1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Granular FAR-GO® Herbicide
MSDS Number: S00010169 Date: May 20, 1996
Chemical Name: Formulation
Synonyms: MON 7934
EPA Reg. No.: 524-292
MONSANTO COMPANY, 800 N. LINDBERGH BLVD., ST. LOUIS, MO 63167
FOR EMERGENCY MEDICAL INFORMATION (call collect): (314) 694-4000
FOR CHEMICAL EMERGENCY, SPILL LEAK, FIRE, OR ACCIDENT
Call CHEMTREC - Day or Night - 1-800-424-9300 Toll free in the continental U.S., Hawaii, Puerto Rico, Canada, Alaska, or Virgin Islands. For calls originating elsewhere: 703-527-3887 (collect calls accepted)
For additional non-emergency information, call: 1-800-332-3111

2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No.</th>
<th>% by weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Ingredient:</td>
<td>Triallate*+</td>
<td>2303-17-5</td>
</tr>
<tr>
<td>Inert Ingredients:</td>
<td>Attapulgite*</td>
<td>8031-18-3</td>
</tr>
<tr>
<td></td>
<td>Crystalline Quartz*</td>
<td>14808-60-7</td>
</tr>
</tbody>
</table>

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

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
Appearance and Odor: granule, free flowing solid

WARNING STATEMENTS
Keep out of reach of children
CAUTION!
MAY CAUSE EYE IRRITATION

POTENTIAL HEALTH EFFECTS
LIKELY ROUTES OF EXPOSURE: skin contact and inhalation
EYE CONTACT: No more than slightly irritating based on toxicity studies on a closely related material. May cause pain, redness and tearing based on toxicity studies of a closely related material.

SKIN CONTACT: No more than slightly toxic and slightly irritating based on toxicity studies on a closely related material.

INHALATION: Inhalation of the dust of this product may cause coughing and sneezing.

INGESTION: No more than slightly toxic based on toxicity studies on a closely related 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: Immediately flush with plenty of water for at least 15 minutes. Remove material from skin and 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

HAZARDOUS PRODUCTS OF COMBUSTION: None known

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

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

Collect solid material and place in metal drum and dispose of in accordance with instructions provided under DISPOSAL CONSIDERATIONS. After all solid material is removed, floors or other impervious surfaces should be washed with an industrial detergent solution and rinsed with water.

Refer to Section 13 for disposal information and Section 15 for reportable quantity information.

7. HANDLING AND STORAGE

Handling:
Avoid contact with eyes, skin or clothing.
Wash thoroughly with soap and water after handling.
User should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.

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.

**Storage:**
Keep bag closed to prevent spills and contamination.
Do not contaminate water, foodstuffs, feed or seed by storage or disposal.

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

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**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:** Although this product does not present a significant skin concern, minimize skin contamination by following good handling practices. Applicators and other handlers must wear: long-sleeved shirt, long pants, and shoes and socks. Wash hands and contaminated skin thoroughly after handling.

**RESPIRATORY PROTECTION:** Avoid breathing dust. Use NIOSH/MSHA approved respiratory protection equipment when airborne exposure is excessive. 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 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.

**AIRBORNE EXPOSURE LIMITS:**

<table>
<thead>
<tr>
<th>Product/Component</th>
<th>OSHA PEL</th>
<th>ACGIH TLV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Granular FAR-GO®*</td>
<td>None established</td>
<td>None established</td>
</tr>
<tr>
<td>Triallate ***</td>
<td>None established</td>
<td>None established</td>
</tr>
<tr>
<td>Crystalline Quartz</td>
<td>0.1 mg/m³ TWA**</td>
<td>0.1 mg/m³ TWA**</td>
</tr>
<tr>
<td>Attapulgite*</td>
<td>None established</td>
<td>None established</td>
</tr>
</tbody>
</table>

* OSHA and ACGIH have not established specific exposure limits for this material. However, OSHA and ACGIH have established limits for nuisance dusts which are the least stringent exposure limits applicable to dusts. The OSHA PEL/TWA for nuisance dusts is 15 mg/m³ total dust and 5 mg/m³ respirable dust. The ACGIH TLV/TWA for nuisance dusts is 10 mg/m³ inhalable, 3 mg/m³ respirable. Use control measures as specified above to minimize exposures.

**respirable dust

*** Monsanto has adopted an airborne exposure guideline of 56 ppb 8-hour TWA for this component.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** granular, free flowing solid
**Bulk Density:** 38 lbs/ft³
**Boiling Point:** 298 degrees F at 2 mmHg (active ingredient)
**Decomposition Temperature:** > 300 degrees F
**Vapor Pressure:** nonvolatile solid
**Solubility:** insoluble in water
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: Stable under normal conditions of warehouse storage. Thermally stable to 300 degrees F.

Materials to Avoid: None known

Hazardous Decomposition Products: None known

Hazardous Polymerization: Will not occur

Incompatibility: None known

11. TOXICOLOGICAL INFORMATION

Monsanto has not conducted toxicity studies on this product. However, a similar granular formulation has been tested and the following data are considered to be representative of this product:

Oral LD$_{50}$ (Rat)- 12,000 mg/kg, Practically Nontoxic, FIFRA Category IV

Dermal LD$_{50}$ (Rabbit) - >20,000 mg/kg, Practically Nontoxic, FIFRA Category IV

Eye Irritation (Rabbit, 24 hr)- 3.2 on a scale of 110.0, Slightly Irritating. FIFRA Category III.

