



Material Safety Data Sheet

PROGRASS® HERBICIDE

MSDS Number: 102000000915

MSDS Version 2.0

Revision Date: 10/11/2006

SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name PROGRASS® HERBICIDE
MSDS Number 102000000915
EPA Registration No. 432-941
Product Use Selective herbicide for use by professional applicators on ornamental turf only.

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

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Hazardous Component Name</u>	<u>CAS-No.</u>	<u>Average % by Weight</u>
Ethofumesate	26225-79-6	19.00
Cyclohexanone	108-94-1	15.00
Xylene	1330-20-7	59.50
Naphthalene	91-20-3	0.164
Ethylbenzene	100-41-4	

SECTION 3. HAZARDS IDENTIFICATION

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

Emergency Overview Danger! Corrosive - causes irreversible eye damage. Do not get in eyes or on clothing. Harmful if absorbed through skin. Avoid contact with skin. Avoid inhalation of vapour or mist.

Physical State liquid clear

Odor aromatic

Appearance brown

Routes of Exposure Eye contact, Skin Absorption, Inhalation, Ingestion

Immediate Effects

Eye Corrosive - causes irreversible eye damage. Vapors may cause eye irritation. Do not get in eyes.



Material Safety Data Sheet

MSDS Number: 102000000915
MSDS Version 2.0

PROGRASS® HERBICIDE

Skin	Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product. Repeated contact may sensitize the skin, leading to allergic reactions. May be harmful if absorbed through skin. Avoid contact with skin and clothing.
Ingestion	May be harmful if swallowed. Do not take internally.
Inhalation	Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting. Avoid inhalation of vapour or mist.
Chronic or Delayed Long-Term	This product or its components may have target organ effects. This product or its components may have long term (chronic) health effects. This product contains ingredients that are considered to be probable or suspected human carcinogens (see Section 11 - Chronic).
Medical Conditions Aggravated by Exposure	Skin contact may aggravate existing skin disease. Individuals with allergic history or pre-existing dermatitis should use extra care in handling this product.

SECTION 4. FIRST AID MEASURES

General	When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.
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 physician or poison control center immediately.
Skin	Wash off immediately with plenty of water for at least 15 minutes. Take off contaminated clothing and shoes immediately. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person.
Inhalation	Move 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 physician or poison control center immediately.
Notes to Physician Signs and Symptoms	Local: severe irritation Systemic: To date no symptoms are known.
Treatment	There is no specific antidote. Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended.



Material Safety Data Sheet

PROGRASS® HERBICIDE

MSDS Number: 102000000915
MSDS Version 2.0

SECTION 5. FIRE FIGHTING MEASURES

Flash point	29 °C / 84 °F
Autoignition Temperature	> 480 °C / > 896 °F The data relate to the solvent.
Lower Flammability Limit	1.1 %(V) The data relate to the solvent.
Upper Flammability Limit	6.6 %(V) The data relate to the solvent.
Fire and Explosion Hazards	The product is extremely flammable. In case of fire the evolution of dangerous gases is possible.
Suitable Extinguishing Media	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable Extinguishing media	high volume water jet
Fire Fighting Instructions	Remove product from areas of fire, or otherwise cool containers with water in order to avoid pressure being built up due to heat. Whenever possible, contain fire-fighting water by diking area with sand or earth. In the event of fire and/or explosion do not breathe fumes. Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Keep people away from and upwind of spill/leak. Avoid contact with spilled product or contaminated surfaces. When dealing with a spillage do not eat, drink or smoke.
Methods for Cleaning Up	Take up with absorbent material (e.g. sand, diatomaceous earth or a proprietary absorbent material). Pick up and fill the product into a tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.
Additional Advice	Use personal protective equipment. Do not allow product to enter streams, sewers or other waterways. Do not allow product to contact vegetation.



