



## SAFETY DATA SHEET

SDS ID: 74530-91

### 1. IDENTIFICATION

**Product Name:** Zone Defense  
**EPA Registration Number:** 74530-91  
**Date of Preparation:** May 14, 2020

**Recommended use of the chemical and restrictions on use:**

**Recommended use:** For control and/or suppression of weeds. Read and understand the entire label before using. Use only according to label directions. It is a violation of Federal law to use this product in a manner inconsistent to label directions.

**Restrictions on use:** Do not use this product in a way that will contact workers or other persons, either directly or through drift.

**Manufacturer/Supplier:** HELM Agro US, Inc.  
401 E Jackson St., Suite 1400  
Tampa, FL 33602  
**Phone Number:** 813-621-8846  
**Email:** [info@helmagro.com](mailto:info@helmagro.com)  
**Emergency Phone Number:** Chemtrec: 1-800-424-9300

### 2. HAZARD(S) IDENTIFICATION

**GHS Classification:**

Physical	Health
Not Classified	Reproductive Toxicity Category 2

**Label Elements:**

Warning!



**Hazard Statements:**

Suspected of damaging the unborn child.

**Precautionary Statements:**

Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.  
Wear protective gloves.  
IF exposed or concerned: Get medical attention.  
Store locked up.  
Dispose of contents and container in accordance with local and national regulations.

**Other Hazards:** None known.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical name	CAS No.	Concentration
Sulfentrazone	122836-35-5	62.2%
Other Ingredients	Mixture	22.8%
Flumioxazin	103361-09-7	15.0%

The specific identity and/or exact percentage of composition has been withheld as a trade secret.

### 4. FIRST-AID MEASURES

#### Description of First Aid Measures:

**Eye:** Rinse thoroughly with water. Get medical attention if irritation occurs and persists.

**Skin:** Flush thoroughly with water. Get medical attention if irritation or symptoms of exposure develop. Remove and launder contaminated clothing before re-use.

**Inhalation:** Remove victim to fresh air. If breathing is difficult or irritation persists, get medical attention.

**Ingestion:** Do not induce vomiting unless directed to do so by medical personnel. Keep the victim calm and warm. Get medical attention if symptoms develop.

**Most Important Symptoms/Effects, Acute and Delayed:** May cause mild eye irritation. May cause slight skin irritation. Prolonged exposure to this product is suspected to cause reproductive harm.

**Indication of Immediate Medical Attention and Special Treatment, If Necessary:** None required under normal conditions of use.

### 5. FIRE-FIGHTING MEASURES

**Suitable (and Unsuitable) Extinguishing Media:** Use media appropriate for surrounding fire.

**Specific Hazards Arising From the Chemical:** This product is not combustible. Thermal decomposition may produce oxides of carbon, nitrogen, and sulfur, and fluorine.

**Special Protective Equipment and Precautions for Fire-Fighters:** Wear an approved, positive pressure, self-contained breathing apparatus and full protective clothing. Cool fire exposed containers with water. Do not allow run-off from firefighting to enter drains or water courses.

### 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions, Protective Equipment and Emergency Procedures:** Evacuate spill area and keep unprotected personnel away. Avoid contact with eyes, skin, and clothing. Wear appropriate protective clothing as described in Section 8. Avoid breathing dust or mists from spray solution. Ventilate area.

**Environmental Hazards:** Avoid unintentional releases to the environment. Report spill as required by local and federal regulations.

**Methods and Materials for Containment and Cleaning Up:** Scoop or shovel up using methods that minimize the generation of airborne dust. Dust deposits should not be allowed to accumulate on surfaces. Avoid

dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Place dry material into an appropriate container for disposal. If in solution, contain and collect liquid for use. Collect residual liquid with an inert absorbent material. Place in suitable container for disposal. Clean spill area thoroughly with water.

## 7. HANDLING AND STORAGE

**Precautions for Safe Handling:** Avoid contact with eyes, skin, and clothing. Wear protective clothing and equipment as described in Section 8. Wash hands thoroughly with soap and water after use. Avoid breathing dust or mists from spray solution. Keep containers closed when not in use. Refer product label for additional information on use and handling.

For Nonrefillable containers, Do not reuse or refill this container. Empty containers may contain product residues which can be hazardous. Follow all SDS precautions when handling empty containers. For Refillable containers, refill this container with Zone Defense only. Do not reuse this container for any other purpose. Cleaning before refilling is the responsibility of the refiller. When empty, return to point of sale.

**Conditions for Safe Storage, Including Any Incompatibilities:** Store product in original container only. Keep container closed when not in use, away from food or feed, fertilizer and other pesticides. Do not put formulation or spray solution in food or drink containers. Store in a cool, dry place and avoid excess heat. Do not store below 30°F degrees. Protect container from physical damage. Do not contaminate water, food or feed by storage or disposal or cleaning of equipment.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### Exposure Guidelines:

Sulfentrazone	None Established
Flumioxazin	None Established

**Appropriate Engineering Controls:** General ventilation is adequate under normal conditions of use. Refer product label for additional information.

