



Material Safety Data Sheet

ILLOXAN® 3EC HERBICIDE

MSDS Number: 102000003065
 MSDS Version 2.0
 Revision Date: 01/11/2008

SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name ILLOXAN® 3EC HERBICIDE
MSDS Number 102000003065
EPA Registration No. 432-1231

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> |
|---|----------------|----------------------------|
| Diclofop-methyl | 51338-27-3 | 34.70 |
| Cyclohexanone | 108-94-1 | 10.00 |
| 1,2,4-Trimethylbenzene | 95-63-6 | 10.20 |
| Xylene | 1330-20-7 | 7.50 |
| Ethylbenzene | 100-41-4 | 1.50 |
| Calcium dodecylbenzenesulfonate, branched | 70528-83-5 | 3.85 |
| 2-Methylpropan-1-ol | 78-83-1 | 1.65 |
| Nonylphenol ethoxylate | 9016-45-9 | 1.50 |

SECTION 3. HAZARDS IDENTIFICATION

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

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

Physical State liquid

Odor aromatic

Appearance light to dark brown

Routes of Exposure Skin Absorption, Vapor/mist inhalation, Eye contact, Ingestion

Immediate Effects
Eye Corrosive - causes irreversible eye damage. Do not get in eyes.



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| Skin | Moderate skin irritation. Prolonged skin contact may cause skin irritation and/or dermatitis. Harmful if absorbed through skin. Do not get on skin or clothing. |
| Ingestion | Ingestion of sublethal doses causes muscle weakness, tremors, diarrhea and/or weight loss. Do not take internally. Harmful if swallowed. |
| Inhalation | Avoid contact or inhalation of spray mist. Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting. |
| 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). |
| Potential Environmental Effect | Toxic to fish and aquatic invertebrates. |

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 | Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. 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. Do not leave victim unattended. |
| 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 Hazards | Contains hydrocarbon solvents. May pose an aspiration pneumonia hazard. |
| Treatment | There is no specific antidote. Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. |



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SECTION 5. FIRE FIGHTING MEASURES

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| Flash point | 37.8 °C / 100.0 °F The product is combustible. |
| Fire and Explosion Hazards | In the event of fire the following can be released: Hydrogen chloride (HCl) Sulphur oxides Carbon monoxide (CO) Carbon dioxide (CO ₂) |
| Suitable Extinguishing Media | Water spray, Foam, Carbon dioxide (CO ₂), Dry powder |
| Fire Fighting Instructions | Keep out of smoke. Fight fire from upwind position. Remove product from areas of fire, or otherwise cool containers with water in order to avoid pressure being built up due to heat. Do not allow run-off from fire fighting to enter drains or water courses. Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing. |

SECTION 6. ACCIDENTAL RELEASE MEASURES

| | |
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| Personal Precautions | Remove all sources of ignition. Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces. |
| Methods for Cleaning Up | Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations. |
| Additional Advice | Use personal protective equipment. Do not allow to enter soil, waterways or waste water canal. |

SECTION 7. HANDLING AND STORAGE

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| Handling Procedures | Maintain exposure levels below the exposure limit through the use of general and local exhaust ventilation. Handle and open container in a manner as to prevent spillage. Keep away from heat and sources of ignition. |
| Storing Procedures | Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area. |



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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.

Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Min/Max Storage Temperatures Recommended minimum transport/storage temperature: -7 °C / 19 °F

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General Protection Eye wash facility and safety shower should be available. 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.

Follow all label instructions. Train employees in safe use of the product.

Eye/Face Protection Safety glasses, in case of increased risk, also a face shield

Hand Protection Chemical resistant nitrile rubber gloves

Body Protection Wear long-sleeved shirt and long pants and shoes plus socks. Chemical resistant apron when cleaning equipment, mixing or loading.

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

| | | | | | |
|----------------------------------|------------------------|-----------|----------------------------|---------|---|
| Diclofop-methyl Cyclohexanone | 51338-27-3 108-94-1 | OES BCS* | | | 0.1 mg/m3 |
| | | ACGIH | TWA | | 20 ppm |
| | | ACGIH | STEL | | 50 ppm |
| | | 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 |
| | | TX ESL | ST ESL | 120 ppm | 480 ug/m3 |
| | | Remarks | | | Screening levels that have the odor designations represent the levels of constituents in the air at which the odor would be a nuisance. |
| | | TX ESL | AN ESL | 12 ppm | 48 ug/m3 |
| Remarks | | | Screening levels that have | | |



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the odor designations represent the levels of constituents in the air at which the odor would be a nuisance.

| | | | | |
|--------------|----------|-----------|---------|--------------------|
| Ethylbenzene | 100-41-4 | 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 |
| | | TX ESL | ST ESL | 460 ppm 2000 ug/m3 |

Remarks

Screening levels that have the odor designations represent the levels of constituents in the air at which the odor would be a nuisance.

| | | | |
|--------|--------|--------|-----------|
| TX ESL | AN ESL | 46 ppm | 200 ug/m3 |
|--------|--------|--------|-----------|

Remarks

Screening levels that have the odor designations represent the levels of constituents in the air at which the odor would be a nuisance.

