



MATERIAL SAFETY DATA SHEET

This Material Safety Data Sheet complies with the Canadian Controlled Products Act

SECTION 1 - IDENTIFICATION

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| PRODUCT IDENTIFIER: | ACTION 838 |
| PRODUCT USE: | Multi Metal Powder for Recirculating Spray Washers |
| SUPPLIER: | <p>Active Chemicals Ltd.</p> <p>#1 – 7157 Honeyman Street, Delta, British Columbia, Canada, V4G 1E2</p> <p>Telephone: (604) 946-0361, Facsimile: (604) 946-3901</p> <p>Emergency Telephone: (613) 996-6666 [Transport Emergencies Only]</p> |

SECTION 2 – COMPOSITION

| HAZARDOUS INGREDIENTS | % (W/W) | CAS NUMBER | LD ₅₀ | LC ₅₀ | EXPOSURE LIMITS (ACGIH)* |
|--|---------|----------------|---|---|---|
| Sodium Metasilicate Anhydrous | 15 - 40 | 6834-92-0 | 600 mg/kg (oral/rat) >4640 mg/kg (dermal/rabbit) | No data | Not established |
| Sodium Carbonate | 15 - 40 | 497-19-8 | 4090 mg/kg (rat/oral) 1576 mg/kg (dermal/rabbit) | 800 mg/m ³ (male guinea pig/ 2 hour) | TLV-TWA: 10 mg/m ³ Nuisance dust, total |
| Non hazardous ingredients or those below disclosure requirements | 20-70 | Not applicable | Not applicable | Not applicable | Not applicable |

*Exposure limits may vary from time to time and from one jurisdiction to another. Check with local regulatory agency for the exposure limits in your area.

SECTION 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

Corrosive to skin and eyes. Inhalation of dusts will irritate the upper respiratory tract, causing burning of the mucous membranes, resulting in coughing irritation, and breathing difficulties. Ingestion can cause severe burns or tissue damage to mouth and throat, gastro-intestinal and abdominal pain.

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EFFECTS OF SHORT-TERM (ACUTE) EXPOSURE:

INHALATION: Inhalation of dusts will cause burning of the mucous membranes in the upper respiratory tract. Production of phlegm will occur causing coughing, moderate to severe irritation, and difficulty breathing. In severe cases, inhalation of vapours into the lungs may cause permanent lung damage and pulmonary edema.

SKIN CONTACT: Corrosive to the skin. Sensitization is not expected to occur by skin contact. Upon contact, persons with pre-disposed skin conditions may experience a burning sensation which may produce a rash.

EYE CONTACT: Corrosive to the eyes. Damage can range from severe irritation and mild scarring to blistering and clouding. In severe cases, permanent blindness may result.

INGESTION: Based on animal information, this product is not toxic by ingestion. Burning of the mouth, lips and tongue and throat are likely. Ingestion of large quantities will cause gastrointestinal discomfort. Ingestion of this chemical may result in risk of aspiration into the lungs resulting in pulmonary edema, permanent lung damage and death in severe cases.

EFFECTS OF LONG-TERM (CHRONIC) EXPOSURE:

Repeated or prolonged exposure of the skin may cause skin irritation by defatting and drying the skin. Dermatitis may result. Longterm exposure to dusts may cause reduced lung function due to scarring. Accumulation in the body is not expected.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

Pre-existing skin and respiratory disorders.

SECTION 4 - FIRST AID MEASURES

INHALATION: Remove source of contamination or remove victim to fresh air. If breathing is difficult, it may be beneficial for a trained person to give oxygen. Ensure victim is completely at rest - allow no physical exertion. Symptoms of pulmonary edema may be delayed for up to 48 hours. Immediately transport victim to an emergency medical facility.

INGESTION: Never give anything by mouth if victim is rapidly losing consciousness, or is unconscious or is convulsing. Have victim rinse mouth thoroughly with water. **DO NOT INDUCE VOMITING.** Have victim drink 300 mL (10 oz.) of water. If vomiting occurs naturally, have the victim lean forward to reduce risk of aspiration. Repeat administration of water. Immediately transport to emergency medical facility.

SKIN CONTACT: Avoid direct contact. Wear impervious protective gloves if necessary. Under running water, remove contaminated clothing, shoes, and leather goods such as watchbands and belts. Immediately flush contaminated areas with lukewarm, gently running water for at least 15 minutes. Completely decontaminate clothing, shoes and leather goods before reuse or discard.

