

<p style="text-align: center;"><b>MONSANTO COMPANY</b> Safety Data Sheet Commercial Product</p>
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## 1. PRODUCT AND COMPANY IDENTIFICATION

**Product name**

**Degree Xtra® Herbicide**

**EPA Reg. No.**

524-511

**Product use**

Herbicide

**Chemical name**

Not applicable.

**Synonyms**

None.

**Company**

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

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

**E-mail:** TS-SAFETYDATASHEET@DOMINO.MONSANTO.COM

**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).

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## 2. HAZARDS IDENTIFICATION

**Emergency overview**

**Appearance and odour (colour/form/odour):** Whitish / Liquid / Slight

RESTRICTED USE PESTICIDE due to ground and surface water concerns.

CAUTION!

**Potential health effects**

**Likely routes of exposure**

Skin contact, eye contact, inhalation

**Eye contact, short term**

Not expected to produce significant adverse effects when recommended use instructions are followed.

**Skin contact, short term**

Not expected to produce significant adverse effects when recommended use instructions are followed.

May cause allergic skin reaction.

**Inhalation, short term**

Not expected to produce significant adverse effects when recommended use instructions are followed.

**Single ingestion**

Not expected to produce significant adverse effects when recommended use instructions are followed.

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

**OSHA Status**

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

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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### Active ingredient

2-chloro-N-(ethoxymethyl)-N-(2-ethyl-6-methylphenyl) acetamide; { Acetochlor }

6-chloro-N-ethyl-N'-(1-methylethyl)-1,3,5-triazine-2,4-diamine; { Atrazine }

#### Composition

COMPONENT	CAS No.	% by weight (approximate)
Acetochlor	34256-82-1	29
Atrazine	1912-24-9	14.5
Other ingredients		56.5

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.

#### Eye contact

Immediately flush with plenty of water.

If easy to do, remove contact lenses.

If there are persistent symptoms, obtain medical advice.

#### Skin contact

Immediately wash affected skin with plenty of water.

Use soap if available.

Take off contaminated clothing, wristwatch, jewellery.

Wash clothes and clean shoes before re-use.

#### Inhalation

Remove to fresh air.

#### Ingestion

Immediately offer water to drink.

Never give anything by mouth to an unconscious person.

Do NOT induce vomiting unless directed by medical personnel.

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### 5. FIRE-FIGHTING MEASURES

#### Flash point

Does not flash.

#### Extinguishing media

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

#### Unusual fire and explosion hazards

None.

Minimise use of water to prevent environmental contamination.

Environmental precautions: see section 6.

#### Hazardous products of combustion

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

#### Fire fighting equipment

Self-contained breathing apparatus.

Equipment should be thoroughly decontaminated after use.

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## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions

Use personal protection recommended in section 8.

### Environmental precautions

- Minimise spread.
- Contain spillage with sand bags or other means.
- Keep out of drains, sewers, ditches and water ways.
- Do NOT contaminate water when disposing of rinse waters.

### Methods for cleaning up

- Contain spillage with sand bags or other means.
- Absorb in earth, sand or absorbent material.
- Dig up heavily contaminated soil.
- Collect in containers for disposal.
- Place leaking containers in oversize leakproof drums for transport.
- 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.

### Handling

- Avoid prolonged or repeated contact with skin.
- 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.
- Emptied containers retain vapour and product residue.
- FOLLOW LABELLED WARNINGS EVEN AFTER CONTAINER IS EMPTIED.**

### Storage

- Compatible materials for storage: stainless steel, Heresite[™]-lined steel, high-density polyethylene (HDPE), polypropylene (PP), Teflon[™], polyvinylidene difluoride (PVDF)
- Incompatible materials for storage: unlined mild steel, aluminium, polyvinyl chloride (PVC), Contact with mild steel may cause color change and reduce product's ability to emulsify with water.
- Keep out of reach of children.
- Keep away from food, drink and animal feed.
- Keep only in the original container.
- Use appropriate containment to avoid environmental contamination.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Airborne exposure limits

Components	Exposure Guidelines
Acetochlor	No specific occupational exposure limit has been established.
Atrazine	TLV (ACGIH): 5 mg/m <sup>3</sup> (TWA)

	PEL (OSHA): No specific occupational exposure limit has been established.
Other ingredients	No specific occupational exposure limit has been established.

