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DuPont
Material Safety Data Sheet

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"DuPont" "FINESSE" GRASS & BROADLEAF (MP) HERBICIDE
M0000593 Revised 5-MAY-2005

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

"FINESSE" is a registered trademark of DuPont.

"DuPont" is a trademark of DuPont.

Tradenames and Synonyms

FLUCARBAZONE SODIUM
CHLORSULFURON
"GLEAN"
"EVEREST" HERBICIDE

Tradenames and Synonyms (Remarks)

"GLEAN" is a registered trademark of DuPont.

"EVEREST" is a registered trademark of Arvesta Corporation.

Company Identification

MANUFACTURER/DISTRIBUTOR
DuPont
1007 Market Street
Wilmington, DE 19898

PHONE NUMBERS

Product Information : 1-800-441-7515 (outside the U.S.
302-774-1000)
Transport Emergency : CHEMTREC 1-800-424-9300(outside U.S.
703-527-3887)
Medical Emergency : 1-800-441-3637 (outside the U.S.
302-774-1000)

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
FLUCARBAZONE SODIUM (4,5-Dihydro-3-methoxy-4-methyl-5-oxo-N-(2-(trifluoromethoxy)phenyl)sulfonyl)-1H-1,2,4-triazole-1-carboxamide, sodium salt)	181274-17-9	46.7
*CHLORSULFURON (2-Chloro-N-[(4-methoxy-6-methyl-1,3,5-triazin-2-yl)aminocarbonyl]benzenesulfonamide	64902-72-3	25.0
INERT INGREDIENTS		28.3

(COMPOSITION/INFORMATION ON INGREDIENTS - Continued)

* Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

HAZARDS IDENTIFICATION

Emergency Overview

CAUTION! Causes moderate eye irritation. Harmful if absorbed through skin. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling.

Potential Health Effects

Based on component animal data, eye contact with DuPont "FINESSE" GRASS & BROADLEAF (MP) HERBICIDE may cause eye irritation with tearing, pain or blurred vision.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

FIRST AID MEASURES

First Aid

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF INHALED: No specific intervention is indicated as the compound is not likely to be hazardous by inhalation. Consult a physician if necessary.

IF INGESTED: No specific intervention is indicated as the compound is not likely to be hazardous by ingestion. Consult a physician if necessary.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-441-3637 for emergency medical treatment information.

FIRE FIGHTING MEASURES

Flammable Properties

Not a fire or explosion hazard.

Like most organic powders or crystals, under severe dusting conditions, this material may form explosive mixtures in air.

Extinguishing Media

Water Spray, Foam, Dry Chemical, CO2.

Fire Fighting Instructions

Evacuate personnel to a safe area. Wear self-contained breathing apparatus. Wear full protective equipment. Use water spray. Runoff from fire control may be a pollution hazard.

If area is exposed to fire and conditions permit, let fire burn itself out. Burning chemicals may produce by-products more toxic than the original material. If product is on fire, wear self-contained breathing apparatus and full protective equipment. Use water spray. Control runoff.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Emergency Response - Chemical resistant coveralls, waterproof gloves, waterproof boots and face/eye protection. If dusting occurs, use NIOSH approved respirator protection.

Initial Containment

Dike spill. Prevent material from entering sewers, waterways, or low areas.

Follow applicable Federal, State/Provincial and Local laws/regulations.

Spill Clean Up

Shovel or sweep up.

HANDLING AND STORAGE

Handling (Personnel)

Avoid breathing vapors or mist. Avoid breathing dust. Avoid contact with eyes, skin, or clothing. Wash thoroughly after handling. Wash clothing after use. Do not store or consume food, drink or tobacco in areas where they may become contaminated with this material.

USERS SHOULD: Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing 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.

Handling (Physical Aspects)

Keep away from heat, sparks and flames.

Storage

Store product in original container only in a cool, dry, well-ventilated place. Keep container tightly closed. Do not store or consume food, drink or tobacco in areas where they may become contaminated with this material. Do not contaminate water, other pesticides, fertilizer, food or feed in storage.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Use only with adequate ventilation.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

Personal Protective Equipment

Always follow the label instructions when handling this product.

Some of the materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for Category A on an EPA chemical-resistance category selection chart.

