Revolver Herbicide

MSDS Version 1.3

SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name	Revolver Herbicide
Chemical Name	Foramsulfuron
Common Name	
MSDS Number	1873
Chemical Family	Sulfonylurea
Chemical Formulation	
EPA Registration No.	432-1266

Bayer Environmental Science
2 T.W. Alexander Drive
Research Triangle PK, NC 27709
USA

For MEDICAL, TRANSPORTATION or Other EMERGENCY call 1-800-334-7577 24 hours/day
For Product Information call 1-800-331-2867

Product Use Description A Herbicide for the Control of Annual and Perennial Grasses in Bermudagrass and Zoysiagrass.

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS No.	Concentration % by Weight	
		Minimum	Maximum
Foramsulfuron	173159-57-4		2.3400
Naphthalene	91-20-3		4.0000

SECTION 3. HAZARDS IDENTIFICATION

NOTE: Please refer to Section 11 for detailed toxicological information.

Emergency Overview Caution! Hazards to humans and domestic animals. Keep out of the reach of children.

Physical State Liquid

Odor Aromatic

Appearance Beige

Immediate Effects

Eye Causes moderate eye irritation. Avoid contact with eyes.

Skin	Avoid contact with skin or clothing. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

SECTION 4. FIRST AID MEASURES

Eye	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.
Skin	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.
Ingestion	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 by mouth to an unconscious person.

SECTION 5. FIRE FIGHTING MEASURES

Flash Point	100 °C / 212 °F
Explosiveness	Product possesses no explosive potential.
Suitable Extinguishing Media	Dry chemical, Alcohol foam, Water spray, Carbon dioxide (CO2)
Fire Fighting Instructions	Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing. Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind if possible. Keep out of low areas. Persons who may have been exposed to contaminated smoke should be immediately examined by a physician and checked for symptoms of poisoning. The symptoms should not be mistaken for heat exhaustion or smoke inhalation.

SECTION 6. ACCIDENTAL RELEASE MEASURES

General and Disposal	Use proper protective equipment to minimize personal exposure (see Section 8). Take all necessary action to prevent and to remedy the effects of the spill. Any disposal practice must be in compliance with all Federal, State/provincial, and local laws and regulations.
Land Spill or Leaks	Small Spill: Sweep up carefully while avoiding the formation of a dust cloud. Place in an approved chemical waste container for disposal. Rinse spill area with small amount of soapy water. Contain and absorb the rinsate with inert absorbents and place into the same disposal container. Area can be washed with water to remove the last trace residue. Do not allow water to contaminate water supplies or sewers.

Large Spill: Eliminate all ignition sources. Stop leak if you can do so without coming into contact with spilled material. Dike far ahead of liquid spill for later disposal. All equipment used to clean up spill should be grounded. Prevent entry into waterways, sewers, basements or confined areas. Inform appropriate authorities immediately if contamination occurs. Contact Bayer for further assistance if necessary.

SECTION 7. HANDLING AND STORAGE

Storing Procedures

Do not contaminate water, food, or feed by storage or disposal.

Work/Hygienic Procedures

Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

Follow manufacturer's instructions for cleaning/maintaining Personal Protective Equipment (PPE). If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

When handlers used 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.

Body Protection

Applicators and other handlers must wear: Long-sleeved shirt and long pants. Shoes plus socks. Chemical resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride.

Exposure Limits

Naphthalene	91-20-3	ACGIH	TWA		10 ppm
		ACGIH	STEL		15 ppm
		NIOSH	REL	10 ppm	50 mg/m3
		NIOSH	STEL	15 ppm	75 mg/m3

OSHA Z1	PEL	10 ppm	50 mg/m3
OSHA Z1A	TWA	10 ppm	50 mg/m3
OSHA Z1A	STEL	15 ppm	75 mg/m3
US CA OEL	TWA PEL	10 ppm	50 mg/m3
US CA OEL	STEL	15 ppm	75 mg/m3

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Beige
Physical State	Liquid
Odor	Aromatic
pH	5.2 (1% in distilled water)
Density	0.9652 g/cu-cm at 20°C
Solubility (in water)	Dispersible

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability	This material is stable under normal handling and storage conditions described in Section 7.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute Oral Toxicity	Rat: LD50: > 5,000 mg/kg
Acute Dermal Toxicity	Rat: LD50: > 5,000 mg/kg
Acute Inhalation Toxicity	Rat: LC50: > 5.25 mg/l Determined on milled granules.
Skin Irritation	Rabbit: Moderately irritating.
Eye Irritation	Rabbit: Mildly irritating.
Sensitization	Guinea pig: Sensitizing
Chronic Toxicity	The following data is based on Foramsulfuron. The oncogenic potential of foramsulfuron was examined in bioassays with rats and mice with dietary exposure periods of 2 years and 18 months, respectively. In rats, dietary administration of up to 20,000 ppm of foramsulfuron for 2 years, equivalent to achieved intakes of 849 and 1,135 mg/kg/day for males and females, respectively, did not yield any evidence of toxicity or oncogenicity. The mean daily intakes over the 1-year period were 976 and 1,305 mg/kg/day for

males and females, respectively. Thus this dose level approximated to the international regulatory limit dose of 1,000 mg/kg/day.