**Engineering controls**

No special requirement when used as recommended.

**Eye protection**

No special requirement when used as recommended.

**Skin protection**

Wear chemical resistant gloves.  
 Applicators and other handlers must wear:  
 Wear long sleeved shirt, long pants and shoes with socks.  
 Follow manufacturer's instructions for cleaning/maintaining Personal Protective Equipment.  
 If no such instructions for washables, use detergent and hot water.

**Respiratory protection**

No special requirement when used as recommended.

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

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**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:	Whitish
Odour:	Slight
Form:	Liquid
Physical form changes (melting, boiling, etc.):	
Melting point:	Not applicable.
Boiling point:	No data.
Flash point:	Does not flash.
Explosive properties:	No explosive properties
Auto ignition temperature:	No data.
Specific gravity:	1.1159
Vapour pressure:	No significant volatility; aqueous solution.
Vapour density:	Not applicable.
Evaporation rate:	No data.
Dynamic viscosity:	150 - 380 Pa.s @ 10 °C
Kinematic viscosity:	No data.
Density:	1.1159 g/cm <sup>3</sup>
Solubility:	Water: Completely miscible.
pH:	8.5
Partition coefficient:	log Pow: 4.14 @ 20 °C (acetochlor)
Partition coefficient:	log Pow: 2.5 @ 25 °C (atrazine)

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**10. STABILITY AND REACTIVITY**

**Stability**

Stable under normal conditions of handling and storage.

**Oxidizing properties**

No data.

**Materials to avoid/Reactivity**

Corrosive to mild steel.

Corrosive to aluminium.

**Hazardous decomposition**

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

**Self-accelerating decomposition temperature (SADT)**

No data.

**Hazardous polymerization**

Does not occur.

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## 11. TOXICOLOGICAL INFORMATION

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

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

**Similar formulation**

**Acute oral toxicity**

**Rat, LD50:** > 5,000 mg/kg body weight

Practically non-toxic.

FIFRA category IV.

**Acute dermal toxicity**

**Rat, LD50:** > 5,000 mg/kg body weight

Practically non-toxic.

FIFRA category IV.

No mortality.

**Skin irritation**

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

Days to heal: 2

Primary Irritation Index (PII): 0.3/8.0

FIFRA category IV.

Essentially non irritating.

**Eye irritation**

**Rabbit, 9 animals, OECD 405 test:**

Days to heal: 3

FIFRA category IV.

Essentially non irritating.

**Acute inhalation toxicity**

**Rat, LC50, 4 hours, aerosol:**

Practically non-toxic.

FIFRA category IV.

No mortality. No 4-hr LC50 at the maximum tested concentration.

**Skin sensitization**

**Guinea pig, 3-induction Buehler test:**

Positive incidence: 32 %

Positive.

## Acetochlor

### Mutagenicity

#### **In vitro and in vivo mutagenicity test(s):**

Equivocal response.

### Repeated dose toxicity

#### **Rat, oral, 90 days:**

NOAEL toxicity: 18 mg/kg body weight/day

Target organs/systems: none

Other effects: decrease of body weight gain, decrease of food consumption

#### **Rabbit, dermal, 21 days:**

NOAEL toxicity: 400 mg/kg body weight/day

Target organs/systems: none

Other effects: increased mortality, decrease of body weight gain

### Chronic effects/carcinogenicity

#### **Rat, oral, 2 years:**

NOEL tumour: 10 mg/kg body weight/day

NOAEL toxicity: 10 mg/kg body weight/day

Tumours: thyroid, nose

Target organs/systems: liver, kidneys

Other effects: decrease of body weight gain, organ weight change, blood biochemistry effects

Tumours only at or above MTD. Tumours not relevant for man based on mechanistic data.

#### **Mouse, oral:**

NOAEL toxicity: 1.1 mg/kg body weight/day

Tumours: liver, lung, haematopoietic system (histiocytic sarcoma)

Target organs/systems: kidneys, liver

Other effects: histopathologic effects, haematological effects, decrease of body weight gain

Tumours only at or above MTD. Equivocal response.