(EXPOSURE CONTROLS/PERSONAL PROTECTION - Continued)

Applicators and other handlers must wear:

Long-sleeved shirt and long pants.
Chemical-resistant gloves (Category A) made of materials such as butyl rubber, natural rubber, neoprene rubber, or nitrile rubber, all greater than or equal to 14 mils.
Shoes plus socks.

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.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

Coveralls.
Chemical-resistant gloves (Category A) made of materials such as butyl rubber, natural rubber, neoprene rubber, or nitrile rubber, all greater than or equal to 14 mils.
Shoes plus socks.

Exposure Guidelines

Applicable Exposure Limits

CHLORSULFURON	
PEL (OSHA)	: None Established
TLV (ACGIH)	: None Established
AEL * (DuPont)	: 10 mg/m ³ , 8 & 12 Hr. TWA

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

FLUCARBAZONE SODIUM

Solubility in Water	: 3.1% (w/w) for flucarbazone-sodium
pH	: N/A
Odor	: Slight musty odor
Form	: Free flowing granule
Color	: Tan
Specific Gravity	: N/A
Bulk Density	: 33-35 lb/cubic foot

CHLORSULFURON

Solubility in Water	: Dispersible
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(PHYSICAL AND CHEMICAL PROPERTIES - Continued)

pH : 4.5-5.5 @ 1% suspension
Odor : None
Form : Solid
Color : Tan
Specific Gravity : 0.69 @ 25°C (77°F)
Density : 0.65-0.75 g/mL

STABILITY AND REACTIVITY

Chemical Stability

Stable at normal temperatures and storage conditions.

Incompatibility with Other Materials

None reasonably foreseeable.

Decomposition

Decomposition will not occur.

Polymerization

Polymerization will not occur.

TOXICOLOGICAL INFORMATION

Animal Data

CHLORSULFURON COMPONENT:

Oral LD50: > 5000 mg/kg in rats
(Very low toxicity)
Skin Absorption LD50: > 2000 mg/kg in rabbits
(Slightly to moderately toxic)

The Chlorsulfuron component of this product is a mild reversible skin irritant, and a moderate eye irritant, but is not a skin sensitizer in animals.

Chlorsulfuron

Inhalation 4 hour LC50: > 5.5 mg/L in rats
(Very low toxicity by inhalation)

The effects in animals from repeated exposures by inhalation to Chlorsulfuron include decreased weight gain, reversible kidney and spleen effects, and bone marrow changes.

Toxicity described in animals from the administration of a single dose of Chlorsulfuron include lung changes, weakness and other nonspecific effects. Repeated dosing caused

(TOXICOLOGICAL INFORMATION - Continued)

decreased weight gain, and hematological and clinical chemical changes. Long-term dosing (500 ppm) resulted in decreased body weight gain, and slight hematological changes.

Animal testing indicates that Chlorsulfuron, the active ingredient, did not show carcinogenic effects. Developmental toxicity has been observed but only at maternally toxic dose levels.

Chlorsulfuron did not produce genetic damage in bacterial or mammalian cell cultures. It did not produce heritable genetic damage.

FLUCARBAZONE SODIUM COMPONENT

ACUTE (Product Specific Information)

Oral Toxicity: The oral LD50 of this product in male and female rats is > 5,000 mg/kg.

Dermal Toxicity: The dermal LD50 of this product in male and female rats is > 2,000 mg/kg.

Inhalation Toxicity: The 4 hour inhalation LC50 (dust) of this product in rats is > 5.113 mg/L.

Eye Irritation: This product is a moderate irritant to the cornea and iris (rabbit). Irritation cleared within 24 hours post-treatment.

Skin Irritation: This product is not a dermal irritant (rabbit).

Skin Sensitization: This product is not a dermal sensitizer (guinea pig).

The following information pertains to the active ingredient, flucarbazone-sodium technical.

Subchronic: In a subacute dermal study, rats were exposed to technical at 1,000 mg/kg for 6 hr/day for 22 applications. No systemic effects were observed in the treated animals. Subacute studies were conducted in rats and mice to investigate the immunotoxicological potential of technical. Rats were treated by oral gavage for 2 weeks at doses of 100, 300, 600, 1000 or 2500 mg/kg. Mice were administered dietary concentrations of 30, 100 or 1000 ppm for 2 weeks. No treatment-related adverse immunotoxic effects were determined at the end of the study in either species. The NOELs for overall toxicity were 300 mg/kg and 1000 ppm, for rats and mice, respectively.

