



MATERIAL SAFETY DATA SHEET

OXYFLUR 24 EC

IDENTIFICATION OF THE SUPPLIER:

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PRODUCT IDENTIFICATION:

Common Name: Oxyflurofen
Trade Name: Oxyflur 24 EC
Uses category: Herbicide
Type of formulation: Emulsifiable Concentrate (EC)
Chemical Name: 2-chloro- α,α,α -trifluoro-p-tolyl 3-ethoxy-4-nitrophenyl ether
Chemical Formula: $C_{15}H_{11}ClF_3NO_4$
Molecular Weight: 361.7

PRODUCT COMPOSITION:

| Active Ingredient: | % w/v | CAS # |
|---------------------------|---------------|--------------|
| oxyflurofen | 24% | [42874-03-3] |
| inert materials: | up to 1 liter | |





HAZARDS IDENTIFICATION:

Emergency overview

Hazardous chemical. Amber liquid with floral odor. May causes eye irritation with corneal injury. May cause skin irritation. LD50 for skin absorption is > 4000 mg/ kg. Oral LD50 is 2985 – 4594 mg/ kg. Aerosol LC50 is > 4.8 mg/L for 4 hours. Toxic to aquatic organisms.

Potential health effects: this section includes possible adverse effects, which could occur if this material is not handled in the recommended manner.

Eye: may cause moderate eye irritation. May cause slight corneal injury. Vapour may cause eye irritation experienced as mild discomfort and redness.

Skin: Brief contact may cause severe skin irritation with pain and local redness. Skin contact may cause allergic skin reaction. Prolonged skin contact is unlikely to result in absorption of harmful amounts. The LD50 for skin absorption in rats is > 4000 mg/kg.

Ingestion: low toxicity if swallowed. 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 occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia. The oral LD50 for rats is 2985 mg/ kg (females) and 4594 mg/ kg (males).

Inhalation: excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. May cause central nervous system effects. Symptoms of excessive exposure may be anesthetic or narcotic effects. Dizziness and drowsiness may be observed. The aerosol LC50 for rats is > 4.8 mg/ L for 4 hours.

Systemic (other target organ effect):

Oxyfurofen, in animals, effect have been reported on the following organs: blood, kidney, liver, spleen bone marrow, adrenals, urinary bladder. For the





other ingredient, in animals, effects have been reported on the following organs: lungs, stomach, thyroid, urinary tract, blood- forming organs (bone marrow & spleen) and liver.

Cancer information:

Oxyflurofen did not cause cancer in laboratory animals.

Teratology (birth defects):

Oxyflurofen has caused birth defects in laboratory animals only at doses toxic to the mother. Has been toxic to the fetus in laboratory animals only at dose toxic to the mothers.

Reproductive effects:

For oxyflurofen, in laboratory animals studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

FIRST-AID MEASURES:

Eye: flush eyes thoroughly with water for several minutes. Remove contact lenses after initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

Skin: remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists. Wash clothing before reuse. Discard items, which cannot be decontaminated, including leather articles such as shoes, belts and watchbands.

Ingestion: immediately call a poison control center or doctor. Don't induce vomiting unless told to do so by a poison control center or doctor. Don't give any liquid to the person. Don't give anything by mouth to an unconscious person.

Inhalation: move person to fresh air. If person is not breathing, give artificial respiration; if by mouth to mouth use rescue protection. Call a poison control center or doctor for treatment advice. If breathing is difficult, oxygen should be administered by qualified personnel.





Note to physician:

If lavage is performed, suggest endotracheal and/ or esophageal control. 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. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

FIRE-FIGHTING MEASURES: -

Flash point: 118° F (48° C)

Method used: SCC

Auto- ignition temperature: 655° F (346° C)

Flammability limits

UFL: 11.8% (solvent naphtha)

LFL: 1.3% (NMP)

Extinguishing media: when product is involved in a fire use carbon dioxide, dry chemicals, water spray or foam.

Fire & explosion hazards: pesticide particulates can become airborne. Combustion generates toxic fumes of the following: hydrogen chloride, hydrogen fluoride, and nitrogen oxides. Dried product can burn.

Fire fighting equipment: remain upwind. Avoid breathing smoke. Use water spray to cool containers exposed to fire. Contain run- off. Wear self-contained breathing apparatus (pressure- demand MSHA/ NIOSH approved or equivalent) and full protective gear.

ACCIDENTAL RELEASE MEASURE:

Action to take for spills/ leaks:

Eliminate all ignition sources. Ventilate the spill area. Avoid breathing the vapor. Contain spills immediately and absorb with materials such as sand or earth. Transfer liquids and solid diking material to separate suitable containers for recovery or disposal. Keep spills and cleaning runoff out of municipal sewers and open bodies of water. If exposed to material during cleanup operation, remove all contaminated clothing promptly. Wash all exposed skin areas with soap and water immediately after exposure.





Thoroughly launder clothing before reuse. Don't take clothing home to be laundered.

Note: spill on porous surfaces can contaminate groundwater.

PERSONAL PROTECTION/SAFTETY:

These precautions are suggested for conditions where the potential for exposure exists. Emergency conditions may require additional precautions.

Exposure guideline:

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.

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

Recommendations for manufacturing, commercial blending, and packaging workers:

Eye/ face protection: use chemical goggles. If exposure causes eye discomfort, use a NIOSH full- face respirator.

