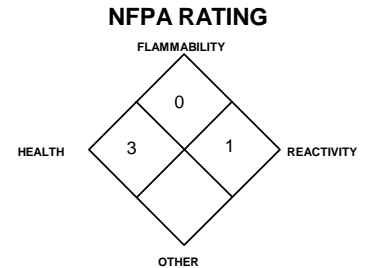




MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards



PART I *What is the material and what do I need to know in an emergency?*

1. PRODUCT IDENTIFICATION

CHEMICAL NAME; CLASS:

CARBIDE LIME SLURRY

Document Number: 001085

PRODUCT USE:

By-product of Acetylene production from Calcium Carbide

SUPPLIER/MANUFACTURER'S NAME:

AIRGAS INC.

ADDRESS:

259 N. Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283

BUSINESS PHONE:

1-610-687-5253

EMERGENCY PHONE:

CHEMTREC: 1-800-424-9300

International: 703-527-3887 (Call Collect)

DATE OF PREPARATION:

May 28, 1999

DATE OF REVISION:

September 10, 2007

2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA		IDLH ppm	OTHER
			TLV ppm	STEL ppm	PEL ppm	STEL ppm		
Calcium Hydroxide	1305-62-0	30-60%	5 mg/m ³	-	15 mg/m ³	-	-	LD ₅₀ 7340 mg/kg (rat)
Water	7732-18-5	40-70%	Not applicable					

NE = Not Established

C = Ceiling Limit

See Section 16 for Definitions of Terms Used

NOTE: All WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1-1993 format.

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: This material is irritating to the eyes, respiratory system and mucous membranes. Prolonged contact may cause burns to the skin and eyes. Avoid inhalation of dried material (dust).



SYMPTOMS OF OVEREXPOSURE BY ROUTE OF EXPOSURE: The most significant routes of occupational overexposure are by inhalation, skin and eye contact. The symptoms of overexposure to Carbide Lime are as follows:

INHALATION: Inhalation of Carbide Lime dust will cause irritation to the respiratory tract. The symptoms of such exposure can include nausea, vomiting, coughing and chest discomfort. Prolonged inhalation may cause inflammation and could cause pulmonary edema.

CONTACT WITH SKIN or EYES: Contact with the skin can cause irritation, swelling and possibly burns. Eye contact can be severely irritating, causing pain and excessive tearing. Conjunctival edema, and corneal edema could result.

INGESTION: Carbide Lime is corrosive by ingestion and may cause burns to the mouth, throat and mucous membranes, and give rise to abdominal pain. Vomiting, abdominal pain and dysphagia may be apparent.

TARGET ORGANS: Skin, eyes, respiratory system, digestive tract.

HAZARDOUS MATERIAL INFORMATION SYSTEM			
HEALTH		(BLUE)	3
FLAMMABILITY		(RED)	0
REACTIVITY		(YELLOW)	1
PROTECTIVE EQUIPMENT			C
EYES	RESPIRATORY	HANDS	BODY
	See Section 8		See Section 8
For routine industrial applications			

See Section 16 for Definition of Ratings

PART II *What should I do if a hazardous situation occurs?*

4. FIRST-AID MEASURES

SKIN EXPOSURE: If Carbide Lime contaminates the skin, immediately begin decontamination with running water. Minimum flushing is for 15 minutes. Remove exposed or contaminated clothing, taking care not to contaminate eyes. Wash thoroughly with soap and water. Victim must seek medical attention if any adverse reaction occurs.

EYE EXPOSURE: If Carbide Lime enters the eyes, open victim's eyes while under gentle running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. It may be necessary to remove solid particles with a swab. Victim must seek immediate medical attention, preferably from an ophthalmologist.

INHALATION: If Carbide Lime is inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Seek prompt medical attention.

INGESTION: If Carbide Lime is swallowed, victim should drink milk, egg whites, or water. Do not induce vomiting. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or who cannot swallow. Use of acidic agents to neutralize are contraindicated.

Victims of chemical exposure must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to health professional with victim. Physicians should refer to Section 11 (Toxicological Information) for additional information on the treatment of Carbide Lime exposure.

5. FIRE-FIGHTING MEASURES

FLASH POINT (TCC): Not applicable

AUTOIGNITION TEMPERATURE: Not applicable

FLAMMABLE LIMITS (in air by volume, %):

Lower (LEL): Not applicable
Upper (UEL): Not applicable

FIRE EXTINGUISHING MATERIALS:

The material is non-flammable. Use extinguishing media appropriate for surrounding fire.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Carbide Lime is a by product of Acetylene manufacture. As such, there could be Acetylene present in solution in the Lime slurry. Acetylene is an extremely flammable gas that can form explosive mixtures with air.

