

MATERIAL SAFETY DATA SHEET

ACTIVATED CARBON (ALL GRADES), SOLID

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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EMERGENCY TELEPHONE NUMBERS (FOR EMERGENCIES INVOLVING CHEMICAL SPILLS OR RELEASE)

Toronto, ON (416) 226-6117	Montreal, QC (514) 861-1211	Winnipeg, MB (204) 943-8827
Edmonton, AB (780) 424-1754	Calgary, AB (403) 263-8660	Vancouver, BC (604) 685-5036

PRODUCT IDENTIFICATION

Product Name: Activated Carbon (All Grades), Solid.

Chemical Name: Activated Charcoal.

Synonyms: All grades of: ADP, APC, ASC, AWD, BG, BL, BLK, BPL, C, CAL, Calgon Unadjusted, Canesorb, Centaur, CIM, CL60, CPG, Cyclesorb, Disposorb, DSR-A, DSR-C, Filtrasorb, Flowsorb, GAC, GRC, GW, Haycarb, HF, HGR, IVP, Klensorb, L103, LK30, MAC, MRX, MVP, Paccarb, PCB, PWA, PWD WPH, RB, SGL, Sorbamine, Stancarb, Sulfusorb 8, TOG, Vapor Pac, Ventsorb, VPR, WPH, WPL, WPX, WS4, WTCP500, Xtrusorb, Reactivated Carbon, SP6, AP4-60 AQ, WS, OLC, OVC. Fluepac, Colorsorb, Unistar, Filtracarb.

Chemical Family: Element.

Molecular Formula: C.

Product Use: Thickeners, sorbents, liquid and gas filtration. Adsorbent. Chemical intermediate.

CAS #: 7440-44-0.

WHMIS Classification / Symbol: Not regulated. / Not required.

This material safety data sheet addresses health and safety communication for activated carbon. It does not address application-specific issues for implementing or operating apparatus or equipment containing activated carbon (example, Ventsorb, Flowsorb, Cyclesorb, Disposorb, Absorber, Dual Express, Vapor Pac cannisters, and Bins). Please contact your Brenntag Canada Inc. sales representative who will provide technical guidance and / or equipment bulletins relative to specific applications using equipment that contains activated carbon.

READ THE ENTIRE MSDS FOR THE COMPLETE HAZARD EVALUATION OF THIS PRODUCT.

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Dust is irritating to respiratory tract. Wet dust reduces oxygen available for breathing. Low hazard for usual industrial or commercial handling. May cause pneumoconiosis and staining. Can decompose at high temperatures forming toxic gases.

POTENTIAL HEALTH EFFECTS

- Inhalation: Product may be mildly irritating to the nose, throat and respiratory tract and may cause coughing and sneezing. Excessive contact with powder may cause drying of mucous membranes of nose and throat due to absorption of moisture and oils. See "Other Health Effects" Section.
- Skin Contact: This product may cause irritation due to abrasive action. Contact may cause drying of the skin due to absorption of moisture and oils. May cause defatting, drying and cracking of the skin. Prolonged, confined (especially under the finger nails, under rings

or watch bands) or repeated exposure may cause skin irritation. Prolonged and repeated contact may lead to dermatitis.

- . Skin Absorption: Not likely to be absorbed through the skin.
- . Eye Contact: This product may cause irritation due to abrasive action.
- . Ingestion: Ingestion of large doses can have cathartic (laxative) effects.

Other Health Effects: Effects (irritancy) on the skin and eyes may be delayed. Strict adherence to first aid measures following any exposure is essential.

In general, long-term exposure to high concentrations of dust may cause increased mucous flow in the nose and respiratory system airways. This condition usually disappears after exposure stops. Controversy exists as to the role exposure to dust has in the development of chronic bronchitis (inflammation of the air passages into the lungs). Other factors such as smoking and general air pollution are more important, but dust exposure may contribute. (4)

May cause asphyxiation, pneumoconiosis and staining. Wet dust reduces oxygen available for breathing. Asphyxia is characterized by increased breathing volume, accelerated pulse rate, muscular incoordination, faulty judgement, emotional instability, fatigue, nausea, vomiting, bewilderment, gasping respiration and unconsciousness.

