SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: ECD-10 Foundry Reagent

CHEMICAL NAME: Calcium Carbide

CHEMICAL FAMILY: Metallic Carbide

FORMULA: CaC_2

PRODUCT USE: Foundry iron desulfurization

MANUFACTURER'S NAME: Carbide Industries, LLC

ADDRESS: 4400 Bells Lane
Louisville, Kentucky 40211

P. O. Box 3727
Louisville, Kentucky 40201

PHONE: 1-800-626-2578

WEB ADDRESS: www.carbidellc.com

EMERGENCY PHONE: Carbide Industries 1-502-775-4123 (24 hr.)
Chemtrec 1-800-424-9300

SECTION 2 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Calcium carbide is a hard gray to dark gray solid. Traces of moisture liberate garlic-like odor. It decomposes to calcium hydroxide dust in open air.

WARNING! Dangerous When Wet, develops flammable acetylene gas on contact with any form of water.

PHYSICAL AND CHEMCIAL RISKS: Contact with water, moist air, steam and acids causes heat generation and produces a flammable gas (acetylene), that can form an explosive mix with air. The heat generation can lead to spontaneous ignition of the gas.

OSHA REGULATORY STATUS: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

POTENTIAL HEALTH EFFECTS:

- **INHALATION:** Dusts are irritating to nose, throat and lungs. Overexposure can result in coughing and sneezing.
- **EYES:** Dusts are irritating to eyes, overexposure can cause conjunctivitis and corneal abrasions.
- **SKIN:** Irritates the skin, superficial lime burns can result if moisture is present.
- **INGESTION:** Causes irritation and stinging to mouth and throat. Superficial burns possible.

CHRONIC EFFECTS: No systemic effects are known. Prolonged and repeated exposure may cause dry, cracked skin; eyes may show irritation around lids.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: Inhalation may aggravate asthma and inflammatory or fibrotic pulmonary disease. Because of its irritating properties, this material may aggravate an existing dermatitis.

POTENTIAL ENVIRONMENTAL EFFECTS: Spills to water cause the formation of calcium hydroxide in addition to acetylene, which can lead to high pH values. Adequate precautions should be taken to prevent unauthorized discharge, spills or leakage into rivers, lakes, streams, sewers, or on to lands where it may adversely affect the environment or wildlife.

SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	PERCENTAGE
Calcium Carbide	75-20-7	70% - 80%
Calcium Hydroxide	1305-62-0	Less than 5%
Calcium Carbonate	471-34-1	10% - 20%

(Commercial calcium carbide typically contains calcium oxide in a solid solution as well as small amounts of metallic slag and un-reacted carbon particles)

SECTION 4 - FIRST AID MEASURES

FIRST AID PROCEDURES:

- **INHALATION:** Remove to fresh air. Get prompt medical attention if symptoms persist.
- **EYES:** Immediately flush eyes with running water for 15 minutes, including under eyelids. Get prompt medical attention if irritation persists.
- **SKIN:** Brush off excess material, flush with copious amounts of water and wash affected area with soap and water. Vinegar may be used to remove residual lime.
- **INGESTION:** Dilute by drinking water or milk. Do not induce vomiting. Get prompt medical attention

NOTE TO PHYSICIANS: Bodily contact with fine particles of calcium carbide will rapidly give rise to the formation of calcium hydroxide. Health effects and the appropriate medical treatment mirror those appropriate for alkali hydroxides.

SECTION 5 - FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES: Calcium carbide is not flammable. However, it will react with water in a variety of forms (rain, snow, ice, dew, humidity, etc.) to produce acetylene gas. Acetylene is a flammable gas, with a low ignition point and wide flammability limits. The NFPA 704M rating for calcium carbide is 1-4-2 ~~W~~. For additional information on acetylene, see the Acetylene Safety Data Sheet.

EXTINGUISHER MEDIA: Use ABC dry chemical to extinguish fire resulting from the contact of water with calcium carbide. Dry sand or lime may be used, but they must be bone dry! Do not use water or foam as this will cause additional acetylene generation.

SPECIFIC HAZARDS ARISING FROM THE CHEMICAL: An acetylene fire resulting from wet carbide should not be extinguished while there is water present. The continued generation of unburned acetylene can result in segregated pockets of gas, which can re-ignite if re-introduced to air. Upon extinguishing any fire, a crust of calcium hydroxide may form over the calcium carbide. Disturbing this crust may result in the fire re-igniting.

PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS: The contact of calcium carbide with water may generate sufficient heat to ignite the acetylene gas formed. Contact with acid or acid fumes can evolve heat and flammable vapors. Firefighters should wear self-contained breathing apparatus.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES:

- Evacuate all personnel from affected areas.
- Use appropriate personal protective equipment as recommended in Section 8.
- Contain release by preventing additional release, as well as spread of spill.
- Prevent contact with water using sand bags / metal cover if necessary.

METHODS FOR CLEAN-UP:

- **DRY SPILLS:** Sweep up the material immediately. Transfer to a dry, open top metal container in a covered, ventilated area, and consume in the process as soon as possible.
- **WET SPILLS:** Spills on damp ground, or where the material is contaminated, should be cordoned off to prevent unauthorized access. Contact with water should be minimized. The material should not be disturbed until the residual lime is free of calcium carbide.

NOTE: Spills to the environment of ten pounds or greater require notification of the National Response Center (1-800-424-8802) as well as appropriate state and local authorities. Contact Carbide Industries for further information.

SECTION 7 - HANDLING AND STORAGE

HANDLING: Avoid abusive handling of containers which might cause denting or puncturing. Use spark resistant tools to open containers. See separate literature for unloading instructions. Railcars, containers or other packages, fully loaded or which contain residual calcium carbide, should not be exposed to smoking materials, sparks, welding or any open flame or direct applied heating. In the event of puncture, or leaking containers, contact Carbide Industries for further information.

