

MATERIAL SAFETY DATA SHEET

Canadian Center for Occupational Health and Safety

This format is consistent with WHMIS schedule I, column III, and ANSI Z400.1-2004 standard for preparation of MSDS's in accordance with Globally Harmonized System of Classification and Labelling of Chemicals, as well as OSHA's Hazard Communication Standard, 29 CFR 1910. 1200.

M U L T I - M I X ® M M - 9 0 0 0 L T C

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

1.1. Product Identifier Multi-Mix® MM-9000LTC

1.2. Manufacture **Circul-Aire Inc.**
3999 Cote Vertu
Montreal, Quebec
Canada H4R 1R2
Telephone No.: 514-337-3331
Fax No.: 514-336-3023

1.3. Supplier Identifier **Circul-Aire Inc.**
3999 Cote Vertu
Montreal, Quebec
Canada H4R 1R2
Telephone No.: 514-337-3331
Fax No.: 514-336-3023

1.4. Emergency telephone number
514-337-3331
Canutec (Canada): 1 (613) 996-6666 (24 hours)

1.5. Product use Gas-phase air filtration

SECTION 2: HAZARDS IDENTIFICATION

2.1. Emergency overview

MULTI-MIX® MM-9000LTC in large vessels under static conditions is susceptible to exothermic reaction on contact with oxidizable material. Copious volumes of steam will be generated in the process of extinguishing the hot zone. The carbon itself will not exhibit flaming although any combustible material in contact with it will. Since wet activated carbon adsorbs oxygen, do not enter a closed area without using a self-contained breathing apparatus. Flooding the vessel with water will extinguish any hot zone.

2.2. Regulatory status



WHIMS classification: Class E - Corrosive material

OSHA regulatory status: The potassium hydroxide component of this product is classified as Hazardous by OSHA

2.3. Potential health effects

Medical conditions aggravated by exposure: People with pre-existing skin conditions or eye problems or impaired respiratory function may be more susceptible to the potential effects of the dust.

Routes of Exposure:

Eyes: May be corrosive, may cause physical irritation.
Skin: May be corrosive. Irritation is possible due to corrosive and abrasive action of dust.
Ingestion: May cause severe damage to mouth, throat and esophagus.
Inhalation: Possible irritation of respiratory tract due to corrosive, drying and abrasive action of dust.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Composition:

Ingredients (Component)	Approximate Concentration %wt	CAS NA or UN Numbers	LD ₅₀ /LC ₅₀ Specify Species & Route
Activated Carbon	85-95	7440-44-0	LD ₅₀ 10g/kg Oral-RAT
Potassium Hydroxide [1]	2-5	1310-58-3	LD ₅₀ 273 mg/kg Oral-RAT

Information on ingredients:

[1] Active ingredient for impregnation is aqueous potassium hydroxide. Upon drying the form of the remnant impregnant as alkaline potassium salts.

SECTION 4: FIRST AID MEASURES

As a general rule, in case of doubt or if symptoms persist, always call a doctor.
NEVER induce swallowing by an unconscious person

4.1. Description of first aid measures

In the event of exposure by inhalation:

Move the affected person away from the contaminated area and into fresh air.

In the event of splashes or contact with eyes:

Wash thoroughly with soft, clean water for 15 minutes holding the eyelids open.

If there is any redness, pain or visual impairment, consult an ophthalmologist.

In the event of splashes or contact with skin:

Watch out for any remaining product between skin and clothing, watches, shoes, etc.

Rinse with plenty of water.

In the event of swallowing:

Seek medical attention, showing the label.

Rinse mouth out with water.

4.2. Most important symptoms and effects, both acute and delayed

The main symptoms and effects known are described in the label and/or in section 11.

4.3. Indication of any immediate medical attention and special treatment needed

Symptomatic treatment.

SECTION 5: FIREFIGHTING MEASURES

5.1. General Hazards:

MULTI-MIX[®] MM-9000LTC is difficult to ignite and tends to burn slowly (smolder) without producing smoke and flame. Toxic gas may form upon combustion. May self heat under certain conditions.

5.2. Extinguishing media

Suitable methods of extinction: Use an extinguishing media suitable for surrounding the fire.

If involved in fire, flood with plenty of water.

If possible to do safely, move smoldering MULTI-MIX[®] MM-9000LTC to a non-hazardous area, preferably out of doors. Avoid stirring up dust clouds.

Unsuitable methods of extinction: None to our knowledge.

5.3. Special hazards arising from the substance or mixture

Products may include smoke and oxide of carbon (for example, carbon monoxide) and potassium oxide. Material allowed to smolder for long periods in enclosed spaces, may produce amounts of carbon monoxide, which can reach the lower exposure limit (CO LEL=12.5% in air). In contact with hydrochloric acid, chlorine will evolve.

5.4. Firefighting equipment

Fire fighting personnel should wear full protective equipment, including self-contained breathing apparatus for all inside fires and large outdoor fires.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Consult the safety measures listed under headings 7 and 8.

