

SAFETY DATA SHEET

1. SUBSTANCE AND SOURCE IDENTIFICATION

Product Identifier

SRM Number: 2445
SRM Name: Mercury in Iodized Activated Carbon
Other Means of Identification: Not applicable.

Recommended Use of This Material and Restrictions of Use

This Standard Reference Material (SRM) is intended for use in the evaluation of chemical methods of analysis for mercury in halogenated activated carbon sorbents. A unit of SRM 2445 consists of 25 g of iodinated activated carbon ground to pass a 250 µm (60 mesh) sieve, homogenized, and packaged in an amber glass bottle.

Company Information

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2. HAZARDS IDENTIFICATION

Note: This material is intended for laboratory use only. SRM 2445 is supplied in a small quantity and under normal laboratory conditions, it does not constitute a combustible dust hazard. The physical properties of this material indicate that accumulated dust on surfaces, may lead to combustible dust concentrations in air.

Classification

Physical Hazard: Not classified.
Health Hazard: Not classified.

Label Elements

Symbol: No Symbol/No Pictogram.
Signal Word: No signal word.
Hazard Statement(s): Not applicable.
Precautionary Statement(s): Not applicable.
Hazards Not Otherwise Classified: Not applicable.
Ingredients(s) with Unknown Acute Toxicity: Not applicable.

3. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS

Substance: Carbon (activated)

Other Designations: Fine carbon (iodinated activated carbon)

Components are listed in compliance with OSHA's 29 CFR 1910.1200; for the actual values see the NIST Certificate of Analysis.

| Component(s) | CAS Number | EC Number (EINECS) | Nominal Mass Concentration (%) |
|------------------|------------|--------------------|--------------------------------|
| Carbon | 7440-44-0 | 231-153-3 | 95 |
| Potassium Iodide | 7681-11-0 | 231-659-4 | 5 |

4. FIRST AID MEASURES

Description of First Aid Measures:

Inhalation: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

Skin Contact: Wash skin with soap and water for at least 15 minutes. If necessary, seek medical attention.

Eye Contact: Flush eyes with water for at least 15 minutes. If necessary, seek medical attention.

Ingestion: If a large amount is swallowed, get medical attention.

Most Important Symptoms/Effects, Acute and Delayed: Generated dust may cause mechanical irritation.

Indication of any immediate medical attention and special treatment needed, if necessary: If any of the above symptoms are present, seek medical attention if needed.

5. FIRE FIGHTING MEASURES

Fire and Explosion Hazards: Slight fire hazard. Dust/air mixtures may ignite or explode. Avoid generating dust. See Section 9, "Physical and Chemical Properties" for flammability properties.

Extinguishing Media

Suitable: Regular dry chemical, carbon dioxide, water, regular foam.

Unsuitable: None listed.

Specific Hazards Arising from the Chemical: Not applicable.

Special Protective Equipment and Precautions for Fire-Fighters: Move container from fire area if it can be done without personal risk. Avoid inhalation of material or combustion by-products. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus (SCBA).

NFPA Ratings (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health = 1 Fire = 1 Reactivity = 1

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: Any accumulated material on surfaces should be removed and properly disposed of. Use suitable protective equipment; see Section 8, "Exposure Controls and Personal Protection".

Methods and Materials for Containment and Clean up: Collect spilled material in appropriate container for disposal. Avoid generating dust.

7. HANDLING AND STORAGE

Safe Handling Precautions: Use suitable personal protection equipment (PPE). See Section 8, "Exposure Controls and Personal Protection".

Storage and Incompatible Materials: Store and handle in accordance with all current regulations and standards. Keep separated from incompatible substances (see Section 10, "Stability and Reactivity").

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

| Exposure Limits | | | |
|-----------------------|--|--|--|
| Components | OSHA (PEL) | ACGIH (TLV) | NIOSH (REL) |
| Carbon ^(a) | TWA: 15 mg/m ³ (total particulates) TWA: 5 mg/m ³ (respirable particulates) | no occupational limits established. | TWA: 5 mg/m ³ (respirable particulates) TWA: 10 mg/m ³ (total particulates) |
| Potassium Iodide | no occupational limits established. | TWA: 0.01 ppm (inhalable fraction and vapor, related to Iodides) | no occupational limits established. |

^(a) No occupational exposure limits have been established for activated carbon. This material is a particulate matter and adequate inhalation/respiratory protection should be used to minimize exposure. The exposure limits for Particulates Not Otherwise Regulated (PNOR) are applicable.

Engineering Controls: Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

Personal Protection Measures: In accordance with OSHA 29 CFR 1910.132, subpart I, wear appropriate PPE to minimize exposure to this material.

Respiratory Protection: If workplace conditions warrant a respirator, a respiratory protection program that meets OSHA 29CFR 1910.134 must be followed. Refer to NIOSH 42 CFR 84 for applicable certified respirators.

Eye/Face Protection: Eye and face protection is required when dust is generated. Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin and Body Protection: Standard PPE is recommended to avoid irritation.