Explosion Sensitivity to Mechanical Impact: Not sensitive.

Explosion Sensitivity to Static Discharge: Not applicable.

SPECIAL FIRE-FIGHTING PROCEDURES: Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Water spray or fog can be used. Runoff water should be contained to prevent possible environmental damage. If necessary, decontaminate fire-response equipment with soap and water solution.

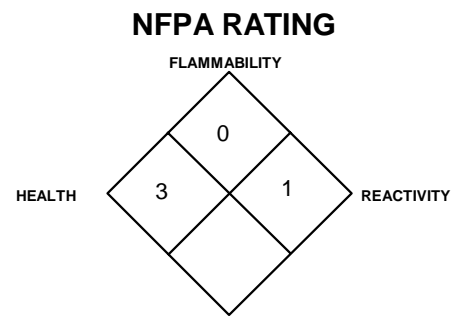
6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a release, clear the affected area, protect people, and respond with trained personnel.

In the event of a non-incident release, minimum Personal Protective Equipment should be **Level B: triple-gloves (rubber gloves and nitrile gloves, over latex gloves), chemical resistant suit and boots, hard-hat, and Self-Contained Breathing Apparatus**.

SMALL SPILL: Carefully transfer the product to a clean dry container, using a shovel or scoop. Recovered Lime can be re-used or disposed of (see Section 13). Avoid creating airborne dust from dried Lime. Small quantities may be flushed with water into a sewer, if appropriate approvals are obtained.

LARGE SPILL: Clear the hazardous area. Remain upwind of dried material, and uphill of slurried material. Use of Personal Protective Equipment is recommended, and personnel responding should be knowledgeable in the characteristics of Lime. Creation of dust from dried material should be avoided and material must be prevented from entering waterways and sewers.



See Section 16 for Definition of Ratings

PART III *How can I prevent hazardous situations from occurring?*

7. HANDLING and STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: As with all chemicals, avoid getting Carbide Lime ON YOU or IN YOU. Wash hands after handling chemicals. Do not eat or drink while handling chemicals. Remove contaminated clothing immediately. Be aware of any signs of effects of exposure indicated in Section 3 (Hazard Identification); exposures to fatal concentrations of Carbide Lime could occur rapidly.

STORAGE AND HANDLING PRACTICES: All employees who handle this material should be trained to handle it safely. Post "NO SMOKING" signs, where appropriate in storage and use areas.

Store Carbide Lime in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Store containers away from incompatible chemicals. Consideration should be given to the possibility of Acetylene being evolved from the slurry. Care should be taken that explosive atmospheres could not be created and that sources of ignition are eliminated.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Always use Carbide Lime in areas where adequate ventilation is provided. Decontaminate equipment using soapy water before maintenance begins. Collect all rinsates and dispose of according to applicable Federal, State, or local procedures.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation. Use a mechanical fan or vent area to reduce dust concentrations. Ensure eyewash/safety shower stations are available near areas where Carbide Lime is used.

RESPIRATORY PROTECTION: Respiratory protection is not normally necessary when there is adequate ventilation. If there is airborne dust, use a NIOSH approved respirator with dust cartridge.

EYE PROTECTION: Splash goggles or safety glasses with side shields.

HAND PROTECTION: For routine industrial use, wear rubber gloves when handling slurry, and leather gloves for dealing with dried material.

BODY PROTECTION: Clothing, such as long sleeved shirts and long trousers, which cover the skin should be worn. Any clothing that may come into contact with Carbide Lime should be thoroughly washed after use.

9. PHYSICAL and CHEMICAL PROPERTIES

pH @ 25°C: 12.4.

SPECIFIC GRAVITY(water = 1): 2.24

FREEZING/MELTING POINT: 2570°C (4658°F) for Calcium Oxide

BOILING POINT: Dissociates at 580°C (1076°F) to Calcium Oxide and Water

SOLUBILITY IN WATER: 0.185 g/cc

APPEARANCE AND COLOR: Slurry – Gray/white thick suspension in water.
Dry – Gray/white powder, or soft lumps or granules.

ODOR: Odorless, but inhalation of dust can be irritating. Can have a slightly bitter, alkaline taste. Fresh Carbide Lime slurry can have a garlic like odor due to small amounts of Acetylene being dissolved in solution. This odor dissipates on exposure to air.