Pneumoconiosis is the deposition of dust in the lungs and the tissue's reaction to its presence. When exposure to the dust is severe or prolonged, the lungs' defenses are overwhelmed.

3. COMPOSITION, INFORMATION ON INGREDIENTS (Not Intended As Specifications)

Hazardous Ingredients: None according to Controlled Products Regulations.

Non-Hazardous Ingredients	CAS No.	ACGIH TLV	%
Activated Carbon	007440-44-0	Not Listed.	90 - 100
Copper (Sulfusorb 8)	007440-50-8	1.0 mg/M3 Dust, as Cu	6 - 13

4. FIRST AID MEASURES

FIRST AID PROCEDURES

- . Inhalation: If respiratory problems arise, move the victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Give cardiopulmonary resuscitation (CPR) if there is no breathing AND no pulse. Obtain medical advice IMMEDIATELY.
- . Skin Contact: Start flushing while removing contaminated clothing. Wash affected areas thoroughly with soap and water. If irritation, redness, or a burning sensation develops and persists and obtain medical advice.
- . Eye Contact: Immediately flush eyes thoroughly for 5 minutes with running water. Hold eyelids open during flushing. If irritation persists, repeat flushing. Obtain medical attention.
- . Ingestion: Do not attempt to give anything by mouth to an unconscious person. If victim is alert and not convulsing, rinse mouth out and give 1/2 to 1 glass of water to dilute material. DO NOT induce vomiting. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water. Obtain medical attention IMMEDIATELY.

Note to Physicians: Treat symptomatically. Medical conditions that may be aggravated by exposure to this product include diseases of the skin, eyes or respiratory tract.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

Flammability Class (WHMIS): Not regulated.
Flash Point (TCC, Deg. Celsius): Non-combustible (does not burn).
Autoignition Temperature (Deg. Celsius): Greater than 350. (3)
Flammability Limits in Air (%): LEL: Not applicable. UEL: Not applicable.

Hazardous Combustion Products: Thermal decomposition products are toxic and may include oxides of carbon.

Unusual Fire or Explosion Hazards: Minimize air borne spreading of dust.

Sensitivity to Mechanical Impact: Not expected to be sensitive to mechanical impact.
Rate of Burning: Not available.
Explosive Power: Not available.
Sensitivity to Static Discharge: Not expected to be sensitive to static discharge.

EXTINGUISHING MEDIA

Fire Extinguishing Media: Water. Use media appropriate for surrounding fire and/or materials.

FIRE FIGHTING INSTRUCTIONS

Instructions to the Fire Fighters: Spilled material may cause floors and contact surfaces to become slippery.

Fire Fighting Protective Equipment: Use self-contained breathing apparatus and protective clothing.

6. ACCIDENTAL RELEASE MEASURES

Information in this section is for responding to spills, leaks or releases in order to prevent or minimize the adverse effects on persons, property and the environment. There may be specific reporting requirements associated with spills, leaks or releases, which change from region to region.

Containment and Clean-Up Procedures: In all cases of leak or spill contact vendor at Emergency Number shown on the front page of this MSDS. Minimize air borne spreading of dust. Wear respirator, protective clothing and gloves. Avoid dry sweeping. Do not use compressed air to clean surfaces. Vacuuming or wet sweeping is preferred. Do not allow to enter sewers or watercourses. Collect product and contaminated soil for re-use or disposal. Ventilate enclosed spaces. Notify applicable government authority if release is reportable or could adversely affect the environment.

Where a package (drum or bag) is damaged and / or leaking, repair it, or place it into an over-pack drum immediately so as to avoid or minimize material loss and contamination of surrounding environment. See Section 13, "Disposal Considerations".

7. HANDLING AND STORAGE

HANDLING

Handling Practices: Use normal "good" industrial hygiene and housekeeping practices. Minimize air borne spreading of dust. Clean up immediately to eliminate slipping hazard.

Ventilation Requirements: Wet activated carbon removes oxygen from air causing a severe hazard to workers inside carbon vessels and enclosed or confined spaces. Before entering such a confined space, sampling and work procedures for low oxygen levels should be taken to ensure ample oxygen availability, observing all local, provincial and federal regulations.