(TOXICOLOGICAL INFORMATION - Continued)

In a 28-day subacute feeding study, technical was administered to rats at dietary concentrations of 100, 250, 2500 or 10000 ppm. The NOEL was 250 ppm based on immunotoxic effects (decreased splenic cell counts, increased macrophage activation and decreased IgA titers). In a Plaque-forming-cell assay conducted to investigate the immunotoxicological potential of technical, rats were administered dietary concentrations of 1000, 5000 or 20000 ppm for 4 weeks. A special function immunotoxicological test was performed at the end of exposure. There were no treatment-related findings observed at dietary levels up to and including 20000 ppm. The NOEL in the Plaque-forming-cell assay was 20000 ppm, the highest dose tested.

Subchronic (90 day) feeding studies were conducted on technical using mice, rats, and dogs at maximum doses of 7000, 20000, and 50000 ppm, respectively. No treatment-related findings were observed in mice at dietary levels up to and including the highest dose tested. In rats, effects observed included clinical signs of toxicity, changes in clinical chemistries, immunologic changes, reduced spleen weights and histopathological findings in the forestomach. The immunologic changes were completely or largely reversible with only minimal changes observed at the end of a 5-week recovery period. When dogs were administered technical, effects observed included changes in clinical chemistries, hematological changes, red discoloration of the gastric mucosa at necropsy, increased liver and adrenal weights, and histopathological findings (stomach, liver, kidney, adrenals). The overall NOELs established in these studies were 7000 ppm for mice, 250 ppm for rats, and 1000 ppm for dogs.

Chronic Toxicity: Dogs were administered flucarbazone-sodium at dietary concentrations of 200, 1000 or 5000 ppm for 1 year. Effects observed in the study included decreased body weights, increased levels of ALAT, ASAT, GLDH, and N-Demethylase, transient decreased levels of thyroxine (T4), and increased liver weights. The decrease in T4 levels was most likely related to an increased hepatic clearance and not a primary effect on the thyroid. This was based on the absence of effects on the other thyroid biomarkers, the slightly increased N-Demethylase levels, and the increased liver weights. The overall NOEL in the dog was 200 ppm. In a 2-year study, rats were administered flucarbazone-sodium via the diet. The mean daily intake per kg body weight was adjusted on a weekly basis to achieve a daily exposure of 2.5, 7.5, 125 or 1000 mg/kg. Effects observed at the end of the study included decreased body weights, increased food consumption, and an increased incidence of some gross- and histopathological-findings observed in the stomach. The NOEL in the rat was 125 mg/kg.

Carcinogenicity: Flucarbazone-sodium was investigated for

(TOXICOLOGICAL INFORMATION - Continued)

carcinogenicity in chronic feeding studies using rats and mice at maximum levels of 1000 mg/kg and 7000 ppm, respectively. There was no evidence of a carcinogenic potential observed in either species.

Mutagenicity: The results of in vitro and in vivo mutagenicity studies on flucarbazono-sodium are all negative.

Developmental Toxicity: In a developmental toxicity study in rats, flucarbazono-sodium was administered by oral gavage during gestation at doses of 100, 300 or 1000 mg/kg. Flucarbazono-sodium did not induce any maternal or developmental toxicity at doses up to and including 1000 mg/kg, the limit dose. The NOEL for maternal and developmental toxicity in the rat was 1000 mg/kg. In a developmental toxicity study in rabbits, technical was administered by oral gavage during gestation at doses of 100, 300, 500, or 1000 mg/kg. Developmental effects such as abortions, decreased fetal weights, and delayed skeletal ossification occurred in correlation with systemic maternal toxicity. The NOEL for both maternal and developmental toxicity in the rabbit was 100 mg/kg.

Reproduction: In a reproduction study, flucarbazono-sodium was administered to rats for 2 generations at dietary concentrations of 50, 4000 or 20000/12000 ppm. The high dose was reduced to 12000 ppm after five weeks due to a sharp increase in food intake that resulted in unphysiologically high feces excretion and water consumption accompanied by diarrhea. Other parental toxicity included decreased body weights, decreased organ weights (liver, uterus, spleen), and an increased incidence of caecal dilatations. Effects observed in the offspring included decreased pup weights, decreased liver weights and an increased incidence of a marbled liver surface and air-filled stomachs in pups necropsied at culling. The overall parental NOEL was 50 ppm. The NOEL for reproductive toxicity was 4000 ppm.