Skin protection: use protective clothing chemically resistant to this material. Selection of specific items such as face shield, gloves, boots, apron, or full- body suit will depend on operation. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly. Items, which cannot be decontaminated, such as shoes, belts and watchbands, should be removed and disposed of properly.

Respiratory: Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required or certain operation, use a NIOSH approved air- purifying respirator.

Applicators and all other handlers: refer to the product label for personal protective clothing and equipment.





HANDLING AND STORAGE:

Precaution to be taken in handling and storage:

Handling: don't handle material near food, feed or drinking water. Ground all containers when transferring material. This material is a severe irritant.

Storage: the minimum recommended storage temperature for this material is 32° F (0° C). Don't store this material near food, feed or drinking water. Store away from excessive heat (e.g. steam pipes, radiators), from sources of ignition and from reactive materials. Avoid all ignition sources. Ground all metal containers during storage and handling.

Other: containers are hazardous when empty. Since empties 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. Don't cut, drill, grind or weld on or near container. Triple rinse (or equivalent) and puncture empty container. Dispose empty container in a sanitary landfill as allowed by state and local authorities.

STABILITY AND REACTIVITY:

Stability: (condition to avoid) stable under normal storage conditions. Avoid contact with ignition sources (e.g. sparks, open flame, and heated surfaces).

Incompatibility: (specific materials to avoid) avoid contact with the following: acids, bases, amines, oxidizing agents, halogens and sodium hypochlorite.

Hazardous decomposition products: thermal decomposition may yield the following: hydrogen chloride and hydrogen fluoride.

Hazardous polymerization: not known to occur.





PHYSICAL AND CHEMICAL PROPERTIES:

Appearance: yellow to brown liquid

Odor: Aromatic solvent odor

PH: 7.2 – 7.5

Density: 1.08 g/ml

Flammability: flammable

Explosivity: explosive

Corrosivity: non corrosion

Emulsion stability: Stable

TOXICOLOGICAL INFORMATION:

| Route of application | Animal | Active ingredient | Formulated product |
|----------------------|------------|--|------------------------------|
| Oral LD50 | Rat | >5000 mg/kg | >5000 mg/kg |
| Dermal (LD50) | Rat | >5000 mg/kg | >5000 mg/kg |
| Inhalation (LC50) | Rat | LC50 >5.4 mg/l | LC50 >5.4 mg/l |
| Skin irritation | Rabbit | >10 000 mg/kg. mild skin irritant | skin irritant |
| Eye irritation | Rabbit | >10 000 mg/kg. Mild to moderate eye irritant | eye irritant |
| Skin sensitisation | Guinea pig | no skin sensitization | May cause skin sensitization |

Chronic toxicity: Effects on the liver have been observed in long-term feeding studies with rats, mice, and dogs.

Reproductive effects: It does not appear likely that oxyfluorfen will cause reproductive effects in humans at likely levels of exposure.

Teratogenic effects: In a developmental study with rabbits, 30 mg/kg/day, the highest dose tested, produced an increase in fused sternal bones in the fetuses as well as toxic effects on the mothers. These data suggest oxyfluorfen may have teratogenic effects, but only at very high doses.





Mutagenic effects: Mutagenicity tests on rats, mice and on bacterial cell cultures have produced mixed results. However, unscheduled DNA synthesis assays have been negative. Due to the conflicting results, it is not possible to determine the mutagenic potential of oxyfluorfen.

Carcinogenic effects: No carcinogenic effects were observed in a 23-year study with rats fed doses 2 mg/kg/day, nor in dogs at doses of 3 mg/kg/day. These data suggest that oxyfluorfen is not carcinogenic.

ECOLOGICAL INFORMATION: -

Environmental fate:

Movement & partitioning:

Based on information for oxyfurofen.

Bioconcentration potential is moderate (BCF is between 100 and 3000 or Log Pow between 3 and 5).

Measured log octanol/ water partition coefficient (low Pow) is 4.7

Degradation & persistence:

Based on information for oxyfurofen.

Biodegradation under aerobic laboratory conditions is below detectable limits (BOD20 or BOD28 is < 2.5%).

Biodegradation reached in closed bottle test (OECD Test No. 301D) after 28 days is 1.2%.

Ecotoxicology:

Based on information for oxyflurofen.

Material is highly toxic to aquatic organisms on an acute basis (LC50 or EC50 is < 0.1 mg/L in the most sensitive species tested).

Acute LC50 in rainbow trout is 0.41 mg/L

Acute LC50 in channel catfish is 0.4 mg/L

Acute LC50 in bluegill is 0.2 mg/L

Growth inhibition EC50 in blue- green alga is > 0.101 mg/L

Growth inhibition EC50 in diatom is 0.031 mg/L

Growth inhibition EC50 in duckweed is 0.0003 mg/L

Growth inhibition EC50 in green alga is > 0.0029 mg/L

Material is practically non toxic to birds on a acute basis (LD50 is > 2000 mg/kg).



Material is practically non toxic to birds on a dietary basis (LC50 is > 5000 ppm).
The LC50 in earthworm

DISPOSAL CONSIDERATIONS:

Don't contaminate food, feed or water by storage or disposal. Wastes are toxic. Improper disposal of excess waste, spray mixture or rinsate is a violation of federal law. Spray mixture or rinse water than cannot be used according to the label instructions must be disposed of in accordance with applicable local, state federal requirement.

