

**MONSANTO COMPANY**  
Safety Data Sheet  
Commercial Product

## 1. PRODUCT AND COMPANY IDENTIFICATION

### 1.1. Product identifier

#### **Intrro® Herbicide**

##### 1.1.1. Chemical name

Not applicable.

##### 1.1.2. Synonyms

None.

##### 1.1.3. EPA Reg. No.

524-314

### 1.2. Product use

Herbicide

### 1.3. Company

MONSANTO COMPANY, 800 N. Lindbergh Blvd., St. Louis, MO, 63167

**Telephone:** 800-332-3111, **Fax:** 314-694-5557

**E-mail:** safety.datasheet@monsanto.com

### 1.4. Emergency numbers

FOR CHEMICAL EMERGENCY, SPILL LEAK, FIRE, EXPOSURE, OR ACCIDENT Call CHEMTREC - Day or Night: 1-800-424-9300 toll free in the continental U.S., Puerto Rico, Canada, or Virgin Islands. For calls originating elsewhere: 703-527-3887 (collect calls accepted).  
FOR MEDICAL EMERGENCY - Day or Night: +1 (314) 694-4000 (collect calls accepted).

## 2. HAZARDS IDENTIFICATION

### 2.1. Classification

OSHA Hazard Communication Standard, 29 CFR 1910.1200 (2012)

Acute toxicity, oral - Category 4

Skin corrosion/irritation - Category 2

Eye damage/irritation - Category 1

Skin sensitization - Category 1

Aspiration toxicant - Category 1

Mutagenicity - Category 1

Carcinogenicity - Category 1

Flammable liquid - Category 3

### 2.2. Label elements

#### 2.2.1. Signal word

DANGER!

#### 2.2.2. Hazard pictogram/pictograms



#### 2.2.3. Hazard statement/statements

Harmful if swallowed.  
May be fatal if swallowed and enters airways.  
Causes skin irritation.  
May cause an allergic skin reaction.  
Causes serious eye damage.  
May cause genetic defects <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>  
May cause cancer <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.  
Flammable liquid and vapour.

#### 2.2.4. Precautionary statement/statements

Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.  
Do not breathe mist/vapours/spray.  
Do not eat, drink or smoke when using this product.  
Wash thoroughly after handling.  
Use only outdoors or in a well-ventilated area.  
Wear protective gloves/eye/face protection.  
Wear respiratory protection.  
IF exposed: Call a POISON CENTER or doctor/physician.  
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.  
Do NOT induce vomiting.  
Rinse mouth.  
IF ON SKIN: Wash with plenty of soap and water.  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
If experiencing respiratory symptoms:  
Call a POISON CENTER or doctor/physician.  
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 doctor/physician.  
If skin irritation occurs: get medical advice/attention.  
Take off contaminated clothing and wash it before reuse.  
Store locked up.  
Dispose of contents/container in accordance with local, regional, national and international regulations.

#### 2.3. Appearance and odour (colour/form/odour)

Blue-Purple /Liquid / Sweet, Aromatic

#### 2.4. OSHA Status

This product is hazardous according to the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Refer to section 11 for toxicological and section 12 for environmental information.

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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### Active ingredient

2-chloro-2',6'-diethyl-N-(methoxymethyl)acetanilide; {Alachlor}

#### Composition

| COMPONENT                      | CAS No.    | % by weight (approximate) |
|--------------------------------|------------|---------------------------|
| Alachlor                       | 15972-60-8 | 45.1                      |
| Monochlorobenzene              | 108-90-7   | >=26 - <=30               |
| Hydrocarbon solvent (aromatic) | 64742-94-5 | >=19 - <=24               |

|                               |  |             |
|-------------------------------|--|-------------|
| Emulsifier                    |  | >=4.5 - <=6 |
| Minor formulating ingredients |  | <=0.05      |

The specific chemical identity is being withheld because it is trade secret information of Monsanto Company.

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## 4. FIRST AID MEASURES

Use personal protection recommended in section 8.

### 4.1. Description of first aid measures

- 4.1.1. Eye contact:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.
- 4.1.2. Skin contact:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Sensitized persons should avoid further contact and reuse of contaminated clothing.
- 4.1.3. Inhalation:** If inhaled, move person to fresh air. If person is not breathing, call emergency number or ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice. Get medical advice from a poison control center or doctor.
- 4.1.4. Ingestion:** Call poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison center or doctor. Do not give anything by mouth to an unconscious person.