Skin Irritation (Rabbit 24-hr) - 1.4 on a scale of 8.0, Slightly Irritating, FIFRA Category IV

COMPONENTS

Data from Monsanto studies and from the available literature on components of this product which have been identified under the criteria of the OSHA Hazard Communication Standard (29 CFR §1910.1200):

Attapulgite (Containing Crystalline Quartz)
Repeated and continuous inhalation of attapulgite component dusts may result in cough or sputum production, and adverse pulmonary effects. Attapulgite samples have been tested for carcinogenicity in rats in experiments by intraperitoneal injection, intrapleural application and inhalation. Sarcomas and mesotheliomas have been reported in experiments by each route of exposure. However, experiments with attapulgite samples of shorter fiber length have reported no induction of tumors. Attapulgite did not induce unscheduled DNA synthesis in rat hepatocytes in vitro or sister chromatid exchange in rat pleural mesothelial cells in vitro.

The clay components of this material may contain up to 3% crystalline 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 free crystalline silica to induce a fibrinogenic response in lungs. In addition to the adverse effects noted above, 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. In addition, experiments in animals have confirmed human experience that the presence of crystalline silica in the lung increased susceptibility to infection. Crystalline forms of silica 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 sixth Annual Report on Carcinogens (1991).

S-(2,3,3-Trichloroallyl)diisopropylthio carbamate (Triallate)
Abnormal behavioral effects have been observed in laboratory animals following single and repeated oral doses of TRIALLATE. No evidence of delayed neurotoxicity effects in chickens (repeat oral and dermal doses) or cholinesterase inhibition in rats (single oral doses) have been observed.

Following repeated exposures (30 to 90 days) to TRIALLATE in their feed, abnormal behavior, reduced body weights/body weight gains and food consumption, changes in blood composition, effects on gastrointestinal tract, sex organ, liver, thymus, spleen and kidney tissues, and some deaths were observed in laboratory animals (rats, hamsters, or dogs). Degeneration of nerve fibers in the peripheral nervous system and in a specific sensory nervous tract of the spinal cord were observed in rats after repeated dietary exposure (90 days) to high doses of TRIALLATE. Dogs fed TRIALLATE at a lower dose for a longer period (1 year) exhibited changes in blood chemistry. Following repeated skin exposure (3 week) to TRIALLATE, skin irritation was the primary effect in rabbits with one death observed at the highest dose. No skin allergy was observed in guinea pigs following repeated skin exposure. Eye and nasal irritation, changes in body weight and blood composition and effects on kidney tissues were noted following repeated inhalation (7 week) of TRIALLATE in rats.

Mice fed TRIALLATE in long-term (2 year) studies showed some organ weight changes, effects on liver, cornea, brain and spleen tissues and tumors in the liver. Liver tumors are the most common spontaneous tumor in this strain of mice, and it was concluded that the increased incidence of these tumors provides insufficient evidence of a treatment response. Hamsters and/or rats fed TRIALLATE (18-24 months) showed reduced body weight gain and survival, some organ weight changes and slight anemia. No adverse effects were observed in long-term (2 year) feeding studies in dogs. TRIALLATE did not produce tumors in these studies.

No birth defects were noted in rats and rabbits given TRIALLATE orally during pregnancy, even at amounts which produced toxic effects on the mothers and their offspring. Clinical signs of toxicity, reduced body and pup weights, and effects on some reproductive parameters (second generation only) were noted when rats were fed TRIALLATE for two successive generations.

TRIALLATE produced genetic changes in standard tests which use animals or fruit flies. Both positive and negative responses have been reported in assays using animal or bacterial cells.

12. ECOLOGICAL INFORMATION

Monsanto has not conducted environmental toxicity studies with this material. However, tests performed with a similar granular formulation indicate the following:

- 96-hr LC₅₀ Bluegill sunfish: 13 mg/L, Slightly Toxic
- 96-hr LC₅₀ Rainbow trout: 19 mg/L, Slightly Toxic

13. DISPOSAL CONSIDERATIONS

This material when discarded is a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA), 40 CFR 261.33, "as a discarded commercial chemical, off-specification species, container residue, or spill residue thereof", EPA hazardous waste number U389. Best Demonstrated Available Treatment (BDAT) as defined by RCRA is disposal by incineration. Dispose of in accordance with local, state and federal regulations.

Improper disposal of excess pesticide, spray mixtures, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instruction, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Completely empty container into application equipment. Emptied container retains vapor and product residue. Observe all labeled safeguards until container is destroyed.

Soil, water and other debris contaminated with this product may have to be treated as hazardous under RCRA. State or Federal authorities should be contacted for appropriate handling and disposal methods.

Consult your attorney or appropriate regulatory officials for further information on such disposal.
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 components are listed.

SARA Hazard Notification
- Hazard Categories Under Title III Rules (40 CFR 370): Delayed (Chronic)
- Section 313 Toxic Chemical(s): Triallate, CAS Reg. No. 2303-17-5

CERCLA Reportable Quantity: 1 lb. RQ of triallate

Release of more than 10 pounds of this product to the environment in a 24 hour period requires notification to the National Response Center (800-424-8802 or 202-426-2675).

Refer to Section 2 for OSHA Hazardous Chemical(s) and Section 13 for RCRA classification.

16. OTHER INFORMATION

Reason for revision: Routine review; Exposure control recommendation for triallate updated. Supersedes MSDS dated 7/95.

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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