### Toxicity to reproduction/fertility

#### **Rat, oral, 2 generations:**

NOAEL toxicity: 21 mg/kg body weight/day

NOAEL reproduction: 66 mg/kg body weight/day

Target organs/systems in parents: liver, kidneys, thyroid

Other effects in parents: decrease of body weight gain, organ weight change, histopathologic effects

Target organs/systems in pups: none

Other effects in pups: decrease of body weight gain, change in sexual maturation landmarks

### Developmental toxicity/teratogenicity

#### **Rat, oral, 6 - 18 days of gestation:**

NOAEL toxicity: 200 mg/kg body weight

NOAEL development: 400 mg/kg body weight

Target organs/systems in mother animal: none

Other effects in mother animal: decrease of body weight gain

No adverse treatment related effects in offspring.

#### **Rabbit, oral, 7 - 19 days of gestation:**

NOAEL toxicity: 100 mg/kg body weight/day

NOAEL development: 300 mg/kg body weight/day

Target organs/systems in mother animal: none

Other effects in mother animal: decrease of body weight gain

No adverse treatment related effects in offspring.

### Acute neurotoxicity

#### **Rat, oral, single dose, gavage:**

NOAEL: 150 mg/kg body weight

Other effects: decreased activity

### Repeated dose neurotoxicity

#### **Rat, oral, 13 weeks, dietary:**

NOAEL: 52 mg/kg body weight/day

Target organs/systems: none

Other effects: decrease of body weight gain, decrease of food consumption  
Not neurotoxic.

## **EXPERIENCE WITH HUMAN EXPOSURE**

### **Skin contact, short term, occupational:**

**Skin effects:** sensitization in susceptible individuals

## **Atrazine**

### **Mutagenicity**

#### **Ames test(s):**

Not mutagenic without metabolic activation.

#### **In vivo chromosomal aberration test(s):**

Not mutagenic.

#### **In vitro DNA-repair test(s):**

Not mutagenic.

#### **Dominant lethal test(s):**

Not mutagenic.

### **Repeated dose toxicity**

#### **Rat, oral, 90 days:**

NOAEL toxicity: 3.3 mg/kg body weight/day

Target organs/systems: none

Other effects: decrease of body weight gain

#### **Rabbit, dermal, 25 days:**

NOAEL toxicity: 10 mg/kg body weight/day

Target organs/systems: spleen

Other effects: decrease of food consumption, weight loss, organ weight change, haematological effects, histopathologic effects, blood biochemistry effects

### **Chronic effects/carcinogenicity**

#### **Rat, oral, 24 months:**

NOEL tumour: 0.45 mg/kg body weight/day

NOAEL toxicity: 3.5 mg/kg body weight/day

Tumours: mammary gland (adenocarcinoma)

Target organs/systems: eyes, kidneys, liver, mammary gland, prostate, skeletal muscle

Other effects: decrease of food consumption, weight loss, organ weight change, haematological effects, histopathologic effects, blood biochemistry effects

Tumours only at or above MTD. Tumours not relevant for man based on mechanistic data.

#### **Mouse, oral, 91 weeks:**

NOEL tumour: ~ 400 mg/kg body weight/day

NOAEL toxicity: 43 mg/kg body weight/day

Target organs/systems: heart

Other effects: decrease of food consumption, weight loss, organ weight change, histopathologic effects

Tumours not related to treatment.

### **Toxicity to reproduction/fertility**

#### **Rat, oral, 2 generations:**

NOAEL toxicity: 50 mg/kg diet

NOAEL reproduction: 500 mg/kg diet

Target organs/systems in parents: none

Other effects in parents: decrease of body weight gain

Target organs/systems in pups: none

Other effects in pups: none

### **Developmental toxicity/teratogenicity**

#### **Rat, oral, 6 - 15 days of gestation:**

NOAEL toxicity: 10 mg/kg body weight

NOAEL development: 10 mg/kg body weight

Other effects in mother animal: weight loss, decrease of body weight gain, decrease of survival

Developmental effects: weight loss, delayed ossification

Effects on offspring only observed with maternal toxicity.