### 4.2. Most important symptoms and effects, both acute and delayed

- 4.2.1. Eye contact, short term:** Risk of serious damage to eyes.
- 4.2.2. Skin contact, short term:** Irritating to skin. May cause allergic skin reaction.
- 4.2.3. Inhalation, short term:** Harmful by inhalation.
- 4.2.4. Single ingestion:** Harmful if swallowed.

### 4.3. Indication of any immediate medical attention and special treatment needed

- 4.3.1. Advice to doctors:** This product may pose an aspiration pneumonia hazard. Contains petroleum distillates. Probable mucosal damage may contra-indicate gastric lavage.

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## 5. FIRE-FIGHTING MEASURES

### 5.1. Extinguishing media

- 5.1.1. Recommended:** Water, foam, dry chemical, carbon dioxide (CO<sub>2</sub>)

### 5.2. Special hazards

#### 5.2.1. Unusual fire and explosion hazards

Minimise use of water to prevent environmental contamination.  
Environmental precautions: see section 6.

#### 5.2.2. Hazardous products of combustion

Carbon monoxide (CO), hydrogen chloride (HCl), nitrogen oxides (NO<sub>x</sub>)

- 5.3. Fire fighting equipment:** Self-contained breathing apparatus. Equipment should be thoroughly decontaminated after use.

### 5.4. Flash point

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## 6. ACCIDENTAL RELEASE MEASURES

### 6.1. Personal precautions

Use personal protection recommended in section 8.

### 6.2. Environmental precautions

Minimise spread.  
Keep out of drains, sewers, ditches and water ways.  
Notify authorities.

### 6.3. Methods for cleaning up

Absorb in earth, sand or absorbent material.  
Dig up heavily contaminated soil.  
Collect in containers for reclamation or disposal.  
Refer to section 7 for types of containers.  
Wash spill area with detergent and water.  
Minimise use of water to prevent environmental contamination.

Refer to section 13 for disposal of spilled material.

Use handling recommendations in Section 7 and personal protection recommendations in Section 8.

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## 7. HANDLING AND STORAGE

Good industrial practice in housekeeping and personal hygiene should be followed.

### 7.1. Precautions for safe handling

Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Do NOT taste or swallow. When using do not eat, drink or smoke. Wash hands thoroughly after handling or contact. Wash contaminated clothing before re-use. Thoroughly clean equipment after use. Do not contaminate drains, sewers and water ways when disposing of equipment rinse water. Refer to section 13 of the safety data sheet for disposal of rinse water.

### 7.2. Conditions for safe storage

Minimum storage temperature: 32 °F  
**Compatible materials for storage:** stainless steel, Heresite[™]-lined steel, aluminium, high-density polyethylene (HDPE), polypropylene (PP), Teflon[™]  
**Incompatible materials for storage:** mild steel, polyvinyl chloride (PVC), Contact with mild steel may cause color change and reduce product's ability to emulsify with water.  
Keep locked up and out of the reach of children.  
Keep away from living quarters.  
Keep away from food, drink and animal feed.  
Keep only in the original container.  
Keep away from sources of ignition (sparks, flame, etc.)  
Keep container tightly closed in a cool, well-ventilated place.  
Protect from frost.  
Partial crystallization may occur on prolonged storage below the minimum storage temperature.  
Minimum shelf life: 4 years.  
If frozen, place in warm room and shake frequently to put back into solution.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Airborne exposure limits

| Components | Exposure Guidelines  |
|------------|--|
| Alachlor   | MWPEG (Monsanto Workplace Permissible Exposure Limit): 0.11 mg/m <sup>3</sup> (TWA): 10 ppb (TWA)<br>TLV (ACGIH): 1 mg/m <sup>3</sup> (TWA)<br>PEL (OSHA): No specific occupational exposure limit has been established. |

|                                |   |
|--------------------------------|---|
| Monochlorobenzene              | TLV (ACGIH): 10 ppm (TWA)<br>PEL (OSHA): 75 ppm (TWA)         |
| Hydrocarbon solvent (aromatic) | No specific occupational exposure limit has been established. |
| Emulsifier                     | No specific occupational exposure limit has been established. |
| Minor formulating ingredients  | No specific occupational exposure limit has been established. |

**8.2. Engineering controls:** Provide local exhaust ventilation. Have eye wash facilities immediately available at locations where eye contact can occur. Have safety shower available at locations where skin contact can occur.

