

# SAFETY DATA SHEET

## Willowood OxyFlo 2EC

### Section 1. Identification

**GHS product identifier** : Willowood OxyFlo 2EC

**Other means of identification** : Not available.

**EPA Product Registration Number** : 87290-8

**EPA Signal Word** : WARNING

**Product type** : Liquid.

#### Identified uses

Herbicide.

**Supplier's details** : Willowood, LLC  
1600 NW Garden Valley Blvd., Suite 120  
Roseburg, Oregon 97471  
Tel: 877-679-9963

**Emergency telephone number (with hours of operation)** : CHEMTREC (24/7): U.S. :800-424-9300  
International: +1-703-527-3887  
24/7 Health Emergencies: Call 800-858-7378 (National Pesticide Information Center)

### Section 2. Hazards identification

**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Classification of the substance or mixture** : FLAMMABLE LIQUIDS - Category 4  
SKIN CORROSION/IRRITATION - Category 2  
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1  
CARCINOGENICITY - Category 2  
TOXIC TO REPRODUCTION (Fertility) - Category 1B  
TOXIC TO REPRODUCTION (Unborn child) - Category 1B  
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3  
AQUATIC HAZARD (ACUTE) - Category 1  
AQUATIC HAZARD (LONG-TERM) - Category 1

#### GHS label elements

**Hazard pictograms** :



**Signal word** : Danger



## Section 2. Hazards identification

- Hazard statements** : Combustible liquid.  
Causes serious eye damage.  
Causes skin irritation.  
May damage fertility or the unborn child.  
Suspected of causing cancer.  
May cause respiratory irritation.  
Very toxic to aquatic life with long lasting effects.
- Precautionary statements**
- General** : Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.
- Prevention** : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wear protective gloves. Wear eye or face protection. Keep away from flames and hot surfaces. - No smoking. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Avoid breathing vapor. Wash hands thoroughly after handling.
- Response** : Collect spillage. IF exposed or concerned: Get medical attention. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.
- Storage** : Store locked up. Store in a well-ventilated place. Keep cool.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Supplemental label elements** : Avoid contact with skin and clothing. Wash thoroughly after handling.
- Hazards not otherwise classified** : Prolonged or repeated contact may dry skin and cause irritation.

## Section 3. Composition/information on ingredients

- Substance/mixture** : Mixture
- Other means of identification** : Not available.

### CAS number/other identifiers

- CAS number** : Not applicable.
- Product code** : Not available.

Ingredient name	%	CAS number
Solvent naphtha (petroleum), heavy aromatic	30 - 60	64742-94-5
Oxyfluorfen; 2-chloro-1-(3-ethoxy-4-nitrophenoxy)-4-(trifluoromethyl)benzene	10 - 30	42874-03-3
N-methyl-2-pyrrolidone	5 - 10	872-50-4
N,N-dimethyloctanamide	1 - 5	1118-92-9
N,N-dimethyldecan-1-amide	1 - 5	14433-76-2
2-Methylpropan-1-ol	1 - 5	78-83-1
Hexan-1-ol	1 - 5	111-27-3
Naphthalene	0.1 - 1	91-20-3

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First aid measures

### Description of necessary first aid measures

- Eye contact** : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Chemical burns must be treated promptly by a physician.
- Inhalation** : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Get medical attention immediately. Call a poison center or physician. Wash skin thoroughly with soap and water or use recognized skin cleanser. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 20 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

### Most important symptoms/effects, acute and delayed

#### Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : May cause respiratory irritation. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Skin contact** : Causes skin irritation. Defatting to the skin.
- Ingestion** : May cause burns to mouth, throat and stomach.

#### Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
pain  
watering  
redness
- Inhalation** : Adverse symptoms may include the following:  
respiratory tract irritation  
coughing  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations



## Section 4. First aid measures

- Skin contact** : Adverse symptoms may include the following:  
 pain or irritation  
 redness  
 dryness  
 cracking  
 blistering may occur  
 reduced fetal weight  
 increase in fetal deaths  
 skeletal malformations
- Ingestion** : Adverse symptoms may include the following:  
 stomach pains  
 reduced fetal weight  
 increase in fetal deaths  
 skeletal malformations

### Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet or water-based fire extinguishers.