EYE CONTACT: Immediately flush contaminated eye(s) with lukewarm, gently running water for at least 30 minutes while holding the eyelid(s) open. Take care not to rinse contaminated water into a non-affected eye. Neutral saline solution may be used for flushing if available. **DO NOT INTERRUPT FLUSHING** - keep emergency vehicle waiting if necessary and continue to irrigate while transporting to an emergency medical facility.

GENERAL COMMENTS: Provide general supportive measures (comfort, warmth, rest). Seek medical attention for all exposures except minor instances of inhalation. First-aid procedures should be reviewed by appropriate personnel familiar with sodium metasilicate and its conditions of use in the workplace.

ACTION 838**SECTION 5 - FIRE FIGHTING MEASURES**

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|---------------------------|----------------|----------------------------|----------------|-----------------------------------|---------------|
| FLASH POINT: | Not applicable | LOWER FLAMMABILITY LIMITS: | Not applicable | SENSITIVITY TO MECHANICAL IMPACT: | Not sensitive |
| AUTOIGNITION TEMPERATURE: | Not applicable | UPPER FLAMMABILITY LIMITS: | Not applicable | SENSITIVITY TO STATIC DISCHARGE: | Not sensitive |

HAZARDOUS COMBUSTION PRODUCTS: May liberate oxides of carbon.

EXTINGUISHING MEDIA: Carbon dioxide, water, foam, dry chemical. This product is not flammable. Use extinguishing media suitable for surrounding fire fighting situations.

FIRE FIGHTING INSTRUCTIONS: Evacuate area and fight fire from a safe distance. Wear adequate personal protective equipment. Approach fire from upwind. Remove or isolate materials not involved in the fire if it can be done without risk. At high temperatures, fuming may occur. Chemical resistant clothing and NIOSH/MSHA approved positive pressure SCBA may be required. Water may be used to keep fire-exposed containers cool to prevent rupture. Use water spray to cool all nearby fire exposed surfaces.

UNUSUAL FIRE and EXPLOSION HAZARD: This product may react with sensitive metals (aluminum, zinc etc.) during prolonged contact. Reaction may liberate hydrogen gas and form flammable mixtures in air.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

PERSONAL PROTECTION: Evacuate unnecessary personnel from spill area. Wear appropriate personal protective equipment. Ventilate area. Remove chemicals which can react with the spilled material if it can be done without risk. Do not touch spilled product.

ENVIRONMENTAL PRECAUTIONS: Implement spill control plan. Stop or reduce leak if safe to do so. Prevent from entering sanitary or storm sewers, waterways, or confined spaces by diking with inert materials such as earth or sand.

REMEDIAL MEASURES: Restrict access to area until completion of cleanup. Ensure cleanup is conducted by trained personnel only. Use all appropriate personal protective equipment. Sweep, shovel or scoop into suitable clean waste containers. Flush cleaned area with water. Reuse product, if possible otherwise neutralize recovered material with acid and then dispose of in accordance with all local, provincial, and federal regulations. Notify government occupational health, safety and environmental authorities as per applicable regulations.

SECTION 7 - HANDLING AND STORAGE

HANDLING: Keep containers closed when not in use. This material is a CORROSIVE SOLID. It is an inhalation hazard if dust is created during use. Before handling, it is very important that engineering controls are operating and that protective equipment requirements and personal hygiene measures are being followed. People working with this chemical should be properly trained regarding its hazards and its safe use. Maintenance and emergency personnel should be advised of potential hazards. Avoid methods of handling that may produce dusts. Report leaks, spills or ventilation failures. Any signs of illness should be reported immediately to supervisory personnel. Seek medical attention for all exposures even if an exposure did not seem excessive. Symptoms of a severe exposure can be delayed. Avoid generating vapours and mists. Prevent release into workplace air and contact with contaminated equipment. Closed handling systems for processes involving this material should be used.

STORAGE: Store in a dry, cool, well-ventilated area away from incompatible materials. Do not store in temperatures exceeding 30°C. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Keep storage area separate from work areas. Post warning signs. Inspect periodically for damage or leaks. Have appropriate fire extinguishers and spill clean-up equipment in or near storage area. Keep storage area clear of burnable materials.

ACTION 838**SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION**

ENGINEERING CONTROLS: Use general or local exhaust ventilation to maintain exposure below the exposure limits.

