AFROX

MATERIAL SAFETY DATA SHEET

CALCIUM HYDROXIDE

DATE: 4 August 2004

1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT IDENTIFICATION

Product Name	**CALCIUM HYDROXIDE**
Chemical Formula	$Ca(OH)_2$
Trade Name	Carbide Sludge: Lime Hydrate
Company Identification	African Oxygen Limited 23 Webber Street Johannesburg, 2001 Tel. No: (011) 490-0400 Fax No: (011) 490-0506

2 COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Calcium Hydroxide
Synonyms	Calcium Hydroxide Calcium Hydrate : Carbide Lime

3 HAZARDS IDENTIFICATION

Main Hazards

Adverse Health Effects Greyish / white non-flammable thick liquid suspension in water. Highly irritating and corrosive to the eyes, mucous membranes and respiratory system. Ingestion or skin and eye contact may cause severe burns. Inhalation of mists or dusts from dried product may cause severe respiratory irritation, burns and pulmonary oedema. Avoid direct contact.

Inhalation Inhalation of dust may be severely irritating and cause burns to the nose and throat. Repeated or prolonged inhalation may inflame respiratory passages and produce ulcerations and perforation of the nasal septum. Stridor, tightness of the chest, and pulmonary oedema may occur following excessive inhalation of dust.

Eye Contact Contact with eyes will cause irritation or characteristic alkaline burns. Very irritating to mucous membranes and moist tissue. The cornea of severely burned eyes may be anaesthetic for several days after the injury, presumably due to damage to the corneal nerves. Clumps of moist material may form and be difficult to remove by normal irrigation. Clumps tend to lodge deep in the cul-de-sacs and act as reservoirs for liberation of calcium hydroxide over long periods of time. Blindness can result.

Skin Contact May be severely irritating to the skin and moist tissue. Contact can cause corrosive burns. Calcium hydroxide penetrates the skin slowly, so that the extend of damage depends on the duration of contact.

Ingestion Ingestion usually results in burns to the lips, tongue, and mucous membranes of the mouth and throat, followed by severe abdominal pain. Burns may appear in the throat without being present in the mouth. Spontaneous vomiting, abdominal pain, dysphasia, an d drooling may be noted. In severe cases, if death does not occur in the first 24 hours, the person may improve in 2 to 4 days, followed by the onset of severe abdominal pain and rapid fall of blood pressure. These conditions indicate delayed gastric or oesophageal perforation. Oesophageal stricture can occur within weeks to months later, making swallowing difficult.

Medical conditions aggravated by Exposure: Pre-existing eye, skin, and respiratory conditions.

4 FIRST AID MEASURES

Eye Contact In case of eye contact, immediately flush with low pressure, cool water for at least 30 minutes, opening eyelids to ensure flushing. Get immediate medical (ophthalmologic) attention. Speed in treatment can prevent serious eye damage. Clumps of moist material may lodge deeply in cul-de-sacs inferiorly and superiorly, and may be difficult to remove by normal irrigation. Ensure adequate flushing by opening eyelids and removing clumps of material.

Skin Contact Remove contaminated clothing immediately. Flush affected areas immediately with large quantities of water for at least 15 minutes or longer. Diluted vinegar may be used to neutralize alkali effects. Then wash thoroughly with soap and water. If burns are suspected or irritation persist, seek immediate medical attention. If burns are suspected or irritation persists, seek immediate medical attention.

Ingestion **DO NOT INDUCE VOMITING! GET IMMEDIATE MEDICAL ATTENTION!** Give person water or milk to drink. Rinse residual material from the mouth and throat. DO NOT give neutralizing agents or activated charcoal. Never give anything by mouth to an unconscious person. If spontaneous vomiting occurs, ensure that the airway is clear and rinse mouth with water.

Inhalation **PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVER-EXPOSURE!** Quick removal from the contaminated area is most important. Persons should be assisted to an uncontaminated area and inhale fresh air. Further treatment should be symptomatic and supportive.

NOTE TO PHYSICIAN:

Ingestion Oesophaguscopy should be performed within 12 to 24 hours after ingestion. Second and third degree burns have been reported in 9 to 22% of asymptomatic patients. Do not pass oesophaguscope beyond the first circumferential burn for fear of perforation. Antibiotics should be used only for specific indications of infection. Pharmacological does of steroids (mg/kg Prednisone) may be considered with caution where deep or circumferential oesophageal burns are detected.

Inhalation Administer oxygen, determine blood gases, and obtain a chest x-ray. If Pulmonary oedema is present, consider positive and expiratory pressure ventilation and steroids.

5 FIRE FIGHTING MEASURES

Extinguishing media Use extinguishing media suitable for the combustible materials involved in the fire.
Use water in flooding quantities as a fog, and apply from as far a distance as possible. Do not allow run-off to enter waterways or sewers.
SMALL FIRE: Dry chemical, carbon dioxide, halon, foam.
LARGE FIRE: Water spray, fog, or standard foam.