### Individual Protection Measures, Such As Personal Protective Equipment:

**Respiratory Protection:** In operations where exposure levels are excessive, an approved respirator with dust/mist cartridges or filtering facepiece should be used. Respirator selection and use should be based on contaminant type, form and concentration. Follow applicable regulations and good Industrial Hygiene practice. Refer product label for additional information.

**Skin Protection:** Use chemical-resistant gloves (barrier laminate, butyl or nitrile rubber, neoprene rubber, polyvinyl chloride, or viton) to prevent skin contact.

**Eye Protection:** Chemical safety glasses or dust goggles are recommended to avoid eye contact.

**Other:** Impervious clothing such as long-sleeved shirt, long pants, shoes plus socks, coveralls, and chemical resistant boots are required to prevent skin contact and contamination of personal clothing. Washing facilities should be available in the work area.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Tan solid granuales

**Flammable limits:** LEL: Not applicable  
UEL: Not applicable

<b>Odor:</b> Faint characteristic odor	<b>Vapor pressure:</b> Not applicable
<b>Odor Threshold:</b> Not applicable	<b>Vapor density:</b> Not applicable
<b>pH:</b> 4.96 (1% solution)	<b>Relative density:</b> 0.5 g/mL
<b>Melting point/freezing point:</b> Not available	<b>Solubility(ies):</b> Soluble in water
<b>Boiling point/range:</b> Not applicable	<b>Partition coefficient (n-octanol/water):</b> Not applicable
<b>Flash point:</b> Not applicable	<b>Auto-ignition temperature:</b> Not applicable
<b>Evaporation rate:</b> Not applicable	<b>Decomposition temperature:</b> Not applicable
<b>Flammability (solid, gas):</b> Not flammable	

## 10. STABILITY AND REACTIVITY

**Reactivity:** Not reactive under normal conditions of use.

**Chemical Stability:** Stable under normal storage and handling conditions.

**Possibility of Hazardous Reactions:** Hazardous polymerization will not occur. Contact with oxidizing agents may cause a hazardous reaction.

**Conditions To Avoid:** Keep away from excessive heat and temperatures below 30°F degrees.

**Incompatible Materials:** Avoid contact with oxidizing agents.

**Hazardous Decomposition Products:** Thermal decomposition may produce oxides of carbon, nitrogen, and sulfur, and fluorine.

## 11. TOXICOLOGICAL INFORMATION

### Potential Health Effects:

**Eye:** This product is expected to cause mild irritation to eyes based on test data from the OPPTS 870.2400 Primary Eye Irritation Study.

**Skin:** This product is expected to cause slight skin irritation based on test data from the OPPTS 870.2500 Primary Skin irritation study.

**Inhalation:** Inhalation of dust or mists from diluted spray solution may cause upper respiratory tract irritation.

**Ingestion:** Swallowing may cause gastrointestinal irritation with nausea and vomiting.

**Chronic Effects:** Prolonged or repeated exposure to Flumioxazin may adversely affect hematopoietic system. The effects from Flumioxazin seen in rats at high dose levels were hematotoxicity including anemia, and increases in liver, spleen, heart, kidney and thyroid weights. Effects seen in dogs at high dose levels included a slight prolongation in activated partial thromboplastin time, increased cholesterol and phospholipid, elevated alkaline phosphatase, increased liver weights and histological changes in the liver.

**Sensitization:** This product is not expected to cause skin sensitization at concentrations less than or equal to 50% based on the OPPTS 870.2600 Local Lymph Node Assay (LLNA) in Mice.

**Carcinogenicity:** In a OPPTS 870.4200 Carcinogenicity study with mice and OPPTS 870.4300 Combined Chronic Toxicity/Carcinogenicity study with rats, there was no evidence of carcinogenic effects for Flumioxazin. None of the components of this product are listed as a carcinogen or suspected carcinogen by OSHA, IARC, and NTP.

**Reproductive Effects:** Flumioxazin is suspected to cause adverse reproductive effects based on animal studies. When tested, Flumioxazin produced developmental toxicity in rats in the absence of maternal toxicity at doses of 30 mg/kg/day by the oral route and 300 mg/kg/day by the dermal route. The developmental effects noted

consisted primarily of decreased number of live fetuses and fetal weights, cardiovascular abnormalities, wavy ribs and decreased number of ossified sacrococcygeal vertebral bodies. When tested in rabbits, the response was different from that in rats and no developmental toxicity was noted. In a developmental toxicity study with Sulfentrazone in rats showed evidence of treatment-related developmental toxicity consisted of decreased fetal viability, decreased fetal body weight, and increased incidence of fetal alterations, comprised, for the mostpart, of skeletal malformations and variations.

