

13.1 APPENDIX A

MATERIAL SAFETY DATA SHEETS FOR HERBICIDES CONSIDERED IN THE  
ANALYSIS

**MATERIAL SAFETY DATA SHEET**

Agricultural Products Group  
 P.O.Box 13528,  
 Research Triangle Park, NC 27709  
 (919) 547-2000

**EMERGENCY TELEPHONE NUMBERS:**

BASF Corporation: 1 (800) 832-HELP

CHEMTREC: 1 (800) 424-9300

Product No.: 579605

Arsenal® herbicide

Date Prepared: 6/13/2000 Date Revised: 1/21/2004

SECTION I			
Trade Name: Arsenal® herbicide			
Chemical Name: 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid, salt with 2-propanamine (1:1)			
Synonyms: Isopropylamine of imazapyr; AC252, 925; Arsenal NS Herbicide		Formula: C(13)H(15)N(3)O(3).C(3)H(9)N	
Chemical Family: Imidazolinone		Mol Wt: 320.4	
SECTION II - INGREDIENTS			
COMPONENT	CAS NO.	%	PEL/TLV - SOURCE
Isopropylamine salt of Imazapyr	81510-83-0	28.7	0.5 mg/m3 TWA BASF recommended
Inerts	N/A	71.3	None established
SARA Title III Section 313: Not listed			
SECTION III - PHYSICAL DATA			
BOILING/MELTING POINT@760mm Hg: N/D		pH: 6.6 - 7.2	
VAPOR PRESSURE mmHg @ 20°C: N/D			
SPECIFIC GRAVITY OR BULK DENSITY: 1.04 - 1.07 g/mL			
SOLUBILITY IN WATER: Soluble			
APPEARANCE: Clear blue liquid		ODOR: Ammonia	INTENSITY: Slight
SECTION IV - FIRE AND EXPLOSION DATA			
FLASH POINT (TEST METHOD): >210°F SFCC		AUTOIGNITION TEMP: > 200° F	
FLAMMABILITY LIMITS IN AIR (% BY VOL):		LOWER: N/D	UPPER: N/D
NFPA 704 HAZARD CODES			
HEALTH: 1	FLAMMABLE: 1	INSTABILITY: 0	OTHER: N/R
NFPA 30 STORAGE CLASSIFICATION: Class IIIB			
EXTINGUISHING MEDIUM	Use water fog, foam, CO(2), or dry chemical extinguishing media.		
SPECIAL FIREFIGHTING PROCEDURES	Firefighters should be equipped with self-contained breathing apparatus and turnout gear.		
UNUSUAL FIRE EXPLOSION HAZARDS	None known.		
SELECT ACRONYM KEY			
N/A - Not available; N/D - Not determined; N/R - Not rated; N/E - Not established			

**SECTION V - HEALTH DATA****TOXICOLOGICAL TEST DATA:**

Data for formulated product:

- Rat, Oral LD50 (combined sexes) > 5000 mg/kg
- Rabbit, Dermal LD50 (combined sexes) > 2000 mg/kg
- Rat, Inhalation LC50 (4 hr) > 4.62 mg/L
- Rat, Inhalation LC50 (1 hr calculated) > 18.48 mg/L
- Rabbit, Eye Irritation - Not Irritating
- Rabbit, Skin Irritation - Mildly irritating
- Guinea pig, Dermal Sensitizer - Not Sensitizer

OSHA, NTP, or IARC Carcinogen: Not listed.

**EFFECTS OF OVEREXPOSURE:**

See Product Label and Directions For Use for additional precautionary statements.

**CAUTION**

Avoid contact with skin, eyes, and clothing. Avoid breathing spray mist.

Existing medical conditions aggravated by this product:

None known.

**FIRST AID PROCEDURES**

- If on skin:** Wash with plenty of soap and water. Get medical attention if irritation persists.
- If in eyes:** Flush eyes with plenty of water. Call a physician if irritation persists.
- If inhaled:** Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.
- If swallowed:** Call a physician or Poison Control Center. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. If person is unconscious, do not give anything by mouth and do not induce vomiting.
- Note to physician:** Treat symptomatically. No specific antidote.
- Note:** Have the product container or label with you when calling a poison control center or doctor or going for treatment.

**SECTION VI - REACTIVITY DATA****STABILITY:** Stable. Do not store below 32° F or above 100° F.**CONDITIONS TO AVOID:** Store in original container in cool, dry, well ventilated place away from ignition sources, heat or flame.**CHEMICAL INCOMPATIBILITY:** Oxidizing agents and reducing agents.**HAZARDOUS DECOMPOSITION PRODUCTS:** Including but not limited to oxides of carbon and nitrogen.**HAZARDOUS POLYMERIZATION:** Does not occur.**CONDITIONS TO AVOID:** Does not polymerize.**CORROSIVE TO METAL:** Mild steel, brass**OXIDIZER:** No

**SECTION VII - PERSONAL PROTECTION**

Users of a pesticidal end use product should refer to the product label for personal protective equipment requirements.

**RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:****Respiratory Protection:**

Supplied air respirators should be worn if large quantities of mist/dust are generated or prolonged exposure possible.

**Eye Protection:**

Chemical goggles when respirator does not provide eye protection.

**Protective Clothing:**

Gloves and protective clothing as necessary to prevent skin contact.

**Ventilation:**

Whenever possible, engineering controls should be used to minimize the need for personal protective equipment.

**SECTION VIII - ENVIRONMENTAL DATA****ENVIRONMENTAL TOXICITY DATA**

See the product label for information regarding environmental toxicity.

**SARA 311/312 REPORTING**

FIRE:N      PRESSURE:N      REACTIVITY:N      ACUTE:Y      CHRONIC:N      TPQ(lbs): N/R

**SPILL AND LEAK PROCEDURES:**

In case of large scale spillage of this product, avoid contact, isolate area and keep out animals and unprotected persons. Call CHEMTREC (800 424-9300) or BASF Corporation (800 832-HELP). For a small spill, wear personal protective equipment as specified on the label.

FOR A LIQUID SPILL: Dike and contain the spill with inert material (sand, earth, etc.) and transfer the liquid and solid diking materials to separate containers for disposal.

FOR A SOLID SPILL: Sweep solid into a drum for re-use or disposal. Remove personal protective equipment and decontaminate it prior to re-use.

HAZARDOUS SUBSTANCE SUPERFUND:      No      RQ(lbs): None

**WASTE DISPOSAL METHOD:**

Pesticide wastes are acutely hazardous. Wastes resulting from this product may be disposed of on site or at an approved waste disposal facility. Improper disposal of excess pesticide, spray mix or rinsate is a violation of federal law. If these wastes cannot be disposed of according to label instructions, contact the state agency responsible for pesticide regulation or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

HAZARDOUS WASTE 40CFR261: No      HAZARDOUS WASTE NUMBER:None

**CONTAINER DISPOSAL:**

FOR PLASTIC CONTAINERS: Triple rinse (or equivalent) and add rinsate to the spray tank. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

FOR BULK CONTAINERS: Reusable containers should be returned to the point of purchase for cleaning and re-filling.