### Specific hazards arising from the chemical

- : Combustible liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

### Hazardous thermal decomposition products

- : Decomposition products may include the following materials:  
 carbon dioxide  
 carbon monoxide  
 nitrogen oxides  
 halogenated compounds

### Special protective actions for fire-fighters

- : Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

### Special protective equipment for fire-fighters

- : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

### Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

## Section 7. Handling and storage

### Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. See also Section 8 for additional information on hygiene measures. Remove contaminated clothing and protective equipment before entering eating areas.



## Section 7. Handling and storage

**Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits
N-methyl-2-pyrrolidone	<b>AIHA WEEL (United States, 10/2011). Absorbed through skin.</b> TWA: 10 ppm 8 hours.
2-Methylpropan-1-ol	<b>ACGIH TLV (United States, 3/2015).</b> TWA: 152 mg/m <sup>3</sup> 8 hours. TWA: 50 ppm 8 hours. <b>NIOSH REL (United States, 10/2013).</b> TWA: 150 mg/m <sup>3</sup> 10 hours. TWA: 50 ppm 10 hours. <b>OSHA PEL (United States, 2/2013).</b> TWA: 300 mg/m <sup>3</sup> 8 hours. TWA: 100 ppm 8 hours. <b>OSHA PEL 1989 (United States, 3/1989).</b> TWA: 50 ppm 8 hours. TWA: 150 mg/m <sup>3</sup> 8 hours.
Hexan-1-ol	<b>AIHA WEEL (United States, 10/2011).</b> TWA: 40 ppm 8 hours.
Naphthalene	<b>ACGIH TLV (United States, 3/2015). Absorbed through skin.</b> TWA: 52 mg/m <sup>3</sup> 8 hours. TWA: 10 ppm 8 hours. <b>NIOSH REL (United States, 10/2013).</b> STEL: 75 mg/m <sup>3</sup> 15 minutes. STEL: 15 ppm 15 minutes. TWA: 50 mg/m <sup>3</sup> 10 hours. TWA: 10 ppm 10 hours. <b>OSHA PEL (United States, 2/2013).</b> TWA: 50 mg/m <sup>3</sup> 8 hours. TWA: 10 ppm 8 hours.

**Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

**Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

### Individual protection measures

**Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

## Section 8. Exposure controls/personal protection

- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, air-purifying or supplied air respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

## Section 9. Physical and chemical properties

### Appearance

- Physical state** : Liquid.
- Color** : Amber.
- Odor** : Solvent.
- Odor threshold** : Not available.
- pH** : 4.5 to 5.5
- Melting point** : Not available.
- Boiling point** : Not available.
- Flash point** : Closed cup: 66.1°C (151°F) [Setaflash.]
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not available.
- Lower and upper explosive (flammable) limits** : Lower: 1.3%  
Upper: 11.8%
- Vapor pressure** : Not available.
- Vapor density** : Not available.
- Relative density** : 1.0471
- Solubility** : Emulsifies in water.
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.
- Viscosity** : Not available.

## Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
- Incompatible materials** : Reactive or incompatible with the following materials: oxidizing materials and acids.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Oxyfluorfen; 2-chloro-1-(3-ethoxy-4-nitrophenoxy)-4-(trifluoromethyl) benzene	LD50 Dermal	Rabbit	>10 g/kg	-
N-methyl-2-pyrrolidone	LD50 Oral	Rat	5 g/kg	-
	LD50 Dermal	Rabbit	8 g/kg	-
2-Methylpropan-1-ol	LD50 Oral	Rat	3914 mg/kg	-
	LC50 Inhalation Vapor	Rat	19200 mg/m <sup>3</sup>	4 hours
Hexan-1-ol	LD50 Dermal	Rabbit	3400 mg/kg	-
	LD50 Oral	Rat	2460 mg/kg	-
Naphthalene	LD50 Dermal	Rabbit	2330 mg/kg	-
	LD50 Oral	Rat	710 mg/kg	-
Naphthalene	LD50 Dermal	Rabbit	>20 g/kg	-
	LD50 Oral	Rat	490 mg/kg	-