Neurotoxicity: In an acute neurotoxicity screening study using rats, flucarbazono-sodium was administered as a single oral dose at levels of 125, 500 or 2000 mg/kg. Transient clinical signs of toxicity and neurobehaviorial effects were observed at the high dose without correlating micro-pathological findings. The NOEL for microscopic lesions was 2000 mg/kg, the highest dose tested. The NOEL for overall toxicity was 500 mg/kg. In a 13-week neurotoxicity screening study, flucarbazono-sodium was administered to rats at dietary concentrations of 250, 2000 or 20000 ppm. Body weight and food consumption was reduced at the high-dose level. Functional observational battery (FOB) and automated measures of motor and locomotor activity were not affected by treatment. There were no treatment-related

(TOXICOLOGICAL INFORMATION - Continued)

microscopic lesions in neural tissues or skeletal muscle in any of the treated animals. There was no evidence of neurotoxicity at any dietary level. The NOEL for microscopic lesions was 20000 ppm, the highest dose tested. The NOEL for overall toxicity was 2000 ppm.

ECOLOGICAL INFORMATION

Ecotoxicological Information

CHLORSULFURON

AQUATIC TOXICITY:

96 hour LC50 - Sheepshead minnow: > 980 mg/L.
48 hour EC50 - Oysters: 385 mg/L.

AVIAN TOXICITY:

Acute Oral LD50 - Mallard Duck: > 5000 mg/kg.
Acute Oral LD50 - Bobwhite Quail: > 5000 mg/kg

FLUCARBAZONE-SODIUM TECHNICAL

AQUATIC ORGANISM TOXICITY: As with any pesticide, this product should be used according to label directions and should be kept out of streams, lakes and other aquatic habitats of concern.

Fish toxicity:

LC50 (96-hr) > 96.7 mg/L (Rainbow trout)
LC50 (96-hr) > 99.3 mg/L (Bluegill sunfish)

Invertebrate toxicity:

EC50 (48-hr) = 38.8 mg/L (Daphnia magna)
EC50 > 10,000 mg/L (bacteria)
IC50 (96-hr) = 6.4 mg/L (green algae)

AVIAN TOXICITY: Flucarbazone-sodium is not toxic to birds

Acute oral LD50 (Bobwhite quail): > 2000 mg/kg

Subchronic oral LC50: > 4646 mg/kg (Bobwhite quail)
> 4969 mg/kg (Mallard duck)

Reproductive toxicity NOEC: 1311 mg/kg (Bobwhite quail)
223 mg/kg (Mallard duck)

OTHER NON-TARGET ORGANISMS: Flucarbazone-sodium is not toxic to bees.

The acute LD50 is > 445µg/bee for oral and > 200 µg/bee for direct contact.

DISPOSAL CONSIDERATIONS

Waste Disposal

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/provincial, and local regulations.

ENVIRONMENTAL HAZARDS

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not apply when weather conditions favor drift from areas treated. Do not contaminate water by cleaning of equipment or disposing of equipment washwaters or wastes.

Do not allow sprays to drift onto adjacent desirable plants.

Container Disposal

Completely empty bag into application equipment. Then dispose of bag in a sanitary landfill, or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Pesticide Disposal

Do not contaminate water, food, or feed by disposal. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

TRANSPORTATION INFORMATION

Shipping Information

DOT/IMO
Proper Shipping Name : NOT REGULATED

REGULATORY INFORMATION

U.S. Federal Regulations

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute : Yes
Chronic : No
Fire : No
Reactivity : No
Pressure : No

(REGULATORY INFORMATION - Continued)

In the United States this product is regulated by the US Environmental Protection Agency under the Federal Insecticide, Fungicide and Rodenticide Act. It is a violation of federal law to use this product in a manner inconsistent with its labeling.

EPA Reg. No. 352-642

OTHER INFORMATION

NFPA, NPCA-HMIS

NFPA Rating
Health : 1
Flammability : 1
Reactivity : 0

NPCA-HMIS Rating
Health : 1
Flammability : 1
Reactivity : 0

Personal Protection rating to be supplied by user depending on use conditions.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS: DuPont Crop Protection
Address : Wilmington, DE 19898
Telephone : 1-888-638-7668

Indicates updated section.

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.

End of MSDS