FOR MINIBULK CONTAINERS: Clean all tanks on an approved loading pad so rinsate can be collected and mixed into the spray solution or into a dedicated tank. Using a high pressure sprayer, rinse several times with small volumes of water to minimize rinsate.

**SECTION IX - SHIPPING DATA - PACKAGE AND BULK**

D.O.T. PROPER SHIPPING NAME (49CFR172.101-102): None	HAZARDOUS SUBSTANCE (49CFR CERCLA LIST): None RQ(lbs): None
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D.O.T. HAZARD CLASSIFICATION (CFR 172.101-102): PRIMARY None	SECONDARY None
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D.O.T. LABELS REQUIRED (49CFR172.101-102): None	D.O.T. PLACARDS REQUIRED (CFR172.504): None	POISON CONSTITUENT (49CFR172.203(K)): None
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**BILL OF LADING DESCRIPTION**  
 Compounds, tree or weed killing, NOIBN  
 This product is not regulated by the Department of Transportation (DOT). It does not meet the definition of DOT corrosive (49 CFR 173.136).

CC NO.: Not applicable | UN/NA CODE:

**SECTION X - ADDITIONAL INFORMATION**

Arsenal® herbicide

EPA Reg. No. 241-346

KEEP OUT OF REACH OF CHILDREN

**CAUTION**

**BASF Corporation**

Agricultural Products Group  
 P.O.Box 13528,  
 Research Triangle Park, NC 27709  
 (919) 547-2000

**DISCLAIMER**

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## Safety data sheet

### HABITAT

Revision date : 2006/01/31  
Version: 1.0

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#### 1. Substance/preparation and company identification

Company  
BASF CORPORATION  
100 Campus Drive  
Florham Park, NJ 07932

24 Hour Emergency Response Information  
CHEMTREC: (800) 424-9300  
BASF HOTLINE: (800) 832-HELP

Substance number: 000000063383  
Molecular formula: C(13) H(15) N(3) O(3). C(3) H(9) N  
Molecular weight: 320.4 g/mol  
Chemical family: imidazole derivative  
Synonyms: Isopropylamine salt of imazapyr (active ingredient)

#### 2. Composition/information on ingredients

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Chemical name</u>
81510-83-0	71.3 % 28.7 %	Proprietary ingredients Isopropylamine salt of imazapyr

#### 3. Hazard identification

##### Emergency overview

CAUTION: KEEP OUT OF REACH OF CHILDREN.  
Avoid contact with the skin, eyes and clothing.  
Avoid inhalation of mists/vapours.

##### Potential health effects

See Product Label for additional precautionary statements.

##### Primary routes of exposure

Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

##### Acute toxicity:

Relatively nontoxic after single ingestion. Slightly toxic after short-term skin contact. Relatively nontoxic after short-term inhalation.

##### Irritation:

May cause slight but temporary irritation to the eyes. May cause slight irritation to the skin.

##### Sensitization:

Skin sensitizing effects were not observed in animal studies.

##### Repeated dose toxicity:

No other known chronic effects.

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#### Potential environmental effects

##### **Aquatic toxicity:**

There is a high probability that the product is not acutely harmful to fish.  
There is a high probability that the product is not acutely harmful to aquatic invertebrates.  
Acutely harmful for aquatic plants.

##### **Terrestrial toxicity:**

With high probability not acutely harmful to terrestrial organisms.

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#### 4. First-aid measures

##### **General advice:**

First aid providers should wear personal protective equipment to prevent exposure. Remove contaminated clothing. Move person to fresh air. If person is not breathing, call 911 or ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or physician for treatment advice. Have the product container or label with you when calling a poison control center or doctor or going for treatment.

##### **If inhaled:**

Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary.

##### **If on skin:**

Rinse skin immediately with plenty of water for 15 - 20 minutes.

##### **If in eyes:**

Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing.

##### **If swallowed:**

Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to by a poison control center or doctor. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions.

##### **Note to physician**

Antidote:	No known specific antidote.
Treatment:	Treat symptomatically.

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#### 5. Fire-fighting measures

Flash point:	> 210 °F
Self-ignition temperature:	93 °C

##### **Suitable extinguishing media:**

foam, dry extinguishing media, carbon dioxide, water spray

##### **Hazards during fire-fighting:**

carbon monoxide, carbon dioxide, Nitrogen oxide,  
If product is heated above decomposition temperature, toxic vapours will be released. The substances/groups of substances mentioned can be released if the product is involved in a fire.

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**Protective equipment for fire-fighting:**

Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

**Further information:**

Evacuate area of all unnecessary personnel. Contain contaminated water/firefighting water. Do not allow to enter drains or waterways.

**NFPA Hazard codes:**

Health : 1      Fire: 1      Reactivity: 0      Special:

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## 6. Accidental release measures

**Personal precautions:**

Take appropriate protective measures. Clear area. Shut off source of leak only under safe conditions. Extinguish sources of ignition nearby and downwind. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment.

**Environmental precautions:**

Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater. Contain contaminated water/firefighting water.

**Cleanup:**

Dike spillage. Pick up with suitable absorbent material. Place into suitable containers for reuse or disposal in a licensed facility. Spilled substance/product should be recovered and applied according to label rates whenever possible. If application of spilled substance/product is not possible, then spills should be contained, solidified, and placed in suitable containers for disposal. After decontamination, spill area can be washed with water. Collect wash water for approved disposal.

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## 7. Handling and storage

**Handling****General advice:**

RECOMMENDATIONS ARE FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS. PESTICIDE APPLICATORS & WORKERS must refer to the Product Label and Directions for Use attached to the product for Agricultural Use Requirements in accordance with the EPA Worker Protection Standard 40 CFR part 170. Ensure adequate ventilation. Provide good ventilation of working area (local exhaust ventilation if necessary). Keep away from sources of ignition - No smoking. Keep container tightly sealed. Protect contents from the effects of light. Protect against heat. Protect from air. Handle and open container with care. Do not open until ready to use. Once container is opened, content should be used up as soon as possible. Avoid aerosol formation. Avoid dust formation. Provide means for controlling leaks and spills. Do not return residues to the storage containers. Follow label warnings even after container is emptied. The substance/ product may be handled only by appropriately trained personnel. Avoid all direct contact with the substance/product. Avoid contact with the skin, eyes and clothing. Avoid inhalation of dusts/mists/vapours. Wear suitable personal protective clothing and equipment.

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#### **Protection against fire and explosion:**

The relevant fire protection measures should be noted. Fire extinguishers should be kept handy. Avoid all sources of ignition: heat, sparks, open flame. Sources of ignition should be kept well clear. Avoid extreme heat. Keep away from oxidizable substances. Electrical equipment should conform to national electric code. Ground all transfer equipment properly to prevent electrostatic discharge. Electrostatic discharge may cause ignition.