**Mutagenic Effects:** Flumioxazin was not mutagenic in most in vitro assays: gene mutation and a chromosome aberration assay in the absence of metabolic activation. In three in vivo assays, chromosome aberration, unscheduled DNA synthesis and micronucleus assay, Flumioxazin was not mutagenic. The only positive response was observed in the in vitro chromosome aberration assay in the presence of metabolic activation. A reverse gene mutation assay in Salmonella typhimurium with Sulfentrazone yielded negative results, both with and without metabolic activation. This product is not expected to cause germ cell mutagenicity.

**Acute Toxicity:**

The following values are based on OPPTS Test Data:

Oral rat LD50: 3129 mg/kg, Inhalation rat LC50: >2.07 mg/L (no mortality), Skin rat LD50: >5000 mg/kg

<b>12. ECOLOGICAL INFORMATION</b>
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**Ecotoxicity:**

Sulfentrazone: 96 hr LC50 Bluegill Sunfish 93.8 ppm

Flumioxazin: 96 hr LC50 Bluegill sunfish >21.0 ppm (0.304 mg/L), 96 hr LC50 Rainbow trout 2.3 ppm (0.033 mg/L), 48 hr EC50 Daphnia pulex 5.5 ppm (0.08 mg/L)

This product is expected to be very toxic to the aquatic environment with long lasting effects. Releases to the environment should be avoided.

**Persistence and Degradability:** Flumioxazin: Rapidly degradable in water.

**Bioaccumulative Potential:** Flumioxazin: Data indicates that Flumioxazin and its major hydrolytic degradation products are unlikely to partition into fatty tissues so it is condered to have low bioaccumulation potential.

**Mobility in Soil:** No data available. This product is known to leach through soil into groundwater under certain conditions as a result of label use. Use of this product in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. DO NOT use on coarse soils classified as sand which have less than 1% organic matter.

**Other Adverse Effects:** This pesticide is toxic to non-target plants and marine/estuarine invertebrates and should be used strictly in accordance with the drift and run-off pre- cautions on this label in order to minimize off-site exposures. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to terrestrial and aquatic plants in neighboring areas. Do not apply where runoff is likely to occur. Do not apply when weather conditions favor drift from treated areas. Do not contaminate water when disposing of equipment washwaters or rinsate.

<b>13. DISPOSAL CONSIDERATIONS</b>
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**Pesticide Disposal:** Wastes resulting from the use of this product that cannot be used must be disposed of in a landfill approved for pesticide disposal or in accordance with applicable Federal, State or local procedures. For more information contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative of the nearest EPA Regional Office for guidance.

**Container Disposal:** DO NOT contaminate water, food or feed by storage or disposal or cleaning of equipment. Nonrefillable Container: Do not reuse or refill this container. Clean container promptly after emptying. Triple Rinse. Offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or by other procedures allowed by state and local authorities.

**14. TRANSPORT INFORMATION**

	UN Number	Proper shipping name	Hazard Class	Packing Group	Environmental Hazard
<b>US DOT</b>	None	Not Regulated	None	None	Not applicable
<b>IMDG*</b>	UN3077	Environmentally hazardous substance, solid, n.o.s. (Flumioxazin)	9	III	Marine Pollutant
<b>IATA*</b>	UN3077	Environmentally hazardous substance, solid, n.o.s. (Flumioxazin)	9	III	Yes

\*Inner packages with less than 5 kg of solid are exempt per IMDG Code 2.10.2.7 and ICAO Special Provision A197.

**Special precautions:** None known

**15. REGULATORY INFORMATION**

**Safety, Health, and Environmental Regulations Specific for the Product In Question:**

This chemical is a pesticide product registered by the United States 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 (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

**FIFRA Labeling:**

**Keep Out Of Reach of Children**

**CAUTION**

**PRECAUTIONARY STATEMENTS**

**Hazards to Humans and Domestic Animals**

Harmful if swallowed. Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.

**Physical/Chemical hazards:** DO NOT mix or allow coming in contact with oxidizing agents. Hazardous chemical reaction may occur.

**U.S. FEDERAL REGULATIONS:**

**CERCLA 103 Reportable Quantity:** This product is not subject to reporting under CERCLA. Some states have more stringent reporting requirements. Report all spills in accordance with local, state, and federal regulations.

**SARA TITLE III:**

**Hazard Category for Section 311/312:** See OSHA Hazard Classification in Section 2.

**Section 313 Toxic Chemicals:** This product contains the following chemicals subject to SARA Title III Section 313 Reporting requirements: None

**Section 302 Extremely Hazardous Substances (TPQ):** None

**EPA Toxic Substances Control Act (TSCA) Status:** This product is a EPA Registered product #74530-91. However, all of the ingredients of this product are listed on the TSCA inventory or exempt.

<b>16. OTHER INFORMATION</b>
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**SDS Revision History:** New SDS

**Date of preparation:** May 14, 2020

**Date of last revision:** N/A