

MATERIAL SAFETY DATA SHEET

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

Product identifier: ACCURATE™ HERBICIDE

Product use: Sulfonylurea herbicide for controlling broad-leaved weeds.

Supplier's name and address:

Cheminova Canada Inc.

22499 Jefferies Road, Unit C2,

Kilworth, ON

Canada N0L 1R0

Phone #: 1-(519) 472-0600 (8 AM to 4:00 PM EST, Monday to Friday)

Emergency Telephone #: 1-866-303-6950 (Medical Emergencies)

1-(613) 996-6666 (CANUTEC)

Manufacturer's name and address:

Cheminova A/S.

P.O. Box 9

DK-7620 Lemvig

Denmark

MSDS Prepared by: Cheminova Inc.

MSDS Preparation date: November 22, 2006

MSDS Revision date: January 09, 2013

Reason for revision: update MSDS

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

<u>Ingredients</u>	<u>CAS #</u>	<u>% (weight)</u>	<u>ACGIH TLV</u>	<u>OSHA PEL</u>
Metsulfuron-methyl	74223-64-6	50 - 70	N/Av	N/Av
Sodium alkylnaphthalenesulfonate polymer	Proprietary	5 - 10	N/Av	N/Av
Alkylnaphthalenesulfonate, sodium salt	Proprietary	3 - 7	N/Av	N/Av
Kaolin	1332-58-7	3 - 7	2 mg/m ³	15 mg/m ³ (total dust); 5 mg/m ³ (respirable)

OSHA information: This material is classified as hazardous under OSHA regulations (29CFR 1910.1200).

SECTION 3 — HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Off-white solid. Faint, ester-like odor.

Warning! May be harmful if swallowed in large amounts. Causes eye irritation. May cause skin and respiratory irritation.

May be dangerous for the environment. This product is highly toxic to green algae and aquatic plants.

POTENTIAL HEALTH EFFECTS

Target organs: Eyes, skin, respiratory system, digestive system, nervous system.

Signs and symptoms of short-term (acute) exposure:

Inhalation: May cause irritation of the nose, throat and upper respiratory tract.

Skin contact: Direct skin contact may cause mild to moderate irritation.

Eye contact: Direct eye contact may cause moderate to severe irritation, and possibly corneal damage.

Ingestion: May be harmful if swallowed. May cause irritation to the mouth, throat and stomach. If ingested in large amounts, symptoms may include nausea, vomiting, confusion, dizziness, seizures and coma.

Effects of long-term (chronic) exposure: Prolonged or repeated overexposure may cause adverse liver effects.

Carcinogenicity: See TOXICOLOGICAL INFORMATION (Section 11).

Other important hazards: See TOXICOLOGICAL INFORMATION (Section 11).

Potential environmental effects: This product is highly toxic to green algae and aquatic plants. See ECOLOGICAL INFORMATION (Section 12).

SECTION 4 — FIRST AID MEASURES

Inhalation: Immediately remove victim to fresh air. If breathing has stopped, begin artificial respiration immediately. Obtain medical attention if irritation develops and persists.

SECTION 4 — FIRST AID MEASURES Continued

Skin: Immediately wash skin with mild soap and running water, while removing contaminated clothing and shoes. Obtain medical attention if irritation develops and persists. Thoroughly clean contaminated clothing before re-use.

Eyes: Immediately flush eyes with running water for at least 20 minutes. Obtain medical attention immediately.

Ingestion: If ingested, do not induce vomiting. Have victim rinse mouth with water, then give one to two glasses of water to drink. Never give anything by mouth if victim is unconscious or convulsing. Obtain medical attention.

Note to physician: There is no specific antidote for this product. Treat symptomatically.

SECTION 5 — FIRE FIGHTING MEASURES

Fire hazards/conditions of flammability: Not considered to be flammable or combustible material. Finely divided dust clouds may pose a dust explosion hazard. Material may decompose when exposed to heat and flame. Heat of decomposition may cause closed containers to build up pressure.

Flammability classification (OSHA 29 CFR 1910.1200): Non-flammable solid.

Flash point (Method): > 302°F (150°C) (Closed Cup)

Flammable limits (% by volume): N/Av

Explosion data: *Sensitivity to mechanical impact:* Not sensitive.

Sensitivity to static discharge: Finely divided dust clouds may pose a dust explosion hazard. Keep away from static discharge.