#### **Storage**

##### **General advice:**

Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Protect containers from physical damage. Protect against contamination. The authority permits and storage regulations must be observed.

##### **Storage incompatibility:**

General: Segregate from incompatible substances. Segregate from foods and animal feeds. Segregate from textiles and similar materials.

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## 8. Exposure controls and personal protection

Users of a pesticidal product should refer to the product label for personal protective equipment requirements.

#### **Advice on system design:**

Whenever possible, engineering controls should be used to minimize the need for personal protective equipment.

#### **Personal protective equipment**

##### **RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:**

##### **Respiratory protection:**

Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) TC23C Chemical/Mechanical type filter system to remove a combination of particles, gas and vapours. For situations where the airborne concentrations may exceed the level for which an air purifying respirator is effective, or where the levels are unknown or Immediately Dangerous to Life or Health (IDLH), use NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

##### **Hand protection:**

Chemical resistant protective gloves, Protective glove selection must be based on the user's assessment of the workplace hazards.

##### **Eye protection:**

Safety glasses with side-shields. Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

##### **Body protection:**

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

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**General safety and hygiene measures:**

Wear long sleeved work shirt and long work pants in addition to other stated personal protective equipment. Work place should be equipped with a shower and an eye wash. Handle in accordance with good industrial hygiene and safety practice. Personal protective equipment should be decontaminated prior to reuse. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Take off immediately all contaminated clothing. Store work clothing separately. Hands and/or face should be washed before breaks and at the end of the shift. No eating, drinking, smoking or tobacco use at the place of work. Keep away from food, drink and animal feeding stuffs.

## 9. Physical and chemical properties

Form:	liquid	
Odour:	ammonia-like, faint odour	
Colour:	blue, clear	
pH value:	6.6 - 7.2	
Density:	1.04 - 1.09 g/ml	
Relative density:	1.04 - 1.09	
Solubility in water:		miscible

## 10. Stability and reactivity

**Conditions to avoid:**

Avoid all sources of ignition: heat, sparks, open flame. Avoid extreme temperatures. Avoid prolonged exposure to extreme heat. Avoid contamination. Avoid electro-static discharge. Avoid prolonged storage.

**Substances to avoid:**

oxidizing agent, reducing agents

**Hazardous reactions:**

The product is chemically stable.

**Decomposition products:**

Hazardous decomposition products: nitrogen oxides  
carbon monoxide, carbon dioxide

**Thermal decomposition:**

Possible thermal decomposition products:

carbon monoxide, carbon dioxide, Nitrogen oxide

Stable at ambient temperature. If product is heated above decomposition temperature toxic vapours may be released. If product is heated above decomposition temperature hazardous fumes may be released.

**Corrosion to metals:**

Corrosive effect on: mild steel brass

## 11. Toxicological information

**Acute toxicity****Oral:**

LD50/rat/male/female: > 5,000 mg/kg

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**Inhalation:**

LC50/rat: > 4,62 mg/l / 4 h

**Dermal:**

LD50/rabbit/male/female: > 2,000 mg/kg

**Skin irritation:**

rabbit: Mildly irritating. (Primary skin irritation test)

**Eye irritation :**

rabbit: Nonirritating.

**Sensitization:**

Skin sensitization test/guinea pig: Skin sensitizing effects were not observed in animal studies.

**Genetic toxicity:**

*Information on: imazapyr*

*No mutagenic effect was found in various tests with microorganisms and mammals.*

**Carcinogenicity:**

*Information on: imazapyr*

*In long-term studies in rats and mice in which the substance was given by feed, a carcinogenic effect was not observed.*

**Reproductive toxicity:**

*Information on: imazapyr*

*The results of animal studies gave no indication of a fertility impairing effect.*

**Developmental toxicity/teratogenicity:**

*Information on: imazapyr*

*No indications of a developmental toxic / teratogenic effect were seen in animal studies.*

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## 12. Ecological information

*Information on: imazapyr*

*Acute and prolonged toxicity to fish:*

*Rainbow trout/LC50 (96 h): > 100 mg/l*

*Information on: imazapyr*

*Acute toxicity to aquatic invertebrates:*

*Daphnia magna/EC50 (48 h): > 100 mg/l*

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*Information on: imazapyr*  
*Toxicity to aquatic plants:*  
*green algae/EC50: 71 mg/l*

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*Information on: imazapyr*  
*Other terrestrial non-mammals:*  
*mallard duck/LC50: > 5,000 ppm*  
*With high probability not acutely harmful to terrestrial organisms.*  
*Honey bee/LD50: > 100 ug/bee*  
*With high probability not acutely harmful to terrestrial organisms.*

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### 13. Disposal considerations

**Waste disposal of substance:**

Pesticide wastes are regulated.  
Improper disposal of excess pesticide, spray mix or rinsate is a violation of federal law.  
If pesticide wastes cannot be disposed of according to label instructions, contact the State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**Container disposal:**

Rinse thoroughly at least three times (triple rinse) in accordance with EPA recommendations. Consult state or local disposal authorities for approved alternative procedures such as container recycling. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

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### 14. Transport information

Reference Bill of Lading

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### 15. Regulatory information

Federal Regulations

Registration status:  
TSCA, US released / exempt

OSHA hazard category: Chronic target organ effects reported, ACGIH TLV established

SARA hazard categories (EPCRA 311/312): Acute

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### 16. Other information

Refer to product label for EPA registration number.



The Chemical Company

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Recommended use: crop protection product

### Local contact information

Product Stewardship  
919 547-2000

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END OF DATA SHEET

## MATERIAL SAFETY DATA SHEET

Agricultural Products Group  
P.O.Box 13528,  
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(919) 547-2000