Similarly in mice, no oncogenic activity was found after dietary treatment with up to 8,000 ppm (equating to 1,115 and 1,358 mg/kg/day in males and females, respectively) for 18 months, which was slightly in excess of the international limit dose.

Assessment Carcinogenicity

ACGIH		
Naphthalene	91-20-3	Group A4
NTP		
Naphthalene	91-20-3	
IARC		
None		
OSHA		
None		

Reproductive & Developmental Toxicity

Developmental Toxicity
In a rat developmental study, no maternal or developmental effects were considered to have been related to test article administration at any of the doses tested (NOAEL = 1,000 mg/kg/day)

In a rabbit developmental study, no maternal or developmental effects were considered to have been related to test article administration at any of the doses tested (NOAEL = 500 mg/kg/day for maternal and developmental toxicity).

Reproductive Toxicity
There were no apparent effects on any parental or offspring parameters which appeared to have been the result of test article administration. The systemic, reproduction and offspring NOAELs for both generations were the Highest Dose Tested (mg/kg/day = 1,082 and 1,349 for P and F1 males; 1,229 and 1,434 for P and F1 females).

Neurotoxicity

The following is based on Foramsulfuron.
Foramsulfuron is a sulfonylurea herbicide which has no structural relationship to neurotoxic substances. Moreover, its very low and non-specific toxicological profile shows no evidence of neurotoxic potential. Consequently no special studies have been conducted for this.

SECTION 12. ECOLOGICAL INFORMATION

Toxicity to Aquatic Plants

Non-target plants may be adversely affected if the pesticide is allowed to drift from areas of application. To prevent damage to crops and other desirable plants, read and follow all directions and precautions on the label before using.

Toxicity Other Non Mammal Terr. Species

Acute Exposure
Toxicity data of Foramsulfuron
Bobwhite quail

LD50: > 2,000 mg/kg

Acute Exposure
Toxicity data of Foramsulfuron
Mallard duck
LD50: > 2,000 mg/kg

Short Term Exposure Limit (STEL):
Toxicity data of Foramsulfuron
Bobwhite quail
LC50: > 5,000 ppm

Short Term Exposure Limit (STEL):
Toxicity data of Foramsulfuron
Mallard duck
LC50: > 5,000 ppm

Long Term Exposure/Reproduction
Toxicity data of Foramsulfuron
Bobwhite quail
NOEC: 1,000 ppm

Long Term Exposure/Reproduction
Toxicity data of Foramsulfuron
Mallard duck
NOEC: 1,000 ppm

Environmental Precautions

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not drain or rinse equipment near desirable vegetation. Do not apply when weather conditions favor runoff or drift. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment washwater.

SECTION 13. DISPOSAL CONSIDERATIONS

General Disposal Guidance

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal

Triple rinse (or equivalent). 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.

RCRA Classification

Not Regulated under this Statute

SECTION 14. TRANSPORT INFORMATION

Not Regulated for Domestic Transportation.

SECTION 15. REGULATORY INFORMATION

EPA Registration No. 432-1266

US Federal Regulations

TSCA list

Naphthalene	91-20-3	

TSCA 12b export notification

None

SARA Title III - section 302 - notification and information

None

SARA Title III - section 313 - toxic chemical release reporting

Naphthalene	91-20-3	1.0%

US States Regulatory Reporting

CA Prop65

This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State right-to-know ingredients

Naphthalene	91-20-3	CA, CT, IL, MN, NJ, PA, RI

Canadian Regulations

Canadian Domestic Substance List

Naphthalene	91-20-3

Environmental

CERCLA

Naphthalene	91-20-3	100 lbs

Clean Water Section 307 Priority Pollutants

Naphthalene	91-20-3

Safe Drinking Water Act Maximum Contaminant Levels

Naphthalene	91-20-3

International Regulations

EU Classification

Naphthalene	91-20-3	Harmful Dangerous for the environment
R Phrases	Harmful if swallowed.	Very toxic to aquatic organisms, may

S Phrases	cause long-term adverse effects in the aquatic environment. Keep out of the reach of children. Wear suitable protective clothing and gloves. This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.

European Inventory of Existing Commercial Substances (EINECS)

Naphthalene	91-20-3

SECTION 16. OTHER INFORMATION

	Health	Flammability	Reactivity	Others
NFPA	2	1	0	

MSDS REVISION INDICATOR: Updated information in Section 2. Composition/Information on Ingredients; Removed HMIS ratings from Section 16.

Approval Date: 03/01/2004

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