SAFETY DATA SHEET

DREXEL FOMASATE™ HERBICIDE

Section 1: Material Identification

Product Name: Drexel FomAsate™ Herbicide

EPA Reg No.: 19713-679

CAS NO: Glyphosate Acid - 1071-83-6
Fomesafen Sodium Salt - 108731-70-0

Formula: Glyphosate Acid - $C_3H_7KNO_5P$
Fomesafen Sodium Salt - $C_{15}H_9ClF_3N_2NaO_6S$

Company: Drexel Chemical Company
1700 Channel Avenue
Memphis, TN 38106

Identifiers:

EINECS: Glyphosate Acid - 213-997-4
Fomesafen Sodium Salt - 276-439-9

RTECS: Glyphosate Acid - MC1075000
Fomesafen Sodium Salt - TA5950000

DOT information: **See Section 14 for Transportation Information**

Emergency Telephone Number:

CHEMTREC	Drexel Chemical Co.
Tel: 1-800-424-9300	901-774-4370

This product is an EPA FIFRA registered pesticide. Some of the classifications on this SDS are not the same as the FIFRA label. Certain sections of this SDS are superseded by federal law governed by EPA for a registered pesticide. Please see **Section 15. REGULATORY INFORMATION** for explanation.

Section 2: Hazard Identification

(As defined by the OSHA Hazard Communication Standard, 29)

GHS classification:

Health hazard:	Eye damage/irritation	Category 2B
Environmental hazard:	Aquatic toxicity - acute	Category 3

GHS label elements:

Signal word: Warning

Hazard statements: Causes eye irritation.
Harmful to aquatic life.

Precautionary statements:

Prevention: Avoid breathing mist. Use only outdoors or in a well-ventilated area.
Wash thoroughly after handling.
Avoid release to the environment.

Response: **If in eyes:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. **If eye irritation persists:** Get medical advice/attention.
Collect spillage

Storage: Store in a cool, dry, well ventilated, and secure area designated specifically for pesticides and away from heat sources. Do not store in excessive heat. Do not store near children, food, foodstuffs, drugs or potable water supplies.
Keep in original containers and keep containers closed when not in use.

Disposal: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities.

Other hazardous statements: Flammable hydrogen gas may be formed on contact with incompatible Metals. See “Conditions to Avoid,” Section 10.

Section 3: Composition Information

Components	CAS No.:	% By Wt.:	OSHA PEL:	ACGIH TLV:
Active ingredients:				
Glyphosate acid	1071-83-6	22.40%	N/Av	N/Av
Fomesafen sodium salt	108731-70-0	5.88%	N/Av	N/Av
Inert ingredients:	N/A	71.72%	N/A	N/A

Section 4: First-Aid Measures

Have product label with you when calling a poison control center or doctor or going for treatment.

If in Eyes: Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center for treatment advice.

If Swallowed: Call a 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 a poison control center or doctor. Do not give anything to an unconscious person.

If on Skin or Clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.

If Inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

Section 5: Fire Fighting Measures

Fire Hazards: Closed containers may rupture if exposed to excess heat or flame due to a build-up of internal pressure. Thermal decomposition during a fire can produce fumes and irritating gases.

Flammability classification (OSHA 29 CFR 1910.1200): Combustible
Flash point: 173°F
Lower flammable limit (% by volume): N/Av
Upper flammable limit (% by volume): N/Av

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Evacuate the area and fight the fire from upwind at a safe distance to avoid hazardous vapors or decomposition products. Dike and collect fire-extinguishing water to prevent environmental damage and excessive waste runoff.

Firefighting media: Use foam, dry chemical, carbon dioxide, or water fog when fighting fires involving this product. Do not use water jet, as this may spread burning material. Minimize the use of water to avoid environmental contamination. Contain all runoff.

Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective firefighting clothing (includes firefighting helmet, coat, trousers, boots, and gloves). Use full face shield and operate in positive pressure mode. Avoid contact with this material during firefighting operations. If contact is likely, change to full chemical resistant firefighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

Hazardous Combustion Products: Carbon oxides, Phosphorus oxides, nitrogen oxides, and irritating fumes and smoke.

Hazardous Conditions: This product may form flammable and explosive hydrogen gas when in contact with galvanized or unlined steel.