Other Precautions: Use only with adequate ventilation and avoid breathing dusts. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling.

Wash contaminated clothing thoroughly before re-use.

STORAGE

Storage Temperature (Deg Celsius): See below.
Ventilation Requirements: General exhaust is acceptable.

Storage Requirements: Store in a cool, dry and well-ventilated area. Keep away from heat, sparks and flames. Keep containers closed. Avoid moisture contamination. Prolonged storage may result in lumping or caking. Protect from direct sunlight. Protect against physical damage.

Special Materials to be Used for Packaging or Containers: Confirm suitability of any material before using.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Recommendations listed in this section indicate the type of equipment, which will provide protection against overexposure to this product. Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.

ENGINEERING CONTROLS

Engineering Controls: General exhaust is acceptable. Local exhaust ventilation preferred. Make up air should be supplied to balance air that is removed by local or general exhaust ventilation. Ventilate low lying areas such as sumps or pits where dense dust may collect.

Wet activated carbon removes oxygen from air causing a severe hazard to workers inside carbon vessels and enclosed or confined spaces. Before entering such a confined space, sampling and work procedures for low oxygen levels should be taken to ensure ample oxygen availability, observing all local, provincial and federal regulations.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Eye Protection: Safety glasses with side shields are recommended to prevent eye contact. Use chemical safety goggles when there is potential for eye contact. Contact lenses should not be worn when working with this material.

Skin Protection: Gloves and protective clothing made from rubber or plastic should be impervious under conditions of use. Prior to use, user should confirm impermeability. Discard contaminated gloves.

Respiratory Protection: No specific guidelines available. A NIOSH/MSHA approved dust mask for concentrations of nuisance dust up to 10 mg/M3 As For copper (Sulfusorb 8) or 100 mg/M3 particulate. An air-supplied respirator if concentrations are higher or unknown.

Other Personal Protective Equipment: Wear regular work clothing. The use of coveralls is recommended. Locate safety shower and eyewash station close to chemical handling area. Take all precautions to avoid personal contact.

EXPOSURE GUIDELINES

Recommended Exposure Limit: None established for this product.

	ACGIH TLV (STEL)	OSHA PEL (TWA)	(STEL)	NIOSH REL (TWA)	(STEL)
Copper	----	1 mg/M3 as Cu (dust and mist)	----	1 mg/M3 as Cu (dust and mist)	----
Particulate Not Otherwise Classified	ACGIH		OSHA		
10 mg/M3 - Inhalable particulate		50 mppcf*	or 15 mg/M3 - Total Dust		
3 mg/M3 - Respirable particulate.		15 mppcf*	or 5 mg/M3 - Respirable Fraction		

* mppcf = million particles per cubic foot

9. PHYSICAL AND CHEMICAL PROPERTIES (Not intended as Specifications)

Physical State: Solid.
Appearance and Odour: Black granules or powder. Odourless.
Odour Threshold (ppm): Not applicable.
Boiling Range (Deg Celsius): Not available.
Melting/Freezing Point (Deg Celsius): 4,200.
Vapour Pressure (mm Hg at 20 Deg. Celsius): Not applicable.
Vapour Density (Air = 1.0): Not applicable.
Relative Density (g/cc): 2.3.
Bulk Density: Approximately 300 to 700 Kg/M3.
Viscosity: Not applicable.
Evaporation Rate (Butyl Acetate = 1.0): Not applicable.
Water Solubility: Not soluble in water.
% Volatile by Volume: 0 %.
pH: Not available.
Coefficient of Water/Oil Distribution: Not available.
Volatile Organic Compounds (VOC): Not applicable.

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY

Under Normal Conditions: Stable.
Under Fire Conditions: Not flammable.
Hazardous Polymerization: Will not occur.

Conditions to Avoid: High temperatures, sparks, open flames and all other sources of ignition. Minimize air borne spreading of dust. Sweep up immediately to eliminate slipping hazard.

Materials to Avoid: Strong Oxidizers (chlorine, liquid oxygen, permanganates). Strong Acids. Acetone.

Decomposition or Combustion Products: Thermal decomposition products are toxic and may include oxides of carbon.