**8.3. Recommendations for personal protective equipment**

**8.3.1. Eye protection:** If there is potential for contact: Wear chemical goggles.

**8.3.2. Skin protection:** Wear chemical resistant gloves. If there is potential for contact: Wear face shield. Wear chemical resistant clothing/footwear. Applicators and other handlers must wear: Wear coveralls over short-sleeved shirt and short pants. Wear chemical resistant apron. Wear chemical resistant footwear plus socks. Follow manufacturer's instructions for cleaning/maintaining Personal Protective Equipment. If no such instructions for washables, use detergent and hot water.

**8.3.3. Respiratory protection:** If airborne exposure is excessive:

Wear respirator.

Full facepiece/hood/helmet respirator replaces need for chemical goggles.

Respiratory protection programs must comply with all local/regional/national regulations.

Consult OSHA Standard 29 CFR 1910 to determine required type of equipment for a given application.

When recommended, consult manufacturer of personal protective equipment for the appropriate type of equipment for a given application.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

|   |                           |
|---|---------------------------|
| Colour/colour range:                                | Blue - Purple             |
| Odour:  | Sweet, Aromatic           |
| Form:   | Liquid                    |
| Physical form changes (melting, boiling, etc.):     |                           |
| Melting point:                                      | Not applicable.           |
| Boiling point:                                      | 270 °F                    |
| Flash point:  | 102 °F Method: closed cup |
|   | 39 °C Method: closed cup  |
| Explosive properties:                               | No data.                  |
| Auto ignition temperature:                          | No data.                  |
| Self-accelerating decomposition temperature (SADT): | No data.                  |
| Oxidizing properties:                               | No data.                  |
| Specific gravity:                                   | 1.066 25 °C               |
| Vapour pressure:                                    | 6.67 hPa 60 °F            |
| Vapour density:                                     | No data.                  |
| Evaporation rate:                                   | No data.                  |

|                        |                                 |
|------------------------|---------------------------------|
| Dynamic viscosity:     | No data.                        |
| Kinematic viscosity:   | No data.                        |
| Density:               | 1.066 g/cm <sup>3</sup> @ 25 °C |
| Solubility:            | Water: Emulsifies.              |
| pH:                    | Not applicable.                 |
| Partition coefficient: | log Pow: 3.3 (alachlor)         |

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## 10. STABILITY AND REACTIVITY

### 10.1. Reactivity

Mildly corrosive to mild steel.

### 10.2. Stability

Stable under normal conditions of handling and storage.

### 10.3. Possibility of hazardous reactions

Mildly corrosive to mild steel.

### 10.4. Incompatible materials

mild steel;polyvinyl chloride (PVC);Contact with mild steel may cause color change and reduce product's ability to emulsify with water.;

Compatible materials for storage: see section 7.2.

### 10.5. Hazardous decomposition

Thermal decomposition: Hazardous products of combustion: see section 5.

When heated may give off toxic fumes.

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## 11. TOXICOLOGICAL INFORMATION

This section is intended for use by toxicologists and other health professionals.

**Likely routes of exposure:** Skin contact, eye contact, inhalation

### Potential health effects

**Eye contact, short term:** Risk of serious damage to eyes.

**Skin contact, short term:** Irritating to skin.

May cause allergic skin reaction.

**Inhalation, short term:** Harmful by inhalation.

**Single ingestion:** Harmful if swallowed.

Data obtained on similar products and on components are summarized below.

### Similar formulation

#### Acute oral toxicity

**Rat, LD50:** 1,782 mg/kg body weight

Slightly toxic.

#### Acute dermal toxicity

**Rat, LD50 (limit test):** > 5,000 mg/kg body weight

Practically non-toxic.

#### Skin irritation

**Rabbit, 6 animals, OECD 404 test:**

Days to heal: 21  
Primary Irritation Index (PII): 6.3/8.0  
Other effects: skin blanching  
Severe irritation.

