

EPA 1540/FS-90/081

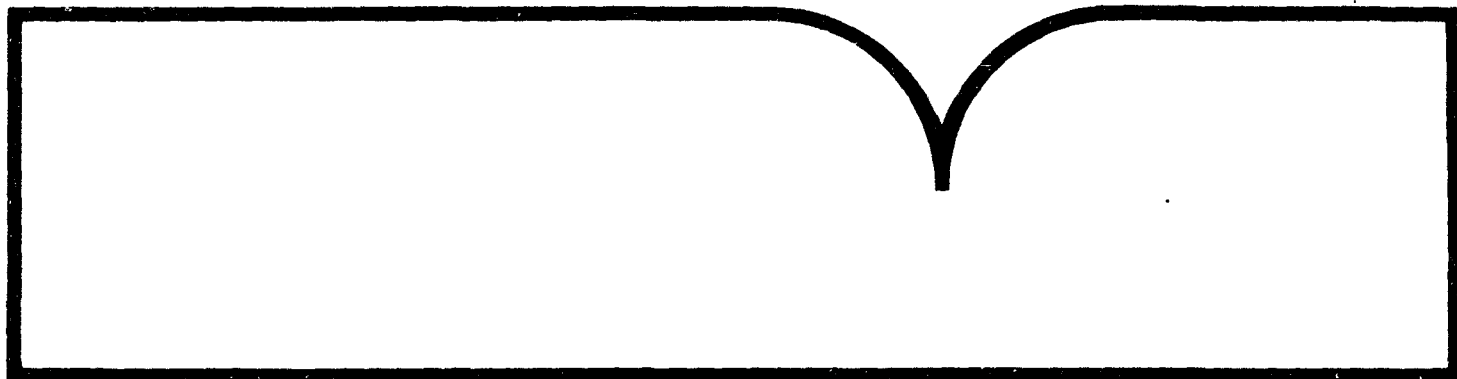


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Pesticide Fact Sheet Number 211: Oryzalin

(U.S.) Environmental Protection Agency, Washington, DC

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**NTIS**

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| 15. Supplementary Notes  |               |         |   |
| <p>16. Abstract (Limit: 200 words)</p> <p>This document contains up-to-date chemical information, including a summary of the Agency's regulatory position and rationale, on a specific pesticide or group of pesticides. A Fact Sheet is issued after one of the following actions has occurred.</p> <ol style="list-style-type: none"> <li>1. Issuance or reinsuance of a registration standard,</li> <li>2. Issuance of each special review document,</li> <li>3. Registration of a significantly changed use pattern,</li> <li>4. Registration of a new chemical, or</li> <li>5. An immediate need for information to resolve controversial issues relating to a specific chemical or use pattern.</li> </ol> |               |         |   |
| <p>17. Document Analysis a. Descriptors</p> <p>Pesticides, regulations, Chemical Information Fact Sheet, Use Patterns, science findings.</p> <p>b. Identifiers/Open-Ended Terms</p> <p style="text-align: center;">REPRODUCED BY<br/>U. S. DEPARTMENT OF COMMERCE<br/>NATIONAL TECHNICAL INFORMATION SERVICE<br/>SPRINGFIELD, VA. 22161</p> <p>c. COSATI Field/Group</p> <p>18. Availability Statement<br/>Publicly Available</p> <p>19. Security Class (This Report)<br/>Unclassified</p> <p>20. Security Class (This Page)<br/>Unclassified</p> <p>21. No. of Pages<br/>9</p> <p>22. Price</p>   |               |         |   |



# Pesticide Fact Sheet

Name of Chemical: Oryzalin  
Reason for Issuance: Registration Standard  
Date Issued: 30 JUN 1987  
Fact Sheet Number: 211

## 1. DESCRIPTION OF CHEMICAL

Generic Name: Oryzalin  
Common Name: Oryzalin (WSSA, BSI, ISO, ANSI);  
EL-119 (Code Number)  
Trade Names: Surflan<sup>®</sup>, Ryzelan<sup>™</sup>  
EPA Shaughnessy Code: 104201  
Chemical Abstracts  
Service (CAS) Number: 19044-88-3  
Year of Initial  
Registration: 1974  
Pesticide Type: Herbicide  
Chemical Family: Dinitroaniline  
U.S. And Foreign  
Producers: Eli Lilly Company

## 2. USE PATTERNS AND FORMULATIONS

Application Sites: To control annual grasses and broadleaf weeds in fruit, nut crops, vineyards (bearing and nonbearing), soybeans, cotton (Texas only), Peas (English and green), tobacco (air- and flue-cured), potatoes (white), small grains (wheat and barley), forestry and Christmas tree plantations, established ornamentals, and noncropland areas.

