

SAFETY DATA SHEET

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Goal* 2XL Emulsifiable Concentrate Herbicide

This product is regulated under authority of the Pest Control Products Act

IN CASE OF EMERGENCY CALL CANUTEC 613 996 6666

1. Product Identification:

Product name: Goal* 2XL Emulsifiable Concentrate Herbicide

Product use: For the control of certain broadleaf weeds in dry bulb onions, strawberries and Primocane suppression in red raspberry plantations.

Effective date: July 2, 2009

Supplier:

Dow AgroSciences Canada Inc.,
Suite 2100, 450 – 1st Street SW,
Calgary, Alberta, T2E 7P1
www.dowagro.ca

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2. Composition:

Component	CAS number	%(w/w)
Oxyflurofen	004874-03-3	23.0
Other ingredients		77.0
Including:		
Proprietary aromatic solvent	064742-94-5	
Naphthalene ¹	000091-20-3	7.0 ²
N-methylpyrrolidinone (NMP) ¹	000872-50-4	10.0 ²

¹Contained in proprietary aromatic solvent

²As a component of entire formulation

3. Hazard Identification:

Emergency Overview:

This product is an amber liquid with a sweet odor. Direct contact may cause eye irritation with corneal injury, as well as possible skin irritation.

Special Health Precautions: This product contains a petroleum-based solvent. Health studies have shown that many petroleum-based solvents pose potential human health risks, which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes of solvents contained in this product should be minimized.

Potential Health Effects:

Eyes: This product may cause moderate eye irritation and/or slight corneal injury. Vapors may cause eye irritation experienced as mild discomfort and redness.

Skin contact: Prolonged contact may cause severe skin irritation with pain and local redness.

Skin absorption: Prolonged skin contact is unlikely to result in absorption of potentially harmful amounts.

Ingestion: Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Aspiration into the lungs may

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occur during ingestion or vomiting, may cause lung damage or even death due to chemical pneumonia.

Inhalation: Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. Inhalation may also cause c anesthetic or narcotic effects; dizziness and drowsiness may be observed.

4. First Aid Measures:

Consult a physician in every case of suspected chemical poisoning. Never give fluids or induce vomiting if a patient is unconscious or convulsing regardless of cause of injury. If breathing difficulties occur seek medical attention at once.

Eyes: Flush eyes thoroughly with water for several minutes. Remove contact lenses, if present, after initial one to two minutes and continue flushing for several additional minutes. If effects occur, get specialist medical attention.

Skin: Remove material from the skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists.

Ingestion: Get medical attention at once. Do not induce vomiting unless told to do so by qualified medical personnel. Do not give the affected person anything to drink. Do not give anything by mouth to an unconscious person.

Inhalation: Move person to fresh air. If person is not breathing, call for medical assistance, then give artificial respiration; if by mouth-to-mouth use rescuer protection (pocket mask etc. If breathing is difficult, oxygen should be administered by qualified personnel

Have the Material Safety Data Sheet, and if available, the product container or label with you when calling for or going for medical assistance.

Note to physician: This product contains a petroleum-based solvent. If lavage is performed, endotracheal and/or esophageal control is suggested. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. The decision of whether to induce vomiting or not should be made by a physician. Maintain adequate ventilation and oxygenation of the patient. Skin contact may aggravate pre-existing dermatitis. There is no specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. Fire-fighting Measures:

Flash point: 98°C (Setaflash closed cup)

Flammable limits: LEL: 1.3% (for NMP)

UEL: 11.8% (for solvent, naphtha)

Auto-ignition temperature: 346°C

Extinguishing media: Use CO₂, foam, dry chemical or water spray or foam.

Sensitivity to mechanical impact/static discharge: Not available

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Unusual fire and explosion hazards: Pesticide particulates can become airborne and create an explosive mixture when combined with air. Combustion generates toxic fumes including hydrogen chloride, hydrogen fluoride, and nitrogen oxides. If the product is dried it can burn. Contain fire-fighting water for future disposal.

Fire-fighting equipment: Wear positive-pressure self-contained breathing apparatus and full turnout gear.

