MSDS MATERIAL SAFETY DATA SHEET **CHEMTREC:** 800-424-9300 (USA)

703-527-3887(Outside USA and Canada)

CANUTEC: 613-996-6666

From: Mallinckrodt Baker, Inc
222 Red School Lane
Phillipsburg, NJ 08865

NOTE: Use CHEMTREC and CANUTEC phone numbers only in the event of a chemical emergency.

Emergency Telephone Number: 908-859-2151

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

J. T. B A K E R

RESISORB® - Mercury Vapor Absorbent

1. Product Identification

Synonyms: Activated Carbon and Iodine
CAS No.: Not applicable to mixtures.
Molecular Weight: Not applicable to mixtures.
Chemical Formula: Not applicable to mixtures.
Product Codes: 4455

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Iodine	7553-56-2	5 - 25%	Yes
Steam Activated Carbon	7440-44-0	75 - 95%	Yes

3. Hazards Identification

Emergency Overview

WARNING! HARMFUL IF SWALLOWED OR INHALED. CONTACT AND VAPORS MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT. AFFECTS CARDIOVASCULAR, RESPIRATORY AND CENTRAL NERVOUS SYSTEMS. MAY CAUSE ALLERGIC SKIN OR RESPIRATORY REACTION.

J.T. Baker SAF-T-DATA(tm) Ratings (Provided here for your convenience)

Health Rating: 2 - Moderate
Flammability Rating: 1 - Slight
Reactivity Rating: 2 - Moderate
Contact Rating: 2 - Moderate
Lab Protective Equip: GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER
Storage Color Code: Orange (General Storage)

Potential Health Effects

Health hazards given below for the iodine component are for the concentrated free iodine. The degree of hazard for reduced concentrations is not currently addressed in the available literature.

Inhalation:
Iodine Component:
Vapors severely irritate and can burn the mucous membranes and respiratory tract. Excessive tears, rhinitis, tightness in the chest, sore throat, headache and delayed pulmonary edema can result. Inhalation of concentrated vapors may be fatal.

Activated Carbon Component:
No adverse effects expected. May cause mild irritation to the respiratory tract.

Ingestion:
Iodine Component:
Can cause severe burns of the mouth, throat and stomach. Causes abdominal pain, diarrhea, fever, vomiting, stupor and shock. Probable lethal dose is 2 to 4 gm of free iodine.

Activated Carbon Component:
No adverse effects expected. May cause mild irritation to the gastrointestinal tract.

Skin Contact:

Iodine Component: Contact may cause blistering burns, irritation, and pain. Vapors may be severely irritating to the skin. Activated Carbon Component: Not expected to be a health hazard from skin exposure. May cause mild irritation and redness.

Eye Contact:

Iodine Component: Vapors are severely irritating and may cause damage to the eyes. Contact may cause severe burns and permanent eye damage. Activated Carbon Component: No adverse effects expected. May cause mild irritation, possible reddening.

Chronic Exposure:

Iodine Component:
Chronic exposure to iodine may cause insomnia, conjunctivitis, inflammation of the nasal mucous, bronchitis, tremor, rapid heart beat, diarrhea and weight loss. Allergic sensitization may occur. Chronic iodine overdoses have produced iodism. Headache, fever, sneezing, salivation, and skin rashes may occur.

Activated Carbon Component:
Prolonged inhalation of excessive dust may produce pulmonary disorders.

Aggravation of Pre-existing Conditions:

Iodine Component: Persons with pre-existing skin disorders, eye problems, impaired respiratory function, or disease of the thyroid, lungs, or kidney may be more susceptible to the effects of the substance.

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4. First Aid Measures

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion:

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

Skin Contact:

Immediately flush skin with plenty of soap and water. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse. Iodine stains can be removed by immediately washing skin with 5% sodium thiosulfate solution.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures

Fire:
As with most organic solids, fire is possible at elevated temperatures or by contact with an ignition source. Activated carbon is difficult to ignite and tends to burn slowly (smolder) without producing smoke or flame. Wet activated carbon depletes oxygen from the air. Materials allowed to smolder for long periods in enclosed spaces, may produce amounts of carbon monoxide which may reach the lower explosive limit for carbon monoxide of 12.5% in air. Contact with strong oxidizers such as ozone or liquid oxygen may cause rapid combustion.
Explosion:
Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Minimum explosible concentration 0.140 g/l.
Fire Extinguishing Media:
Water spray, dry chemical, alcohol foam, or carbon dioxide.
Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Remove all sources of ignition. Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Clean up spills in a manner that does not disperse dust into the air. Use non-sparking tools and equipment. Reduce airborne dust and prevent scattering by moistening with water. Pick up spill for recovery or disposal and place in a closed container. Warning! Spent product may have absorbed hazardous materials.

7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Keep away from moisture and oxidizers. Avoid dust dispersal.
Wet activated carbon depletes oxygen from the air and therefore dangerously low levels of oxygen may be encountered in confined spaces. Work procedures for potentially low oxygen areas should be followed. Containers of this material may be hazardous when empty since they

retain product residues (dust, solids); observe all warnings and precautions listed for the product.