**Eye irritation**

**Rabbit, 6 animals, OECD 405 test:**

Days to heal: 29  
Severe irritation.

**Acute inhalation toxicity**

**Rat, LC50 (limit test), 4 hours, aerosol: > 6.51 mg/L**

Maximum attainable concentration. No mortality. Practically non-toxic.

**Skin sensitization**

**Guinea pig, 9-induction Buehler test:**

Positive incidence: 30 %  
Positive.

**Alachlor**

**Genotoxicity**

Not genotoxic on the basis of weight of evidence analysis.

**Carcinogenicity**

Not carcinogenic in mice.  
Nasal, stomach, and thyroid tumours in rats. Mode(s) of action not relevant to humans.

**Reproductive/Developmental Toxicity**

No reproductive effects in rats.  
No developmental effects in rabbits.  
Developmental effects in rats only in the presence of significant maternal toxicity.

**EXPERIENCE WITH HUMAN EXPOSURE**

**Eye contact, short term, occupational:**

Eye effects: irritation

**Skin contact, repeated, :**

Skin effects: sensitization in susceptible individuals

**Monochlorobenzene**

**Genotoxicity**

Not genotoxic.

**Carcinogenicity**

Not carcinogenic in mice. Liver tumours in rats.

**Reproductive/Developmental Toxicity**

No reproductive effects in rats.  
No developmental effects in rats or rabbits.

**EXPERIENCE WITH HUMAN EXPOSURE**

**Skin contact, repeated, non occupational, occupational:**

Skin effects: irritation

**Eye contact, , non occupational, occupational:**

Eye effects: irritation

**Inhalation, excessive, non occupational, occupational:**

Gastro-intestinal effects: nausea/vomiting

General/systemic effects: fatigue

**Neurological effects:** headache, confusion, incoordination, drowsiness, vertigo/dizziness, disturbance of level of consciousness, convulsions

**Ingestion, short term, intentional misuse, accidental misuse:**

**Respiratory effects:** pneumonitis (aspiration)

**Gastro-intestinal effects:** abdominal pain, diarrhoea

**Note:** May cause effects similar to those described under Inhalation.

**Hydrocarbon solvent (aromatic)**

**EXPERIENCE WITH HUMAN EXPOSURE**

**Skin contact, repeated, non occupational, occupational:**

**Skin effects:** irritation

**Eye contact, , non occupational, occupational:**

**Eye effects:** irritation

**Inhalation, excessive, non occupational, occupational:**

**Gastro-intestinal effects:** nausea/vomiting

**General/systemic effects:** fatigue

**Neurological effects:** headache, confusion, incoordination, drowsiness, vertigo/dizziness, disturbance of level of consciousness, convulsions

**Ingestion, short term, intentional misuse, accidental misuse:**

**Respiratory effects:** pneumonitis (aspiration)

**Gastro-intestinal effects:** abdominal pain, diarrhoea

**Note:** May cause effects similar to those described under Inhalation.

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**12. ECOLOGICAL INFORMATION**

This section is intended for use by ecotoxicologists and other environmental specialists.

Data obtained on similar products and on components are summarized below.

**Similar formulation**

**Aquatic toxicity, fish**

**Rainbow trout (*Oncorhynchus mykiss*):**

Acute toxicity, 96 hours, static, LC50: 3.7 mg/L

Moderately toxic.

**Bluegill sunfish (*Lepomis macrochirus*):**

Acute toxicity, 96 hours, static, LC50: 6.2 mg/L

Moderately toxic.

**Aquatic toxicity, invertebrates**

**Water flea (*Daphnia magna*):**

Acute toxicity, 48 hours, static, LC50: 22 mg/L

Slightly toxic.

**Similar formulation**

**Aquatic toxicity, algae/aquatic plants**

**Green algae (*Selenastrum capricornutum*):**

Acute toxicity, 72 hours, static, EC50: 0.0059 mg/L

Algistatic effect observed. Effect reversible.

Very highly toxic.

**Diatom (*Skeletonema costatum*):**

Acute toxicity, 96 hours, static, EC50: 0.377 mg/L



Algistatic effect observed. Effect reversible.

