



MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

LABEL IDENTIFIER: Candle, Chlorate SCOBEA, [Oxidizing Solid n.o.s. (Sodium Chlorate, Barium Peroxide)]

PRODUCT IDENTIFIER: P/N 458749, Candle, Chlorate, SCOBEA
P/N 460068, Candle Assembly, Chlorate

COMPANY IDENTIFICATION: MINE SAFETY APPLIANCES
P.O. Box 429
Pittsburgh, PA 15230
FEDERAL GOVERNMENT SALES: 724-733-9280 (9 am to 6 pm, Eastern Time)
EMERGENCY: 1-800-255-3924 (CHEM-TEL, INC.)

2. Composition/Information on Ingredients

<u>Candle Body</u>	<u>% by Weight</u>	<u>Synonym</u>
Sodium chlorate (CAS 7775-09-9)	79-82	Chloric acid, Sodium salt
Barium peroxide (CAS 1304-29-6)	3-5	-----
Inerts (Fiberglass, Iron Powder)	Balance	-----

<u>Candle Cone</u>	<u>% by Weight</u>	<u>Synonym</u>
Sodium chlorate (CAS 7775-09-9)	22-37	-----
Barium peroxide (CAS 1304-29-6)	12-19	-----
Inerts (Fiberglass, Iron Powder)	Balance	-----

OSHA REGULATORY STATUS: Hazardous by definition of Hazard Communication Standard, 29 CFR 1910.1200.

3. Hazards Identification

EMERGENCY OVERVIEW: Candle is a circular chlorate casting containing a similarly cast primer cone. The ingredients of the two castings differ only proportionally. The candle, filters and screens enclosed in a metal housing make up the candle assembly. Each candle assembly is cylindrical with the following dimensions:

<u>P/N #</u>	<u>Thickness (Inches)</u>	<u>Diameter (Inches)</u>
458749	0.75	1.32
460068	0.80	1.82

With the exception of the hazard that would result if the sealed unit were in a fire, a candle within its original and uncompromised housing is non-hazardous under normal handling conditions. The following hazards are associated with exposed candles.



Strong oxidizer. Contact with other material may cause fire. May ignite if temperature exceeds 300°F (149°C) and causes container to rupture, releasing oxygen and gases which can cause severe irritation. May cause skin irritation.

PHYSICAL HAZARD: Oxidizer

POTENTIAL HEALTH EFFECTS: Irritation. Toxic by ingestion. Chlorate poisoning is characterized by a latent period of a few hours, followed initially with nausea, vomiting, and diarrhea, followed by cyanosis, hemolysis and subsequent renal failure. See Section 11 for additional information.

POTENTIAL ENVIRONMENTAL EFFECTS: Sodium chlorate reported to be “practically nontoxic” in tested species.

4. First Aid Measures

Under normal handling procedures, the chlorate candle would remain unexposed. However, if the candle assembly were to be compromised, the following first aid measures would apply.

SKIN CONTACT: Immediately flush skin with plenty of water for at least 20 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Get prompt medical attention if irritation occurs.

EYE CONTACT: Immediately flush eyes with plenty of water for at least 20 minutes, holding eyes open. Get medical attention.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen.

INGESTION: POISON! Give two glasses of water and permit vomiting if nauseous. Never give anything by mouth to an unconscious person. Call a physician.

5. Fire Fighting Measures

FLASH POINT: Not flammable

LEL: N/A

UEL: N/A

EXTINGUISHING MEDIA: Use extinguishing media appropriate for surrounding fire.

UNUSUAL FIRE AND EXPLOSION HAZARDS: May ignite if temperature exceeds 300°F (149°C) and causes container (i.e., the metal housing) to rupture, thus releasing oxygen (which will intensify the fire) and chlorine dioxide, chlorine, sodium and barium oxides (which cause severe irritation). Cool exposed container(s) with water. Continue cooling after fire is extinguished. If candles become wet with water, they will not perform adequately even if dried.

Do not allow wetted candle material to dry in contact with flammable materials, such as clothing, wooden floors, etc. Do not use absorbent materials to absorb firewater. This is because friction or heat could ignite flammable or absorbent materials when dry.

PROTECTION OF FIREFIGHTERS: Wear full fire-fighting turn-out gear (full Bunker gear) and a NIOSH approved self-contained breathing apparatus (SCBA) with full facepiece operated in a positive-pressure mode. Avoid needless exposure to gas, fume, and vapor. If practical, remain upwind when approaching a fire outdoors.



6. Accidental Release Measures

PROCEDURES FOR CLEANUP: A broken and fragmented candle or compromised candle assembly should be cleaned up on a dry basis. Wear a NIOSH-approved dust respirator and rubber gloves. Avoid dusting conditions. Place pieces and sweepings in a marked disposal container. Concrete or metal floors can then be flushed with water. Do not wet wood floors. After clean up, wash exposed body surfaces with soap and water. Launder clothing before reuse.

7. Handling and Storage

HYGIENIC PRACTICES: Under normal handling procedure, no contact with chlorate candle is possible. However, if the candle assembly is compromised and chlorate candle is exposed, avoid contact with skin. Wear rubber gloves when handling unburned candles. Wash thoroughly after handling. Do not take internally.

STORAGE: Store in tightly closed original container in a clean, cool, dry place. Do not open can until ready for use. Avoid exposure to water to ensure adequate performance. Keep away from heat, sparks, flames, and incompatible materials. See Section 10.

8. Exposure Controls/Personal Protection

PERSONAL PROTECTIVE EQUIPMENT: Use rubber gloves for handling unburned candle assembly.

