Special Information

SECTION 7

Keep in a tightly closed container. Protect from physical damage. Store in a cool, dry, ventilated area away from sources of heat, moisture and incompatibilities. This strongly alkaline material will swell and generate heat when moistened and could burst container.

The information contained herein is provided in good faith and is believed to be correct as of the date hereof. However, Mallinckrodt, Inc. makes no representation as to the comprehensiveness or accuracy of the information. It is expected that individuals receiving the information will exercise their independent judgment in determining its appropriateness for a particular purpose. Accordingly, Mallinckrodt, Inc. will not be responsible for damages of any kind resulting from the use of or reliance upon such information.
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MATERIAL SAFETY DATA SHEET

The C.P. Hall Company
7300 S. Central Avenue, Chicago, IL 60638
Emergency Telephone No: 312/767-4605

SECTION I

Chemical Name: Calcium Oxide

Product Name: CALCIUM OXIDE HP

Chemical Family: Alkali Earth
Formula: CaO

HMIS Number: 110
Gloves & Safety
Goggles

SECTION II - HAZARDOUS INGREDIENTS

Under the Federal Hazardous Substance Labeling Act the signal word for Lime is "DANGER".

SECTION III - PHYSICAL DATA

Boiling Point:	2850°C	Specific Gravity:	3.30
Vapor Pressure:	N/A	(H ₂ O=1)	
Vapor Density:	N/A	% Volatile by Vol:	N/A
Solubility in Water:	Reacts to foam	Evaporation Rate:	N/A
	Calcium Hydroxide	(H ₂ O=1)	

Appearance & Odor: White powder

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method used): Not Available

Extinguishing Media: Not flammable or explosive, but generates large amounts of heat on contact with water.

Flammability Limits: Not Available

Special Fire Fighting Procedures: None

Unusual Fire and Explosion Hazards: Reaction between lime and ester produces steam. If this reaction takes place in a confined space on explosion may result.

SECTION V - HEALTH HAZARD DATA

Threshold Limit Value: 5 milligrams per cubicmeter of air.

Effects of Overexposure: Will cause burns on mucous membrane and skin. Will cause sneezing when inhaled.

Emergency & First Aid Procedures: Inhalation: Move subject to fresh air.

Eye and Skin Contact: Flush eyes with large amounts of water for at least 15 minutes; consult a physician if irritation persists. Wash affected skin areas with soap and water. If swallowed, drink water followed by vinegar or fruit juice and get immediate medical attention.

N/A = NOT AVAILABLE

Product Name: CALCIUM OXIDE HP

SECTION VI - REACTIVITY DATA

Stability

Unstable: X

Conditions to Avoid: Exposure to water, humid
air and acids.

Stable:

Incompatibility (Materials to Avoid): Reacts with water generating
heat.

Hazardous Decomposition Products: None

Hazardous Polymerization

May Occur:

Conditions to Avoid: Not Available

Will Not Occur: X

SECTION VII - SPILL OR LEAK PROCEDURES

Steps To Be Taken In Case Material Is Released or Spilled: Normal
clean-up procedures.

Waste Disposal Method: Normal methods. Landfill contaminated diking
material according to current local, state and federal regulation.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Respiratory Protection (Specify Type): Any type respirator prescribed
for fine dust.

Ventilation

Local Exhaust: Adequate ventilation to keep dust conc. under TLV.

Special:

Mechanical (General):

Other:

Protective Gloves: Impervious

Eye Protection: Safety Goggles

Other Protective Equipment: Use protective cream over exposed skin.

SECTION IX - SPECIAL PRECAUTIONS

Precautions To Be Taken In Handling And Storing: Avoid contact with
water or acids.

Other Precautions: None.