Material Safety Data Sheet

PROGRASS® HERBICIDE

MSDS Number: 102000000915
MSDS Version 2.0

SECTION 7. HANDLING AND STORAGE

- Handling Procedures** No specific precautions required when handling unopened packs/containers; follow relevant manual handling advice. Use only in area provided with appropriate exhaust ventilation.
- Storing Procedures** Keep containers tightly closed in a cool, well-ventilated place. Store in a place accessible by authorized persons only. Keep away from direct sunlight. Protect against frost.
- Work/Hygienic Procedures** Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.

Take off contaminated clothing and shoes immediately. Then wash thoroughly and put on clean clothing.

Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. As soon as practical, wash thoroughly and change into clean clothing.
- Min/Max Storage Temperatures** Do not transport or store below 1 °C / 34 °F

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

- General Protection** Follow all label instructions. Train employees in safe use of the product.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry.
- Engineering Controls** Maintain exposure levels below the exposure limit through the use of general and local exhaust ventilation.
- Eye/Face Protection** Chemical resistant goggles must be worn.
- Hand Protection** Chemical-resistant gloves (barrier laminate, butyl rubber, nitrile rubber or Viton)
- Body Protection** Wear long-sleeved shirt and long pants and shoes plus socks.
- Respiratory Protection** When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

Exposure Limits

Cyclohexanone	108-94-1	ACGIH	TWA	20 ppm
		ACGIH	STEL	50 ppm



Material Safety Data Sheet

PROGRASS® HERBICIDE

MSDS Number: 102000000915
MSDS Version 2.0

Xylene	1330-20-7	NIOSH	REL	25 ppm	100 mg/m3		
		OSHA Z1	PEL	50 ppm	200 mg/m3		
		OSHA Z1A	TWA	25 ppm	100 mg/m3		
		US CA OEL	TWA PEL	25 ppm	100 mg/m3		
		ACGIH	TWA		100 ppm		
		ACGIH	STEL		150 ppm		
		OSHA Z1	PEL	100 ppm	435 mg/m3		
		OSHA Z1A	TWA	100 ppm	435 mg/m3		
		OSHA Z1A	STEL	150 ppm	655 mg/m3		
		US CA OEL	TWA PEL	100 ppm	435 mg/m3		
		US CA OEL	Ceiling		300 ppm		
		US CA OEL	STEL	150 ppm	655 mg/m3		
		NIOSH	REL	100 ppm	435 mg/m3		
		NIOSH	STEL	150 ppm	655 mg/m3		
		Ethylbenzene	100-41-4	NIOSH	REL	100 ppm	435 mg/m3
NIOSH	STEL			150 ppm	655 mg/m3		
NIOSH	REL			100 ppm	435 mg/m3		
NIOSH	STEL			150 ppm	655 mg/m3		
ACGIH	TWA				100 ppm		
ACGIH	STEL				125 ppm		
NIOSH	REL			100 ppm	435 mg/m3		
NIOSH	STEL			125 ppm	545 mg/m3		
OSHA Z1	PEL			100 ppm	435 mg/m3		
OSHA Z1A	TWA			100 ppm	435 mg/m3		
OSHA Z1A	STEL			125 ppm	545 mg/m3		
US CA OEL	TWA PEL			100 ppm	435 mg/m3		
US CA OEL	STEL			125 ppm	545 mg/m3		
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	brown
Physical State	liquid clear
Odor	aromatic
Vapor Pressure	10 mbar / 7.5 mm Hg at 20 °C The data relate to the solvent.
Vapor Density (Air = 1)	3.7



Material Safety Data Sheet

PROGRASS® HERBICIDE

MSDS Number: 102000000915
MSDS Version 2.0

The data relate to the solvent.

Density ca. 0.95 g/cm³ at 20 °C

Water solubility miscible

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability Stable under recommended storage conditions.

Conditions to Avoid Extremes of temperature and direct sunlight.
Heat, flames and sparks.

Incompatibility None known.