Auto-ignition temperature: N/Av

Suitable extinguishing media: For small fires, use dry chemical or carbon dioxide. For large fires, use water spray or foam. Do not use water jet, as this may spread the fire.

Special fire-fighting procedures/equipment: Firefighters should wear proper chemically protective equipment and self-contained breathing apparatus operated in positive pressure mode. Move containers from fire area if it can be done without risk. Dike area to prevent water run-off. Water spray may be useful in cooling equipment and containers.

Hazardous combustion products: Carbon oxides, nitrogen oxides, sulfur oxides and other irritating fumes and smoke.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

Personal precautions: Restrict access to area until completion of clean-up. Ensure clean-up is conducted by trained personnel only. All persons dealing with clean-up should wear the appropriate chemically protective equipment. Refer to Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION, for additional information on acceptable protective equipment.

Environmental precautions: Ensure spilled product does not enter drains, sewers, waterways, or confined spaces. Dike area to prevent entry into the environment.

Spill response/Cleanup: Eliminate all sources of heat, sparks and flame. Ventilate area of release. Stop leak if you can do so without risk. Avoid formation of airborne dusts, if appropriate by moistening. Dry, spilled material should be swept up immediately and placed into suitable, labelled containers (non-metal) for later disposal (see Section 13). Rinse spill area with large amounts of water and detergent. Do not allow wash material to enter drains, sewers or waterways. Absorb contaminated wash material with inert, non-combustible absorbent material, such as universal binder, Fuller's earth or other absorbent clays. Scoop up and place contaminated absorbent material into suitable containers for later disposal (see Section 13). Large spills that soak into the ground should be dug up, placed in suitable containers and disposed of appropriately (see Section 13). Spills in water should be contained as much as possible by isolation of the contaminated water. Notify the appropriate authorities.

Prohibited materials: None known.

Special spill response procedures: If a spill/release in excess of EPA reportable quantity is made into the environment in the United States, immediately notify the national response center (phone: 1-800-424-8002).

EPA/CERCLA Reportable quantity: None reported.

SECTION 7 — HANDLING AND STORAGE

Safe handling procedures: This material is a harmful solid. Wear full chemically protective equipment during handling. Use only in well ventilated area. Avoid all contact with eyes, skin and clothing. Do not inhale dusts. Keep away from all unprotected persons and children. Do not use near sources of heat, flame or ignition sources. Avoid and control operations

which create dusty atmospheres. Keep away from bases and incompatibles. Use caution when opening containers. Keep container tightly closed when not in use. Wash thoroughly after handling.

Storage recommendations: Store in a cool, dry, well ventilated area away from incompatibles. Protect container from physical damage. No smoking in the area. Inspect containers periodically for damage or leaks.

Special packaging materials: Always keep in containers made of the same materials as the supply container.

SECTION 8 — EXPOSURE CONTROLS AND PERSONAL PROTECTION

Permissible exposure levels: See Section 2.

Ventilation and engineering controls: If handled indoors, provide mechanical exhaust ventilation to keep concentrations below specified TLV's and PEL's.

Respiratory protection: Respiratory protection is required if airborne concentrations exceed permissible exposure levels. Wear a respirators with particle filters, which are jointly approved by the MSHA and NIOSH. Advice should be sought from respiratory protection specialists.

Protective gloves: Wear impervious chemical gloves, such as barrier laminate, butyl rubber or nitrile rubber. Small tears in the gloves and cross-contamination can easily occur. Change gloves frequently and limit manual work. Advice should be sought from glove suppliers.

Eye protection: Wear chemical splash goggles to prevent dusts from entering the eyes.

Other protective equipment: Wear coveralls, or long sleeved shirt and pants, to prevent skin contact. An eyewash station and safety shower should be made available in the immediate working area. Other protective equipment may be required depending on exposure and on workplace standards.

General hygiene considerations: Do not breathe dusts. Avoid contact all contact with eyes, skin and clothing. Before removing gloves, wash them with soap and water. Always wash hands, face and arms with soap and water before smoking, eating or drinking. After work, take off all protective equipment, work clothes and shoes, and wash with soap and water. Respirator should be cleaned and filter replaced according to manufacturer's instructions. Wear only clean, uncontaminated clothes when leaving place of work.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

Physical state, odor and appearance: Off-white solid. Faint, ester-like odor

Odor threshold: N/Av

Specific gravity (water = 1): 1.31 @ 68°F/20°C

pH: 3.9 (for 1% dispersion in water).

