1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: HARNESS® 20G herbicide
Synonyms: MON 8459
EPA Reg. No.: 524-487
Company ID: Monsanto Company
800 North Lindbergh
St. Louis, MO 63167, U.S.A.
Phone #: Emergency Phone Number (call collect)(314) 694-4000
Non-Emergency Information: 1-800-332-3111
Revisions: Sections containing a revision or new information are marked with a

MSDS Number: M00018466 Date: January, 1996 Supersedes: December, 1995

2. COMPOSITION INFORMATION ON INGREDIENTS

Chemical Ingredients
Active Ingredients: Acetochlor ......................................................... 20.0 %
Inert Ingredients: ................................................................. 80.0 %
Component # CAS Reg No % by Wt. of Product
*Acetochlor 34256-82-1 20.0 %
*Safening AgentH 2.1%
*Crystalline silica (quartz) 14808-60-7 <2.0%

* Hazardous chemicals under the criteria of the OSHA Hazard Communication Standard (29 CFR '1910.1200)
# This material contains no components which are defined under and subject to the reporting requirements of SARA '313.
H The specific chemical identity is withheld because it trade secret information of Monsanto Company.
See Section 8 for exposure limits.

3. HAZARDS IDENTIFICATION

Emergency Overview:
Appearance & Odor: brown to white clay granules; organic/mothballs

Warning Statements: ! RESTRICTED USE PESTICIDE due to oncogenicity. For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification.
! In case of an emergency involving this product or for user safety information on this product, call collect, day or night (314) 694-4000.
! Keep out of reach of children
! CAUTION!
! CAUSES MODERATE EYE IRRITATION
! REFORMULATION OR REPACKAGING IS PROHIBITED
Potential Adverse Health Effects:

Likely Routes of Exposure: Skin contact and inhalation

Eye Contact: May cause pain, redness, and tearing based on toxicity studies.
Skin Contact: No more than slightly toxic and no more than slightly irritating based on toxicity studies. Whereas animal testing of HARNESS® 20G did not show it to be a skin sensitizing agent, other studies with acetochlor (active ingredient in HARNESS® 20G) and the safening agent, were positive.

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

Inhalation: No more than slightly toxic if inhaled based on toxicity studies.

4. FIRST AID MEASURES ⭐

If In Eyes: Flush with plenty of water. Call a physician if irritation persists.
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. 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: Not applicable
Auto Ignition Temperature: Not determined
Extinguishing Media: Water spray or other Class A extinguishing agent.
Special Fire Fighting Procedures: Fire fighters and others that may be exposed to vapors, mists, dusts, or products of combustion should wear full protective clothing and self-contained breathing apparatus. Equipment should be thoroughly cleaned after use.

Unusual Fire or Explosion Hazards: None

6. ACCIDENTAL RELEASE MEASURES

Observe all protection and safety precautions when cleaning up spills - See Exposure Controls/Personal Protection, Section 8.

In case of spill or leak, remove and keep away from humans and domestic animals.

7. HANDLING AND STORAGE

Handling:
* Avoid contact with eyes or clothing.
* Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.
* Wash thoroughly with soap and water after handling.
* Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
* Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
* Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.
* This product is toxic to fish and aquatic invertebrates.
* Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.
* This chemical (acetochlor) demonstrates the properties and characteristics associated with chemicals detected in ground
water. The use of this chemical in areas where soils are permeable, particularly where the ground water is shallow, may result in ground water contamination.

Acetochlor has properties that may result in surface water contamination via dissolved runoff and runoff erosion. Practices should be followed to minimize the potential for dissolved runoff and/or runoff erosion.

Storage:

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

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment:

Eye Protection: Wear chemical safety goggles to prevent eye contact during operations such as mixing or transfer or other activities when there is potential for eye contact.

Skin Protection: Wear appropriate protective clothing and chemical resistant gloves to prevent skin contact. Applicators and other handlers must wear: long sleeved shirt, long pants, and shoes with socks. Wash hands and contaminated skin thoroughly after handling. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. Attention! Repeated or prolonged contact may cause allergic skin reaction in some people.

Respiratory Protection: Avoid breathing dust. Use NIOSH/MSHA approved respiratory protection equipment when airborne exposure limits are exceeded (see below). In work situations where an air purifying respirator is appropriate to be used, use of a respirator equipped with purifying elements for protection against organic vapor and dust/mist approved for pesticides is recommended. Use cartridges with NIOSH/MSHA approval number TC-23C or canister with NIOSH/MSHA approval number TC-14G. Full facepiece replaces the need for chemical goggles. Observe respirator use limitations specified by the manufacturers. Respiratory protection programs must comply with 29 CFR 1910.134.

Ventilation: Provide natural or mechanical ventilation to minimize exposure. If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.

Exposure Guidelines:

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Exposure Limits</th>
<th>OSHA PEL</th>
<th>ACGIH TLV/TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>HARNESS® 20G</td>
<td>None established</td>
<td>None established</td>
<td>None established</td>
</tr>
<tr>
<td>Safening Agent</td>
<td>None established</td>
<td>None established</td>
<td>None established</td>
</tr>
<tr>
<td>Crystalline silica (quartz)</td>
<td>0.1 mg/m³ (resp dust)</td>
<td>5 mg/m³ (resp dust)</td>
<td></td>
</tr>
<tr>
<td>Acetochlor</td>
<td>None established</td>
<td>None established</td>
<td>None established</td>
</tr>
</tbody>
</table>

* Although OSHA and ACGIH have not established specific limits for this material, they have established limits for nuisance dusts.