SECTION 11. TOXICOLOGICAL INFORMATION

The acute LC50 study was bridged from the technical-grade active ingredient, Ethofumesate. The remaining acute toxicity data have been bridged from a similar formulation containing a similar percentage of Ethofumesate. The non-acute information pertains to the technical-grade active ingredient.

Acute Oral Toxicity male rat: LD50: > 5,660 mg/kg

Acute Dermal Toxicity male rat: LD50: > 4,000 mg/kg

Acute Inhalation Toxicity male/female rat: LC50: > 5.4 mg/l
Exposure time: 4 h
Determined in the form of liquid aerosol.

male/female rat: LC50: > 21.6 mg/l
Exposure time: 1 h
Determined in the form of liquid aerosol.
Extrapolated from the 4 hr LC50.

Skin Irritation rabbit: Slight irritation.

Eye Irritation rabbit: Corrosive eye irritant.

Chronic Toxicity Ethofumesate caused decreased body weight gains and/or liver effects in chronic studies in rats and dogs.

Assessment Carcinogenicity

Ethofumesate has been classified by EPA as "not likely to be carcinogenic to humans" based on the lack of carcinogenicity in mice, the lack of convincing evidence for carcinogenicity in the rat, and no evidence of genotoxicity.

ACGIH

Cyclohexanone

108-94-1

Group A4



Material Safety Data Sheet

MSDS Number: 102000000915
MSDS Version 2.0

PROGRASS® HERBICIDE

Xylene	1330-20-7	Group A4
Naphthalene	91-20-3	Group A4
Ethylbenzene	100-41-4	Group A3
NTP		
Naphthalene	91-20-3	
IARC		
Cyclohexanone	108-94-1	Overall evaluation: 3
Xylene	1330-20-7	Overall evaluation: 3
Naphthalene	91-20-3	Overall evaluation: 2B
Ethylbenzene	100-41-4	Overall evaluation: 2B
OSHA		
None.		

Reproductive & Developmental Toxicity

REPRODUCTION: Ethofumesate demonstrated no adverse effects on reproduction in a three-generation rat study.

DEVELOPMENTAL TOXICITY: Ethofumesate was not a developmental toxicant in rats. In rabbits, developmental effects (e.g. incomplete ossifications) were observed at a non-maternally toxic dose. No malformations were observed even at the highest dose.

Neurotoxicity

Ethofumesate did not demonstrate the potential to cause neurotoxicity in standard toxicity studies using mice, rats, rabbits and dogs.

Mutagenicity

Ethofumesate was not mutagenic or genotoxic in a battery of in vitro and in vivo mutagenicity studies.

SECTION 12. ECOLOGICAL INFORMATION

Toxicity to Fish

Brachidanio rerio
LC50: 45 mg/l
Exposure time: 96 h

Toxicity to Aquatic Plants

Scenedesmus subspicatus
IC50: 3.9 mg/l
Exposure time: 72 h
The value mentioned relates to the active ingredient ethofumesate.

Acute Toxicity to Aquatic Invertebrates

Water flea (Daphnia magna)
EC50: 93.2 mg/l
Exposure time: 48 h
Test conducted with a similar formulation.

Bioaccumulation

Bluegill sunfish BCF: 67 - 144
The value mentioned relates to the active ingredient ethofumesate.



Material Safety Data Sheet

MSDS Number: 102000000915
MSDS Version 2.0

PROGRASS® HERBICIDE

Environmental Precautions

For terrestrial uses, do not apply directly to water, or to areas where surface water is present, or to intertidal areas below mean high water mark. 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 wash water. Apply this product as specified on the label.

SECTION 13. DISPOSAL CONSIDERATIONS

General Disposal Guidance

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

Container Disposal

Do not re-use empty containers. Triple rinse containers. Puncture container to avoid re-use. Dispose of empty container in a sanitary landfill or by incineration, or, if allowed by State/Provincial and local authorities, by burning. If burned, stay out of smoke.

RCRA Classification

The RCRA Classifications may be on the individual component(s) and not necessarily on the product as a whole.