Highly toxic.

#### **Arthropod toxicity**

##### **Honey bee (*Apis mellifera*):**

Contact, 48 hours, LD50: > 232 µg/bee

Practically non-toxic.

##### **Honey bee (*Apis mellifera*):**

Oral, 48 hours, LD50: > 214 µg/bee

Practically non-toxic.

#### **Alachlor**

#### **Avian toxicity**

##### **Bobwhite quail (*Colinus virginianus*):**

Acute oral toxicity, single dose, LD50: 1,536 mg/kg body weight

Slightly toxic.

##### **Bobwhite quail (*Colinus virginianus*):**

Dietary toxicity, 5 days, LC50: > 5,620 mg/kg diet

Practically non-toxic.

##### **Mallard duck (*Anas platyrhynchos*):**

Dietary toxicity, 5 days, LC50: > 5,620 mg/kg diet

Practically non-toxic.

#### **Soil organism toxicity, invertebrates**

##### **Earthworm (*Eisenia foetida*):**

Acute toxicity, 14 days, LC50: 387 mg/kg dry soil

Slightly toxic.

#### **Bioaccumulation**

##### **Bluegill sunfish (*Lepomis macrochirus*):**

Whole fish: BCF: 50

#### **Hydrolysis**

##### **25.00 °C, pH 6:**

0 % within 30 days

#### **Photochemical degradation**

##### **Soil:**

Half life: 144.4 days

#### **Dissipation**

##### **Soil, aerobic:**

Half life: 8 - 17 days

Koc: 101 - 192

##### **Water, aerobic:**

Half life: 23 days

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## **13. DISPOSAL CONSIDERATIONS**

### **13.1. Waste treatment methods**

#### **13.1.1. Product**

Keep out of drains, sewers, ditches and water ways. Recycle if appropriate facilities/equipment available. Excess product may be disposed of by agricultural use according to label instructions. For other disposal, this product is classified as hazardous by the Resource Conservation and Recovery Act (RCRA), 40 CFR 261, due to its toxicity and ignitability characteristics. Burn in a RCRA approved incinerator. Follow all local/regional/national/international regulations.

#### **13.1.2. Container**

See the individual container label for disposal information. Empty packaging completely. Triple or pressure rinse empty containers. Do NOT contaminate water when disposing of rinse waters. Rinsate may be disposed of by agricultural use according to label instructions. For other disposal, rinsate is classified as hazardous by the Resource Conservation and Recovery Act (RCRA), 40 CFR 261, due to its toxicity characteristic. Burn in a RCRA approved incinerator. Ensure packaging cannot be reused. Store for collection by approved waste disposal service. Recycle if appropriate facilities/equipment available. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed. Follow all local/regional/national/international regulations.

Use handling recommendations in Section 7 and personal protection recommendations in Section 8.

## 14. TRANSPORT INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

### 14.1. US Dept. of Transportation (DOT) Hazardous Materials Regulations (49 CFR Parts 105-180)

|   |   |
|---|---|
| UN No.:   | NA1993  |
| Proper Shipping Name<br>(Technical Name if required): | COMPOUND, WEED KILLING, LIQUID (chlorobenzene, petroleum naphtha) |
| Class:  | COMBUSTIBLE LIQUID  |
| Packing Group:  | III   |

#### 14.1.1. Note

Applies to all bulk packages and to non-bulk packages which contain an RQ (reportable quantity).

#### 14.1.2. Special provisions

This material meets the definition of a marine pollutant.

#### 14.1.3. US DOT Reportable quantity

| RQ Component  | RQ     | Minimum package size containing RQ |
|---------------|--------|------------------------------------|
| chlorobenzene | 100 lb | 370 lb                             |

### 14.2. IMDG Code

|                |        |
|----------------|--------|
| UN No.:        | NA1993 |
| Packing Group: | III    |

#### 14.2.1. Note

Use description for flammable liquid, n.o.s.

### 14.3. IATA/ICAO

|                |        |
|----------------|--------|
| UN No.:        | NA1993 |
| Packing Group: | III    |

#### 14.3.1. Note

Use description for flammable liquid, n.o.s.