STORAGE: No smoking, fires or open lights should be permitted in storage area. Calcium carbide may be stored outdoors in unopened metal containers. Covered storage areas are recommended to prevent water entry. Indoor container storage must be well ventilated to avoid dangerous concentrations of acetylene and should not have sprinkler type fire suppression systems or open floor drains. Containers should be placed on raised platforms where there is a possibility of pooled water. Further information on storage can be found in National Fire Protection Association publications NFPA 51 and NFPA 51a.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES:

COMPONENT	THRESHOLD LIMIT VALUE	PERMISSIBLE EXPOSURE LIMIT
Calcium Carbide	10 mg/m^3 TWA ACGIH	15 mg/m^3 (total) / 5 mg/m^3 (respirable) OSHA[(1)]
Calcium Carbonate	10 mg/m^3 TWA ACGIH	15 mg/m^3 OSHA
Calcium Hydroxide	5 mg/m^3 TWA ACGIH	15 mg/m^3 (total) / 5 mg/m^3 (respirable) OSHA

[(1)]*Particulate Not Otherwise Regulated*

ENGINEERING CONTROLS: Ventilation may be used where required to reduce dusting, or to prevent an accumulation of acetylene.

- LOCAL EXHAUST Yes
- MECHANICAL (General) Yes
- SPECIAL Explosion-proof

PERSONAL PROTECTIVE EQUIPMENT (PPE):

- Eye/face protection – safety glasses or goggles
- Cotton work gloves
- Long sleeve shirts, pants, cotton underwear
- Protective cream on exposed skin

RESPIRATORY PROTECTION: NIOSH/MSHA respirator for nuisance dusts and mists (NIOSH-N95 approved)

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Gray, granular solid, as small, rounded particles. Traces of moisture liberate garlic-like odor. Decomposes to calcium hydroxide dust in open air.

MELTING POINT: 3,600(F)

BULK DENSITY: 50-70 lbs/ft^3

SOLUBILITY IN WATER: REACTS VIGOROUSLY!
Exothermic reaction, forms acetylene gas and calcium hydroxide

ACETYLENE FLAMMABILITY LIMITS (IN AIR): Lower limit - 2.5% Upper limit - 81%

ACETYLENE AUTOIGNITION TEMPERATURE: 305(C)

SECTION 10 – STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable (when dry)

REACTIVITY: Reacts readily with water and forms acetylene, a flammable gas. KEEP DRY!

POSSIBILITY OF HAZARDOUS REACTIONS: None when kept dry. For further information on potential reactions when wet, please consult the acetylene Safety Data Sheet.

CONDITIONS TO AVOID: Contact with any form of water

INCOMPATIBLE MATERIALS: Any form of water, including steam, ice, snow, dew or humidity. For reactions involving acetylene and carbide lime, please consult those Safety Data Sheets.

HAZARDOUS DECOMPOSITION PRODUCTS: Acetylene gas.

SECTION 11 – TOXICOLOGICAL INFORMATION

Calcium hydroxide forms when calcium carbide reacts with moisture on the skin and mucous membranes. Calcium hydroxide is a mild alkali, which can cause irritation to the skin, eyes and mucous membranes. Combined with water or acids, calcium carbide forms acetylene gas which has anesthetic properties. The gas can also contain traces of phosphine, ammonia, hydrogen sulfide and arsine, which are toxic. Symptoms of acetylene poisoning are dizziness, and in larger concentrations, unconsciousness.

TOXICITY DATA: There are no toxicological data available for calcium carbide.

CARCINOGENICITY: Calcium carbide is not listed as cancer causing in either the National Toxicology Program, I.A.R.C Monographs or by OSHA.

SECTION 12 - ECOLOGICAL INFORMATION

No ecotoxicity studies on calcium carbide have been performed. The release of calcium carbide into the environment will result in the production of calcium hydroxide. While not hazardous, calcium hydroxide is alkaline and will raise pH levels. All efforts should be made to limit the introduction of calcium carbide or its derivatives into the environment.

SECTION 13 – DISPOSAL CONSIDERATIONS

Calcium carbide should be consumed in industrial processes if possible. For unsuitable or contaminated calcium carbide, disposal should be conducted in accordance with federal, state and local regulations.
Note: discarded calcium carbide is an R.C.R.A. hazardous waste under the D001 - Ignitable Reactives clause.

SECTION 14 – TRANSPORT INFORMATION

BASIC SHIPPING DESCRIPTION:

- **PROPER SHIPPING NAME:** Calcium Carbide
- **HAZARD CLASS:** 4.3 (Dangerous When Wet)
- **UN NUMBER:** UN 1402
- **PACKING GROUP**: I

ADDITIONAL INFORMATION:

- **DOT LABEL(S) / PLACARD(S)**: Dangerous When Wet
- **MARINE POLLUTANT:** Calcium carbide is not designated by the DOT to be a Marine Pollutant
- **REPORTABLE QUANTITY (RQ):** 10 lbs / 4.54 kgs
- **PACKAGING:** Bulk Railcars, OTR tankers, portable tanks & metal IBC's, metal drums and cans

SECTION 15 – REGULATORY INFORMATION

APPLICABLE REGULATIONS:

- D.O.T. 49 CFR 172.101 Transportation
- E.P.A. 40 CFR Part 68 Risk Management
- SARA 304 (40 CFR Table 302.4) Emergency Planning
- Calcium carbide is listed on the TSCA Inventory

SECTION 16 - OTHER INFORMATION

FEDERAL SPECIFICATION: O-C-101a 21-July-1949

SDS REVISION: 3.0

SDS AUTHORIZATION DATE: March 1st, 2010