1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Degree xtra™ Herbicide

MSDS Number: S00013306 Date: October 14, 1999

EPA Registration No: 524-511

MONSANTO COMPANY, 800 N. LINDBERGH BLVD., ST. LOUIS, MO 63167

FOR MEDICAL EMERGENCY, CALL COLLECT, DAY OR NIGHT: (314) 694-4000

For additional non-emergency information, call: 1-800-332-3111

2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>% by weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Ingredients:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acetochlor: 2-chloro-N-ethoxymethyl-N-(2-ethyl-6-</td>
<td>34256-82-1</td>
<td>30.4</td>
</tr>
<tr>
<td>methylphenyl)acetamide *</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atrazine: 2-chloro-4-ethylamino-6-isopropylamino-5-triazine *+</td>
<td>1912-24-6</td>
<td>14.6</td>
</tr>
<tr>
<td>Other Ingredients:</td>
<td>+</td>
<td>55.0</td>
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</table>

* -- Hazardous chemical(s) under the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200).
+ -- This material is defined as toxic under and subject to the reporting requirements of SARA 313.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Appearance and Odor: white liquid, low odor

WARNING STATEMENTS

Keep out of reach of children.

CAUTION!

Prolonged or repeated skin contact may cause allergic reactions in some individuals. Avoid contact with eyes, skin, or clothing. Wash thoroughly with soap and water after handling.
POTENTIAL HEALTH EFFECTS

Likely Routes of Exposure: inhalation and skin contact

Skin Contact: Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

Eye Contact: No more than slightly irritating based on toxicity studies of components of this material.

Inhalation: No more than slightly toxic based on toxicity studies of components of this material.

Ingestion: No more than slightly toxic based on toxicity studies of components of this material. No significant adverse health effects are expected to develop if only small amounts (less than a mouthful) are swallowed.

Refer to Section 11 for toxicological information.

4. FIRST AID MEASURES

If in Eyes: Flush eyes with plenty of water. Get medical attention if irritation persists.

If Swallowed: rinse mouth thoroughly with water. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. Get medical attention. Contact a Poison Control center. Induce vomiting only as directed by medical personnel.

If Inhaled: Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.

If on Skin: Immediately flush with plenty of water while removing contaminated clothing. As soon as soap is available, wash skin thoroughly with soap and water. Wash clothing before reuse. Sensitized persons should avoid further contact and reuse of contaminated clothing and get medical attention.

NOTE: For additional human emergency first aid or treatment guidance, call collect, anytime, day or night (314) 694-4000.

5. FIRE FIGHTING MEASURES

Flash Point: None

Hazardous Products of Combustion: Carbon dioxide, carbon monoxide, oxides of nitrogen.

Extinguishing Media: In case of fire, use water spray (fog), foam, dry chemical, or CO2.

Unusual Fire and Explosion Hazards: None known.

Fire Fighting Equipment: Fire fighters and others exposed to products of combustion should wear self-contained breathing apparatus. Equipment should be thoroughly decontaminated after use.

6. ACCIDENTAL RELEASE MEASURES

Absorb spilled liquid with Bentonite, attapulgite or other similar absorbent clays. Collect contaminated absorbent and dispose of as discussed below under disposal. Floors and other impervious surfaces should be washed down with water containing industrial type detergent and rinsed with water.
If spill is directly on the ground, dig up and remove saturated soil for disposal. Material should be disposed of in accordance with applicable Federal, State and local regulations.

Do not contaminate water, foodstuff, feed or seed by storage or disposal. Refer to Section 13 for disposal information and Section 15 for reportable quantity information.

7. HANDLING AND STORAGE

Handling: Prolonged or repeated skin contact may cause allergic reactions in some individuals. Avoid contact with eyes, skin, or clothing. Wash thoroughly with soap and water after handling.

This product may be toxic to fish and aquatic organisms. See Section 12 for more information. Do not discharge effluent containing this product directly into lakes, streams, ponds, estuaries, oceans or public waters unless this product is specifically identified and addressed in a National Pollutant Discharge Elimination System (NPDES) permit. Do not discharge effluent containing this product into sewer systems without previously notifying the sewage treatment plant authority. For guidance, contact your State Water Board or Regional Officer of the Environmental Protection Agency.