- 108-94-1 Cyclohexanone
US. EPA Resource Conservation and Recovery Act (RCRA) U List of Hazardous Wastes (40 CFR 261.33(f) and 40 CFR 302 [CERCLA]): U057
- 108-94-1 Cyclohexanone
US. EPA Resource Conservation and Recovery Act: (RCRA) D List of Characteristic Hazardous Wastes (40 CFR 261.21-24): D001
- 1330-20-7 Xylene
US. EPA Resource Conservation and Recovery Act (RCRA) U List of Hazardous Wastes (40 CFR 261.33(f) and 40 CFR 302 [CERCLA]): U239
- 91-20-3 Naphthalene
US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261): U165
- 91-20-3 Naphthalene
US. EPA Resource Conservation and Recovery Act (RCRA) U List of Hazardous Wastes (40 CFR 261.33(f) and 40 CFR 302 [CERCLA]): U165
- 100-41-4 Ethylbenzene
US. EPA Resource Conservation and Recovery Act: (RCRA) D List of Characteristic Hazardous Wastes (40 CFR 261.21-24): D001



Material Safety Data Sheet

PROGRASS® HERBICIDE

MSDS Number: 102000000915
MSDS Version 2.0

SECTION 14. TRANSPORT INFORMATION

TRANSPORTATION CLASSIFICATION:
Flammable Liquid, N.O.S. (Cyclohexanone, Xylene) // 3 // UN1993 // PG III

FREIGHT CLASSIFICATION:
Compounds, Tree or Weedkilling, N.O.I., other than poison, having a density of 20 lbs or greater per cubic foot

SECTION 15. REGULATORY INFORMATION

EPA Registration No. 432-941

US Federal Regulations

TSCA list

Cyclohexanone	108-94-1
Xylene	1330-20-7
Naphthalene	91-20-3
Ethylbenzene	100-41-4

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

Xylene	1330-20-7
Naphthalene	91-20-3

SARA Title III - Section 302 - Notification and Information

None.

SARA Title III - Section 313 - Toxic Chemical Release Reporting

Xylene	1330-20-7	1.0%
Naphthalene	91-20-3	0.1%
Ethylbenzene	100-41-4	0.1%

US States Regulatory Reporting

CA Prop65

This product contains a chemical known to the State of California to cause cancer.

Naphthalene	91-20-3
Ethylbenzene	100-41-4

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

US State Right-To-Know Ingredients

Cyclohexanone	108-94-1	CA, CT, IL, MN, PA, RI
Xylene	1330-20-7	CA, CT, IL, MI, MN, NJ, PA, RI
Naphthalene	91-20-3	CA, CT, IL, MN, NJ, PA, RI
Ethylbenzene	100-41-4	CA, CT, IL, MN, NJ, PA, RI

Canadian Regulations

Canadian Domestic Substance List

Cyclohexanone	108-94-1
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Material Safety Data Sheet

PROGRASS® HERBICIDE

MSDS Number: 102000000915
MSDS Version 2.0

Xylene	1330-20-7
Naphthalene	91-20-3
Ethylbenzene	100-41-4

Environmental

CERCLA

Cyclohexanone	108-94-1	5,000 lbs
Xylene	1330-20-7	100 lbs
Naphthalene	91-20-3	100 lbs
Ethylbenzene	100-41-4	1,000 lbs

Clean Water Section 307 Priority Pollutants

None.

Safe Drinking Water Act Maximum Contaminant Levels

None.

International Regulations

European Inventory of Existing Commercial Substances (EINECS)

Ethofumesate	26225-79-6
Cyclohexanone	108-94-1
Xylene	1330-20-7
Naphthalene	91-20-3
Ethylbenzene	100-41-4

SECTION 16. OTHER INFORMATION

NFPA 704 (National Fire Protection Association):

Health - 3 Flammability - 3 Reactivity - 0 Others - none

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason to Revise: Re-numbered due to system update. Updated sections as needed.

Revision Date: 10/11/2006

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