9. PHYSICAL AND CHEMICAL PROPERTIES

| Descriptive Properties | Carbon (activated) |
|--|---|
| Appearance (physical state, color, etc.) | black amorphous powder |
| Molecular Formula | not applicable |
| Molar Mass (g/mol) | not applicable |
| Odor | odorless |
| Odor threshold | not available |
| pH | not available |
| Evaporation rate | not available |
| Melting point/freezing point | 3550 °C to 3697 °C (6422 °F to 6687 °F) |
| Density | 0.04 g/mL to 0.7 g/mL |
| Vapor Pressure | <0.1 mmHg at 20 °C |
| Vapor Density (air = 1) | 0.4 |
| Viscosity | not available |
| Solubilities | insoluble in water, acids, and alkali |
| Partition coefficient (n-octanol/water) | not available |
| Particle Size | <250 µm (60 mesh) |
| Thermal Stability Properties | |
| Autoignition Temperature | 450 °C (842 °F) |
| Thermal Decomposition | not available |
| Initial boiling point and boiling range | 4200 °C (7592 °F) |
| Explosive Limits, LEL (Volume %) | not available |
| Explosive Limits, UEL | 0.14 g/L |
| Flash Point | slightly flammable |
| Flammability (solid, gas) | not applicable |

10. STABILITY AND REACTIVITY

Reactivity: Stable at normal temperatures and pressure.

Stability: Stable Unstable

Possible Hazardous Reactions: Large amounts of activated carbon, especially when wet, may deplete oxygen from surrounding air. This may cause a dangerously low oxygen level in confined or enclosed spaces. Use appropriate confined space entry precautions and monitor oxygen levels.

Conditions to Avoid: Avoid heat, flames, sparks and other sources of ignition. Avoid generating dust. Avoid moisture, and incompatible materials.

Incompatible Materials: Metals, oxidizing materials, halogens, combustible materials, peroxides, acids, reducing agents.

Hazardous Decomposition: Oxides of carbon and potassium iodide.

Hazardous Polymerization: Will Occur Will Not Occur

15. REGULATORY INFORMATION

U.S. Regulations

CERCLA Sections 102a/103 (40 CFR 302.4): Not regulated.

SARA Title III Section 302 (40 CFR 355.30): Not regulated.

SARA Title III Section 304 (40 CFR 355.40): Not regulated.

SARA Title III Section 313 (40 CFR 372.65): Not regulated.

OSHA Process Safety (29 CFR 1910.119): Not regulated.

SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21)

| | |
|-----------------|----|
| ACUTE HEALTH: | No |
| CHRONIC HEALTH: | No |
| FIRE: | No |
| REACTIVE: | No |
| PRESSURE: | No |

State Regulations: California Proposition 65: Not listed.

U.S. TSCA Inventory: Activated carbon and potassium iodide are listed.

TSCA 12(b), Export Notification: Not listed.

Canadian Regulations: WHMIS Information is not provided for this material.

16. OTHER INFORMATION

Issue Date: 02 July 2019

Sources: ChemADVISOR, Inc., SDS *Carbon, Activated*, 20 March 2015.

ChemADVISOR, Inc., SDS Potassium Iodide, 20 March 2015.

Cameron/Great Lakes, Inc., Vendor MSDS *CGL/CCKI ACK1*, 15 January 2014.

CDC; NIOSH; *NIOSH Pocket Guide to Chemical Hazards*; Department of Health and Human Services (DHHS), Centers for Disease Control and Prevention (CDC), National Institute for Safety and Health; *Particulates Not Otherwise Regulated*, 29 November 2018; available at <https://www.cdc.gov/niosh/npg/npgd0480.html> (accessed Jun 2019).

Key of Acronyms:

| | | | |
|--------|---|-------|--|
| ACGIH | American Conference of Governmental Industrial Hygienists | NRC | Nuclear Regulatory Commission |
| ALI | Annual Limit on Intake | NTP | National Toxicology Program |
| CAS | Chemical Abstracts Service | OSHA | Occupational Safety and Health Administration |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act | PEL | Permissible Exposure Limit |
| CFR | Code of Federal Regulations | RCRA | Resource Conservation and Recovery Act |
| DOT | Department of Transportation | REL | Recommended Exposure Limit |
| EC50 | Effective Concentration, 50 % | RM | Reference Material |
| EINECS | European Inventory of Existing Commercial Chemical Substances | RQ | Reportable Quantity |
| EPCRA | Emergency Planning and Community Right-to-Know Act | RTECS | Registry of Toxic Effects of Chemical Substances |
| IARC | International Agency for Research on Cancer | SARA | Superfund Amendments and Reauthorization Act |
| IATA | International Air Transport Association | SCBA | Self-Contained Breathing Apparatus |
| IDLH | Immediately Dangerous to Life and Health | SRM | Standard Reference Material |
| LC50 | Lethal Concentration, 50 % | STEL | Short Term Exposure Limit |
| LD50 | Lethal Dose, 50 % | TLV | Threshold Limit Value |
| LEL | Lower Explosive Limit | TPQ | Threshold Planning Quantity |
| MSDS | Material Safety Data Sheet | TSCA | Toxic Substances Control Act |
| NFPA | National Fire Protection Association | TWA | Time Weighted Average |
| NIOSH | National Institute for Occupational Safety and Health | UEL | Upper Explosive Limit |
| NIST | National Institute of Standards and Technology | WHMIS | Workplace Hazardous Materials Information System |

Disclaimer: Physical and chemical data contained in this SDS are provided only for use in assessing the hazardous nature of the material. The SDS was prepared carefully, using current references; however, NIST does not certify the data in the SDS. The values for this material are given in the NIST Certificate of Analysis.

Users of this SRM should ensure that the SDS in their possession is current. This can be accomplished by contacting the SRM Program: telephone (301) 975-2200; fax (301) 948-3730; e-mail srmmsds@nist.gov; or via the Internet at <https://www.nist.gov/srm>.