Atrazine has been identified in limited ground water sampling and there is the possibility that it can leach through the soil to groundwater, especially where soils are coarse and groundwater is near the surface. Users are advised not to apply this product to sand and loamy sand soils where the water table (groundwater) is near the surface and where these soils are permeable (well drained).

Where there are state/local requirements regarding atrazine use (including lower maximum rates and/or higher set-backs) which are different from the label, the more restrictive/protective requirements apply. Care must be taken when using this product to prevent back siphoning into wells, spills or improper disposal of excess pesticide, spray mixtures or rinsates.

DO NOT REUSE THIS CONTAINER.

Storage: Do not contaminate water, foodstuffs, feed or seed by storage or disposal.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EYE PROTECTION: Where there is significant potential for eye contact, wear chemical goggles and have eye flushing equipment available.

SKIN PROTECTION: Applicators and other handlers must wear long-sleeved shirt and long pants, waterproof gloves, and shoes plus socks. Wear appropriate protective gloves and protective clothing that provide a barrier to prevent skin contact. Consult glove manufacturer to determine appropriate type glove for given application. Wear chemical safety goggles and a face shield and a protective apron that provides a barrier when splashing is likely. Remove contaminated clothing promptly and launder before reuse. Clean protective equipment before reuse. Wash immediately if skin is contaminated. Provide a safety shower at any location where skin contact can occur. Wash thoroughly after handling. Attention! Repeated or prolonged contact may cause allergic skin reaction in some people.

RESPIRATORY PROTECTION: Avoid breathing vapor or mist. Use NIOSH approved positive pressure atmosphere supplying respiratory protection equipment (full facepiece recommended) when airborne exposure limits are exceeded (see below). Consult the respirator manufacturer to determine the appropriate type of equipment for a given application. Observe respirator use limitations specified by NIOSH or the manufacturer. Respiratory protection programs must comply with 29 C.F.R. §1910.134.

VENTILATION: Provide natural or mechanical ventilation to control exposure levels below airborne exposure limits (see below). If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.
9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and odor: white liquid, low odor

NOTE: 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.

10. STABILITY AND REACTIVITY

Stability: Not known
Materials to Avoid: None known
Hazardous Decomposition Products: None known
Hazardous Polymerization: None known
Incompatibility: Keep away from acids and bases since knowledge on stability is limited.

11. TOXICOLOGICAL INFORMATION

Monsanto has tested Degree xtra™ Herbicide with the following results:

Acute oral LD50 (rat) FIFRA Cat. IV
Acute dermal LD50 (rabbit) FIFRA Cat. IV
Inhalation LC50 (4-hr.-rat) FIFRA Cat. IV
Eye Irritation (Rabbit, 24-hr): 0.7/110.0, Practically nonirritating, FIFRA Category IV
Skin Irritation (Rabbit, 24-hr): 0.3/8.0, Practically nonirritating, FIFRA Category IV

COMPONENTS:

Acetochlor
Oral LD50 (Rat): 2,148 mg/kg, Slightly toxic, FIFRA Category III
Dermal LD50 (Rabbit): 4,166 mg/kg, Slightly toxic, FIFRA Category III
Inhalation LC50 (Rat, 4-hr): >3.0 mg/l, No more than slightly toxic, FIFRA Category III, Not DOT poisonous
Eye Irritation (Rabbit, 24-hr): 0.7/110.0, Practically nonirritating, FIFRA Category III
Skin Irritation (Rabbit, 24-hr): 0.3/8.0, Practically nonirritating, FIFRA Category IV

In feeding studies with rats and mice (91-day), Acetochlor Technical produced reduced body weights. In repeat dosing studies with dogs, Acetochlor Technical produced reduced body weights and feed consumption; with liver, kidney and bone marrow effects at amounts which produced some animal deaths (119-day); or with testicular effects (1-year). Following repeated skin exposure (3-weeks) to Acetochlor Technical, skin irritation and animal deaths (only at the highest exposure level) were the primary effects in rabbits. Skin allergy was observed in guinea pigs following repeated skin exposure. Decreased body weight, reduced feed efficiency, some animal deaths, some organ weight changes, slight anemia, eye damage, liver and kidney effects and tumors of the liver, lung and possibly histiocytic sarcomas were noted with long-term (23-month) feeding of Acetochlor Technical to mice. Decreased body weight, reduced food consumption, some animal deaths, slight
anemia, effects on liver, lung, heart, arteries, tongue and nerve tissues, and tumors of the liver, nasal turbinates and thyroid were noted with long-term (24- to 27-month) feeding of Acetochlor Technical to rats. Most of the tumors in rats and mice occurred only at levels of exposure which produced excessive toxicity.