## EMERGENCY TELEPHONE NUMBERS:

BASF Corporation: 1 (800) 832-HELP

CHEMTREC: 1 (800) 424-9300

Product No.: 579674

Stalker® herbicide

Date Prepared: 7/27/2000 Date Revised: 6/7/2002

SECTION I			
Trade Name: Stalker® herbicide			
Chemical Name: 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid, salt with 2-propanamine (1:1)			
Synonyms: Isopropylamine of imazapyr; AC252, 925		Formula: C(13)H(15)N(3)O(3).C(3)H(9)N	
Chemical Family: Imidazolinone		Mol Wt: 320.4	
SECTION II - INGREDIENTS			
COMPONENT	CAS NO.	%	PEL/TLV - SOURCE
Isopropylamine salt of Imazapyr	81510-83-0	27.6	TWA 0.5 mg/m <sup>3</sup> - BASF recommended
Inerts	N/A	72.4	None established
SARA Title III Section 313: Not Listed			
SECTION III - PHYSICAL DATA			
BOILING/MELTING POINT@760mm Hg:	N/D	pH: 6 - 7.5	
VAPOR PRESSURE mmHg @ 20°C:	N/D		
SPECIFIC GRAVITY OR BULK DENSITY:	1.05 - 1.07 g/mL		
SOLUBILITY IN WATER:	Soluble		
APPEARANCE:	Pale yellow to dark green liquid	ODOR: Ammonia	INTENSITY: Slight
SECTION IV - FIRE AND EXPLOSION DATA			
FLASH POINT (TEST METHOD):	>200°F SFCC	AUTOIGNITION TEMP: N/D	
FLAMMABILITY LIMITS IN AIR (% BY VOL):	LOWER: N/D	UPPER: N/D	
NFPA 704 HAZARD CODES			
HEALTH: 2	FLAMMABLE: 1	INSTABILITY: N/R	OTHER: N/R
NFPA 30 STORAGE CLASSIFICATION: Class IIIB			
EXTINGUISHING MEDIUM	Use water fog, foam, CO(2), or dry chemical extinguishing media.		
SPECIAL FIREFIGHTING PROCEDURES	Firefighters should be equipped with self-contained breathing apparatus and turnout gear.		
UNUSUAL FIRE EXPLOSION HAZARDS	None known.		
SELECT ACRONYM KEY			
N/A - Not available; N/D - Not determined; N/R - Not rated; N/E - Not established			

## SECTION V - HEALTH DATA

## TOXICOLOGICAL TEST DATA:

Data for formulated product:

Rat, Oral LD50 (combined sexes) &gt; 5000 mg/kg

Rabbit, Dermal LD50 (combined sexes) &gt; 2000 mg/kg

Rat, Inhalation LC50 (4 hr) - No Mortality &gt; 1.58 mg/L

Rat, Inhalation LC50 (1 hr calculated) - No Mortality &gt; 6.32 mg/L

Rabbit, Eye Irritation - Irritating (complete recovery by day 3 post dosing)

Rabbit, Skin Irritation - Irritating

Guinea pig, Dermal Sensitizer - Mild

Note: Inhalation data for mists were not used to classify this material for transportation because it is reasonably foreseeable that such concentrations (mists) would not be encountered by a human during transport [49CFR 173.132 (b) (3)].

OSHA, NTP, or IARC Carcinogen: Not listed.

## EFFECTS OF OVEREXPOSURE:

See Product Label and Directions For Use for additional precautionary statements.

CAUTION!

Harmful if inhaled or absorbed through skin. Avoid breathing spray mist. Avoid contact with skin, eyes or clothing.

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

Existing medical conditions aggravated by this product:

None known.

## FIRST AID PROCEDURES

<b>If on skin:</b>	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.
<b>If in eyes:</b>	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing. Call a poison control center or doctor for treatment advice.
<b>If inhaled:</b>	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.
<b>If swallowed:</b>	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 by a poison control center or doctor. Do not give anything to an unconscious person.
<b>Note to physician:</b>	Treat symptomatically. No specific antidote.
<b>Note:</b>	Have the product container or label with you when calling a poison control center or doctor or going for treatment.

## SECTION VI - REACTIVITY DATA

STABILITY: Stable. Do not store below 10° F.

CONDITIONS TO AVOID: Store in original container in cool, dry, well ventilated place away from ignition sources, heat or flame.

CHEMICAL INCOMPATIBILITY: Oxidizing agents and reducing agents.

HAZARDOUS DECOMPOSITION PRODUCTS: Including but not limited to oxides of carbon and nitrogen.

HAZARDOUS POLYMERIZATION: Does not occur.

CONDITIONS TO AVOID: Does not polymerize.

CORROSIVE TO METAL: Mild steel, brass

OXIDIZER: No

**SECTION VII - PERSONAL PROTECTION**

**PESTICIDE APPLICATORS & WORKERS** must refer to the Product Label and Directions For Use attached to the product for Agricultural Use Requirements in accordance with the EPA Worker Protection Standard 40 CFR part 170.

**RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:****Respiratory Protection:**

Supplied air respirators should be worn if large quantities of mist/dust are generated or prolonged exposure possible.

**Eye Protection:**

Chemical goggles when respirator does not provide eye protection.

**Protective Clothing:**

Gloves and protective clothing as necessary to prevent skin contact.

**Ventilation:**

Whenever possible, engineering controls should be used to minimize the need for personal protective equipment.

**SECTION VIII - ENVIRONMENTAL DATA****ENVIRONMENTAL TOXICITY DATA**

See the product label for information regarding environmental toxicity.

**SARA 311/312 REPORTING**

**FIRE: N      PRESSURE: N      REACTIVITY: N      ACUTE: Y      CHRONIC: N      TPQ(lbs): N/R**

**SPILL AND LEAK PROCEDURES:**

In case of large scale spillage of this product, avoid contact, isolate area and keep out animals and unprotected persons. Call CHEMTREC (800 424-9300) or BASF Corporation (800 832-HELP). For a small spill, wear personal protective equipment as specified on the label.

**FOR A LIQUID SPILL:** Dike and contain the spill with inert material (sand, earth, etc.) and transfer the liquid and solid diking materials to separate containers for disposal.

**FOR A SOLID SPILL:** Sweep solid into a drum for re-use or disposal. Remove personal protective equipment and decontaminate it prior to re-use.

**HAZARDOUS SUBSTANCE SUPERFUND:      No      RQ(lbs): None**

**WASTE DISPOSAL METHOD:**

Pesticide wastes are acutely hazardous. Wastes resulting from this product may be disposed of on site or at an approved waste disposal facility. Improper disposal of excess pesticide, spray mix or rinsate is a violation of federal law. If these wastes cannot be disposed of according to label instructions, contact the state agency responsible for pesticide regulation or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**HAZARDOUS WASTE 40CFR261:      No      HAZARDOUS WASTE NUMBER: None**

**CONTAINER DISPOSAL:**

**FOR PLASTIC CONTAINERS:** Triple rinse (or equivalent) and add rinsate to the spray tank. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

**FOR BULK CONTAINERS:** Reusable containers should be returned to the point of purchase for cleaning and re-filling.

**FOR MINIBULK CONTAINERS:** Clean all tanks on an approved loading pad so rinsate can be collected and mixed into the spray solution or into a dedicated tank. Using a high pressure sprayer, rinse several times with small volumes of water to minimize rinsate.

**SECTION IX - SHIPPING DATA - PACKAGE AND BULK**

D.O.T. PROPER SHIPPING NAME (49CFR172.101-102):

None

HAZARDOUS SUBSTANCE

(49CFR CERCLA LIST):

None

RQ(lbs): None

D.O.T. HAZARD CLASSIFICATION (CFR 172.101-102):

PRIMARY

SECONDARY

None

D.O.T. LABELS REQUIRED (49CFR172.101-102):

None

D.O.T. PLACARDS  
REQUIRED (CFR172.504):

None

POISON CONSTITUENT  
(49CFR172.203(K)):

None

**BILL OF LADING DESCRIPTION**

Compounds, tree or weed killing (herbicides), NOIBN

This product is not regulated by the Department of Transportation.