6. Accidental Release Measures:

Eliminate all ignition sources. Ventilate the spill area. Avoid breathing the vapor. Soak up small spills with absorbent material such as HAZORB, or ZORBALL, peat moss, commercial sweeping compound or similar absorbent material; if these are not available use adsorbing agents such as kitty litter, sand, clay or topsoil. Store collected absorbed/adsorbed material in secure containers until safe disposal can be arranged. Avoid the use of water for cleanup, since spent water must be collected and treated as hazardous waste. Use hot water and heavy duty detergent to clean up any residual stains on hard surfaces. Small spills on topsoil should be allowed to degrade under natural conditions (see Section 13. Ecological Information – Degradation and Metabolism – Soil). Do not allow spilled material to contaminate water supplies. For large spills, dike and barricade the affected area and contact CANUTEC at 613 996 6666 and local authorities.

7. Handling and Storage:

Handling: Do not handle this product near food, feed or drinking water. Ground all containers when transferring this material. This product is a severe skin and eye irritant. Contaminated clothing should be washed separately from domestic laundry and line-dried. Once used for contaminated clothing, the washing machine should be operated through a complete cycle with hot water and detergent only, prior to use for domestic laundry. Discard items which cannot be decontaminated, including leather articles such as shoes, belts, and watchbands. Users should wash hands and face before eating, drinking, chewing gum, using tobacco or the toilet.

Storage: The minimum recommended storage temperature for this material is 0°C. Do not store this material near food, feed or drinking water. Store away from excessive heat (e.g. steam pipes, radiators) and from sources of ignition as well as reactive materials. Avoid storage near all ignition sources. Ground all metal containers during storage and handling.

8. Exposure Controls, Personal Protection and Exposure Limits:

Exposure limits: Oxyfluorfen: Dow AgroSciences Industrial Hygiene Guide is 0.2 mg/m³, TWA and 1.6 mg/m³, STEL.

Petroleum solvent: none established. Supplier recommends a guideline of 100 ppm for the total product, which contains the following aromatic hydrocarbons:

Naphthalene: ACGIH TLV is 10 ppm TWA, 15 ppm STEL, Skin, A4. OSHA PEL is 10 ppm TWA.

N-methylpyrrolidinone: AIHA WEEL is 10 ppm, Skin. Interim Industrial Hygiene Guide is 500 ppm.

Note: A "skin" notation following the exposure guideline refers to the potential for dermal absorption of the material including mucous membranes and the eyes either by contact with vapors or by direct skin contact. It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposures should be considered.

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Engineering controls: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

Breathing: Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required for certain operations, use an approved air-purifying respirator.

Protective clothing: For brief contact during manufacture, warehousing and transport, wear clean body-covering clothing. During operations where direct contact to the concentrated product may occur, use protective clothing impervious to this product. Selection of specific items such as face shield, respirator, boots, gloves, apron or full body suit will depend on the operation being carried out. Applicators and other field handlers, including persons repairing or cleaning application equipment, must wear clean body-covering clothing, impervious gloves and boots. In addition, persons making and/or transferring field dilutions of this product must wear an impervious apron.

Eyes: Use chemical workers' goggles. If exposure causes eye discomfort, use an approved full-face respirator.

Other protection: A safety shower must be located in the work area. Under field conditions, a container containing at least 20 liters of clean water must be located near the work area.

9. Physical and Chemical Properties:

Boiling point: 201.7°C

Vapor pressure: 0.29 mm Hg at 20°C

Vapor Density: 5.2 for solvent, naphtha

Volatility: 64% (estimated)

pH: 7.2 to 7.5

Appearance: Amber liquid

Odor: Sweet

Coefficient of water/oil distribution: Not available

Specific gravity: 1.08 at 20°C

Evaporation rate: (BAc = 1) 0.06 for NMP

Solubility in water: Emulsifies

Viscosity: 12.8 cPs

Odor threshold: Not available

Melting point: -24.4°C for NMP

Boiling Point: 201.7°C

10. Stability and Reactivity:

Stability: This product is stable under normal storage conditions. Avoid contact with ignition sources such as sparks, open flame, and heated surfaces.

Incompatibility: Avoid contact with acids, bases, amines, oxidizing agents, halogens and sodium hypochlorite.

Hazardous decomposition products: Thermal decomposition may yield hydrogen chloride and hydrogen fluoride.

Hazardous polymerization: Not known to occur

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11. Toxicological Information:

Skin absorption: Acute dermal LD50 (rat) is >4000 mg/kg

Ingestion: The acute oral LD50 for rat is 2985 mg/kg (female) and 4594 mg/kg (male).

Inhalation: The maximum practically attainable concentration in the tests (4.8 mg/L for four hours) produced no ill effects in test animals.

Sensitization: Skin contact may cause an allergic skin reaction.