## 15. REGULATORY INFORMATION

### 15.1. Environmental Protection Agency

#### 15.1.1. TSCA Inventory

All components are on the US EPA's TSCA Inventory

#### 15.1.2. SARA Title III Rules

Section 311/312 Hazard Categories: Immediate, Delayed, Fire  
Section 302 Extremely Hazardous Substances: Not applicable.

Section 313 Toxic Chemical(s): Alachlor, chlorobenzene, 1,2,4-trimethylbenzene

**15.1.3. CERCLA Reportable quantity**

| RQ Component  | RQ     | Minimum package size containing RQ |
|---------------|--------|------------------------------------|
| chlorobenzene | 100 lb | 370 lb                             |
| xylene        | 100 lb | 10,000 lb                          |

Release of more than any reportable quantity to the environment in a 24 hour period requires notification to the National Response Center (800-424-8802 or 202-426-2675).

**15.1.4. Federal Insecticide, Fungicide, Rodenticide Act (FIFRA)**

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

RESTRICTED USE PESTICIDE due to ground water concerns., The use of this product may be hazardous to your health. This product contains alachlor, which has been determined to cause tumours in laboratory animals.

DANGER!

COMBUSTIBLE LIQUID, CORROSIVE. CAUSES IRREVERSIBLE EYE DAMAGE, CAUSES SKIN IRRITATION, HARMFUL IF INHALED, HARMFUL IF SWALLOWED, MAY CAUSE ALLERGIC SKIN REACTION

Acute oral toxicity: FIFRA category III.

Acute dermal toxicity: FIFRA category IV.

Acute inhalation toxicity: FIFRA category IV.

Skin irritation: FIFRA category II.

Eye irritation: FIFRA category I.

**15.2. California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)**

The state of California's Safe Drinking Water and Toxic Enforcement Act of 1986 requires the following label on this product. WARNING! This product contains chemicals known to the state of California to cause cancer.

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**16. OTHER INFORMATION**

The information given here is not necessarily exhaustive but is representative of relevant, reliable data.

Follow all local/regional/national/international regulations.

Please consult supplier if further information is needed.

In this document the British spelling was applied.

|| Significant changes versus previous edition.

|      |        |              |             |                     |
|------|--------|--------------|-------------|---------------------|
|      | Health | Flammability | Instability | Additional Markings |
| NFPA | 3      | 2            | 1           |                     |

0 = Minimal hazard, 1 = Slight hazard, 2 = Moderate hazard, 3 = Severe hazard, 4 = Extreme hazard

Full denomination of most frequently used acronyms. BCF (Bioconcentration Factor), BOD (Biochemical Oxygen Demand), COD (Chemical Oxygen Demand), EC50 (50% effect concentration), ED50 (50% effect dose), I.M. (intramuscular), I.P. (intraperitoneal), I.V. (intravenous), Koc (Soil adsorption coefficient), LC50 (50% lethality concentration), LD50 (50% lethality dose), LDLo (Lower limit of lethal dosage), LEL (Lower Explosion Limit), LOAEC (Lowest Observed Adverse Effect Concentration), LOAEL (Lowest Observed Adverse Effect Level), LOEC (Lowest Observed Effect Concentration), LOEL (Lowest Observed Effect Level), MEL (Maximum Exposure limit), MTD (Maximum Tolerated Dose),

NOAEC (No Observed Adverse Effect Concentration), NOAEL (No Observed Adverse Effect Level), NOEC (No Observed Effect Concentration), NOEL (No Observed Effect Level), OEL (Occupational Exposure Limit), PEL (Permissible Exposure Limit), PII (Primary Irritation Index), Pow (Partition coefficient n-octanol/water), S.C. (subcutaneous), STEL (Short-Term Exposure Limit), TLV-C (Threshold Limit Value-Ceiling), TLV-TWA (Threshold Limit Value - Time Weighted Average), UEL (Upper Explosion Limit)

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-APPROVED PRODUCT LABELING (attached to and accompanying the product container). This MSDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course. Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of federal law to use a pesticide product in any manner not prescribed on the EPA-approved label.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, MONSANTO Company or any of its subsidiaries makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for the purposes prior to use. In no event will MONSANTO Company or any of its subsidiaries be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR TO THE PRODUCT TO WHICH INFORMATION REFERS.