10. STABILITY and REACTIVITY

STABILITY: Stable at standard temperatures and pressures.

DECOMPOSITION PRODUCTS: When strongly heated Carbide Lime will break down to Calcium Oxide and Water.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: Carbide Lime is incompatible with acidic materials, phosphorus and copper. Explosive reaction can occur with maleic anhydride and organic nitro compounds.

HAZARDOUS POLYMERIZATION: Will not occur.

PART III *How can I prevent hazardous situations from occurring?*

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: The following toxicology data are for Carbide Lime.

LD₅₀ (oral, rat) 7340 mg/kg

SUSPECTED CANCER AGENT: Carbide Lime is not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, or CAL/OSHA, and is therefore not considered to be, nor suspected to be, a cancer-causing agent by these agencies.

IRRITANCY OF PRODUCT: Carbide Lime can be irritating to contaminated tissue.

SENSITIZATION OF PRODUCT: Carbide Lime is not known to cause sensitization in humans after prolonged or repeated exposures.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of Carbide Lime on the human reproductive system.

Mutagenicity: Human mutation data are available for Carbide Lime; these data were obtained from studies in which specific human cells were exposed to relatively high concentrations of this compound.

Embryotoxicity: Carbide Lime is not reported to cause embryotoxic effects in humans.

Teratogenicity: Carbide Lime is not reported to cause teratogenic effects in humans.

Reproductive Toxicity: Carbide Lime is not reported to cause adverse reproductive effects in humans.

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

RECOMMENDATIONS TO PHYSICIANS:

INGESTION – Acidic neutralizing agents should not be used. Esophagoscopy should be performed within 12-24 hours of ingestion. Care should be taken to prevent perforation of burned tissue.

EYE CONTACT – Use of EDTA solution to rinse the eyes may help to remove particles of Carbide Lime that may be trapped in the eyes, and relieve some corneal opacification.

INHALATION – Administer Oxygen and check blood gases. Obtain a chest X-ray. Treat pulmonary edema if indicated.

12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

Carbide Lime may not be considered to be a highly hazardous material, but suitable precautions must be taken to ensure that the material is prevented from entering rivers, lakes, streams and sewers. The alkalinity of Carbide Lime may cause it to be subject to local regulations in certain areas.

AFFECT ON AQUATIC LIFE:

TL_m (Mosquito Fish) 240 ppm/24 hr; 220 ppm/48 hr; 160 ppm/96 hr @ 69.8-73.4°F (21-23°C)

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Recovered Carbide Lime can be collected and reused. If disposal is necessary, it must be done in accordance with all federal, state and local regulations.

14. TRANSPORTATION INFORMATION

PROPER SHIPPING NAME: Calcium Hydroxide

HAZARD CLASS NUMBER and DESCRIPTION: Not applicable

UN IDENTIFICATION NUMBER: Not applicable

DOT LABEL(S) REQUIRED: Not applicable

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996): 154

15. REGULATORY INFORMATION

U.S. SARA REPORTING REQUIREMENTS: Carbide Lime is subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act, as follows:

CHEMICAL NAME	SARA 302 (40 CFR 355, Appendix A)	SARA 304 (40 CFR Table 302.4)	SARA 313 (40 CFR 372.65)
Carbide Lime	NO	NO	NO

U.S. SARA THRESHOLD PLANNING QUANTITY: Not applicable.

U.S. CERCLA REPORTABLE QUANTITIES (RQ): Not applicable.

U.S. TSCA INVENTORY STATUS: Lime is listed on the TSCA Inventory.

OTHER U.S. FEDERAL REGULATIONS: Depending on specific operations involving the use of Carbide Lime, the regulations of the Process Safety Management of Highly Hazardous Chemicals may be applicable (29 CFR 1910.119). Under this regulation, Carbide Lime is not listed in Appendix A.

16. OTHER INFORMATION

PREPARED BY:

Airgas SAFECOR

<p>The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. AIRGAS, Inc. assumes no responsibility for injury to the vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, AIRGAS, Inc. assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.</p>

DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these which are commonly used include the following:

CAS #: This is the Chemical Abstract Service Number which uniquely identifies each constituent. It is used for computer-related searching.

EXPOSURE LIMITS IN AIR:

ACGIH - American Conference of Governmental Industrial Hygienists, a professional association which establishes exposure limits.

TLV - Threshold Limit Value - an airborne concentration of a substance which represents conditions under which it is generally believed that nearly all workers may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour **Time Weighted Average (TWA)**, the 15-minute **Short Term Exposure Limit**, and the instantaneous **Ceiling Level**. Skin absorption effects must also be considered.

