



PUMA™ 1EC HERBICIDE

MSDS Version 2.1

SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

| | |
|--------------------------------|--|
| Product Name | PUMA™ 1EC HERBICIDE |
| Chemical Name | Active: (+)-ethyl 2-[4-[(6-chloro- 2-benzoxazolyl)oxy]phenoxy]propanoate |
| Synonym | |
| MSDS Number | 142 |
| Chemical Family | |
| Chemical Formulation | |
| EPA Registration No. | 264-666 |
| Canadian Registrat. No. | |

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

For Product Use Information: (866)-992-2937 Monday through Friday(CRLF) 8:00AM-4:30PM(CRLF) For Medical Emergency contact DART: (800) 334-7577 24 Hours/Day(CRLF) For Transportation Emergency CHEMTREC: (800) 424-9300 24 Hours/Day

Product Use Description For selective postemergence control of Green and Yellow Foxtail (Pigeongrass), Volunteer and Wild Millet species, Barnyardgrass and Wild Oats in Wheat (including Durum Wheat), and Barley.

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

| <u>Component Name</u> | <u>CAS No.</u> | <u>Concentration % by Weight</u> | |
|---------------------------------------|----------------|----------------------------------|----------------|
| | | <u>Minimum</u> | <u>Maximum</u> |
| Fenoxaprop-p-ethyl | 71283-80-2 | 11.5300 | |
| Inert ingredients,including: | | 88.4700 | |
| Polyoxyethylated (6) Tridecyl Alcohol | 78330-21-9 | | < 15.0000 |
| Calcium dodecylbenzene sulfonate | 26264-06-2 | | < 5.0000 |
| Alkyl Benzene Sulfonate | 9038-95-3 | | < 5.0000 |
| NAPHTHALENE | 91-20-3 | | < 8.0000 |
| Phenylpyrazolin | 135590-91-9 | | < 5.0000 |

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SECTION 3. HAZARDS IDENTIFICATION

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

Emergency Overview

Warning! Hazard to humans and domestic animals. Keep out of the reach of children. Causes substantial but temporary eye injury or skin irritation.

Physical State

liquid

Odor

Characteristic of aromatic hydrocarbons.

Appearance

Pale yellow

Immediate Effects

Eye

Cause substantial but temporary eye injury. Do not get in eyes.

Skin

Causes skin irritation. Do not get on skin or clothing.

Ingestion

Harmful if swallowed.

Signs and Symptoms

Possible symptoms of overexposure are dizziness, headache, ataxia and stilted gait. Prolonged and repeated exposure to product solvents can lead to dermatitis and defating of the skin.

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

Immediately call a poison control center or doctor for treatment advice. Do not induce vomiting unless told to do so by a poison control center or doctor. Have a person sip a glass of water if able to swallow. Do not give anything by mouth to an unconscious person.

Note to Physician

Possible mucosal damage may contraindicate the use of gastric lavage. May pose an aspiration pneumonia hazard.

If possible, bring the container and labeling to the attending physician.

SECTION 5. FIRE FIGHTING MEASURES

Flash Point

> 93.3 °C / > 199.9 °F
Method: Closed Cup

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Auto Ignition Temperature 435 °C / 815 °F

Suitable Extinguishing Media foam, carbon dioxide (CO2), dry chemical, water spray

Fire Fighting Instructions As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH approved (or equivalent) and full protective gear. Keep upwind. Isolate hazard area. Avoid inhalation of smoke and fumes. Use water or foam to reduce fumes. Do not touch spilled material. If possible, move containers from area. Extinguish only if flow can be stopped. Use flooding amounts of water as a fog. Cool containers with flooding amounts of water from as far a distance as possible. Avoid breathing vapors.

FLAMMABILITY CLASSIFICATION/RATING:

NFPA/OSHA Class: IIIA

NFPA Rating (Fire): 2

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. Ensure that the disposal is in compliance with Federal or local disposal regulations. See Section 13 for any applicable Reportable Quantity (RQ) and other federal regulatory information.