CC NO.: Not applicable

UN/NA CODE: None

**SECTION X - ADDITIONAL INFORMATION**

Stalker® herbicide

EPA Reg. No. 241-398

KEEP OUT OF REACH OF CHILDREN

**CAUTION**

Complete Label and Directions For Use are attached to the product.

**Agricultural Use Requirements**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to supplemental labeling under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

**BASF Corporation**

Agricultural Products Group

P.O.Box 13528,

Research Triangle Park, NC 27709

(919) 547-2000

**DISCLAIMER**

**IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE, IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA, AND INFORMATION FURNISHED BY BASF HEREUNDER ARE GIVEN GRATIS AND BASF ASSUMES NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.**

# MATERIAL SAFETY DATA SHEET



Emergency Phone: 800-992-5994  
Dow AgroSciences LLC  
Indianapolis, IN 46268

## ACCORD\* HERBICIDE

Effective Date: 4/9/02  
Product Code: 84826  
MSDS: 007373

### 1. PRODUCT AND COMPANY IDENTIFICATION:

**PRODUCT:** Accord\* Herbicide

#### COMPANY IDENTIFICATION:

Dow AgroSciences  
9330 Zionsville Road  
Indianapolis, IN 46268-1189

### 2. COMPOSITION/INFORMATION ON INGREDIENTS:

Glyphosate: N-(phosphono- methyl)glycine, Isopropylamine Salt	CAS # 038641-94-0	41.5%
Inert Ingredients, Total		59.5%

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

### 3. HAZARDOUS IDENTIFICATIONS:

#### EMERGENCY OVERVIEW

Hazardous Chemical. Clear amber liquid. May cause eye irritation. LD<sub>50</sub> for skin absorption in rabbits is >5000 mg/kg. Oral LD<sub>50</sub> for rats is >5000 mg/kg. Aerosol LC<sub>50</sub> for rats is >5.00 mg/L for 4 hrs.

**EMERGENCY PHONE NUMBER:** 800-992-5994

**POTENTIAL HEALTH EFFECTS:** This section includes possible adverse effects, which could occur if this material is not handled in the recommended manner.

**EYE:** May cause slight eye irritation. Corneal injury is unlikely.

**SKIN:** Essentially non-irritating to the skin. Prolonged skin contact is unlikely to result in absorption of harmful amounts. The LD<sub>50</sub> for skin absorption in rabbits is >5000 mg/kg. Did not cause allergic skin reactions when tested in guinea pigs.

**INGESTION:** Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts. The oral LD<sub>50</sub> for rats is >5000 mg/kg.

**INHALATION:** Brief exposure (minutes) is not likely to cause adverse effects. The aerosol LC<sub>50</sub> for rats is >5.00 mg/L for 4 hours.

**SYSTEMIC (OTHER TARGET ORGAN) EFFECTS:** For the active ingredient, in animals, effects have been reported on the following organ: liver.

**CANCER INFORMATION:** The active ingredient did not cause cancer in laboratory animals.

**TERATOLOGY (BIRTH DEFECTS):** For the active ingredient, birth defects are unlikely. Exposures having no effect on the mother should have no effect on the fetus. Did not cause birth defects in animals; other effects were seen in the fetus only at doses which caused toxic effects to the mother.

**REPRODUCTIVE EFFECTS:** For the active ingredient, in laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

### 4. FIRST AID:

**EYE:** Flush eyes thoroughly with water for several minutes. Remove contact lenses after initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

**SKIN:** Wash skin with plenty of water.

**INGESTION:** No emergency medical treatment necessary.

**INHALATION:** Move person to fresh air; if effects occur, consult a physician.

**NOTE TO PHYSICIAN:** No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

### 5. FIRE FIGHTING MEASURES:

**FLASH POINT:** >235°F (>112°C)

**METHOD USED:** Setaflash

#### FLAMMABLE LIMITS:

LFL: Not applicable

UFL: Not applicable

**EXTINGUISHING MEDIA:** Foam, CO<sub>2</sub>, or Dry Chemical

**FIRE AND EXPLOSION HAZARDS:** Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Toxic irritating gases may be formed under fire conditions.

# MATERIAL SAFETY DATA SHEET



Emergency Phone: 800-992-5994  
Dow AgroSciences LLC  
Indianapolis, IN 46268

## ACCORD\* HERBICIDE

Effective Date: 4/9/02  
Product Code: 84826  
MSDS: 007373

**FIRE-FIGHTING EQUIPMENT:** Use positive-pressure, self-contained breathing apparatus and full protective equipment.

### 6. ACCIDENTAL RELEASE MEASURES:

**ACTION TO TAKE FOR SPILLS:** Absorb small spills with an inert absorbent material such as Hazorb, Zorball, sand, or dirt. Report large spills to Dow AgroSciences on 800-992-5994.

### 7. HANDLING AND STORAGE:

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:** Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapors and spray mist. Handle concentrate in ventilated area. Wash thoroughly with soap and water after handling and before eating, chewing gum, using tobacco, using the toilet or smoking. Keep away from food, feedstuffs, and water supplies. Store in original container with the lid tightly closed.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

These precautions are suggested for conditions where the potential for exposure exists. Emergency conditions may require additional precautions.

**EXPOSURE GUIDELINES:** None established

**ENGINEERING CONTROLS:** Good general ventilation should be sufficient for most conditions. Local exhaust ventilation may be necessary for some operations.

**RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:**

**EYE/FACE PROTECTION:** Use safety glasses.

**SKIN PROTECTION:** No precautions other than clean body-covering clothing should be needed.

**RESPIRATORY PROTECTION:** For most conditions, no respiratory protection should be needed; however, if discomfort is experienced, use a NIOSH approved air-purifying respirator.

**APPLICATIONS AND ALL OTHER HANDLERS:** Refer to the product label for personal protective clothing and equipment.

### 9. PHYSICAL AND CHEMICAL PROPERTIES:

**APPEARANCE:** Clear amber liquid  
**DENSITY:** 9.7 - 9.8 lbs./gallon  
**ODOR:** None  
**SOLUBILITY IN WATER:** Miscible  
**SPECIFIC GRAVITY:** 1.17 gm/L  
**pH:** 4.8 - 5.0  
**FREEZING POINT:** -14°F - -16°F (-25°C - -26°C)

### 10. STABILITY AND REACTIVITY:

**STABILITY:** (CONDITIONS TO AVOID) Stable under normal storage conditions.

**INCOMPATIBILITY:** (SPECIFIC MATERIALS TO AVOID) Galvanized or unlined steel (except stainless steel) containers or spray tanks may produce hydrogen gas which may form a highly combustible gas mixture.

**HAZARDOUS DECOMPOSITION PRODUCTS:** None known

**HAZARDOUS POLYMERIZATION:** Not known to occur.

### 11. TOXICOLOGICAL INFORMATION:

**MUTAGENICITY:** Animal mutagenicity studies were negative.

### 12. ECOLOGICAL INFORMATION:

#### ENVIRONMENTAL FATE:

#### MOVEMENT & PARTITIONING:

Based largely or completely on information for glyphosate. Bioconcentration potential is low (BCF <100 or Log Pow <3). Expected to be relatively immobile in soil (Koc >5000).