Mechanism of Action: When applied to soil and with adequate rainfall or irrigation, oryzalin affects physiological growth processes associated with seed germination.

**Types of Formulations:** Emulsifiable concentrate, flowable liquid concentrate, and wettable powder.

**Types and Methods of Application:** Aerial and ground sprays, application through irrigation systems.

**Application Rates:** Vary from 0.28 to 6.0 lbs of active ingredient per acre depending upon the use site, weeds to be controlled and soil conditions.

### 3. SCIENCE FINDINGS

**Summary Science Statement:** Oryzalin has been found to be oncogenic in rats and has been classified as a Group C carcinogen. Oryzalin is not acutely toxic in general.

#### Chemical Characteristics:

**Physical State:** Crystalline

**Color:** Yellow-orange

**Odor:** None

**Vapor pressure:**  $< 1 \times 10^{-7}$  mm Hg at 30°C

**Melting Point:** 141°C to 142°C

**Flammability:** Technical material is a flammable solid. No special precautions for end-use products.

| <b>Solubility 25°C:</b> | <u>Solvent</u>    | <u>g/100 ml</u>  |
|-------------------------|-------------------|------------------|
|                         | Water             | .00025 (2.5 ppm) |
|                         | Acetone           | >50              |
|                         | Acetonitrile      | >15              |
|                         | Benzene           | 0.4              |
|                         | Dicloromethane    | 73               |
|                         | Methanol          | 5                |
|                         | Methyl cellosolve | 50               |
|                         | Xylene            | 0.2              |
|                         | Ethanol           | readily soluble  |
|                         | Hexane            | insoluble        |

Toxicological Characteristics:

Acute Effects:

Acute Oral Toxicity: >10 g/kg (Rat, in 5% acacia)  
>5 g/kg (Rat, in DMSO)  
>1 g/kg (Dog) (Toxicity Category III)

Acute Dermal Toxicity: >2 g/kg (rabbit) (Toxicity Category III)

Acute Inhalation  
Toxicity (75WP): >3.56 mg/l (Toxicity Category III)

Primary Eye Irritation: Slight corneal damage (Toxicity  
Category III)

Major Routes of  
Exposure: Dermal, inhalation.

Chronic Effects:

F-344 rat - one year: Minimal toxicity was observed at the  
medium and highest dose levels of  
900 ppm and 2700 ppm in the feed.

86C3F1 mouse - one  
year: NOEL determined to be 500 ppm  
in the diet.

Oncogenicity:

F-344 rat - two year: Increases in thyroid gland tumors,  
three different groups of skin  
tumors, and mammary gland tumors  
were observed. Oryzalin is  
considered to be oncogenic  
to rats based on this study.

B6C3F1 mouse - two  
year: Negative for oncogenicity with slight  
weight decrease and detectable organ  
effects.

Reproduction: NOEL of 250 ppm.

Teratology:

Rat: No teratogenic effects observed at 2250  
ppm (225 mg/kg) in the diet; the NOEL  
for teratogenicity following oral intub-  
ation is at least 225 mg/kg/day.

Dutch Belted Rabbits: NOEL of at least 125 mg/kg/day.

**Mutagenicity:** histidine auxotrophs of *Salmonella typhimurium* indicate no mutagenic effect from 0.1 to 1,000 ug/ml.

**Chromosomal Aberrations:** Oryzalin did not result in an increase in dominant lethal mutations in the Wistar rat.

**Primary DNA Damage:** Oryzalin administered intraperitoneally induced sister chromatid exchanges (SCEs), however, oryzalin administered orally did not induce SCEs in the bone marrow of Chinese hamsters.

