SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier
Trade name LAUDIS® HERBICIDE
Product code (UVP) 79112912
SDS Number 102000017388
EPA Registration No. 264-860

Relevant identified uses of the substance or mixture and uses advised against
Use Herbicide
Restrictions on use See product label for restrictions.

Information on manufacturer
Bayer CropScience
2 T.W. Alexander Drive
Research Triangle PK, NC 27709
United States

Emergency Telephone Number (24hr/ 7 days) 1-800-334-7577
Product Information Telephone Number 1-866-99BAYER (1-866-992-2937)
SDS Information or Request SDSINFO.BCS-NA@bayer.com

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200
Eye irritation : Category 2B
Acute toxicity (Oral): Category 4

Signal word: Warning

Hazard statements
Causes eye irritation.
Harmful if swallowed.

Precautionary statements
Wash face, hands and any exposed skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
IF SWALLOWED: Call a POISON CENTER/doctor/physician if you feel unwell.
Rinse mouth.
Dispose of contents/container in accordance with local regulation.

Other hazards
No other hazards known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous Component Name</th>
<th>CAS-No.</th>
<th>Average % by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tembotrione</td>
<td>335104-84-2</td>
<td>34.50</td>
</tr>
<tr>
<td>Isoxadifen-ethyl</td>
<td>163520-33-0</td>
<td>17.20</td>
</tr>
<tr>
<td>1,2-Propanediol</td>
<td>57-55-6</td>
<td>5.00</td>
</tr>
</tbody>
</table>

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice
When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

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.

Skin contact
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.

Eye contact
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.

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.

Most important symptoms and effects, both acute and delayed
Symptoms
To date no symptoms are known.

Indication of any immediate medical attention and special treatment needed
Treatment
Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.
SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable: Water spray, Foam, Carbon dioxide (CO2), Dry powder

Unsuitable: None known.

Special hazards arising from the substance or mixture: Dangerous gases are evolved in the event of a fire.

Advice for firefighters:

Special protective equipment for fire-fighters: Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

Further information:

Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.

Flash point: > 93.4 °C

Autoignition temperature: no data available

Lower explosion limit: no data available

Upper explosion limit: no data available

Explosivity: not applicable

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions: Isolate hazard area. Keep unauthorized people away. Avoid contact with spilled product or contaminated surfaces.

Methods and materials for containment and cleaning up

Methods for cleaning up: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Clean contaminated floors and objects thoroughly, observing environmental regulations.

Additional advice: Use personal protective equipment. Do not allow product to contact non-target plants. Do not allow to enter soil, waterways or waste water canal.

Reference to other sections: Information regarding safe handling, see section 7. Information regarding personal protective equipment, see section 8. Information regarding waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE
Precautions for safe handling

Advice on safe handling
Handle and open container in a manner as to prevent spillage. Maintain exposure levels below the exposure limit through the use of general and local exhaust ventilation.

Hygiene measures
Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics. Remove soiled clothing immediately and clean thoroughly before using again. 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. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities
Requirements for storage areas and containers
Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Update</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tembotrione</td>
<td>335104-84-2</td>
<td>0.15 mg/m³ (TWA)</td>
<td></td>
<td>OES BCS*</td>
</tr>
<tr>
<td>Isoxadifen-ethyl</td>
<td>163520-33-0</td>
<td>1 mg/m³ (TWA)</td>
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<td>OES BCS*</td>
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<tr>
<td>1,2-Propanediol</td>
<td>57-55-6</td>
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<td>02 2013</td>
<td>TX ESL</td>
</tr>
<tr>
<td>1,2-Propanediol</td>
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<td>50ppb (AN ESL)</td>
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<td>TX ESL</td>
</tr>
<tr>
<td>1,2-Propanediol</td>
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<td>500ppb (ST ESL)</td>
<td>02 2013</td>
<td>TX ESL</td>
</tr>
<tr>
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<td>100ug/m³ (AN ESL)</td>
<td>02 2013</td>
<td>TX ESL</td>
</tr>
<tr>
<td>1,2-Propanediol</td>
<td>57-55-6</td>
<td>10 mg/m³ (TWA)</td>
<td>2010</td>
<td>WEEL</td>
</tr>
</tbody>
</table>

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

Exposure controls

Personal protective equipment
In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

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.