NFPA:	Health:	Flammability:	Reactivity:
	1	1	0

(Rating: 4-Extreme, 3-High, 2-Moderate, 1-Slight, 0-Insignificant)

Section 6: Accidental Release Measures

Steps to be taken if Material is Released or Spilled:

- Contain spilled material if possible. Small spills: Absorb in earth, sand or absorbent material and sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Drexel Chemical Co. for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

Personal Precautions:

- Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to Section 7, Handling, for

additional precautionary measures. Spilled material may cause a slipping hazard. Ventilate area of leak or spill. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental Precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Section 7: Handling and Storage

KEEP OUT OF REACH OF CHILDREN

Handling: **General Handling:** Avoid contact with eyes, skin, and clothing. When using do not eat, drink, or smoke. Wash thoroughly after handling. Do not swallow. Avoid breathing vapor. Use with adequate ventilation. Wear chemical protective equipment when handling. Keep away from heat, sparks and flame. See Section 8, Exposure Controls and Personal Protection.

Storage: Store in a cool, dry, well ventilated, and secure area designated specifically for pesticides and away from heat sources. Keep in original containers and keep containers closed when not in use. Do not store in excessive heat. Do not store near children, food, foodstuffs, drugs or potable water supplies.

Section 8: Exposure Controls / Personal Protection

Exposure Limits: Glyphosate Acid 5 mg/m^3 TWA; Fomesafen Sodium Salt 2 mg/m^3 TWA (based on Fomesafen Technical)

Personal Protection:

Eye/Face Protection: Wear safety glasses with side shields or chemical splash goggles to prevent vapors or mists from entering the eyes. If using a full face shield, always use safety glasses or goggles along with the face shield to ensure adequate protection of the eyes.

Skin Protection: If repeated or prolonged contact wear chemical resistant gloves. Applicators and handlers must wear long sleeved shirt, long pants and shoes with socks. Safety shower should be located in immediate work area. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly. Items which cannot be decontaminated, such as shoes, belts and watchbands, should be removed and disposed of properly.

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Neoprene, Nitrile/butadiene rubber (“nitrile” or “NBR”) or Polyvinyl chloride (“PVC” or “vinyl”).

Respiratory Protection: Not normally required. Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. When handling in enclosed areas, when large quantities of mists are generated or prolonged exposure is possible in excess of the TWA, use a respirator with either an organic vapor-removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C) or a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G).

Ingestion: Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area; wash hands and face before smoking or eating.

Engineering Controls:

No special requirement when used as recommended

Section 9: Physical and Chemical Properties

Physical State:	Liquid
Color:	Flaxen-yellow
Odor:	Mild
Odor Threshold	N/Av
Flash Point:	173°F
Flammabilty:	Non-flammable
Upper/Lower Flammability or Explosive Limits:	N/Av
Vapor Pressure (mmHg):	N/Av
Vapor Density:	N/Av
% Volatiles:	N/Av
Boiling Point:	N/Av
Melting Point/Freezing Point:	20°F
Vapor Density (Air = 1):	N/Av
Density:	1.21 gms/cc (10.08 Lbs. / gal.)
Solubility in water:	Miscible
Partition Coefficient (n-octanol/water):	N/Av
pH:	7.5-9.0 (@ 21°C)
Viscosity:	45 cP (@ 21°C)
Evaporation Rate:	N/Av
Auto-ignition Temperature:	N/Av
Decomposition Temperature:	N/Av
Explosivity:	N/Av

Section 10: Stability and Reactivity

Stability/Instability: Thermally stable at typical use temperatures and in closed containers.

Conditions to Avoid: Avoid heat or open flame. Avoid high temperatures above 130°F (54.4°C).

Incompatible Materials: Reacts with galvanized steel or unlined mild steel to produce hydrogen, a highly flammable gas that could explode.

Hazardous Polymerization: Will not occur

Thermal Decomposition: Decomposition products can include and are not limited to: Carbon oxides, nitrogen oxides, and phosphorus oxides.

Section 11: Toxicological Information

Results from studies using a similar, but not identical, formulation containing the same active ingredient Glyphosate Potassium Salt and Fomesafen Technical.

