Confidential

ACTIVATED CARBON
Safety Data Sheet

1. CHEMICAL PRODUCT AND COMPANY

Product Name: MACT-PAC

Chemical Name: Activated Carbon

Name of Manufacturer: Carbonxt, Inc.

Address of Manufacturer: Carbonxt, 3951 NW 48th Terrace, Suite 111, Gainesville, FL 32606

Telephone Number of Manufacturer: (352) 378-4950

Emergency Telephone number: (352) 378-4950 (9:00 am to 5:00 pm EST)

Recommended Use: MACT-PAC, is an oxidizing but non-halogenated powdered activated carbon with similar performance to commercially available brominated PACs. Carbonxt's oxidizing technology does not use bromine or other halogens thus eliminating corrosion concerns to your equipment and plant infrastructure. The pore structure permits the rapid adsorption and removal of mercury from combustion gases at a wide range of temperatures. These physical features in concert with enhanced activity result in a high capacity sorbent for mercury capture.

Recommendations for Non-use: The material should not be used at temperatures higher than the ignition point (400 C).

2. HAZARDS IDENTIFICATION

Classification of the Mixture (based on ECHA database and physical properties; professional judgment), hazard statement, signal word and symbol:

Eye irritation 2(b), H320, Causes eye irritation
Skin irritation 2, H315, Causes skin irritation
STOT SE 3, H335, May cause respiratory irritation

Signal Word: Warning
Symbol:

Precautionary Statement(s): Avoid generating of dust during handling; use in well-ventilated atmosphere.

POTENTIAL HEALTH EFFECTS:
The following may be affected if exposure to powdered activated carbon occurs:

- Eyes: Not corrosive, but may cause mild irritation, tearing, and blurred vision.
- Skin: Not corrosive, but may cause mild irritation.
- Ingestion: Not corrosive, but may cause nausea, vomiting, abdominal pain, and increased salivation.
- Inhalation: May cause mild irritation of the respiratory tract.

Target Organ: lungs

Other Potential Hazards Not Contributing to Classification:

- Lung damage, olfactory fatigue, delayed pulmonary edema may occur with extended periods of overexposure.
- Activated carbon can remove oxygen from air causing a severe hazard to workers in enclosed or confined spaces. Before entering such an area, air sampling and work procedures for low oxygen levels should be taken to ensure oxygen availability, observing all local, state, and federal regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name (synonym)	Percentage	CAS #
Activated Carbon (carbon)	> 80%	7440-44-0
Proprietary*	< 20%	Non-hazardous/Non corrosive

*The specific chemical identity and/or percentage of composition is being withheld as a trade secret.

4. FIRST AID MEASURES

- Skin: Dust may cause mild irritation, possibly reddening. Wash material from the skin with soap and water for at least 15 minutes. Wash clothing that was contacted before reuse. Seek medical attention if irritation continues.
- Eyes: Contact with dust may cause eye irritation, possibly reddening. Flush effected eye with an abundant amount of water for at least 15 minutes, while occasionally lifting the upper and lower eyelids (do not rub the eyes while flushing as this may cause cornea injury). Seek medical attention if irritation persists.
- Ingestion: May act as a mild irritant to intestinal system resulting in nausea or diarrhea. Do not induce vomiting; if victim is conscious and alert give them one to two glasses of water or milk to drink. Seek medical attention if gastrointestinal symptoms persist.
- Inhalation: Dust may cause mild irritation of the upper respiratory system. Immediately seek fresh air and provide rest if needed. If not breathing, give artificial respiration and if there is difficulty breathing, give oxygen. Seek medical attention if respiratory issues persist.
- Individuals with pre-existing skin or eye conditions or impaired respiratory function may have increased susceptibility to the potential effects of the dust.

5. FIRE FIGHTING MEASURES

General Fire Fighting Instructions

- Approach with caution because smoldering carbon can generate dangerous levels of carbon monoxide.
- Move smoldering powdered activated carbon away from hazardous area to a non-hazardous area, or remove nearby combustible material away from the smoldering carbon.
- For large fires, uses water spray and regular foam or carbon dioxide, avoiding dispersal of the fire.
- For small fires, use dry quantities of chemical, carbon dioxide, sand, earth, water spray or regular foam. Note that the use of carbon dioxide to extinguish a small fire will not cool the mass; monitor to avoid flare-ups.
- Cool containers with copious quantities of water until well after the fire is out.
- Avoid stirring up dust clouds.

Fire Fighting Equipment

All fire-fighting personal should wear the following:

- A self-contained breathing apparatus (SCBA).

- Full protective equipment.

Hazardous Combustion Products

Combustion products may include:

- Smoke and oxides of carbon (for example, carbon monoxide).
- Under certain conditions, any airborne dust may be an explosion hazard.
- Used powdered activated carbon may produce additional combustion products.
- When materials are allowed to smolder for long periods of time in an enclosed space, carbon monoxide may reach the lower explosive limit (carbon monoxide LEL= 12.5% in air).

NFPA Rating: (estimated)

- Health: 1
- Flammability: 1
- Instability: 0

6. ACCIDENTAL RELEASE MEASURES

General Information if a Spill or Leak Occurs:

- Vacuum or sweep the powdered activated carbon as quickly as possible.
- Dispose of the powdered activated carbon in a suitable disposal container.
- Avoid exposure to skin, eyes, and clothing.
- Spent or used carbon should be disposed of in accordance with the applicable laws (may contain mercury).