No birth defects were noted in rats and rabbits given Acetochlor Technical orally during pregnancy, even at amounts which produced adverse effects on the mothers. Reductions in body, pup and spleen weights and in litter size, and kidney effects were noted when rats were fed Acetochlor Technical for two successive generations. Acetochlor Technical produced no genetic changes in standard tests using animals. Both positive and negative responses have been reported in assays using animal or bacterial cells.

**Atrazine**
Eye or skin contact to atrazine may result in slight irritation. Allergic skin reaction has been reported in some sensitized individuals.

Atrazine, also one of the active herbicidal ingredients of Degree xtra™ Herbicide, has been tested in acute, chronic and reproductive toxicity studies and in tests for mutagenicity, teratogenicity, and skin sensitization potential. Single-dose (acute) toxicity studies indicate that atrazine is slightly toxic orally (rats) and following skin application (rabbits). The inhalation 1-hour median lethal concentration of atrazine in rats was >0.71 mg/l of air. Atrazine is considered to be slightly irritating to rabbit eyes and skin. Repeated skin application to guinea pigs was reported to produce sensitization. In laboratory animals, signs of acute intoxication with atrazine include muscular weakness, hypoactivity, ataxia, shortness of breath and convulsions.

No adverse treatment-related effects were reported in dogs, horses and cattle fed diets containing 25 ppm atrazine. A long-term feeding study of dogs with very high doses of atrazine resulted in cardiotoxicity. Chronic dietary administration of atrazine has been reported to cause an increased incidence of tumors in female rats. This response was not observed in long-term studies with dogs, mice or male rats. Atrazine is classified as "possibly carcinogenic to humans" by the International Agency for Research on Cancer (IARC Monographs, Vol. 53). The IARC listing is based, in part, on their determination that there is insufficient evidence the carcinogenicity of atrazine in humans and only limited evidence for the carcinogenicity of atrazine in experimental animals. No teratogenic responses were reported in studies with rats and rabbits. No adverse treatment-related effects on reproduction were reported in a 3-generation study with rats.

**Safener**
Findings from chronic rodent feeding studies have shown and increased incidences of liver, stomach, lung and testicular tumors.

### 12. ECOLOGICAL INFORMATION

Monsanto has not conducted environmental toxicity studies with this product. Available data for a similar formulation are summarized below:

- **Aquatic Invertebrates:** 48-hr EC50 Daphnia magna: 27.5 mg/L; Slightly Toxic
- **Coldwater Fish:** 96-hr LC50 Rainbow trout: 2.9 mg/L; Moderately Toxic

Toxicity data for the components suggest that this material would be slightly toxic to warmwater fish, no more than slightly toxic to avian species, and practically nontoxic to the honey bee.
13. DISPOSAL CONSIDERATIONS

This material when discarded is not a hazardous waste as that term is defined by the Resource, Conservation and Recovery Act (RCRA), 40 CFR 261. Dispose of by incineration or recycle in accordance with local, state and federal regulations. Consult your attorney or appropriate regulatory officials for information on such disposal. Wastes resulting from the use of these products that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable Federal, state or local procedures. Do not reuse container. Puncture and dispose of empty container in a sanitary landfill, or incinerate the container, or, if allowed by state and local authorities, burn the container. If burned, stay out of smoke. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. This product should not be dumped, spilled, rinsed or washed into sewers or public waterways.

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.

This product is not hazardous under the applicable DOT, ICAO/IATA, or IMDG regulations.

15. REGULATORY INFORMATION

TSCA Inventory: All intentional components are listed.
SARA Hazard Notification
Hazard Categories Under Title III Rules (40 CFR 370): Immediate, delayed
Section 313 Toxic Chemical(s): AtrazineCAS Reg. No. 1912-24-9, 14.6 %
CERCLA Reportable Quantity: None
Refer to Section 2 for OSHA Hazardous Chemical(s) and Section 13 for RCRA classification.

16. OTHER INFORMATION

Reason for revision: New MSDS

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE 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.

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