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8. Exposure Controls/Personal Protection

Airborne Exposure Limits:
Iodine Component:
-OSHA Permissible Exposure Limit (PEL):
0.1 ppm Ceiling
-ACGIH Threshold Limit Value (TLV):
0.1 ppm (STEL) ceiling

Activated Carbon Component:
- OSHA Permissible Exposure Limits (PELs):
activated carbon (graphite, synthetic): total particulate = 15 mg/m3 (TWA), respirable fraction = 5 mg/m3 (TWA).
- ACGIH Threshold Limit Values (TLVs):
graphite, all forms except graphite fibers: 2 mg/m3 (TWA).

Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details. Use explosion-proof equipment.

Personal Respirators (NIOSH Approved):
Iodine Component: If the exposure limit is exceeded, wear a supplied air, full-facepiece respirator, airlined hood, or full-facepiece self-contained breathing apparatus. This substance has unknown warning properties.
Activated Carbon Component: If the exposure limit is exceeded, a half-face dust/mist respirator may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece dust/mist respirator may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection:
Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:
Black solid
Odor:
Characteristic iodine odor.
Solubility:
Negligible (< 0.1%)
Specific Gravity:
No information found.
pH:
No information found.
% Volatiles by volume @ 21C (70F):
No information found.
Boiling Point:
No information found.
Melting Point:
No information found.
Vapor Density (Air=1):
No information found.
Vapor Pressure (mm Hg):
No information found.
Evaporation Rate (BuAc=1):
No information found.

10. Stability and Reactivity

Stability:
Stable under ordinary conditions of use and storage.
Hazardous Decomposition Products:
Burning may produce toxic iodine vapors. Carbon dioxide and carbon monoxide may form when heated to decomposition.
Hazardous Polymerization:
Will not occur.
Incompatibilities:
Iodine Component:
Ammonia, strong acids, powdered metals, alkali metals, acetaldehyde, acetylene, ammonium hydroxide, and strong reducing agents.

Activated Carbon Component:
Strong oxidizers such as ozone, liquid oxygen, chlorine, permanganate, etc. may result in rapid combustion. Avoid contact with strong acids.
Conditions to Avoid:
Heat, flame, ignition sources, moisture, and incompatibles.

11. Toxicological Information

Iodine Component:
Oral rat LD50: 14 gm/kg; Human LDLo: 28 mg/kg; Investigated as a reproductive effector.

Activated Carbon Component:
Investigated as a reproductive effector.

--------\Cancer Lists\----------

Ingredient	---NTP Carcinogen--- Known	Anticipated	IARC Category
Iodine (7553-56-2)	No	No	None
Steam Activated Carbon (7440-44-0)	No	No	None

12. Ecological Information

Environmental Fate:
No information found.
Environmental Toxicity:
No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Not regulated.

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15. Regulatory Information

--------\Chemical Inventory Status - Part 1\--------

Ingredient	TSCA	EC	Japan	Australia
Iodine (7553-56-2)	Yes	Yes	No	Yes
Steam Activated Carbon (7440-44-0)	Yes	Yes	No	Yes

--------\Chemical Inventory Status - Part 2\--------

		--Canada--		
Ingredient	Korea	DSL	NDSL	Phil.
Iodine (7553-56-2)	Yes	Yes	No	Yes
Steam Activated Carbon (7440-44-0)	Yes	Yes	No	Yes

--------\Federal, State & International Regulations - Part 1\--------

	-SARA 302-		------SARA 313------	
Ingredient	RQ	TPQ	List	Chemical Catg.
Iodine (7553-56-2)	No	No	No	No
Steam Activated Carbon (7440-44-0)	No	No	No	No

--------\Federal, State & International Regulations - Part 2\--------

		-RCRA-	- TSCA-
Ingredient	CERCLA	261.33	8(d)
Iodine (7553-56-2)	No	No	No
Steam Activated Carbon (7440-44-0)	No	No	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No
Reactivity: Yes (Mixture / Solid)

Australian Hazchem Code: None allocated.
Poison Schedule: S6
WHMIS:
This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

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16. Other Information

NFPA Ratings: Health: **3** Flammability: **1** Reactivity: **0**
Label Hazard Warning:
WARNING! HARMFUL IF SWALLOWED OR INHALED. CONTACT AND VAPORS MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT. AFFECTS CARDIOVASCULAR, RESPIRATORY AND CENTRAL NERVOUS SYSTEMS. MAY CAUSE ALLERGIC SKIN OR RESPIRATORY REACTION.
Label Precautions:
Avoid breathing dust or vapors.
Store in a tightly closed container.
Use only with adequate ventilation.
Avoid contact with eyes, skin and clothing.
Wash thoroughly after handling.
Label First Aid:
If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of skin contact, immediately flush skin with plenty of soap and water. Remove contaminated clothing and shoes. Wash clothing before reuse. In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes. In all cases, get medical attention.
Product Use:
Spill Clean-Up
Revision Information:
No Changes.
Disclaimer:
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