Chronic effects: For oxyfluorfen, in animals, effects have been reported on the blood, kidney, liver, spleen bone marrow, adrenals, urinary bladder. Other components in the formulation, when tested in animals, effects have been reported on the lungs, stomach, thyroid, urinary tract, blood-forming organs (bone marrow and spleen) and liver. Cataracts and other eye effects have been reported in humans repeatedly exposed to naphthalene vapor or dust.

Cancer: Oxyfluorfen has caused cancer in some laboratory animals. This product contains naphthalene, which has caused cancer when tested in some laboratory animals.

Birth defects: Oxyfluorfen did not cause birth defects in laboratory animals. Oxyfluorfen has been toxic to the fetus in laboratory animals, but only at doses toxic to the mother. NMP has caused toxic effects to the fetus in laboratory animals at high dose levels with either mild or undetectable maternal toxicity.

Reproductive effects: In laboratory animal studies with oxyfluorfen, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

Mutagenicity: For oxyfluorfen and the solvent, in-vitro and animal genetic toxicity studies were negative. For the minor component(s), in-vitro genetic toxicity studies were negative in some cases and positive in other cases. Animal genetic toxicity studies were negative.

12. Ecological Information:

Oxyfluorfen is considered non-toxic to bees, highly toxic to aquatic organisms and practically non-toxic to birds on an acute or dietary basis. Other components of the formulation are considered highly toxic to aquatic organisms and practically non-toxic to birds on an acute or dietary basis. For oxyfluorfen, bio-concentration potential is moderate.

Degradation and Metabolism:

Soil/Environment: Oxyfluorfen has a strong tendency to adsorb to soil particles and is nearly insoluble in water. Once oxyfluorfen is adsorbed to soil particles, it is not readily removed. It is therefore unlikely to leach downward or to contaminate groundwater. In aged sandy loam, 82% of applied oxyfluorfen remained in the top 2 inches of soil. Oxyfluorfen did not leach below 4 inches in any soil except sand. In soils, oxyfluorfen is not subject to microbial degradation, and is not subject to hydrolysis at pH 5, 7 or 9. It is therefore highly resistant to degradation in the soil environment. Decomposition by light occurs slowly, with 15% of the oxyfluorfen applied to a soil surface degrading within 28 days. In laboratory studies, its soil half-life was 6 months. Its soil half-life in field studies is 30 to 70 days, with much of the loss probably due to volatilization.

Animals: For details of metabolism, see I. L. Adler *et al.*, *J. Agric. Food Chem.*, 1977, **25**, 1339.

Plants: There is very little movement of oxyfluorfen within treated plants. Plants do not readily metabolize it, and since roots do not readily take it up, residues in plants are very low.

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13. Disposal Considerations:

Unused unwanted product: Contact Dow AgroSciences or your provincial regulatory agency for disposal information.

Container disposal: Since emptied containers retain product residue (vapors and/or liquid) follow all MSDS and label warnings even after container is emptied. Residual vapors in empty containers may explode on ignition. Do not cut, drill, grind or weld on or near an empty or partly full container. Triple rinse (or equivalent) and puncture all empty containers. Refer to the product label for instructions regarding cleaning and disposal of empty pesticide containers. Contact Dow AgroSciences at 800 667 3852 or your provincial regulatory agency for direction if these instructions are missing or not understood,.

14. Transport Information:

This product is classified as "**Not Regulated**" under regulations of the Transportation of Dangerous Goods Act.

15. Regulatory Information:

Pest Control Products Act registration number: 24913

For information phone: 800 667 3852

MSDS status: Revised sections:

1. Product Identification

Date of last revision: July 6, 2006

16. Other Information:

National Fire Code classification: Not regulated

NFPA ratings: Health: 3; Flammability: 1; Reactivity: 0.

Notice: The information contained in this Material Safety Data Sheet ("MSDS") is current as of the effective date shown in Section 1 of this MSDS and may be subject to amendment by Dow AgroSciences Canada Inc. ("DASCI") at any time. DASCI accepts no liability whatsoever which results in any way from the use of MSDS that are not published by DASCI, or have been amended without DASCI express written authorization. Users of this MSDS must satisfy themselves that they have the most recent and authorized version of this MSDS and shall bear all responsibility and liability with respect thereto. Any conflict or inconsistencies as to the contents of this MSDS shall be resolved in favor of DASCI by the most recent version of the MSDS published by DASCI.

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