#### DEGRADATION & PERSISTENCE:

Based largely or completely on information for glyphosate. Degradation is expected in the soil environment.

# MATERIAL SAFETY DATA SHEET



Emergency Phone: 800-992-5994  
Dow AgroSciences LLC  
Indianapolis, IN 46268

## ACCORD\* HERBICIDE

Effective Date: 4/9/02  
Product Code: 84826  
MSDS: 007373

### ECOTOXICOLOGY:

Material is practically non-toxic to aquatic organisms on an acute basis ( $LC_{50}/EC_{50} > 100$  mg/L in the most sensitive species tested).

Acute  $LC_{50}$  in rainbow trout (*Oncorhynchus mykiss*) is 109 mg/L.

Acute immobilization  $EC_{50}$  in water flea (*Daphnia magna*) is 105 mg/L.

Material is practically non-toxic to birds on an acute basis ( $LD_{50}$  is  $> 2000$  mg/kg).

Acute oral  $LD_{50}$  in bobwhite (*Colinus virginianus*) is  $> 2000$  mg/kg.

The  $LC_{50}$  in earthworm (*Eisenia foetida*) is  $> 1000$  mg/kg.

Acute contact  $LD_{50}$  in honeybee (*Apis mellifera*) is  $> 100$   $\mu$ g/bee.

Acute oral  $LD_{50}$  in honeybee (*Apis mellifera*) is  $> 100$   $\mu$ g/bee.

Growth inhibition  $EC_{50}$  in green alga (*Selenastrum capricornutum*) is 2.50 mg/L.

Growth inhibition  $EC_{50}$  in duckweed (*Lemna sp.*) is 48.4 mg/L.

### 13. DISPOSAL CONSIDERATIONS:

**DISPOSAL METHOD:** Do not contaminate water, food, or feed by storage or disposal. Excess wastes resulting from the use of this product may be disposed of on site according to label directions or at an approved waste disposal facility. Follow all local, state, and federal requirements for disposal.

### 14. TRANSPORT INFORMATION:

#### U.S. DEPARTMENT OF TRANSPORTATION INFORMATION:

For all package sizes and modes of transportation:  
This material is not regulated for transportation.

### 15. REGULATORY INFORMATION:

**NOTICE:** The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations.

#### U.S. REGULATIONS

**SARA 313 INFORMATION:** To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

**SARA HAZARD CATEGORY:** This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard  
A delayed health hazard

**TOXIC SUBSTANCES CONTROL ACT (TSCA):** All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

**STATE RIGHT-TO-KNOW:** This product is not known to contain any substances subject to the disclosure requirements of

New Jersey  
Pennsylvania

**OSHA HAZARD COMMUNICATION STANDARD:** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

#### NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATINGS:

Health	1
Flammability	1
Reactivity	0

# MATERIAL SAFETY DATA SHEET



Emergency Phone: 800-992-5994  
Dow AgroSciences LLC  
Indianapolis, IN 46268

## ACCORD\* HERBICIDE

Effective Date: 4/9/02  
Product Code: 84826  
MSDS: 007373

**COMPREHENSIVE ENVIRONMENTAL RESPONSE  
COMPENSATION AND LIABILITY ACT (CERCLA, or  
SUPERFUND):** To the best of our knowledge, this product  
contains no chemical subject to reporting under CERCLA.

### 16. OTHER INFORMATION:

**MSDS STATUS:** Revised Sections: 2, 3, 4, 12, 14, & 15  
Reference: DR-0361-6226  
Replaces Document Dated: 1/12/00  
Document Code: D03-144-002  
Replaces Document Code: D03-144-001

The Information Herein Is Given In Good Faith, But No  
Warranty, Express or Implied, Is Made. Consult Dow  
AgroSciences for Further Information.



The MSDS format adheres to the standards and regulatory requirements of the United States and may not meet regulatory requirements in other countries.

DuPont  
Material Safety Data Sheet

Page 1

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 "DuPont" "KRENITE" S BRUSH CONTROL AGENT  
 M0000022 Revised 2-APR-2004  
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-----  
 CHEMICAL PRODUCT/COMPANY IDENTIFICATION  
 -----

Material Identification

"Krenite" is a registered trademark of DuPont.

"DuPont" is a trademark of DuPont.

Corporate MSDS Number : DU003056  
 Grade : CONTAINS 4 LB ACTIVE INGREDIENT PER GALLON

Tradenames and Synonyms

"KRENITE"  
 "KRENITE" S BRUSH CONTROL AGENT

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	%
FOSAMINE AMMONIUM (AMMONIUM SALT OF FOSAMINE [ETHYL HYDROGEN (AMINOCARBONYL) PHOSPHONATE])	25954-13-6	41.5
INERT INGREDIENTS		58.5

-----  
HAZARDS IDENTIFICATION  
-----

## Emergency Overview

CAUTION! Causes (moderate) eye injury (irritation). Avoid contact with eyes or clothing.

## Potential Health Effects

Inhalation of Krenite may cause irritation of nose, throat, and lungs, with cough, difficulty breathing or shortness of breath, and nonspecific discomfort, such as nausea, headache, or weakness.

Skin contact with Krenite may cause skin irritation with itching, burning, redness, swelling or rash. Significant skin penetration and systemic toxicity after skin contact appears unlikely.

There are inconclusive or unverified reports of human sensitization.

Eye contact with Krenite may cause eye irritation with tearing, pain or blurred vision.

Ingestion of high doses of Krenite may cause nonspecific discomfort such as nausea, headache or weakness.

## 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 five minutes, then continue rinsing eye. 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 SWALLOWED: No specific intervention is indicated as the compound is not likely to be hazardous by ingestion. Consult a physician if necessary.

IF ON SKIN OR CLOTHING: No specific intervention is indicated as the compound is not likely to be hazardous to skin by dermal exposure. Consult a physician if necessary.

## (FIRST AID MEASURES - Continued)

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

-----  
FIRE FIGHTING MEASURES  
-----

## Flammable Properties

Not a fire or explosion hazard.

## Extinguishing Media

Water Spray, Foam, Dry Chemical, CO2.

## Fire Fighting Instructions

Wear self-contained breathing apparatus. Wear full protective equipment. Use water spray. Cool tank/container with 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.

## Spill Clean Up

Soak up with sawdust, sand, oil dry or other absorbent material. Shovel or sweep up. Never return to container for reuse. Scoop into bags or boxes with plastic or aluminum shovel.

## (ACCIDENTAL RELEASE MEASURES - Continued)

## Accidental Release Measures

If spill area is on ground near valuable plants or trees, remove top 2 inches of soil after initial cleanup.

-----  
HANDLING AND STORAGE  
-----

## Handling (Personnel)

Do not get in eyes, on skin, or on clothing. Avoid breathing vapors or mist. Wash thoroughly after handling. 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.