RESPIRATORY PROTECTION: Not normally required for most uses. If use produces mists or aerosols, use an approved NIOSH half-face or full face respirator. Knowledge of respiratory hazards and respiratory protection is essential to ensure appropriate selection of respirators.

NOTE: Air purifying respirators do not protect against oxygen deficient atmospheres.

SKIN PROTECTION: Wear impervious gloves fabricated from butyl or natural rubber, nitrile or neoprene. Avoid use of leather and wool. Protect skin by use of a neoprene apron and long sleeved coveralls.

EYE AND FACE PROTECTION: Eye protection is required. Chemical safety goggles are recommended. A full face shield may also be necessary. The wearing of contact lenses is not recommended.

OTHER: Have a safety shower and eye wash station readily available in the immediate work area.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

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|------------------|----------------------------------|---|-----------------|
| APPEARANCE: | Off white powder | FREEZING POINT: | Not applicable |
| ODOUR: | No odour | BOILING POINT: | Not applicable |
| ODOUR THRESHOLD: | Not determined | CRITICAL TEMPERATURE: | Not determined |
| pH: | 12.0 - 13.0 @ 20°C (1% solution) | RELATIVE DENSITY: | Not determined |
| VAPOUR PRESSURE: | Not determined | PARTION COEFFICIENT: n-OCTANOL/WATER | Not determined |
| SOLUBILITY: | Completely soluble | EVAPORATION RATE: | Not determined. |
| VAPOUR DENSITY: | Not determined | VOC CONTENT: | Not determined |
| VISCOSITY: | Not determined | % VOLITILES: | Not determined |

SECTION 10 - STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable under normal storage conditions.

INCOMPATIBILITY: Strong oxidizing agents, acids and sensitive metals such as aluminum and zinc.

HAZARDOUS DECOMPOSITION PRODUCTS: Upon thermal decomposition the product may liberate oxides of carbon.

HAZARDOUS POLYMERIZATION: Will not occur

SECTION 11 -TOXICOLOGICAL INFORMATION

ROUTE(S) OF ENTRY: Inhalation (major), Ingestion (major), Eye contact (major), Skin contact (major).

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| ACUTE EXPOSURE: See Section 3 | CHRONIC EXPOSURE See Section 3 | SENSITIZATION: Not known to be a sensitizer |
| IRRITANCY: Severe eye, skin and respiratory irritant. | MUTAGENICITY: No reports | REPRODUCTIVE TOXICITY: No reports |
| TERATOGENICITY: Not expected to be teratogenic. | CARCINOGENICITY: IARC reports inadequate evidence for classification as human carcinogen | |
| POTENTIAL FOR ACCUMULATION: Not expected to accumulate. | SYNERGISTIC PRODUCTS: None reported. | |

ACTION 838**SECTION 12 - ECOLOGICAL INFORMATION****ECOTOXICOLOGICAL INFORMATION:**

Larger spills may acutely affect aquatic life through increase of aqueous pH to toxic levels.

ECOLOGICAL FATE INFORMATION:

No data

SECTION 13 - DISPOSAL CONSIDERATIONS

Canadian Environmental Protection Act: All ingredients are listed in the DSL. Dispose of in accordance with all federal, provincial/state, and local regulations. Consult with your local supplier for additional information.

SECTION 14 - TRANSPORT INFORMATION**CANADIAN TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:**

UN 3262, CORROSIVE SOLID, BASIC, INORGANIC, N.O.S. (Sodium Metasilicate Mixture), Class 8, P.G. II

INTERNATIONAL AIR TRANSPORT ASSOCIATION REGULATIONS:

UN 3262, CORROSIVE SOLID, BASIC, INORGANIC, N.O.S. (Sodium Metasilicate Mixture),
Class 8, P.G. II

INTERNATIONAL MARITIME ORGANIZATION REGULATIONS:

UN 3262, CORROSIVE SOLID, BASIC, INORGANIC, N.O.S. (Sodium Metasilicate Mixture),
Class 8, P.G. II
EmS No. F-A, S-B, Stowage Category "B", Separated from acids.

SECTION 15 - REGULATORY INFORMATION**CANADIAN FEDERAL REGULATIONS:**

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA): All ingredients are on the Domestic Substances List (DSL).

WHMIS CLASSIFICATION: E: Corrosive

SECTION 16 - OTHER INFORMATION

PREPARATION DATE: April 30, 2008

PREPARED BY: Kel-Ex Agencies Ltd., from information supplied by Active Chemicals Ltd.

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REVISIONS: None to date.