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Solvent naphtha (petroleum), heavy aromatic	Skin - Mild irritant	Rabbit	-	24 hours 500 µL	-
N-methyl-2-pyrrolidone	Eyes - Moderate irritant	Rabbit	-	100 mg	-
	Skin - Mild irritant	Rabbit	-	4 hours 95%	-
Hexan-1-ol	Skin - Mild irritant	Rabbit	-	410 mg	-
	Skin - Moderate irritant	Rabbit	-	24 hours 95%	-
Naphthalene	Skin - Severe irritant	Rabbit	-	144 hours 12 mL	-
	Skin - Mild irritant	Rabbit	-	495 mg	-
	Skin - Severe irritant	Rabbit	-	24 hours 0.05 mL	-

#### Sensitization

There is no data available.

#### Carcinogenicity

##### Classification

Product/ingredient name	OSHA	IARC	NTP
Naphthalene	-	2B	Reasonably anticipated to be a human carcinogen.

#### Specific target organ toxicity (single exposure)



## Section 11. Toxicological information

Name	Category	Route of exposure	Target organs
N-methyl-2-pyrrolidone 2-Methylpropan-1-ol	Category 3 Category 3	Not applicable. Not applicable.	Respiratory tract irritation Respiratory tract irritation and Narcotic effects

### Specific target organ toxicity (repeated exposure)

There is no data available.

### Aspiration hazard

Name	Result
Solvent naphtha (petroleum), heavy aromatic	ASPIRATION HAZARD - Category 1

**Information on the likely routes of exposure** : Dermal contact. Eye contact. Inhalation. Ingestion.

### Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : May cause respiratory irritation. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Skin contact** : Causes skin irritation. Defatting to the skin.
- Ingestion** : May cause burns to mouth, throat and stomach.

### Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:  
pain  
watering  
redness
- Inhalation** : Adverse symptoms may include the following:  
respiratory tract irritation  
coughing  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:  
pain or irritation  
redness  
dryness  
cracking  
blistering may occur  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:  
stomach pains  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### Short term exposure

