

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 Labeling of Chemicals, as well as OSHA's Hazard Communication Standard, 29 CFR 1910.1200.

M U L T I - M I X ® C L E A N A I R E

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

1.1. Product Identifier MULTI-MIX® CLEANAIRE

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
Canotec (Canada): 1 (613) 996-6666 (24 hours)
Or *666 on a cellular phone

1.5. Product Use Gas-phase air filtration

SECTION 2: HAZARDS IDENTIFICATION

2.1. Emergency Overview

If handled extensively, dust may evolve that can be irritating to the eyes, skin, and respiratory tract.

Inhalation: Move to fresh air. If breathing difficulty occurs or persists, seek medical attention.

Skin contact: Wash area with large quantities of water.

Eye contact: Flush with large quantities of water. Seek medical attention.

Ingestion: Seek medical attention.

2.2. Regulatory status

Canadian WHMIS Classification:

WHMIS Class C: Oxidizing materials



WHMIS Class D2B: Material causing other toxic effects



WHMIS 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 asthma, chronic lung disease, and skin rashes will be more susceptible to the potential effects of the dust.

If the product contacts the skin with water, it may leave a stain of insoluble products on the skin. This stain will be washed away/rubbed off over a period of time (hours to days); or can be removed with lemon juice.

Routes of Exposure:

- Eyes: May be damaging to eye tissue, may cause physical irritation.
Skin: If contact with wet skin, may leach out potassium permanganate, which may be irritating to the skin, leaving brown stains.
Ingestion: May cause burns to mucous membranes of the mouth, throat, esophagus, and stomach.
Inhalation: Acute inhalation toxicity data are not available. However, airborne concentrations of potassium permanganate in the form of dust or mist may cause damage to the respiratory tract.

Environmental Effects:

If contacted by water, the permanganate may leach out and the water may turn pink to purple in color. Local regulations should always be consulted and followed.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

| Ingredients (Component) | Approximate Concentration %wt | CAS Number | EC Number | EU Classification |
|---------------------------|-------------------------------|------------|-----------|-------------------|
| Aluminium Oxide | 42.9-50.5 | 1344-28-1 | 215-691-6 | |
| Potassium Permanganate | 2.0-2.4 | 7722-64-7 | 231-760-3 | R8,R22, R50/53 |
| Activated Carbon | 33.9-43.0 | 7440-44-0 | 231-153-3 | |
| Potassium Hydroxide [1] | 1.6-2.0 | 1310-58-3 | 215-181-3 | C; R35 |
| Di-hydrogen Oxide (Water) | 9.85-11.6 | 7732-18-5 | 231-791-2 | |

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. If breathing difficulty occurs or persists, seek medical attention.

In the event of 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 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® CLEANAIRE is difficult to ignite and tends to burn slowly (smolder) without producing smoke and flame. Toxic gas may form upon combustion. It 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® CLEANAIRE 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

- One of component is potassium permanganate, a strong oxidizer, may cause moderate fire hazard by chemical reaction. Do not heat or rub with easily oxidize matter. Keep away from heat and flammable materials.

- 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).

5.4. Advice for firefighters

Products may include potassium oxide, in contact with hydrochloric acid, chlorine will evolve.

5.5. Firefighting equipment

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

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Occupational spill/release

Avoid contact with combustible materials.

6.2. Personal precautions, protective equipment and emergency procedures

Consult the safety measures listed under headings 7 and 8. Wear protective equipment.

6.3. Environmental precautions

Impregnate components are water soluble. The carbon and alumina portions are 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.

6.4. Methods and material for containment and cleaning up

Clean up spills immediately by sweeping or shoveling up the material, avoid raising dust.

Recovery: Product may be recovered for use if it has not come in contact with liquid, changed color, or been exposed to significant amounts of gaseous contaminants.

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

SECTION 7: HANDLING AND STORAGE

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

7.1. Precautions for safe handling

- 7.1.1. Handle in a well-ventilated area.
- 7.1.2. Use with adequate exhaust ventilation to draw dust away from workers' breathing zones.
- 7.1.3. Prevent or minimize the exposure to dust by using appropriate respirators, gloves and eye protection.
- 7.1.4. Wash exposed skin areas thoroughly with soap and water after handling.

7.2. Conditions for safe storage

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

Storage

MULTI-MIX® CLEANAIRE should be stored in a closed dry container. Store the product away from incompatible materials.

Avoid storing at high temperature or 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 |
|------------------------|--|------------------------------------|
| Aluminium Oxide | 5 mg/m3 respirable fraction 15 mg/m3 total dust | TWA: 10 mg/m3 |
| Potassium Permanganate | | TWA: 0.2 mg/M ³ (as Mn) |
| 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® CLEANAIRE removes oxygen from air causing a severe hazard to workers inside 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.

8.2. Exposure controls

Use local exhaust ventilation to control airborne dust 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.

8.3. Personal protection measures, such as personal protective equipment

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

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

8.3.3. Respiratory protection: NOISH approved dust mask

8.3.4. 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 granules | Color | Purple / black |
| Odor | None | Odor Threshold | None |
| pH | 8.0 | Specify Gravity | Packed density 0.64-0.74 g/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) | Partially soluble in water. Will dissolve in concentrated acids and alkalis. | % Volatile (by volume) | 10-12% (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 >300°C

SECTION 10: STABILITY AND REACTIVITY

10.1. Stability

This material is stable under the normal conditions of storage, shipment and use.

10.2. Conditions to avoid

- Avoid contact with incompatible materials.
- Avoid storing at high temperature.

10.3. Incompatibility to other substances

- Halogen acids – Reaction with halogen acids may release the halogen gas.
- Avoid contact with strong acids.
- Avoid contact with vapor streams that have high concentrations of combustible hydrocarbons

10.4. Hazardous decomposition products

When involved in a fire, potassium permanganate may liberate irritating, poisonous and/or corrosive fumes. Oxides of potassium and manganese may be formed.

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: No known cases of chronic poisoning due to permanganates have been reported. Prolonged exposure, usually over many years, to heavy concentrations of manganese oxides in the form of dust and fumes may lead to chronic manganese poisoning, chiefly involving the central nervous system.

Irritation: Irritation is possible due to 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: None on finished product
 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

WATER

IMO/IMDG:
 UN/NA Identification Number: None on finished product
 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: None on finished product
 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

15. REGULATORY INFORMATION

| | |
|--------------------------------|--|
| SARA Title III 302 | Product and impregnant component are not subject to SARA Title III, section 302 regulation. |
| SARA Title III 312 | Only expected as Acute (eye irritant), see Section 11 TOXICOLOGICAL INFORMATION |
| SARA Title III 313 | Impregnant component is subject to SARA Title III, section 313 regulation (40CFR372). |
| Canadian Classification | WHMIS: Impregnant component is listed. Potassium Permanganate is classified with hazard codes: C and D2B Potassium Hydroxide is classified with hazard codes: D1B and E. |
| Risk Phrases | R36: Irritating to eyes. R37: Irritating to respiratory system. R38: Irritating to skin. |
| Safety Phrases | S3: Keep in a cool place. S8: Keep container dry. S24/25: Avoid contact with skin and eyes. S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S28: After contact with skin, wash immediately with plenty water. S62: If swallowed, do not induce vomiting; seek medical advice immediately and show this container or label. S63: In case of accident by inhalation: remove casualty to fresh air and keep at rest. |

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.

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Date Prepared: May 1, 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.