**Rabbit, oral, 7 - 19 days of gestation:**

NOAEL toxicity: < 1 mg/kg body weight

NOAEL development: 1 mg/kg body weight

Other effects in mother animal: weight loss, decrease of survival

Developmental effects: weight loss, post-implantation loss, delayed ossification

Effects on offspring only observed with maternal toxicity.

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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, flowthrough, LC50: 2.93 mg/L

Moderately toxic.

#### Aquatic toxicity, invertebrates

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

Acute toxicity, 48 hours, flowthrough, EC50: 27.5 mg/L

Slightly toxic.

#### Soil organism toxicity, invertebrates

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

Acute toxicity, 14 days, LC50: 739.9 mg/kg dry soil

Slightly toxic.

#### Soil organism toxicity, microorganisms

**Nitrogen and carbon transformation test:**

30 L/ha, 28 days: No effect on nitrogen transformation. Less than 25% effect on nitrogen or carbon transformation processes in soil.

### Similar formulation

#### Aquatic toxicity, algae/aquatic plants

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

Acute toxicity, 72 hours, static, EbC50 (biomass): 5.01 µg/L

Very highly toxic.

### Acetochlor

#### Avian toxicity

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

Acute oral toxicity, single dose, LD50: > 31 - 1,560 mg/kg body weight

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

Acute oral toxicity, single dose, LD50: > 2,000 mg/kg body weight

Practically non-toxic.

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

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

Practically non-toxic.

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

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

Practically non-toxic.

#### Arthropod toxicity

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



Oral, 48 hours, LD50: > 100 µg/bee

Practically non-toxic.

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

Contact, 48 hours, LD50: > 200 µg/bee

Practically non-toxic.

**Bioaccumulation**

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

Whole fish: BCF: 20

Rapid depuration after end of exposure.

**Dissipation**

**Water, aerobic, 20 °C:**

Half life: 12 days

**Soil, aerobic, 20 °C:**

Half life: 12.9 days

Koc: 204

**Atrazine**

**Avian toxicity**

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

Dietary toxicity, 5 days, LC50: > 5,000 mg/kg diet

Practically non-toxic.

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

Dietary toxicity, 5 days, LC50: > 5,000 mg/kg diet

Practically non-toxic.

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

Acute oral toxicity, single dose, LD50: > 2,000 mg/kg body weight

Practically non-toxic.

**Arthropod toxicity**

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

Contact, 48 hours, LD50: > 97 µg/bee

**Bioaccumulation**

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

Edible portion: BCF: 8

Rapid depuration after end of exposure.

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

Whole fish: BCF: 15

Rapid depuration after end of exposure.

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## 13. DISPOSAL CONSIDERATIONS

### Product

Excess product may be disposed of by agricultural use according to label instructions.

Keep out of drains, sewers, ditches and water ways.

Recycle if appropriate facilities/equipment available.

Burn in special, controlled high temperature incinerator.

Follow all local/regional/national/international regulations.

### Container

See the individual container label for disposal information.

Emptied containers retain vapour and product residue.

Observe all labelled safeguards until container is cleaned, reconditioned or destroyed.

Empty packaging completely.

Triple or pressure rinse empty containers.

Do NOT contaminate water when disposing of rinse waters.

Do NOT re-use containers.

Store for collection by approved waste disposal service.

Recycle if appropriate facilities/equipment available.  
Follow all local/regional/national/international regulations.

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

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## 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.

Not hazardous under the applicable DOT, ICAO/IATA, IMO, TDG and Mexican regulations.

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## 15. REGULATORY INFORMATION

### TSCA Inventory

Exempt

### OSHA Hazardous Components

Acetochlor  
Atrazine  
Surfactant(s)

### SARA Title III Rules

Section 311/312 Hazard Categories  
Immediate, Delayed  
Section 302 Extremely Hazardous Substances  
Not applicable.  
Section 313 Toxic Chemical(s)  
Atrazine

### CERCLA Reportable quantity

Not applicable.

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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.

	Health	Flammability	Instability	Additional Markings
NFPA	2	1	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)

<p>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</p>
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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.

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