Boiling point: Decomposes.

Melting/freezing point: 323.6°F / 162°C.

Vapour density (Air=1.0): N/Av

Percent Volatile by Weight: N/Av

Evaporation rate (n-BuAc=1.0): N/Av

Viscosity: N/Av

Vapour pressure: Metsulfuron-methyl: 2.5×10^{-12} mmHg @ 77°F / 25°C; 8.3×10^{-13} mmHg @ 68°F / 20°C

Coefficient of n-Octanol/water distribution: Metsulfuron-methyl: $K_{ow} = 0.018$, $\log K_{ow} = -1.7$ @ pH 7 and 77°F / 25°C.

Solubility in water: This product can be dispersed in water.

Metsulfuron-methyl: 0.0734 oz/gal (0.55 g/L) @ pH 5 and 77°F / 25°C

0.373 oz/gal (2.79 g/L) @ pH 7 and 77°F / 25°C

1.78 lbs / gal (213 g/L) @ pH 9 and 77°F / 25°C

Solubility in organic solvents: Metsulfuron-methyl: 0.000078 oz/gal (0.000584 g/L) @ 77°F / 25°C (n-Hexane)

1.1 lbs / gal (132 g/L) @ 77°F / 25°C (Dichloromethane)

0.216 lbs / gal (25.9 g/L) (Acetonitrile)

1.48 oz/gal (11.1 g/L) (Ethyl acetate)

SECTION 10 — REACTIVITY AND STABILITY DATA

Stability and reactivity: Stable under the recommended storage and handling conditions prescribed.

Hazardous polymerization: Will not occur.

Conditions to avoid: Avoid heat, flame and other sources of ignition.

Materials to avoid (incompatibles): Strong oxidizing agents, alkalies

Hazardous decomposition products: None known. Refer to 'Hazardous combustion products', Section 5.

SECTION 11 — TOXICOLOGICAL INFORMATION

Revision Date: January 09, 2013

Routes of exposure: Skin contact, eye contact, inhalation, and ingestion.**Toxicological data:** LC₅₀ (mg/L/4 hrs) = > 3.75 (maximum obtainable concentration – signs of toxicity at this concentration)LD₅₀, oral, rat (mg/kg) = > 2000LD₅₀, dermal, rat (mg/kg) = > 2000**Carcinogenicity:** None of the ingredients in this product are classified as carcinogenic by IARC, ACGIH, OSHA or NTP.

SECTION 11 — TOXICOLOGICAL INFORMATION Continued

Teratogenicity, mutagenicity, other reproductive effects: No known teratogenic, mutagenic or reproductive effects.**Sensitization to material:** Not known to cause allergic respiratory or skin sensitization reactions.**Synergistic materials:** Not available.**Conditions aggravated by exposure:** Pre-existing skin, eye or respiratory disorders.

SECTION 12 — ECOLOGICAL INFORMATION

Ecotoxicological information: The product should not be allowed to enter drains or water courses or be deposited where it can affect ground or surface waters. This product is a herbicide. The active ingredient, Metsulfuron-methyl, is highly toxic to green algae and aquatic plants, but is considered non-toxic to fish, aquatic invertebrates, soil micro- and macroorganisms, birds, mammals and insects. The acute toxicity of Metsulfuron-methyl is measured to be:Fish – 96-Hr LC₅₀, Zebrafish (*Danio rerio*) = 142 mg/L.Invertebrates – 48-Hr LC₅₀, Daphnids (*Daphnia magna*) = 186 mg/L.Birds – LD₅₀, Japanese quail (*Coturnix coturnix japonica*) = > 2000 mg/kg.Bees - 48-Hr LD₅₀, Bees, topical = > 100 µg/bee.48-Hr LD₅₀, Bees, oral = > 1300 µg/beeEarthworms – 14-day LC₅₀, Redworm (*Eisenia foetida foetida*) = > 10,000 mg/kg dry soilAquatic plants – 72-Hr IC₅₀, Green algae (*Pseudokirchneriella subcapitata*) = 3.69 mg/LGreen algae (*Selenastrum gracile* Reinsch) = 8 mg/L**Mobility:** The active ingredient, Metsulfuron-methyl, is mobile in soil. It has a potential for leaching into ground water.**Persistence and degradability:** The active ingredient in this product, Metsulfuron-methyl, is not readily biodegradable. It is moderately persistent in the environment. Degradation half-lives vary from a few weeks to a few months in aerobic soil and water. Degradation occurs both aerobically and anaerobically, and biologically as well as abiologically.**Bioaccumulative potential:** The active ingredient, Metsulfuron-methyl, is not considered to have a bioaccumulative potential. The bioaccumulation factor is > 1.