## Section 11. Toxicological information

**Potential immediate effects** : No known significant effects or critical hazards.

**Potential delayed effects** : No known significant effects or critical hazards.

### Long term exposure

**Potential immediate effects** : No known significant effects or critical hazards.

**Potential delayed effects** : No known significant effects or critical hazards.

### Potential chronic health effects

**General** : Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

**Carcinogenicity** : Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

**Mutagenicity** : No known significant effects or critical hazards.

**Teratogenicity** : May damage the unborn child.

**Developmental effects** : No known significant effects or critical hazards.

**Fertility effects** : May damage fertility.

### Numerical measures of toxicity

#### Acute toxicity estimates

Route	ATE value
Oral	10960.1 mg/kg
Dermal	70324.1 mg/kg

## Section 12. Ecological information

### Toxicity

Product/ingredient name	Result	Species	Exposure
Oxyfluorfen; 2-chloro-1-(3-ethoxy-4-nitrophenoxy)-4-(trifluoromethyl) benzene	Acute EC50 0.08 µg/L Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 0.29 ppb Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute EC50 80 ppb Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 0.17 ppm Marine water	Fish - Cyprinodon variegatus	96 hours
	Chronic NOEC 0.02 µg/L Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Chronic NOEC 13 ppb	Daphnia - Daphnia magna	21 days
N-methyl-2-pyrrolidone	Chronic NOEC 1.3 ppb	Fish - Pimephales promelas	33 days
	Acute LC50 1.23 ppm Fresh water	Daphnia - Daphnia magna	48 hours
N,N-dimethyldecan-1-amide	Acute LC50 832 ppm Fresh water	Fish - Lepomis macrochirus	96 hours
	Acute EC50 5 ppm Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
2-Methylpropan-1-ol	Acute LC50 21 ppm Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Acute EC50 1100000 µg/L Fresh water	Daphnia - Daphnia pulex - Larvae	48 hours
	Acute LC50 600000 µg/L Marine water	Crustaceans - Artemia salina - Nauplii	48 hours
	Acute LC50 1430000 µg/L Fresh water	Fish - Pimephales promelas	96 hours
	Chronic NOEC 4000 µg/L Fresh water	Daphnia - Daphnia magna	21 days
	Acute LC50 97700 µg/L Fresh water	Fish - Pimephales promelas	96 hours
Hexan-1-ol	Acute EC50 1600 µg/L Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 2350 µg/L Marine water	Crustaceans - Palaemonetes pugio	48 hours
	Acute LC50 213 µg/L Fresh water	Fish - Melanotaenia fluviatilis - Larvae	96 hours
	Chronic NOEC 0.67 ppm Fresh water	Fish - Oncorhynchus kisutch	40 days
Naphthalene			

### Persistence and degradability



## Section 12. Ecological information

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
2-Methylpropan-1-ol	-	-	Readily

### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
Solvent naphtha (petroleum), heavy aromatic	2.8 to 6.5	99 to 5780	high
Oxyfluorfen; 2-chloro-1-(3-ethoxy-4-nitrophenoxy)-4-(trifluoromethyl) benzene	4.73	-	high
N-methyl-2-pyrrolidone	-0.46	-	low
N,N-dimethyldecan-1-amide	3.44	-	low
2-Methylpropan-1-ol	1	-	low
Hexan-1-ol	1.8	-	low
Naphthalene	3.4	36.5 to 168	low

### Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

**Other adverse effects** : No known significant effects or critical hazards.

## Section 13. Disposal considerations

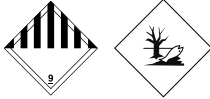
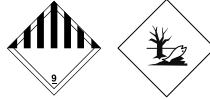
**Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

### United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
2-Methylpropan-1-ol	78-83-1	Listed	U140



## Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	NA1993	UN3082	UN3082
UN proper shipping name	COMBUSTIBLE LIQUID, N.O.S. (Solvent naphtha (petroleum), heavy aromatic, N-methyl-2-pyrrolidone)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Oxyfluorfen; 2-chloro-1-(3-ethoxy-4-nitrophenoxy)-4-(trifluoromethyl) benzene). Marine pollutant (Oxyfluorfen)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Oxyfluorfen; 2-chloro-1-(3-ethoxy-4-nitrophenoxy)-4-(trifluoromethyl) benzene, N,N-dimethyldecan-1-amide)
Transport hazard class(es)	Combustible liquid.	9 	9 
Packing group	III	III	III
Environmental hazards	Yes.	Yes.	Yes.
Additional information	<p>Non-bulk packages (less than or equal to 119 gal) of combustible liquids, that are marine pollutants, are not regulated as hazardous materials in package sizes less than the product reportable quantity, unless transported by vessel.</p> <p>The marine pollutant mark is not required when transported on inland waterways in sizes of ≤5 L or ≤5 kg or by road, rail, or inland air in non-bulk sizes.</p> <p><b>Reportable quantity</b> 25974 lbs / 11792.2 kg [2975 gal / 11261.8 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.</p>	The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.	The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.

AERG : 128, 171

**Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** : Not available.

## Section 15. Regulatory information

**U.S. Federal regulations** : **TSCA 4(a) final test rules:** Acetaldehyde  
**TSCA 8(a) PAIR:** Naphthalene; Acetaldehyde  
**TSCA 8(a) CDR Exempt/Partial exemption:** Not determined  
**United States inventory (TSCA 8b):** All components are listed or exempted.  
**Clean Water Act (CWA) 307:** Naphthalene  
**Clean Water Act (CWA) 311:** Naphthalene; Acetaldehyde



## Section 15. Regulatory information

**Clean Air Act Section 112** : Not listed

**(b) Hazardous Air Pollutants (HAPs)**

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

### SARA 302/304

#### Composition/information on ingredients

No products were found.