## Storage

Store product in original container only. Do not contaminate water, other pesticides, fertilizer, food or feed in storage.

-----  
EXPOSURE CONTROLS/PERSONAL PROTECTION  
-----

## Engineering Controls

Use only with adequate ventilation. Keep container tightly closed.

## Personal Protective Equipment

Applicators and other handlers must wear:

Long-sleeved shirt and long pants.  
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.  
Shoes plus socks.

## Exposure Guidelines

## Exposure Limits

"DuPont" "KRENITE" S BRUSH CONTROL AGENT  
PEL (OSHA) : None Established  
TLV (ACGIH) : None Established

-----  
PHYSICAL AND CHEMICAL PROPERTIES  
-----

## Physical Data

Solubility in Water : Soluble  
Form : Liquid  
Color : Colorless to brown  
Specific Gravity : 1.17 @ 24°C (75°F)

-----  
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

## Krenite

Oral LD50: > 5000 mg/kg in rats  
Dermal LD50: > 5000 mg/kg in rabbits  
Inhalation LC50, 4 hr: > 5.8 mg/L in rats

Krenite is a reversible moderate to severe eye irritant, a mild to moderate skin irritant, but not a skin sensitizer.

The effects of skin exposure to high doses of Krenite include non-specific effects such as weight loss. Repeated exposures to lower doses caused no signs of toxicity.

The effects of ingestion of single high doses of Krenite include diarrhea and vomiting. Repeated or long-term ingestion of lower doses caused mild diarrhea in some animals, but no other clinical or pathological evidence of toxicity.

## (TOXICOLOGICAL INFORMATION - Continued)

The effects from single, high exposures by inhalation of Krenite, include respiratory and eye irritation, weight loss, and weakness.

No animal data are available to define the carcinogenic hazards of Krenite.

Krenite has not caused developmental toxicity in animals. The active ingredient, Fosamine ammonium, has not caused reproductive toxicity in animals.

Tests have shown that Krenite does not cause genetic damage in bacterial or mammalian cell cultures, or in animals. It has not been tested for heritable genetic damage.

-----  
ECOLOGICAL INFORMATION  
-----

## Ecotoxicological Information

## FOSAMINE AMMONIUM

## AQUATIC TOXICITY:

96 hour LC50 - Rainbow trout: 330 mg/L.  
96 hour LC50 - Bluegill sunfish: 590 mg/L.  
96 hour LC50 - Fathead minnows: > 1000 mg/L.  
48 hour LC50 - Daphnia magna: 1524 ppm.

## AVIAN TOXICITY:

LD50 - Mallard Duck: > 5000 mg/kg.  
LD50 - Quail. > 5000 mg/kg.  
Acute Dietary LC50 - Mallard Duck: > 5620 ppm.  
Acute Dietary LC50 - Quail. > 5620 ppm.

-----  
DISPOSAL CONSIDERATIONS  
-----

## Waste Disposal

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, state/provincial, and local regulations. Recover nonusable free liquid and dispose of in approved and permitted incinerator. Do not flush to surface water or sanitary sewer system.

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.

## 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 contaminate water by cleaning of equipment or disposal of equipment washwaters.

## (DISPOSAL CONSIDERATIONS - Continued)

## Container Disposal

Triple rinse (or equivalent) the container. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

-----  
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

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. 352-395

-----  
OTHER INFORMATION  
-----

## NFPA, NPCA-HMIS

NFPA Rating  
Health : 1  
Flammability : 0  
Reactivity : 0

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

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

(Continued)

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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  
Wilmington, DE 19898  
Telephone : 1-888-638-7668

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

# MATERIAL SAFETY DATA SHEET



Emergency Phone: 800-992-5994  
Dow AgroSciences LLC  
Indianapolis, IN 46268

Effective Date: 5/10/05  
Product Code: 36138  
MSDS: 004788

## FORESTRY GARLON\* 4 HERBICIDE

### 1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: Forestry Garlon\* 4 Herbicide

#### COMPANY IDENTIFICATION:

Dow AgroSciences LLC  
9330 Zionsville Road  
Indianapolis, IN 46268-1189

### 2. COMPOSITION/INFORMATION ON INGREDIENTS:

Triclopyr ((3,5,6-trichloro-2-pyridinyl)oxy) acetic acid, butoxy ethyl ester	CAS# 064700-56-7	61.6%
Balance, total, including:		38.4%
Kerosene	CAS# 008008-20-6	

### 3. HAZARDOUS IDENTIFICATIONS:

#### EMERGENCY OVERVIEW

Amber liquid. Combustible. Kerosene-like odor. May cause eye and skin irritation. Toxic to aquatic organisms.  
**EMERGENCY PHONE NUMBER: 800-992-5994**

### 4. FIRST AID:

**EYES:** Flush eyes thoroughly with water for several minutes. Remove contact lenses after initial 1-2 minutes and continue flushing for several minutes. If affects occur, consult a physician, preferably an ophthalmologist.

**SKIN:** Wash skin with plenty of water.

**INGESTION:** Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

**INHALATION:** Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

**NOTE TO PHYSICIAN:** The decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

### 5. FIRE FIGHTING MEASURES:

**FLASH POINT:** 147°F (64°C)  
**METHOD USED:** TCC

#### FLAMMABLE LIMITS

LFL: Not determined  
UFL: Not determined

**EXTINGUISHING MEDIA:** Water fog, foam, CO<sub>2</sub>, and dry chemical.

**FIRE & EXPLOSION HAZARDS:** Combustible. Toxic, irritating vapors may be produced if product is involved in fire.

**FIRE-FIGHTING EQUIPMENT:** Use positive pressure self-contained breathing apparatus and full protective clothing.

### 6. ACCIDENTAL RELEASE MEASURES:

**ACTION TO TAKE FOR SPILLS/LEAKS:** Keep out of streams and domestic water supplies. Absorb small spills in inert material such as sand. For large spills, dike the area and contact Dow AgroSciences at 800-992-5994.

### 7. HANDLING AND STORAGE:

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:** Keep out of reach of children. Do not use near heat or open flame. Harmful if swallowed, inhaled, or absorbed through skin. Avoid contact with eyes, skin and clothing. Avoid breathing mists and vapors. Avoid contamination of food. Store above 28°F or agitate before use. Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. For handling relative to end-use of this product, read the product label for further information concerning the use of personal protective equipment (PPE) under the Worker Protection Standard of 1993. Store in the original container.

\*Trademark of Dow AgroSciences

# MATERIAL SAFETY DATA SHEET



Emergency Phone: 800-992-5994  
Dow AgroSciences LLC  
Indianapolis, IN 46268

Effective Date: 5/10/05  
Product Code: 36138  
MSDS: 004788

## FORESTRY GARLON\* 4 HERBICIDE

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

These precautions are suggested for conditions where a potential for exposure exists. Emergency conditions may require additional precautions.