**Physiological and Biochemical Behavioral Characteristics:**

**Metabolism:** Harlan male rats - 40% excreted in urine and 40% in feces in 3 days. Other studies with rabbits, a 400-pound steer and Rhesus monkeys demonstrated similar high rates of elimination of oryzalin.

**Environmental Characteristics:**

**Preliminary adsorption and leaching characteristics:** Oryzalin is leached to a limited extent under natural rainfall conditions depending upon soil organic matter and clay content. These characteristics are not adequately understood.

**Resultant average persistence:** Preliminary field studies with <sup>14</sup>C oryzalin have indicated a relatively short anaerobic half-life.

**Ecological Characteristics:** Data are sufficient to characterize oryzalin as practically nontoxic to birds, and laboratory and field studies indicate no undue hazard to fish.

**Tolerance Assessment:**

List of crops and tolerances: (CFR 40 180.304)

| <u>Commodity</u> | <u>Tolerance (ppm)</u> |
|------------------|------------------------|
| Almond, hulls    | 0.05                   |
| Avocados         | 0.05                   |
| Citrus fruits    | 0.05                   |
| Cottonseed       | 0.05                   |
| Figs             | 0.05                   |
| Kiwifruits       | 0.05                   |
| Nuts             | 0.05                   |
| Olives           | 0.05                   |

| <u>Commodity</u> | <u>Tolerance (ppm)</u> |
|------------------|------------------------|
| Peas (succulent) | 0.05                   |
| Peppermint hay   | 0.05                   |
| Pistachios       | 0.05                   |
| Pome fruit       | 0.05                   |
| Pomegranates     | 0.05                   |
| Potatoes         | 0.05                   |
| Small fruits     | 0.05                   |
| Soybeans         | 0.1                    |
| Spearmint hay    | 0.05                   |
| Stone fruits     | 0.05                   |
| Sweet potatoes   | 0.05                   |

Results of Tolerance Assessment: PADI in humans is 0.013 mg/kg/day, with NOEL of 12.50 mg/kg/day and a safety factor of 1,000. These figures may be refined by the two-year dog study required by the Registration Standard.

#### 4. SUMMARY OF REGULATORY POSITION AND RATIONALE

Use, Formulation or Geographic Restrictions: Manufacturing-use products may only be formulated into end-use products intended for use as an herbicide on fruit, nut crops, vineyards (bearing and nonbearing), soybeans, cotton (Texas only), peas (English or green), tobacco (air- and flue-cured), potato (white), small grains (wheat and barley), forestry and Christmas tree plantations, established ornamentals, and noncropland areas.

Unique label warning statements:

##### All Manufacturing-use Products

"Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or public waters unless this product is specifically identified and addressed in a NPDES permit. Do not discharge effluent containing this product to sewer systems without previously notifying the sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA."

##### End-use Products

"Do not graze or feed forage from treated fields or orchards to livestock."

"Mixer/loader/applicators must wear protective clothing, consisting of coveralls, a long-sleeved shirt, shoes and impermeable gloves when handling this product."

Non-granular End-use Products

"Do not apply directly to water or wetlands. Do not contaminate water by cleaning of equipment or disposal of wastes."

End-use Products Applied by Center Pivot Irrigation Systems: The labels of these products must bear a posting requirements statement and the appropriate chemigation instructions, as specified in the Registration Standard.

5. SUMMARY OF MAJOR DATA GAPS

| <u>Data required</u>                         | <u>Due Date (after issuance of the Standard)</u> |
|--|--|
| Product Chemistry                            | 6 - 12 months                                    |
| Nature of residues (Metabolism)              | 18 months  |
| Chronic toxicity (dog)                       | 11/15/86*  |
| Hydrolysis                                   | 9 months   |
| Photodegradation                             | 9 months   |
| Soil metabolism studies                      | 27 months  |
| Leaching and adsorption/desorption           | 12 months  |
| Volatility (lab)                             | 12 months  |
| Dissipation studies - field                  | 27 months  |
| Rotational crops - confined                  | 39 months  |
| Fish accumulation                            | 12 months  |
| Accumulation in aquatic non-target organisms | 12 months  |

\* Study received 12/86.



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