Revision Date: 5/86 JTH

Supersedes: 5/85 JTH



**MATERIAL SAFETY
DATA SHEET**

PC8-030
EXPERIMENTAL PHENATE
FOR R&D USE ONLY

~~Calcium Phenate~~
(1.5%M/1.2%V Treat Rate)

MANUFACTURER/SUPPLIER:
Amoco Petroleum Additives Co.
231 South Bemiston Avenue
Clayton, Missouri 63105
TEL.314/854-8000

EMERGENCY HEALTH INFORMATION: (800) 447-8735
EMERGENCY SPILL INFORMATION: (800) 424-9300
OTHER PRODUCT SAFETY INFORMATION: (312) 856-3304

IMPORTANT COMPONENTS: Calcium alkyl phenate: trade secret.
No exposure limit established.

WARNING STATEMENT: This product has been evaluated and does not require any hazard warning label under the OSHA Hazard Communication Standard.

HMIS/NFPA CODES:(HEALTH;0)(FLAMMABILITY;1)(REACTIVITY;0)

APPEARANCE AND ODOR: Yellow-brown, viscous liquid.

HEALTH HAZARD INFORMATION

EYE

EFFECT: No significant irritation expected.

FIRST AID: Flush eyes with plenty of water.

PROTECTION: None required; however, use of safety glasses is good industrial practice.

SKIN

EFFECT: No significant irritation expected.

FIRST AID: None required.

PROTECTION: None required.

INHALATION

EFFECT: None expected under normal conditions of use.

FIRST AID: None required.

PROTECTION: None required for normal conditions of use.

INGESTION

EFFECT: Relatively non-toxic.

FIRST AID: If swallowed, get medical attention.

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FIRE AND EXPLOSION INFORMATION

FLASHPOINT: Above 302°F (150°C) ASTM D93

EXTINGUISHING MEDIA: Agents approved for Class B hazards (e.g., dry chemical, carbon dioxide, halogenated agents, foam, steam) or water fog.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None.

REACTIVITY INFORMATION

DANGEROUS REACTIONS: None identified.

HAZARDOUS DECOMPOSITION: None. Polymerization will not occur. Incomplete burning can produce carbon monoxide, carbon dioxide, and other harmful products.

STABILITY: Stable.

CHEMICAL AND PHYSICAL PROPERTIES

SOLUBILITY IN WATER: Slight, 0.1 to 1.0%.

SPECIFIC GRAVITY (WATER = 1): 1

STORAGE AND ENVIRONMENTAL PROTECTION

STORAGE REQUIREMENTS: No special requirements.

SPILLS AND LEAKS: Remove mechanically or contain on an absorbent material. Treat as an oil spill.

WASTE DISPOSAL: Disposal must be in accordance with applicable federal, state, or local regulations. Determine waste classification at time of disposal. Conditions of use may render the spent product a hazardous waste. Enclosed-controlled incineration is recommended unless directed otherwise by applicable ordinances.

EMPTY CONTAINERS: The container for this product can present explosion or fire hazards, even when emptied! To avoid risk of injury, do not cut, puncture or weld on or near this container.

TOXICOLOGICAL INFORMATION

EYE: For a similar material, irritation scores 9.0/110.0 in rabbits.

SKIN: For a similar material, irritation score in rabbits 6.3/8.0. Acute dermal LD50 greater than 2000 mg/kg (rabbits). Essentially non-irritating in human repeated patch testing.

INHALATION: For a similar material, no death or signs of toxicity were observed in a 4-hour rat inhalation study at the maximum attainable air concentrations.

INGESTION: For a similar material, acute oral LD50 greater than 15,380 mg/kg (rats).

A phenate has been reported to produce testicular atrophy, aspermatogenesis and tubular hyperplasia when applied to the backs of sexually immature rabbits for 28 days (2 ml/kg) at concentrations of 25% and 100% in medicinal white oil.

TOXICOLOGICAL INFORMATION - CONTINUED

The testicular toxicity was rapidly reversible at the 25% level. At the 100% level, the recovery period (30 days) may have been too short to observe reversal of effects. No testicular effects were seen at the concentration of 10% in medicinal white oil. No adverse effects are expected to occur when the recommended hygiene measures for handling this product are followed.