Land Spill or Leaks Small Spill: Absorb with an inert absorbent material such as granular clay, saw dust or pet litter. 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

Handling Procedures Do not get in eyes, on skin, or on clothing. Do not use near heat or open flame.

Storing Procedures Do not contaminate water, food, or feed by storage or handling. Keep container tightly closed. Avoid cross contamination with other pesticides. Do not use or store near heat or open flame.

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Work/Hygienic Procedures

Wash thoroughly with soap and water after handling. Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

Remove contaminated clothing. Wash contaminated clothing before reuse. Remove clothing immediately if pesticide gets inside. Remove Personal Protective Equipment (PPE) immediately after handling this product. Wash the outside of gloves before removing. Then wash thoroughly and put on clean clothing.

Remove Personal Protective Equipment (PPE) immediately after handling this product. Wash the outside of gloves before removing. Then wash thoroughly and put on clean clothing.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this products concentrate. Do not reuse them. 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 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.

Min/Max Storage Temperatures

0 °C / 38 °C

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. Control airborne concentrations below the exposure guidelines. Local exhaust ventilation may be necessary.

Eye/Face Protection

safety glasses splash goggles or face-shield

Body Protection

Wear coveralls worn over short-sleeved shirt and short pants, socks and chemical resistant footwear and chemical-resistant gloves (such as nitrile, butyl, neoprene and barrier laminate).

Respiratory Protection

Ensure adequate ventilation. If not adequate, use a chemical cartridge-type respirator approved by the National Institute of Occupational Health and Safety.

General Protection

Eye wash facility and safety shower should be available.

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AGRICULTURAL USES:

The following personal protective equipment (PPE) must be worn when using product or upon early entry into treated areas during the Restricted Entry Interval (REI):

- Long sleeved shirt and long pants; or Coveralls (required for REI only).
- Chemical-resistant gloves.
- Shoes and socks.
- Protective eyewear.
- Chemical-resistant apron during mixing and loading.

See "User Safety Recommendations" on the product label for additional details concerning the use of PPE under the EPA Worker Protection Standards (40 CFR Part 170).

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 | Pale yellow |
| Physical State | liquid |
| Odor | Characteristic of aromatic hydrocarbons. |
| pH | 6 |
| Specific Gravity | 1.037 at 20 °C |
| Bulk Density | 8.68 lb/gal at 68 °F |

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Viscosity 18 mPa.s 25 °C

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability Stable

Hazardous Polymerization (Conditions to avoid) Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute Oral Toxicity Puma 1EC Herbicide
Rat: LD50: 3,254 mg/kg
Slightly toxic.

Acute Dermal Toxicity Puma 1EC Herbicide
Rabbit: LD50: > 5,000 mg/kg
Practically non-toxic.

Acute Inhalation Toxicity Puma 1EC Herbicide
Rat: LC50: > 5.45 mg/l 4 h
Practically non-toxic.

Skin Irritation Puma 1EC Herbicide
Rabbit: Causes skin irritation.

Eye Irritation Puma 1EC Herbicide
Rabbit: Cause substantial but temporary eye injury.

Sensitization Puma 1EC Herbicide
Guinea pig: Not known to cause skin sensitization.

NOTE: The severity classification listed above are those of Bayer, and particularly for eye irritation, may not always coincide with EPA-mandated Precautionary Statements.

THE FOLLOWING DATA WERE DEVELOPED WITH: fenoxaprop-p-ethyl, the active ingredient

Chronic Toxicity In subchronic studies using fenoxaprop-p-ethyl, reduced blood lipids and cholesterol and increased liver weights were the adaptive and reversible changes induced by the chemical in rats and mice. These findings were not apparent in lifetime feeding studies in rats and mice confirming their transient nature. Lifetime feeding studies produced no carcinogenic response in rats or mice.