**SARA 304 RQ** : Not applicable.

### SARA 311/312

**Classification** : Fire hazard  
Immediate (acute) health hazard  
Delayed (chronic) health hazard

#### Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Solvent naphtha (petroleum), heavy aromatic	30 - 60	Yes.	No.	No.	No.	No.
N-methyl-2-pyrrolidone	5 - 10	Yes.	No.	No.	Yes.	Yes.
N,N-dimethyloctanamide	1 - 5	No.	No.	No.	Yes.	No.
2-Methylpropan-1-ol	1 - 5	Yes.	No.	No.	Yes.	No.
Hexan-1-ol	1 - 5	Yes.	No.	No.	Yes.	No.
Naphthalene	0.1 - 1	Yes.	No.	No.	Yes.	Yes.

### SARA 313

	Product name	CAS number	%
<b>Form R - Reporting requirements</b>	Oxyfluorfen; 2-chloro-1-(3-ethoxy-4-nitrophenoxy)-4-(trifluoromethyl)benzene	42874-03-3	10 - 30
	N-methyl-2-pyrrolidone	872-50-4	5 - 10
	Naphthalene	91-20-3	0.1 - 1
<b>Supplier notification</b>	Oxyfluorfen; 2-chloro-1-(3-ethoxy-4-nitrophenoxy)-4-(trifluoromethyl)benzene	42874-03-3	10 - 30
	N-methyl-2-pyrrolidone	872-50-4	5 - 10
	Naphthalene	91-20-3	0.1 - 1

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

### State regulations

**Massachusetts** : The following components are listed: N-methyl-2-pyrrolidone; 2-Methylpropan-1-ol

**New York** : The following components are listed: Naphthalene; 2-Methylpropan-1-ol

**New Jersey** : The following components are listed: Oxyfluorfen; 2-chloro-1-(3-ethoxy-4-nitrophenoxy)-4-(trifluoromethyl)benzene; Naphthalene; Hexan-1-ol; N-methyl-2-pyrrolidone; 2-Methylpropan-1-ol

**Pennsylvania** : The following components are listed: Naphthalene; Hexan-1-ol; N-methyl-2-pyrrolidone; 2-Methylpropan-1-ol



## Section 15. Regulatory information

### California Prop. 65

**WARNING:** This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
N-methyl-2-pyrrolidone	No.	Yes.	No.	3200 µg/day (inhalation)
Naphthalene	Yes.	No.	Yes.	No.
Acetaldehyde	Yes.	No.	90 µg/day (inhalation)	No.

### International regulations

**International lists**

- Australia inventory (AICS):** All components are listed or exempted.
- China inventory (IECSC):** Not determined.
- Japan inventory:** Not determined.
- Korea inventory:** All components are listed or exempted.
- Malaysia Inventory (EHS Register):** Not determined.
- New Zealand Inventory of Chemicals (NZIoC):** All components are listed or exempted.
- Philippines inventory (PICCS):** Not determined.
- Taiwan inventory (CSNN):** Not determined.

**Chemical Weapons Convention List Schedule I Chemicals** : Not listed

**Chemical Weapons Convention List Schedule II Chemicals** : Not listed

**Chemical Weapons Convention List Schedule III Chemicals** : Not listed

## Section 16. Other information

### History

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**Prepared by** : KMK Regulatory Services Inc.

**Key to abbreviations**

- ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- IATA = International Air Transport Association
- IBC = Intermediate Bulk Container
- IMDG = International Maritime Dangerous Goods
- LogPow = logarithm of the octanol/water partition coefficient
- MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
- UN = United Nations

### Notice to reader

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Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.