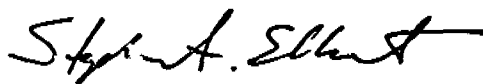
REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: Not hazardous per 29 CFR 1910.1200(d).

DOT PROPER SHIPPING NAME (BULK, LAND): Not regulated.

ISSUE INFORMATION

BY:



Stephen A. Elbert
Mgr., Product Safety & Toxicology

ISSUED: December 08, 1986

This material safety data sheet and the information it contains is offered to you in good faith as accurate. We have reviewed any information contained in this data sheet which we received from sources outside our company. We believe that information to be correct but cannot guarantee its accuracy or completeness. Health and safety precautions in this data sheet may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. No statement made in this data sheet shall be construed as a permission or recommendation for the use of any product in a manner that might infringe existing patents. No warranty is made, either express or implied.

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I.C. No. 16220, X16230, 16240, 16290
16300, 16350, X16360, 16400
16600, 16700, 16820, 16910

MATERIAL SAFETY DATA SHEET
Anderson Laboratories, Inc.
5901 Fitzhugh Avenue
Fort Worth, Texas 76119

Telephone 817-457-4474

EMERGENCY TEL.800-424-9300(CHEMTREC)

DATE: 6/25/85

The materials listed in this Data Sheet are classified in accordance with the definitions set forth in 29CFR Parts 1915, 1916 and 1917.

- I. PRODUCT NAMES: CALCIUM CARBONATE, 1ml = 1mg CaCO₃
CALCIUM CHLORIDE, Percentage Solutions other than listed to and including 10%.
CALCIUM CHLORIDE, 1ml = 25mg CaCO₃, USGS for Be
CALCIUM CHLORIDE, 2.75% APHA for BOD
CALCIUM CHLORIDE, M/40, Quick for Prothrombintime
CALCIUM CHLORIDE, 0.02M, For Prothrombintime, Quick
CALCIUM CHLORIDE, Normal solutions other than listed to and including 1.0 Normal
CALCIUM CHLORIDE STANDARD, 1ml = 1mg CaCO₃, APHA
CALCIUM STANDARD, 100 mEq Ca per Liter
CALCIUM STANDARD, Coleman Reagent No. 10
CALCIUM STANDARD, 1ml = 0.5mg Ca in Dilute HCl.
CALCIUM STANDARD, 1ml = 1mg Ca

CHEMICAL FAMILY: Calcium Salt

TRADE NAME: BANCO

DOT SHIPPING NAME: NOT REGULATED

DOT HAZARD CLASS: NOT REGULATED

DOT I.D. NO.: NOT REGULATED

- II. COMPONENTS: Calcium Chloride...(CAS NO 10043-52-4)...to 10% w/v Max.
HCl ...(CAS NO 7647-01-0).....to 1% w/v Max.

III. PERTINENT PHYSICAL DATA:

Boiling pt. 100 C Flash pt.NA Vapor pressure 20 mm Hg at 20 C.

APPEARANCE AND ODOR: Colorless and odorless liquids except for I.C. No. 16220 which is dark reddish-brown.

IV. FIRE AND EXPLOSION DATA: N/A

- V. HEALTH HAZARD DATA: TOXICITY DATA: Oral-rat; LD50, 1000mg/Kg. 100ml of these solutions contain no more than 10,000mg of calcium chloride.

VI. REACTIVITY DATA: Does not form harmful polymerization products.

VII. SPILL AND LEAK PROCEDURES: Flush with water.

VIII. SPECIAL PROTECTION INFORMATION: Use normal laboratory safety devices.

IX. SPECIAL PRECAUTIONARY INFORMATION: Use prudent laboratory practices.

- X. FIRST AID AND OTHER PROCEDURES: This product is to be used only by or under the supervision of qualified personnel. All chemical reagents should be treated as potentially hazardous.

DISCLAIMER OF LIABILITY

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