Assessment Carcinogenicity

ACGIH

NAPHTHALENE

91-20-3

Group A4

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NTP
NAPHTHALENE 91-20-3
IARC
None
OSHA
None

Reproductive & Developmental Toxicity Reduced pup body weight gain during lactation was observed at high doses in a 2 generation reproduction study in rats. There were no effects on fertility in this study.

Teratogenicity Teratology studies were performed on mice, rats, rabbits and monkeys by both oral and dermal routes of exposure. No embryotoxic or fetotoxic effects were seen at doses non-toxic to the mothers.

Mutagenicity A variety of mutagenicity studies in bacteria and mammalian cells in vitro and in vivo have shown fenoxaprop-ethyl is non-mutagenic.

SECTION 12. ECOLOGICAL INFORMATION

Environmental Precautions This pesticide is toxic to fish and aquatic invertebrates. Drift or runoff may adversely affect aquatic invertebrates and non-target plants. 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 contaminate water by cleaning of equipment or disposal of equipment wastewaters.

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SECTION 13. DISPOSAL CONSIDERATIONS

General Disposal Guidance

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

Pesticide Disposal: Pesticide wastes are toxic. 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

2 1/2 Gallon Container Only: Empty containers should be triple rinsed (or equivalent). Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill or incineration, or if allowed by State and Local authorities, by burning. If burned, stay out of smoke.

Container Disposal (when mini-bulk containers are used): This is a sealed returnable container to be used for Puma 1EC Herbicide. When this container is empty, it must not be opened, cleaned, or discarded. Empty containers must be returned to the original filling location and must be refilled with Puma 1EC Herbicide only at an authorized bulk distribution location.

RCRA Classification

Not Regulated under this Statute

SECTION 14. TRANSPORT INFORMATION

PROPER SHIPPING NAME: None

DOT SHIPPING LABEL: None

WHEN SHIPPED IN TANK TRAILERS - PROPER SHIPPING NAME IS:

RQ, Environmentally hazardous substance, liquid, n.o.s., (Calcium Dodecylbenzene and Naphthalene), 9, UN3082, PG III, (RQ-Calcium Dodecylbenzene = 1,000 lbs and Naphthalene = 100 lbs)

Class 9 NUMBER Placards

NOTE: For transport purposes (49 CFR Part 173.132), the calculated 1-Hour LC50 (rat) is: > 21.8 mg/l.

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SECTION 15. REGULATORY INFORMATION

US Federal

EPA Registration No. 264-666

TSCA list

Polyoxyethylated (6) Tridecyl Alcohol 78330-21-9
Calcium dodecylbenzene sulfonate 26264-06-2
Alkyl Benzene Sulfonate 9038-95-3
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

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

Calcium dodecylbenzene sulfonate 26264-06-2 CA, CT, IL, NJ, PA
NAPHTHALENE 91-20-3 CA, CT, IL, MN, NJ, PA, RI

Canadian Regulations

Canadian Registrat. No.

Canadian Domestic Substance List

Polyoxyethylated (6) Tridecyl Alcohol 78330-21-9
Calcium dodecylbenzene sulfonate 26264-06-2
Alkyl Benzene Sulfonate 9038-95-3
NAPHTHALENE 91-20-3

Environmental

CERCLA

Calcium dodecylbenzene sulfonate 26264-06-2 1,000 lbs
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

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R Phrases Harmful if swallowed. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S Phrases 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)

| | |
|----------------------------------|------------|
| Calcium dodecylbenzene sulfonate | 26264-06-2 |
| NAPHTHALENE | 91-20-3 |

SECTION 16. OTHER INFORMATION

| | Health | Flammability | Reactivity | Others |
|------|--------|--------------|------------|--------|
| HMIS | 2 | 2 | 0 | F |
| NFPA | 2 | 2 | 0 | |

MSDS REVISION INDICATOR: Company name change.

Print Date: 12/18/2002

Supersedes MSDS, which is older than: 12/16/2002

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