Wear protective equipment, keep unnecessary personnel away, and ventilate area of spill..

For fire-fighters

Fire-fighters will be equipped with NIOSH approved self-contained breathing apparatus suitable for the surrounding fire.

6.2. Environmental precautions

Impregnated component is water soluble. The carbon portion is not. The dust and fine particles can cause a particulate emission if discharged to waterway. Dike all entrances to sewers and drains to avoid introducing the material into the waterways.

6.3. Methods and material for containment and cleaning up

Dike all entrances to sewers and drains. Vacuum or shovel spilled material and place in closed container for disposal.

Remove product to appropriate storage area until it can be properly disposed of in accordance with local, state and federal regulations. Avoid dust formation.

6.4. Reference to other sections

No data available.

SECTION 7: HANDLING AND STORAGE

Requirements relation to storage premises apply to all facilities where the substance is handled.

7.1. Precautions for safe handling

7.1.1. Wet MULTI-MIX[®] MM-9000LTC removes oxygen from air causing a severe hazard to workers inside MULTI-MIX[®] MM-9000LTC vessels and enclosed or confined spaces. Before entering such an area, sampling and work procedures for low oxygen levels should be taken to ensure ample oxygen availability, observing all government regulations.

7.1.2. Use with adequate exhaust ventilation to draw dust away from workers' breathing zones.

7.1.3. Prevent or minimize to dusts by using appropriate respirators, gloves and eye protection.

7.1.4. Wash exposed skin areas thoroughly with soap and water after handling.

Fire prevention:

Prevent access by unauthorized personnel.

7.2. Conditions for safe storage

Storage Temperature: Ambient. Avoid storing at high temperatures in direct sunlight.

Storage Pressure: Atmospheric.

Storage

MULTI-MIX[®] MM-9000LTC should be stored in a closed dry container. Store the product away from incompatible materials, such as strong oxidizers, strong acids.

Avoid storing at high temperature in direct sunlight.

Product should be protected from water and exposure to contaminated air; otherwise the product may be rendered useless.

Not suitable Package Materials:

Porous materials allowing contact with water, air, and contaminants contained therein.

Packaging

Always keep in packaging made of an identical material to the original.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Exposure limits

Component	OSHA PEL	ACGIH TLV	Others
Activated Carbon	Date not available	Date not available	
Potassium Hydroxide	2 mg/M ³ (ceiling)	2 mg/M ³ (ceiling)	

8.2. Exposure Guidelines

Wet MULTI-MIX[®] MM-9000LTC removes oxygen from air causing a severe hazard to workers inside MULTI-MIX[®] MM-9000LTC vessels and enclosed or confined spaces. Before entering such an area, sample the air to assure sufficient oxygen supply. Use work procedures for low oxygen levels, observing all local, state (province) and federal regulations.

8.3. Exposure controls

Use local exhaust ventilation to control emissions near the source. Ventilation systems should be sized and configured to prevent exceeding recommended or regulated exposure limits. Handle in a well-ventilated area.

If risk of overexposure exists, wear an approved respirator. Provide adequate ventilation in warehouse or closed storage area.

8.4. Personal protection measures, such as personal protective equipment

Use of NOISH approved particulate filter is recommended if dust is generated in handling. The usual precautionary measures for handling chemicals should be followed.

8.4.1. Eye protection: Safety glasses or goggles with side shields;

8.4.2. Skin protection: Rubber or plastic gloves and wear appropriate dust resistant clothing, full covers arms and legs.

8.4.3. Respiratory protection: NOISH approved dust mask

8.4.4. General hygiene considerations: Never eat, drink or smoke during use. Remove and wash contaminated clothing before re-using. Ensure that there is adequate ventilation, especially in confined areas.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state	Solid chips	Color	Black
Odor	None	Odor threshold	None
pH	9.5 (<10% suspension)	Specify Gravity	Packed density 0.5-0.6g/cc
Vapor pressure (mm)	Not applicable	Vapor Density (Air=1)	Not applicable
Evaporation Rate	Not applicable		
Boiling point (°C)	Not applicable	Freezing Point (°C)	Not applicable

Solubility in Water (20°C)	10%	% Volatile (by volume)	15% (H ₂ O)
Coefficient of Water / oil Distribution	Not applicable	Flash point (°C)	Not applicable
Upper explosion limit (% by volume)	Not applicable	Lower explosion limit (% by volume)	Not applicable
Explosive power	Not applicable	Sensitivity to static discharge	Not applicable

9.2. Other information

Ignition Temperature >140°C

SECTION 10: STABILITY AND REACTIVITY

10.1. Stability

Stable under the specified conditions of storage, shipment and use.

10.2. Condition to avoid

Avoid storing at high temperature or in direct sunlight.

10.3. Incompatibility to Other Substance

- Contact with strong oxidizers such as ozone, liquid oxygen, chlorine, permanganate, etc. may result in rapid combustion.
- Avoid in contact with strong acids.
- Avoid contact with vapor streams that have high concentrations of combustible hydrocarbons.