Specific Hazards Non-flammable slurry. When heated above 1076°F (580°C), calcium hydroxide can decompose to produce calcium oxide (CaO) and water vapour. Calcium oxide is irritating and corrosive and is incompatible with organic materials. Calcium oxide also reacts with water to form calcium hydroxide, which liberates heat during formation.

Emergency Actions

Protective Clothing Fire fighters should wear respiratory protection (SCBA) and full turnout or Bunker gear with corrosive resistant clothing.

Environmental precautions	Do not allow run-off to enter waterways or sewers.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions	Evacuate all personnel from affected area.
Environmental precautions	Use appropriate protective equipment when responding to spill. Contain leak/spill if possible.
Small spills	Carefully scoop or shovel into clean, dry containers for disposal or recovery. For lime that has dried, avoid creating dust. Recovered lime may be collected for re-use. Small amounts may be diluted with water, and flushed to sewer if appropriate approvals are obtained.
Large spills	Keep unnecessary people away. Isolate hazard area. Stay upwind from dried material present, and uphill in the event of a slurry spill. Dike well ahead of slurry for later disposal or recovery. Protective clothing and equipment may be necessary to prevent exposure to lime. Personnel responding to large spills should have training in lime characteristics and spill response. Avoid creating dust if material has dried. Keep material away from waterways and sewers.

7 HANDLING AND STORAGE

Handling	Wear appropriate personal protective equipment. Do not inhale dusts or mists. Do not get on the skin or in the eyes. Immediately flush contaminated skin with large quantities of water. Consumption of food or beverages in the work area should be prohibited. Use good personal hygiene.
Storage	Store in a clean ventilated area. Isolate incompatible materials.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure	An emergency eye-wash station, and safety shower should be available in the immediate area.
Hazards	
Engineering control measures	Use local exhaust and general ventilation to reduce dust concentrations, if any, to below the exposure limit.
Personal protection	Long-sleeve shirts or another skin covering may be necessary to reduce exposure.
Skin	Use long protective gloves of any material to prevent contact of dried material with the skin. Use long rubber gloves, apron, boots, etc. as necessary to prevent contact with slurry.
Eyes / Face	Safety glasses with side-shields, goggles, or full-face shield as necessary, to prevent contact.
Respiratory	Respiratory protection is normally not necessary with adequate ventilation. A NIOSH/MSHA – approved respirator with HEPA cartridge may be used in dusty conditions.

9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DATA

Colour / appearance	Dry: White / grey soft granules or Powder. Slurry: Greyish / white thick liquid suspension in water.
Taste	Slightly bitter, alkaline taste.
Odour	Odourless and irritating. There may be a slight garlic-like odour present in fresh carbide lime-hydrate due to minute amounts of dissolved acetylene.
Odour Threshold	Not available
Physical State	Solid/or Slurry
PH @ 25°C	12.4
Specific gravity	2.24
Oil/water partition coefficient	Not available
Solubility @ 0°C (H20)	0.185 G/100 cc

10 STABILITY AND REACTIVITY

Stability	Stable
Conditions to avoid	Keep dust and lime hydrate away from incompatible materials.
Incompatible Materials	Re-acts with acids. Causes explosive decomposition of maleic anhydride. Forms explosive products with nitro ethane and water. Phosphorus boiled alkaline oxides yield mixed phosphines which may ignite spontaneously in the air.
Hazardous Decomposition Products	Liberates ammonia (NH_3) from ammonium salts. When heated above 1076°F (580°C), calcium hydroxide decomposes to produce Calcium oxide.

11 TOXICOLOGICAL INFORMATION

Skin & eye contact	Corrosive to skin and eyes. Can cause characteristic alkaline burns and tissue damage. Repeated contact with small amounts may cause dermatitis.
Ingestion	LD50 (Rat) – Ingestion of 7340 mg/kg
Mutagenicity	Some data indicates this compound may produce mutagenic effects.

12 ECOLOGICAL INFORMATION

Acute and long-term Toxicity to Fish and Invertebrates. TLm Mosquito Fish: 240ppm/24 hr; 220ppm/48 hr; 160ppm/96 hr @ 21-23°C.

13 DISPOSAL CONSIDERATIONS

Disposal Methods	Dispose in accordance with federal, state, and local government regulations. Consult environmental regulatory agencies for guidance on acceptable disposal practices.

14 TRANSPORT INFORMATION

ROAD TRANSPORTATION

Proper Shipping Name	Calcium hydroxide

SEA TRANSPORTATION

Proper Shipping Name	Calcium hydroxide

AIR TRANSPORTATION

Proper Shipping Name	Calcium hydroxide

15 REGULATORY INFORMATION

Risk phrases	R36 – Irritating to eyes.
Safety phrases	S2 – Keep out of reach of children. S22 – Do not breathe dust. S24 – Avoid contact with skin. S39 – Wear eye / face protection. In case of contract with eyes, rinse immediately with plenty of water and seek medical advice.

16 OTHER INFORMATION

No known data.

17 EXCLUSION OF LIABILITY

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