SECTION 13 — DISPOSAL CONSIDERATIONS

Handling for disposal: Handle waste according to recommendations in Section 7.**Methods of disposal:** Do not contaminate water, foodstuffs, feed or seed by storage or disposal. For disposable containers, triple rinse (or equivalent) containers, and add rinse material to disposal tank. Follow any additional local, state or federal requirements for cleaning containers prior to disposal. Make the empty, rinsed container unsuitable for further use by puncturing. Dispose of in compliance with all Federal, State, Provincial and local regulations.**RCRA:** If this product, as supplied, becomes a waste, it may meet the criteria of a hazardous waste as defined under RCRA, Title 40 CFR 261. It is the responsibility of the waste generator to determine the proper waste identification and disposal method. For disposal of unused or waste material, check with local, state and federal environmental agencies.

SECTION 14 — TRANSPORTATION INFORMATION

US 49 CFR information: Not regulated for transport by ground within the continental United States.**Canadian Transportation of Dangerous Goods Regulations (TDGR) shipping information:** Not regulated for transport by ground within Canada.

SECTION 15 — REGULATORY INFORMATION

Canada:**WHMIS information:** This product is a Pest Control Product and is not regulated as a Controlled Product under the Hazardous Products Act (HPA). However, for reference purposes only, this product would have the following WHMIS Classification if it were regulated as a Controlled Product under the HPA: **Class D2B** (*Materials causing other toxic effects, Toxic Material*).**US Federal Information:****EPA/CERCLA Reportable Quantity (RQ):** None reported.

SARA TITLE III:

Sec. 302, Extremely Hazardous Substances, 40 CFR 355: No Extremely Hazardous Substances are present.

Sec. 313, Toxic Chemicals Notification, 40 CFR 372: This material is not subject to SARA notification requirements, since it does not contain any Toxic Chemical constituents above their *de minimus* concentrations.

SECTION 15 — REGULATORY INFORMATION Continued

US State Right to Know Laws:

California Proposition 65 information: This product may contain Naphthalene at trace levels (< 20 ppm). Naphthalene is known to the state of California to cause cancer.

SECTION 16 — OTHER INFORMATION

HMIS Rating: * - Chronic hazard 0 - Minimal 1 - Slight 2 - Moderate 3 - Serious 4 - Severe

Health: *2 Flammability: 1 Reactivity: 0

Legend:

ACGIH – American Conference of Governmental Industrial Hygienists	
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act of 1980	
NIOSH – National Institute for Occupational Safety and Health	
PMRA – Canadian Pest Management Regulatory Agency	
WHMIS – Workplace Hazardous Materials Information System	
EPA – Environmental Protection Agency	CAS - Chemical Abstract Service
HMIS - Hazardous Materials Identification System	CFR – Code of Federal Regulations
IARC – International Agency for Research on Cancer	Inh – Inhalation
MSHA – Mine Safety and Health Administration	N/Ap – Not Applicable
NTP – National Toxicology Program	N/Av – Not Available
OSHA – Occupational Safety and Health Act	PEL - Permissible Exposure Limit
RCRA – Resource Conservation and Recovery Act	TLV – Threshold Limit Value
SARA - Superfund Amendments & Reauthorization Act	TSCA – Toxic Substances Control Act

References:

1. ACGIH, Threshold Limit Values and Biological Exposure Indices for 2006.
2. Canadian Centre for Occupational Health and Safety, CCIInfoWeb databases, 2006 (Chempendium and RTECs).
3. Material Safety Data Sheet from manufacturer.
4. International Agency for Research on Cancer Monographs, searched 2006.
5. US EPA Title III List of Lists – January 27, 2005 version.
6. California Proposition 65 List – February 3, 2006 version.

Prepared by: Cheminova Inc.

Telephone #: 1-(519) 472-0600 (8 AM to 4:00 PM EST, Monday to Friday)

Preparation date: November 22, 2006

Revision 1 date: January 15, 2010

Reason for revision: Update company address – GR

Revision 2 date: January 09, 2013

Reason for revision: update MSDS

END OF DOCUMENT