#### EXPOSURE GUIDELINE(S):

3,5,6-Trichloro-2-pyridinyloxyacetic acid, Dowanol EB ester; Dow AgroSciences Industrial Hygiene Guide is 2 mg/M<sup>3</sup> as acid equivalent, Skin.

Kerosene; Dow AgroSciences Industrial Hygiene Guide is 10 mg/M<sup>3</sup>.

A "skin" notation following the exposure guideline refers to the potential for dermal absorption of the material. It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposures should be considered.

**ENGINEERING CONTROLS:** Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

#### RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

**RESPIRATORY PROTECTION:** Atmospheric levels should be maintained below the exposure guidelines. When respiratory protection is required for certain operations, use a NIOSH approved air-purifying respirator.

**SKIN PROTECTION:** Use protective clothing chemically resistant to this material. Selection of specific items such as faceshield, gloves, boots, apron, or full body suit will depend on operation. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly.

**EYE/FACE PROTECTION:** Use safety glasses.

**APPLICATORS AND ALL OTHER HANDLERS:** Refer to the product label for personal protective clothing and equipment.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**BOILING POINT:** >302°F (150°C) initial  
**VAPOR PRESSURE:** 0.1 mm @ 37.8°C (kerosene)  
**VAPOR DENSITY:** >1  
**SOLUBILITY IN WATER:** Emulsifies  
**SPECIFIC GRAVITY:** 1.08  
**APPEARANCE:** Amber liquid  
**ODOR:** Kerosene-like

### 10. STABILITY AND REACTIVITY:

**STABILITY: (CONDITIONS TO AVOID)** Combustible. Avoid sources of ignition if temperature is near or above flash point. Stable under normal storage conditions.

**INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID)** Acid, base, and oxidizing material.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Nitrogen oxides, hydrogen chloride, and phosgene may result under fire conditions.

**HAZARDOUS POLYMERIZATION:** Not known to occur.

### 11. TOXICOLOGICAL INFORMATION:

**POTENTIAL HEALTH EFFECTS:** This section includes possible adverse effects, which could occur if this material is not handled in the recommended manner.

**EYE:** May cause slight temporary eye irritation. Corneal injury is unlikely.

**SKIN:** Prolonged or repeated contact may cause skin irritation. Prolonged or frequently repeated skin contact may cause allergic skin reactions in some individuals. With the dilute mix, no allergic skin reaction is expected. Prolonged skin contact is unlikely to result in absorption of harmful amounts. Repeated skin contact may result in absorption of harmful amounts. The LD<sub>50</sub> for skin absorption is >2000 mg/kg (rabbits) and >5000 mg/kg (rats).

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**INGESTION:** Low toxicity if swallowed. The oral LD<sub>50</sub> for rats is 1581 mg/kg (males) and 1338 mg/kg (females). Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

**INHALATION:** Excessive exposure may cause irritation to upper respiratory tract (nose and throat). Kerosene may cause central nervous system effects.

**SYSTEMIC (OTHER TARGET ORGAN) EFFECTS:** Triclopyr BEE, in animals, effects have been reported on the following organs: blood, kidney, and liver.

**CANCER INFORMATION:** Triclopyr BEE did not cause cancer in laboratory animals. In a lifetime animal dermal carcinogenicity study, an increased incidence of skin tumors was observed when kerosene was applied at doses that also produced skin irritation. This response was similar to that produced in skin by other types of chronic chemical/physical irritation. No increase in tumors was observed when non-irritating dilutions of kerosene were applied at equivalent doses, indicating that kerosene is unlikely to cause skin cancer in the absence of long-term continued skin irritation. In long-term animal studies with ethylene glycol butyl ether, small but statistically significant increases in tumors were observed in mice but not rats. The effects are not believed to be relevant to humans. If the material is handled in accordance with proper industrial handling, exposures should not pose a carcinogenic risk to man.

**TERATOLOGY (BIRTH DEFECTS):** For triclopyr BEE, birth defects are unlikely. Exposures having no effect on the mother should have no effect on the fetus. Did not cause birth defects in animals; other effects were seen in the fetus only at doses which caused toxic effects to the mother.

**REPRODUCTIVE EFFECTS:** Triclopyr BEE, in laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

**MUTAGENICITY:** For triclopyr BEE, in-vitro and animal mutagenicity studies were negative.

### 12. ECOLOGICAL INFORMATION:

#### ENVIRONMENTAL FATE:

#### MOVEMENT & PARTITIONING:

Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).  
Measured log octanol/water partition coefficient (Log Pow) is 4.09.  
Log air/water partition coefficient (Log Kaw) is -4.0.

#### DEGRADATION & PERSISTENCE:

Biodegradation under aerobic static laboratory conditions is moderate (BOD<sub>20</sub> or BOD<sub>28</sub>/ThOD between 10 and 40%).

#### ECOTOXICOLOGY:

Material is highly toxic to aquatic organisms on an acute basis (LC<sub>50</sub>/EC<sub>50</sub> is between 0.1 and 1 mg/L in most sensitive species).

### 13. DISPOSAL CONSIDERATIONS:

**DISPOSAL METHOD:** 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 and regulations.

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### 14. TRANSPORT INFORMATION:

#### U.S. DEPARTMENT OF TRANSPORTATION INFORMATION

#### FOR ALL NON-BULK PACKAGES SHIPPED BY AIR, LAND OR WATER:

This material is not regulated for transport.

#### FOR BULK PACKAGES SHIPPED BY LAND: COMBUSTIBLE LIQUID, N.O.S. (CONTAINS KEROSENE)/COMBUSTIBLE LIQUID/NA1993/PGIII

### 15. REGULATORY INFORMATION:

**NOTICE:** The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations.

#### U.S. REGULATIONS

**SARA 313 INFORMATION:** To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

**SARA HAZARD CATEGORY:** This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard  
A delayed health hazard  
A fire hazard

**TOXIC SUBSTANCES CONTROL ACT (TSCA):** All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

**STATE RIGHT-TO-KNOW:** The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

CHEMICAL NAME	CAS NUMBER	LIST
Kerosene	008008-20-6	PA1 NJ3

NJ3=New Jersey Workplace Hazardous Substance (present at greater than or equal to 1.0%).  
PA1=Pennsylvania Hazardous Substance (present at greater than or equal to 1.0%).

**OSHA HAZARD COMMUNICATION STANDARD:** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

#### NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATINGS:

Health	2
Flammability	2
Reactivity	1

**COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND):** To the best of our knowledge, this product contains no chemical subject to reporting under CERCLA.

### 16. OTHER INFORMATION:

**MSDS STATUS:** Revised Sections: 3, 11, 13  
Reference: DR-0196-5102  
Replaces MSDS dated: 2/22/02  
Document Code: D03-100-003  
Replaces Document Code: D03-100-002

The Information Herein Is Given In Good Faith, But No Warranty, Express or Implied, Is Made. Consult Dow AgroSciences for Further Information.

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