EXPOSURE LIMITS:

OSHA TLV-TWA: Barium peroxide, OSHA TLV (as Ba) 0.5 mg/m³
ACGIH TLV-TWA: ACGIH TLV-TWA: Barium and soluble compounds, 0.5 mg/m³ as Ba.

9. Physical and Chemical Properties

SELF-ACCELERATING DECOMPOSITION TEMPERATURE: 302°F (150°C) for sodium chlorate
SOLUBILITY IN WATER: Approximately 45%
FORMULA: NaClO₃, BaO₂

10. Stability and Reactivity

CONDITIONS OR MATERIALS TO AVOID: Keep candle body from contact with clothing and other combustible materials such as oil, grease, fuel, wood, sawdust, paper, and leather. Keep away from strong acids and reducing agents such as sulfur and sulfur compounds, powdered metals, ammonia and ammonium compounds, manganese dioxide, potassium cyanide, and thiocyanates. Keep away from heat, sparks, and flames.



11. Toxicological Information

This product has not been tested for health hazards. The following information is based on the assumption made in the OSHA Hazard Communication Standard that an untested mixture will present the same health hazards as do the components which comprise one percent or more.

Sodium chlorate is an eye, skin, and respiratory irritant. Several reports of accidental or suicidal swallowing of sodium chlorate indicate that chlorate poisoning is characterized by a latent period of a few hours, followed initially with nausea, vomiting and diarrhea, followed by cyanosis, hemolysis and subsequent renal failure. Blood effects (hemolytic anemia and methemoglobinemia) as well as kidney and stomach effects were reported. Similar effects on the blood (anemia) have been noted in laboratory animals at high dose levels. Other effects noted in animal tests were: immediate vomiting, death, slight decreases in adrenal weights, decreases in body weight gain, and effects on red blood cells indicative of anemia and decreased fragility in osmotic fragility of red blood cells. In controlled clinical studies with human volunteers administered 500 ml of a 5 ppm solution of sodium chlorate in water for 12 weeks, no adverse effects were found. Skin allergy was not observed in guinea pigs following repeated skin exposure. Both positive and negative mutagenic effects were observed in bacterial cells and flies; several studies in animals and animal cells have been negative. No adverse effects on the mother or fetus were noted in rats given oral doses during pregnancy at levels up to 1000 mg/kg/day.

Barium peroxide may cause skin or eye irritation with redness, swelling, itching, tearing of eyes, and pain. Inhalation may irritate the respiratory tract with coughing, shortness of breath, laryngitis, sore throat and runny nose. If sufficient amounts are inhaled and absorbed, symptoms may resemble those in acute indigestion. Inhalation may be fatal as a result of spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Ingestion may cause gastroenteritis (inflammation of the lining membrane of the stomach and intestines) with abdominal pain, nausea, vomiting and diarrhea. Systemic effects may follow and may include ringing of the ears, dizziness, elevated blood pressure, blurred vision and tremors. This product is not listed in the National Toxicology Program (NTP) Annual Report on Carcinogens, not found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs, not listed by OSHA.

MEDICAL CONDITIONS GENERALLY RECOGNIZED AS BEING AGGRAVATED BY EXPOSURE: Persons with preexisting skin conditions may be more susceptible to the effects of this product.

12. Ecological Information

Sodium chlorate was reported to be "practically nontoxic" in tested species. 48 hour LC50 Daphnia: >1,000 mg/l; 96 hour EC50 Freshwater Algae (static) 133 mg/l; 96 hour LC50 Mysid Shrimp (flow-through): >1,000 mg/l; 96 hour LC50 Bluegill (flow-through): >1,000 mg/l; 96 hour LC50 Rainbow Trout (flow-through): >1,000 mg/l; 96 hour LC50 sheepshead minnow (flow-through): >1,000 mg/l; 96 hour LC50 oyster shell deposition (flow-through): >1,000 mg/l

The single dose oral LD50 of sodium chlorate in mallard ducks was greater than 2510 mg/kg. The five day dietary LC50 to mallard ducks and northern bobwhite quail were both greater than 5620 ppm. A single spraying of the equivalent of 348 pounds per acre of sodium chlorate produced a significant impairment of growth, seed germination and seedling emergence in 10 non-target plant species.

13. Disposal Considerations

Waste Disposal: Do not flush to sewer. Dispose in accordance with local, state, and federal laws and regulations.



14. Transport Information

This product is a U.S. Department of Transportation (DOT) Hazardous Material.

Proper Shipping Name:	Oxidizing solid, n.o.s. (sodium chlorate, barium peroxide)
Hazard Class or Division	5.1
Identification Number	UN1479
Packaging Group	II

Shipper should carefully review applicable regulations which are available from the Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration, U.S. Department of Transportation, 400 7th Street, SW, Washington, DC 20590-0001. Tel: 1-800-467-4922. Web site: www.rspa.dot.gov.

15. Regulatory Information

SARA 313 Information: This mixture contains 1-5% weight percent of barium peroxide, a barium compound, CAS Number: 1304-29-6, a toxic chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR 372.

Pennsylvania: This product contains sodium chlorate and barium peroxide which are subject to the Pennsylvania Worker and Community Right-To-Know Act.

California: The sodium chlorate component sometimes contains trace amounts of chromium (up to 25 parts per million). The following warning is provided to comply with California law. Warning! This product contains a chemical known to the State of California to cause cancer.

16. Other Information

WARNING: This is a dangerous chemical product. By following the directions and warnings provided with this product, the hazards associated with the use of this product can be greatly reduced but never entirely eliminated. Mine Safety Appliances Company makes no warranties, expressed or implied, with respect to this product and EXPRESSLY DISCLAIMS THE WARRANTY OF MERCHANTABILITY AND ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. Users assume all risks in handling, using or storing this product.