**Hand protection**  
Chemical resistant nitrile rubber gloves

**Eye protection**  
Safety glasses with side-shields

**Skin and body protection**  
Wear long-sleeved shirt and long pants and shoes plus socks.

**General protective measures**  
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.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value/State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>white to light yellow</td>
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<tr>
<td>Physical State</td>
<td>suspension</td>
</tr>
<tr>
<td>Odor</td>
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<tr>
<td>Odour Threshold</td>
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</tr>
<tr>
<td>pH</td>
<td>ca. 3.0 at 10 % (23 °C)</td>
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<tr>
<td>Vapor Pressure</td>
<td>no data available</td>
</tr>
<tr>
<td>Vapor Density (Air = 1)</td>
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</tr>
<tr>
<td>Density</td>
<td>1.22 g/cm³ at 20 °C</td>
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<tr>
<td>Evaporation rate</td>
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<tr>
<td>Boiling Point</td>
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</tr>
<tr>
<td>Melting / Freezing Point</td>
<td>no data available</td>
</tr>
<tr>
<td>Water solubility</td>
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</tr>
<tr>
<td>Minimum Ignition Energy</td>
<td>not applicable</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>not applicable</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>no data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>800 - 1,200 mPa.s at 20 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>&gt; 93.4 °C</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>no data available</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>no data available</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>no data available</td>
</tr>
<tr>
<td>Explosivity</td>
<td>not applicable</td>
</tr>
<tr>
<td>Other information</td>
<td>Further safety related physical-chemical data are not known.</td>
</tr>
</tbody>
</table>
SECTION 10: STABILITY AND REACTIVITY

Reactivity

Thermal decomposition not applicable

Chemical stability Stable under recommended storage conditions.

Possibility of hazardous reactions No hazardous reactions when stored and handled according to prescribed instructions.

Conditions to avoid Extremes of temperature and direct sunlight.

Incompatible materials no data available

Hazardous decomposition products No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes Ingestion, Eye contact, Skin contact

Immediate Effects

Eye Moderate eye irritation.

Ingestion Harmful if swallowed.

Information on toxicological effects

Acute oral toxicity LD50 (female rat) 1,750 mg/kg

Acute inhalation toxicity LC50 (rat) > 2.1 mg/l
 Exposure time: 4 h
 Determined in the form of liquid aerosol.
 Highest attainable concentration.
 No deaths

LC50 (rat) > 8.4 mg/l
 Exposure time: 1 h
 Determined in the form of liquid aerosol.
 Extrapolated from the 4 hr LC50.

Acute dermal toxicity LD50 (rat) > 5,000 mg/kg

Skin irritation Slight irritation (rabbit)

Eye irritation Mild eye irritation. (rabbit)

Sensitisation Non-sensitizing. (guinea pig)

Assessment repeated dose toxicity

Tembotrione did not cause specific target organ toxicity in experimental animal studies.
Isoxadifen-ethyl did not cause specific target organ toxicity in experimental animal studies.

Assessment Mutagenicity
Tembotrione was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.
Isoxadifen-ethyl was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

**Assessment Carcinogenicity**

Tembotrione caused at high dose levels an increased incidence of tumours in rats in the following organ(s); cornea. The mechanism that triggers tumours in rodents and the type of tumours observed are not relevant to humans.
Isoxadifen-ethyl was not carcinogenic in lifetime feeding studies in rats and mice.

**ACGIH**

None.

**NTP**

None.

**IARC**

None.

**OSHA**

None.

**Assessment toxicity to reproduction**

Tembotrione did not cause reproductive toxicity in a two-generation study in rats.
Isoxadifen-ethyl did not cause reproductive toxicity in a two-generation study in rats.