11. TOXICOLOGICAL INFORMATION

Toxicological Data:

Activated Carbon LD50 (Oral, Rat) = Above 10,000 mg/Kg (3)

Carcinogenicity Data: The ingredient(s) of this product is (are) not classed as carcinogenic by ACGIH, IARC, OSHA or NTP.

Reproductive Data: No adverse reproductive effects are anticipated.

Mutagenicity Data: No adverse mutagenic effects are anticipated.

Teratogenicity Data: No adverse teratogenic effects are anticipated.

Respiratory / Skin Sensitization Data: None known.

Synergistic Materials: None known.

Other Studies Relevant to Material: Activated Carbon is not a primary skin irritant. The primary skin irritation index in rabbits is 0. (3)

12. ECOLOGICAL INFORMATION

Ecotoxicity: Not available. May be harmful to aquatic life.

Environmental Fate: Not available. Product has an unaesthetic appearance and can be a nuisance. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds,

or rivers.

13. DISPOSAL CONSIDERATIONS

This information applies to the material as manufactured. Processing, use or contamination may make the information inappropriate, inaccurate or incomplete. The responsibility for proper waste disposal lies with the owner of the waste.

Deactivating Chemicals: None required.

Waste Disposal Methods: Reevaluation of the product may be required by the user at the time of disposal since the product uses, transformations, mixtures and processes may influence waste classification. Small quantities (less than 25 Kg) of unused portions of this product may be discarded with normal, non-hazardous industrial wastes. Large quantities (25 Kg or more) of unused portions of this product may be discarded with normal, non-hazardous wastes, however such disposal should be cleared with the intended recipient. Disposal of post-service material must be done in accordance with local regulations.

The product may pose new hazards as a result of its use. It may be necessary to test the post-service flash point and/or leachable heavy materials, and/or benzene, toluene, ethylbenzene and xylene (BTEX) as well as total extractable hydrocarbons (TEH) and mineral oil and grease (MOG). Disposal may be dependent upon whether or not it meets regulatory criteria for control as a hazardous waste. The intended recipient should be consulted prior to initiating disposal.

Safe Handling of Residues: See "Waste Disposal Methods".

Disposal of Packaging: Empty containers retain product residue. No special treatment required. Empty package may be disposed of with normal garbage.

14. TRANSPORTATION INFORMATION

CANADIAN TDG ACT / U.S. DOT CLASSIFICATION: Not regulated.

Tests required by 49CFR Part 173 Appendix E which define a spontaneously combustible solid were performed. The test results prove that our products are NOT spontaneously combustible. (3)

15. REGULATORY INFORMATION

CANADA

CEPA - NSNR: This material is included on the DSL under the CEPA.

CEPA - NPRI: Not included.

Controlled Products Regulations Classification (WHMIS): Not regulated.

USA

Environmental Protection Act: This material is included on the TSCA Inventory.

OSHA Hazard Communication (29CFR 1910.1200) Classification: Not regulated.

HMIS: 0 Health, 1 Fire, 0 Reactivity. (3)

INTERNATIONAL: Not available.

16. OTHER INFORMATION

ADDITIONAL INFORMATION AND SOURCES USED

1. RTECS-Registry of Toxic Effects of Chemical Substances, Canadian Centre for Occupational Health and Safety RTECS database.
2. Clayton, G.D. and Clayton, F.E., Eds., Patty's Industrial Hygiene and Toxicology, 3rd ed., Vol. IIA,B,C, John Wiley and Sons, New York, 1981.
3. Supplier's Material Safety Data Sheet(s).

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4. "CHEMINFO", through "CCINFODisc", Canadian Centre for Occupational Health and Safety, Hamilton, Ontario, Canada.
 5. Guide to Occupational Exposure Values, 2005, American Conference of Governmental Industrial Hygienists, Cincinnati, 2005.
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The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Brenntag Canada Inc. will not be liable for any damages, losses, injuries or consequential damages which may result from the use of or reliance on any information contained herein. This Material Safety Data Sheet is valid for three years.

To obtain revised copies of this or other Material Safety Data Sheets, contact your nearest Brenntag Canada Regional office.

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