OSHA - U.S. Occupational Safety and Health Administration.

PEL - Permissible Exposure Limit - This exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June, 1993 Air Contaminants Rule (Federal Register: 58: 35338-35351 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The phrase, "Vacated 1989 PEL," is placed next to the PEL which was vacated by Court Order.

IDLH - Immediately Dangerous to Life and Health - This level represents a concentration from which one can escape within 30-minutes without suffering escape-preventing or permanent injury.

The DFG - MAK is the Republic of Germany's Maximum Exposure Level, similar to the U.S. PEL. **NIOSH** is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration (**OSHA**). NIOSH issues exposure guidelines called **Recommended Exposure Levels (RELs)**. When no exposure guidelines are established, an entry of **NE** is made for reference.

HAZARD RATINGS:

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: Health Hazard: **0** (minimal acute or chronic exposure hazard); **1** (slight acute or chronic exposure hazard); **2** (moderate acute or significant chronic exposure hazard); **3** (severe acute exposure hazard; onetime overexposure can result in permanent injury and may be fatal); **4** (extreme acute exposure hazard; onetime overexposure can be fatal). Flammability Hazard: **0** (minimal hazard); **1** (materials that require substantial pre-heating before burning); **2** (combustible liquid or solids; liquids with a flash point of 38-93°C [100-200°F]); **3** (Class IB and IC flammable liquids with flash points below 38°C [100°F]); **4** (Class IA flammable liquids with flash points below 23°C [73°F] and boiling points below 38°C [100°F]). Reactivity Hazard: **0** (normally stable); **1** (material that can become unstable at elevated temperatures or which can react slightly with water); **2** (materials that are unstable but do not detonate or which can react violently with water); **3** (materials that can detonate when initiated or which can react explosively with water); **4** (materials that can detonate at normal temperatures or pressures).

NATIONAL FIRE PROTECTION ASSOCIATION: Health Hazard: **0** (material that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials); **1** (materials that on exposure under fire conditions could cause irritation or minor residual injury); **2** (materials that on intense or continued exposure under fire conditions could cause temporary incapacitation or possible residual injury); **3** (materials that can on short exposure could cause serious temporary or residual injury); **4** (materials that under very short exposure could cause death or major residual injury). Flammability Hazard and Reactivity Hazard: Refer to definitions for "Hazardous Materials Identification System".

FLAMMABILITY LIMITS IN AIR:

Much of the information related to fire and explosion is derived from the **National Fire Protection Association (NFPA)**. Flash Point - Minimum temperature at which a liquid gives off sufficient vapors to form an ignitable mixture with air. Autoignition Temperature: The minimum temperature required to initiate combustion in air with no other source of ignition. LEL - the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. UEL - the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

TOXICOLOGICAL INFORMATION:

Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds are presented. Definitions of some terms used in this section are: **LD₅₀** - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; **LC₅₀** - Lethal Concentration (gases) which kills 50% of the exposed animals; **ppm** concentration expressed in parts of material per million parts of air or water; **mg/m³** concentration expressed in weight of substance per volume of air; **mg/kg** quantity of material, by weight, administered to a test subject, based on their body weight in kg. Data from several sources are used to evaluate the cancer-causing potential of the material. The sources are: **IARC** - the International Agency for Research on Cancer; **NTP** - the National Toxicology Program, **RTECS** - the Registry of Toxic Effects of Chemical Substances, **OSHA** and **CAL/OSHA**. IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. Other measures of toxicity include **TDL₀**, the lowest dose to cause a symptom and **TCL₀** the lowest concentration to cause a symptom; **TDo**, **LDLo**, and **LDo**, or **TC**, **TCo**, **LCLo**, and **LCo**, the lowest dose (or concentration) to cause death. **BEI** - Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV.

REGULATORY INFORMATION:

This section explains the impact of various laws and regulations on the material. **EPA** is the U.S. Environmental Protection Agency. **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **DOT** and **TC** are the U.S. Department of Transportation and the Transport Canada, respectively. **Superfund Amendments and Reauthorization Act (SARA)**; the **Canadian Domestic Substances List (DSL)**; the U.S. **Toxic Substance Control Act (TSCA)**; Marine Pollutant status according to the **DOT**; California's Safe Drinking Water Act (**Proposition 65**); the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund)**; and various state regulations. This section also includes information on the precautionary warnings which appear on the materials package label.