Acute Toxicity:

Ingestion:

- Oral, LD50, (rat): >5,000 mg/kg

Dermal:

- Dermal, LD50, (rabbit): >5,000 mg/kg

Inhalation:

- LC50, (4h), Aerosol, (rat): Practically non-toxic

Eye Irritation (rabbit):

- Moderately irritating

Skin Irritation (rabbit):

- Moderately irritating

Sensitization Skin (Guinea Pig):

- Non-sensitizer

Reproductive/Developmental Effects:

- **Fomesafen Sodium Salt:** Non-genotoxic in in vitro and in vivo assays. Hepatic changes and a small effect on reproductive performance seen in a 3-generation rat study at the 1,000 ppm dose level. (based on Fomesafen Technical).
- **Glyphosate Acid:** No developmental effects seen in animal studies.

Chronic/Subchronic Toxicity Studies:

- **Fomesafen Sodium Salt:** Liver effects seen at 10 ppm and 100 ppm in 90-day rat feeding studies and in 6-month dog studies at 24 mg/kg/d. (based on Fomesafen Technical). No evidence of neurotoxicity from subacute or longer-term studies in mammals. (based on Fomesafen Technical).
- **Glyphosate Acid:** Rat subchronic 90-day study – NOEL of 5,000 ppm (410 – 440 mg/kg). Body weight reduction, clinical chemistry changes. No evidence of neurotoxic effects in acute and subchronic rat studies (NOEL both studies 2,000 mg/kg). No evidence of delayed neurotoxic effects in hens (NOEL 2,000 mg/kg).

Carcinogenicity:

- **Fomesafen Sodium Salt:** Increased rates of malignant liver tumors in a 2-yr mouse feeding study (1000 ppm), but the results are not considered relevant to man. (based on Fomesafen Technical). Not listed as carcinogenic by NTP, IARC and OSHA.
- **Glyphosate Acid:** Not carcinogenic in rats or mice. Listed as Category 2A by the International Agency for Research on Cancer (IARC) but expert opinion is that classification is not warranted. Not genotoxic in Ames, mouse lymphoma, human lymphocyte and mouse micronucleus tests. No mutagenic effects seen in animal studies. Not considered carcinogenic by NTP, IARC and OSHA.

Section 12: Ecological Information

For the active ingredients Glyphosate Acid and Fomesafen Technical:

Environmental Fate:

- **Glyphosate Acid:** Not persistent in soil. Immobile in soil. Sinks in water (after 24 hr).
- **Fomesafen Technical:** Persistent in soil. Stable in water. Highly mobile in soil. Will leach. Sinks in water (after 24 h).

Ecotoxicity:

- **Glyphosate Acid:**
  - Bluegill, 96 hour, LC50: 45 mg/L
  - Daphnia Magna, 48 hour, EC50: 134 mg/L

- Green Algae, 4-day, EC50: 12.54 mg/L
- Bobwhite Quail, 14-day, dietary, LD50: >2,000 mg/kg

- **Fomesafen Technical:**
  - Rainbow Trout, 96-hour, LC50: 680 mg/L
  - Daphnia Magna, 48-hour, EC50: 294 mg/L
  - Mallard Duck, 14-day, LD50: >5,000 mg/kg

Section 13: Disposal Considerations

If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

Section 14: Transport Information

DOT: Not regulated

IMDG: Not regulated

IATA: Not regulated

Freight description: Agricultural Herbicide, liquid, n.o.s.

ERG Guide No.: 171

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

Section 15: Regulatory Information

OSHA:

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

EPA:

- **EPA FIFRA INFORMATION: 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 chemical. The hazard information required on the pesticide label is listed out below. The pesticide label also includes other important information, including directions for use.**
- **EPA/CERCLA Reportable Quantity:** N/A

SARA/TITLE III:

- **Section 302. Extremely Hazardous Substance Notification:** This material is not known to contain any Extremely Hazardous Substances.
- **Section 311/312. Hazard Categories:** Immediate
- **Section 313. Toxic Chemical(s):** Fomesafen (CAS 72178-02-0) 5.88% (as sodium salt).
- **RCRA Waste Code:** Not applicable

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986):

- Glyphosate is listed.

Toxic Substances Control Act (TSCA):

- All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

Section 16: Other Information

Drexel Chemical Company recommends that each customer or recipient of this SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown below. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific SDSs, we are not and cannot be responsible for SDSs obtained from any source other than ourselves. If you have obtained an SDS from another source or if you are not sure that the SDS you have is current, please contact us for the most current version.

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