7. HANDLING AND STORAGE

STORAGE:

- Powdered activated carbon can be stored indefinitely if appropriate storage protocols described herein are followed.
- Powdered activated carbon is typically stored in super sacks or silos.
- Powdered activated carbon should be stored at ambient temperature and atmospheric pressure with minimal moisture exposure.
- Keep separated from oxidizing substances, unsaturated oils, metal salts, and easily absorbable gases or vapors.
- Avoid sources of direct heat or naked flame.
- Avoid storing in closed environments where workers will be present as the material can diminish oxygen levels.

HANDLING:

- Avoid contact with eyes, skin, and clothing.
- Avoid stirring up dust.
- Wash skin thoroughly with soap and water after handling.
- Make sure the area or room in which you are handling the carbon is well ventilated.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

OSHA PEL: Nuisance dust (respirable), 5 mg/m^3

Engineering Controls:

- Use local explosion-proof ventilation to minimize airborne levels.
- All carbon transport systems should be engineered to minimize airborne dust.

Eye Protection:

- Wear safety glasses with side shields.
- Where dust conditions are prevalent, dust tight goggles are recommended.

Skin Protection:

- Wear appropriate gloves and clothing to prevent exposure to this product.

- If clothing becomes contaminated, wash before reuse.

Respiratory Protection:

- Use NIOSH/MSHA approved particulate respirators if exposure limits are exceeded or if irritation or other symptoms are experienced.

9. PHYSICAL AND CHEMICAL PROPERTIES

- Physical State: Solid
- Appearance: Black
- Odor: odorless
- Odor threshold: NA
- Vapor Pressure: NA
- Vapor Density: NA
- Evaporation Rate: NA
- Melting Point/Freezing Point, C: NA
- Initial Boiling Point and Boiling Range: NA
- Upper/lower Flammable or Explosive limits: NA
- Solubility: Insoluble in water
- Partition Coefficient, n-Octanol-water: NA
- Ignition Temperature: > 400^{o}C
- Flash Point: NA
- Decomposition Temperature: NA
- Viscosity: NA
- pH: NA
- Flammability (solid, gas): NA
- Relative Density: 0.55-0.75
- % Volatiles: NA

NA-Not applicable

10. STABILITY AND REACTIVITY DATA

Reactivity: NA
Chemical Stability: This product is stable under the specified storage, handling, and use.
Incompatible Materials: Strong oxidizing agents such as ozone, liquid oxygen, chlorine, permanganate, etc.
Hazardous Decomposition Products: Oxides of carbon.
Hazardous Polymerization: Does not occur.
Possibility of Hazardous Reactions: NA
Conditions to Avoid: Static discharge.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity: Components are not acutely toxic in its genuine state; however, used powdered activated carbon may exhibit characteristics of the absorbed material.
Skin: May cause skin irritation.
Eye: May cause eye irritation.
Inhalation: Prolonged exposure to dust may cause benign pneumoconiosis.
Sensitizers: Powdered activated carbon is not classified as a sensitizer.
Other: No components classified as a carcinogen by the NTP or IARC.

12. ECOLOGICAL INFORMATION

Ecotoxicity: This product, in its genuine state, poses no danger to the environment.
Persistence and Degradability: NA
Bioaccumulation Potential: No potential for bioaccumulation.
Mobility in Soil: NA
Other Adverse Effects: NA

13. DISPOSAL CONSIDERATIONS

- Powdered activated carbon, in its genuine state, is not a hazardous material or hazardous waste. Therefore, applicable governmental regulations for waste disposal would apply.
- Used powdered activated carbon may become classified as a hazardous waste depending upon the application. Refer to applicable regulations for disposal of waste residues or contaminated packaging.

14. TRANSPORT INFORMATION

DOT (Department of Transportation)	
UN Proper Shipping Name	Activated Carbon (Not DOT regulated)
Transportation Hazard Class	Not applicable
UN/NA Number	Not applicable
Packing Group	Not applicable
Environmental Hazards	Not a marine pollutant
Transport in bulk	
Freight Classification	STCC Code #2899643 NMFC#040560

15. REGULATORY INFORMATION

This information as presented below applies to the material as shipped (the genuine material). The identification based on characterization(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with all applicable regulations.

Federal Regulation	Description
OSHA Hazard Communication Standard, 29CFR1910.1200	See "Particulates not otherwise regulated," in Table Z-1, of 29CFR1910.1000, "Limits For Air Contaminant"
CERCLA/SUPERFUND,40CFR117, 302	Notification of spills is not required.
SARA/SUPERFUND	Section 302-40CFR355: This products is not listed as an extremely hazardous substance.
	Section 313- This product is not listed.
Toxic Substances Control Act, 40CFR710	The ingredients in this product are on the inventory list.
Resource Conservation and Recovery Act	This product in its genuine state does not meet the criteria of hazardous waste.

State Regulations:
No ingredients are present on state lists from CA, PA, MN, MA, FL, or NJ.

16. OTHER INFORMATION

To the best knowledge of Carbonxt, Inc., the information and data herein are believed to be accurate and have been compiled from sources believed to be reliable. It is offered for user's consideration, investigation and verification. User assumes all risk of use, storage, handling and disposal of the product in compliance with applicable federal, state and local laws and regulations. Carbonxt, Inc. makes no warranty of any kind, express or implied, concerning the accuracy or completeness of the information and data herein. This information is not intended to be all-inclusive and Carbonxt, Inc. assumes no liability whatsoever for the use of or reliance upon this information. Safe handling and use of the product remains the responsibility of the user. No suggestions for use are intended as, and nothing herein shall be construed as, a recommendation to infringe any existing patents or to violate any Federal, State, local or foreign laws.

OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, safety data sheets, training, and access to written records.

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