OSHA PEL  Total 15 mg/m³
ACGIH TLV/TWA  Total 10 mg/m³

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: brown to white clay granules
Odor: organic/mothballs
Bulk Density: 0.71 g/ml

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 specification items.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable for at least 2 years under normal warehouse conditions
Conditions to Avoid: None
Incompatibility with Other Materials: None
Hazardous Decomposition Products: None
11. TOXICOLOGICAL INFORMATION

Single exposure (acute) studies indicate:

<table>
<thead>
<tr>
<th>Route</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>Practically Nontoxic (Rat LD₅₀ - 7940 mg/kg), FIFRA Category IV</td>
</tr>
<tr>
<td>Dermal</td>
<td>Practically Non-Toxic (Rat LD₅₀ - &gt;5,000 mg/kg), FIFRA Category IV</td>
</tr>
<tr>
<td>Inhalation</td>
<td>&gt;2.7 mg/l; FIFRA Category IV, Not DOT Poisonous</td>
</tr>
<tr>
<td>Eye Irritation</td>
<td>Moderately Irritating (Rabbit), FIFRA Category III</td>
</tr>
<tr>
<td>Skin Irritation</td>
<td>Essentially Non-irritating (Rabbit, 4-hr exposure), FIFRA-PII 0.3/8.0, Category IV</td>
</tr>
<tr>
<td>Sensitization</td>
<td>This formulation did not exhibit the potential to produce dermal sensitization in guinea pigs.</td>
</tr>
</tbody>
</table>

COMPONENTS

Data from laboratory studies conducted by Monsanto and from the available literature on the components of HARNESS® 20G which have been identified under the criteria of the OSHA Hazard Communication Standard (29 CFR '1910.1200) are summarized below:

Acetochlor

Acetochlor, the active herbicidal ingredient of HARNESS® 20G, is slightly toxic orally (rats) or after skin application (rabbits) and no more than slightly toxic after inhalation (rats). It was practically nonirritating to rabbit eyes and skin.

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.

Safening Agent

This agent was slightly toxic orally (rats), practically nontoxic after skin application (rabbits) and no more than moderately toxic after inhalation (rats). It was slightly irritating to rabbit eyes and skin.

In repeat dosing studies (28-day), dogs and mice fed this agent exhibited reduced body weights and food consumption with clinical signs of toxicity, stomach and intestinal effects in dogs. Lower doses given to dogs for a longer period (90-day), produced a few uncertain clinical parameter changes. Rats fed this agent (90-day) exhibited reduced body weight, clinical parameter changes and liver effects. Skin allergy was observed in guinea pigs following repeated skin exposure.

Developmental effects were noted following oral dosing of this agent to pregnant rats at amounts which produced adverse effects on the mother. No birth defects were noted in rabbits given this agent orally during pregnancy, even at amounts which produced adverse effects on the mother.

This agent has produced no genetic changes in standard tests using animals and animal or bacterial cells.
Crystalline Silica (quartz)
This product may contain up to 2% quartz. Inhalation of silica dust may produce lung toxicity and adverse effects on the respiratory system. Data from the available literature on crystalline forms of silica confirm the capacity of crystalline silica to induce a fibrinogenic response in lungs. Studies on a variety of laboratory animals (rats, guinea pigs, rabbits, and monkeys) using inhalation, as well as intratracheal, routes of exposure indicate the ability of crystalline silica to produce silicosis similar to that seen in man, and confirm human experience that the presence of crystalline silica in the lung increases susceptibility to infection. In laboratory studies, quartz produced malignant and benign lung tumors in animals following inhalation exposure or placement in the lungs (pleural implants). Epidemiology studies of workers exposed primarily to silica dust (predominantly the quartz form of silica) indicated excess mortality from lung cancers. Crystalline forms of silica, which includes quartz, are classified as "probably carcinogenic to humans" by the International Agency for Research on Cancer (IARC Monographs, Vol. 42). The IARC listing is based on their determination that there is limited evidence for the carcinogenicity of crystalline forms of silica in humans and sufficient evidence for the carcinogenicity of crystalline forms of silica in experimental animals. Epidemiology studies cited by IARC give indications of increased risk for lung cancer in a working environment contaminated with crystalline silica, particularly in combination with other exposures. In addition, the National Toxicology Program includes crystalline forms of silica in the Seventh Annual Report on Carcinogens (1994).

12. ECOLOGICAL INFORMATION
For ecological effects data with acetochlor, the active ingredient in HARNESS® 20G herbicide, see Acetochlor MSDS.

13. DISPOSAL CONSIDERATIONS
Wastes resulting from the use of this product 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 and local procedures.

Emptied sack retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed

Completely empty sack into transfer or application equipment. Do not reuse container. Return emptied container per the Monsanto container return program. If not returned, dispose of empty sack in a sanitary landfill or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

14. TRANSPORT INFORMATION
Follow the precautions indicated in the Handling and Storage Section, Section 7 of this MSDS.

DOT Proper Shipping Name: Not applicable
DOT Hazard Class/I.D. No.: Not applicable
DOT Label: Not applicable
U.S. Surface Freight Classification: Weed Killing Compound, N.O.I.B.N.

15. REGULATORY INFORMATION
SARA Hazard Notification:
Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370): Immediate, Delayed

Section 313 Toxic Chemical(s): None

Hazardous Chemical(s) Under OSHA Hazard Communication Standard:
Acetochlor, Safening Agent, Crystalline silica | See Section 2 for more information
Reportable Quantity (RQ) under U.S. CERCLA: None

TSCA Inventory: All components are on the US EPA's TSCA Inventory List

16. OTHER

Reasons for revision: Modify language in First Aid Section to conform to label language

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.

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