*OES BCS: Internal Bayer CropScience "Occupational Exposure Standard"

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|-----------------------|---|
| Appearance | light to dark brown |
| Physical State | liquid |
| Odor | aromatic |
| pH | 4.9 (1 %) |
| Density | approx. 1.03 g/cm ³ at 20 °C |
| Boiling Point | 80 °C / 176 °F |

SECTION 10. STABILITY AND REACTIVITY



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|---|--|
| Conditions to Avoid | Heat, flames and sparks. |
| Incompatibility | Strong acids Strong bases Strong oxidizing agents |
| Hazardous Decomposition Products | Thermal decomposition can lead to release of: Carbon monoxide Carbon dioxide (CO ₂) Hydrogen chloride (HCl) Sulphur oxides |
| Hazardous Reactions | Stable under recommended storage conditions. |

SECTION 11. TOXICOLOGICAL INFORMATION

Only acute toxicity studies have been performed on this product as formulated. The non-acute information pertains to the technical-grade active ingredient, diclofop-methyl.

| | |
|----------------------------------|---|
| Acute Oral Toxicity | male rat: LD50: 2,870 mg/kg female rat: LD50: 2,000 - 2,500 mg/kg |
| Acute Dermal Toxicity | rat: LD50: > 2,000 mg/kg |
| Acute Inhalation Toxicity | rat: LC50: > 4.9 mg/l Exposure time: 4 h Determined in the form of liquid aerosol. rat: LC50: > 19.6 mg/l Exposure time: 1 h Determined in the form of liquid aerosol. Extrapolated from the 4 hr LC50. |
| Skin Irritation | rabbit: Moderate skin irritation. |
| Eye Irritation | rabbit: Corrosive - causes irreversible eye damage. |
| Sensitization | guinea pig: Non-sensitizing. |
| Chronic Toxicity | Diclofop-methyl caused effects in the kidney and/or liver in chronic studies in rats, mice and dogs. |

Assessment Carcinogenicity

Diclofop-methyl has been classified by EPA as "likely to be carcinogenic to humans" based on an increased incidence of liver tumors in mice and rats.

ACGIH



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None.
NTP
None.
IARC
None.
OSHA
None.

Reproductive & Developmental Toxicity

REPRODUCTION: Diclofop-methyl caused toxicity in offspring at doses producing systemic toxicity in adult rats.

DEVELOPMENTAL TOXICITY: Diclofop-methyl was not a primary developmental toxicant in rats and rabbits. Developmental effects were observed in rats but were considered secondary to maternal toxicity.

Neurotoxicity

Diclofop-methyl did not demonstrate the potential to cause neurotoxicity in standard toxicity studies using laboratory animals.

Mutagenicity

Diclofop-methyl was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

SECTION 12. ECOLOGICAL INFORMATION

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 contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Do not apply when weather conditions favor runoff or drift. Apply this product as specified on the label.



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SECTION 13. DISPOSAL CONSIDERATIONS

General Disposal Guidance 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 Triple rinse containers. 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. Follow advice on product label and/or leaflet.

SECTION 14. TRANSPORT INFORMATION

DOT CLASSIFICATION:
 Not Regulated for Domestic Surface Transportation*

* For Bulk packages greater than 119 gallons are regulated as follows:
 NA1993, Combustible Liquid, N.O.S. (xylene range solvents) Combustible Liquid, PG III

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

SECTION 15. REGULATORY INFORMATION

EPA Registration No. 432-1231

US Federal Regulations

TSCA list

| | |
|---|------------|
| Cyclohexanone | 108-94-1 |
| 1,2,4-Trimethylbenzene | 95-63-6 |
| Xylene | 1330-20-7 |
| Ethylbenzene | 100-41-4 |
| Calcium dodecylbenzenesulfonate, branched | 70528-83-5 |
| 2-Methylpropan-1-ol | 78-83-1 |
| Nonylphenol ethoxylate | 9016-45-9 |

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

None.

SARA Title III - Section 302 - Notification and Information

None.

SARA Title III - Section 313 - Toxic Chemical Release Reporting

| | | |
|--------------|----------|------|
| Ethylbenzene | 100-41-4 | 0.1% |
|--------------|----------|------|

US States Regulatory Reporting

CA Prop65

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



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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 |
| Ethylbenzene | 100-41-4 | CA, CT, IL, MN, NJ, PA, RI |
| 2-Methylpropan-1-ol | 78-83-1 | CA, CT, IL, MN, PA, RI |

Canadian Regulations

Canadian Domestic Substance List

| | |
|---|------------|
| Cyclohexanone | 108-94-1 |
| 1,2,4-Trimethylbenzene | 95-63-6 |
| Xylene | 1330-20-7 |
| Ethylbenzene | 100-41-4 |
| Calcium dodecylbenzenesulfonate, branched | 70528-83-5 |
| 2-Methylpropan-1-ol | 78-83-1 |
| Nonylphenol ethoxylate | 9016-45-9 |

Environmental

CERCLA

| | | |
|---------------------|-----------|-----------|
| Cyclohexanone | 108-94-1 | 5,000 lbs |
| Xylene | 1330-20-7 | 100 lbs |
| Ethylbenzene | 100-41-4 | 1,000 lbs |
| 2-Methylpropan-1-ol | 78-83-1 | 5,000 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)

| | |
|---|------------|
| Calcium dodecylbenzenesulfonate, branched | 70528-83-5 |
|---|------------|

SECTION 16. OTHER INFORMATION

NFPA 704 (National Fire Protection Association):

Health - 2 Flammability - 2 Reactivity - 0 Others - none

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

Reason to Revise: Updated due to new system and numbering scheme. Updated for general editorial purposes.

Revision Date: 01/11/2008

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