10.4. Hazardous decomposition products

Carbon monoxide and carbon dioxide gas may be generated during combustion of this material. Thermal oxidation can produce toxic fumes of potassium oxide.

10.5. Reactivity and under what conditions:

Do not leave MULTI-MIX[®] MM-9000LTC in static state for long periods of time unless vessel sealed to prevent entrance of large volumes of air, etc.

SECTION 11: TOXICOLOGICAL INFORMATION

This material is non-toxic in its original state.

11.1. Effects of acute exposure to products

If the active ingredients of the product are leached out by water, the resulting solution may cause skin, eye and mucous membrane burn and/or irritation.

Toxicological studies: LD₅₀ on finished product (Specify species and route): Not determined
 LC₅₀ on finished product (Specify species and route): Not determined

11.2. Effects of chronic exposure to products: Not determined

Irritation: May be corrosive. Irritation is possible due to corrosive and abrasive action of dust.
Mutagenicity: Not determined on this finished product
Carcinogenicity: Not determined on this finished product
Reproductive toxicant: Not determined on this finished product
Specific target organ systemic toxicity – single exposure: Not determined on this finished product
Specific organ systemic toxicity – repeated exposure: Not determined on this finished product

12. ECOLOGICAL INFORMATION

This material, in its original state, is not harmful to the environment.

13. DISPOSAL CONSIDERATIONS

Waste from residues: Spent media that has removed toxic chemicals should be examined for specific hazards. Local regulations should always be consulted and followed.

14. TRANSPORTATION INFORMATION

LAND

DOT Regulations:
UN/NA Identification Number: Class 8 packing group II UN 1813
UN-Proper Shipping Name: Not Regulated
Transport Hazard Class: None on finished product; see Note 1 below
Packing Group: None on finished product
Marine Pollutant: None on finished product

WATER

IMO/IMDG:
UN/NA Identification Number: Class 8 packing group II UN 1813
UN-Proper Shipping Name: Not Regulated
Transport Hazard Class: None on finished product
Marine Pollutant: None on finished product

AIR

ICAO/IATA:
UN/NA Identification Number: Class 8 packing group II UN 1813
UN-Proper Shipping Name: Not Regulated
Transport Hazard Class: None on finished product
Packing Group: None on finished product
Marine Pollutant: None on finished product
Information reported for product/size: 0.5 kg

Note 1: Under the UN classification for activated carbon, all activated carbons have been identified as a class 4.2 product. However, this product has been tested according to the *United Nations Transport of Dangerous Goods* test protocol for a “self-heating substance” (*United Nations Transportation of Dangerous Goods, Manual of Tests and Criteria, Part III, Section 33.3.1.6 – Test N.4 – Test Method for Self Heating Substances*) and it has been specifically

determined that this product does not meet the definition of a self heating substance (class 4.2) or any other hazard class, and therefore should not be listed as a hazardous material. This information is applicable only for the Activated Carbon Product identified in this document.

15. REGULATORY INFORMATION

SARA Title III 302	Product and impregnant component are not subject to SARA Title III, section 302 regulation.
SARA Title III 313	Product and impregnant component are not subject to SARA Title III, section 313 regulation.
TSCA	Product and impregnant component are listed.
California Proposition 65	Product and impregnant component are not listed.
Canadian Classification	WHMIS: Product and impregnant component are listed. Potassium Hydroxide is classified with hazard codes: D1B and E.
	DSL #: Product and impregnant component are listed.
EEC Council Directives relating to the classification, packaging, and labeling of dangerous substances and preparations.	
Risk and Safety Phrases	R22: Harmful if swallowed. R36: Irritating to eyes. R37: Irritating to respiratory system. R38: Irritating to skin.
Carbon, activated (CAS: 7440-44-0) is found on the following regulatory lists:	Canada – British Columbia Occupational Exposure Limits Canada – Yukon Permissible Concentrations for Airborne Contaminant Substances Canada Domestic Substances List (DSL) International Air Transport Association (IATA) Dangerous Goods Regulations

16. OTHER INFORMATION

Information given herein is offered in good faith as accurate, but without guarantee. Conditions of use and suitability of the product for particular uses are beyond our control; all risks of use of the product are therefore assumed by the user. Nothing is intended as a recommendation for uses which infringe valid patents or as extending license under valid patents. Appropriate warnings and safe handling procedures should be provided to handlers and users.

Prepared by: Chemical Filtration Department
Circul-Aire Inc.

Telephone Number: 514-337-3331

Date prepared: February 18, 2014

DISCLAIMER: In Canada, regulatory authorities have agreed to allow the use of the 16-heading format, provided that all of the MSDS information required under the Controlled Products Regulations is included and that a statement on the MSDS indicated that (1) the product was classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations and (2) the MSDS contains all the information required by those regulations.