**Assessment developmental toxicity**

Tembotrione caused developmental toxicity only at dose levels toxic to the dams. Tembotrione caused a delayed ossification of foetuses, an increased incidence of variations. The developmental effects seen with Tembotrione are related to maternal toxicity.
Isoxadifen-ethyl did not cause developmental toxicity in rats and rabbits.

**Further information**

Only acute toxicity studies have been performed on the formulated product.
The non-acute information pertains to the active ingredient(s).

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**SECTION 12: ECOLOGICAL INFORMATION**

**Toxicity to fish**

LC50 (Oncorhynchus mykiss (rainbow trout)) 5.41 mg/l
Exposure time: 96 h

**Toxicity to aquatic invertebrates**

EC50 (Water flea (Daphnia magna)) 33.5 mg/l
Exposure time: 48 h

**Toxicity to aquatic plants**

EC50 (Pseudokirchneriella subcapitata) 15.4 mg/l
Growth rate; Exposure time: 72 h

**Biodegradability**

Not applicable for this mixture.

**Biodegradability**

Isoxadifen-ethyl: ; not rapidly biodegradable
ISOXADIFEN-ETHYL: Koc: 2512
Bioaccumulation: Not applicable for this mixture.
Bioaccumulation: Does not bioaccumulate.
Mobility in soil: Slightly mobile in soils
Additional ecological information: No other effects to be mentioned.
Environmental precautions: Do not allow to get into surface water, drains and ground water.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods
Product: It is best to use all of the product in accordance with label directions. If it is necessary to dispose of unused product, please follow container label instructions and applicable local guidelines.
Never place unused product down any indoor or outdoor drain.
Contaminated packaging: Do not re-use empty containers.
Triple rinse containers.
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.
Follow advice on product label and/or leaflet.
RCRA Information: Characterization and proper disposal of this material as a special or hazardous waste is dependent upon Federal, State and local laws and are the user's responsibility. RCRA classification may apply.

SECTION 14: TRANSPORT INFORMATION

49CFR: Not dangerous goods / not hazardous material

IMDG
UN number: 3082
Class: 9
Packaging group: III
Marine pollutant: YES
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(TEMBOTRIONE, ISOXADIFEN-ETHYL SOLUTION)

IATA
UN number: 3082
Class: 9
Packaging group: III
Environm. Hazardous Mark: YES
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TEMBOTRIONE, ISOXADIFEN-ETHYL SOLUTION)

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

Freight Classification: COMPOUNDS, TREE OR WEED KILLING, N.O.I. other than poison, HAVING A DENSITY OF 20 LBS OR GREATER PER CUBIC FOOT

SECTION 15: REGULATORY INFORMATION

EPA Registration No. 264-860
US Federal Regulations
TSCA list
Isoxadifen-ethyl 163520-33-0
1,2-Propanediol 57-55-6
US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
Isoxadifen-ethyl 163520-33-0
SARA Title III - Section 302 - Notification and Information
None.
SARA Title III - Section 313 - Toxic Chemical Release Reporting
None.
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
1,2-Propanediol 57-55-6 MN

Canadian Regulations
Canadian Domestic Substance List
None.

Environmental
CERCLA
None.
Clean Water Section 307 Priority Pollutants
None.
Safe Drinking Water Act Maximum Contaminant Levels
None.

EPA/FIFRA Information:
This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information required on the pesticide label:

**Signal word:**  
Caution!

**Hazard statements:**  
Harmful if swallowed.  
Moderate eye irritation.  
Avoid contact with skin, eyes and clothing.

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**SECTION 16: OTHER INFORMATION**

**NFPA 704 (National Fire Protection Association):**

- Health: 1  
- Flammability: 1  
- Instability: 0  
- Others: none


- Health: 1  
- Flammability: 1  
- Physical Hazard: 0  
- PPE: -

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

**Reason for Revision:** Revised according to the current OSHA Hazard Communication Standard (29CFR1910.1200)

**Revision Date:** 06/16/2014

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