# Safety Data Sheet - GHS

## 1. IDENTIFICATION: CHEMICAL PRODUCT AND COMPANY

**PRODUCT NAME:** VALOR® EZ Herbicide²
**EPA REGISTRATION NUMBER:** 59639-221
**PRODUCT CODE:** C508

**MANUFACTURER/DISTRIBUTOR**
VALENT U.S.A. LLC
P.O. Box 5075
4600 Norris Canyon Road
San Ramon, CA 94583

**EMERGENCY TELEPHONE NUMBERS**
HEALTH EMERGENCY OR SPILL (24 hr):
(800) 892-0099
TRANSPORTATION (24 hr.): CHEMTREC
(800) 424-9300 or (202) 483-7616

**PRODUCT INFORMATION**
AGRICULTURAL PRODUCTS: (800) 682-5368

## 2. HAZARDS IDENTIFICATION

This product is an EPA FIFRA registered pesticide. Some classifications on this SDS are not the same as the FIFRA-required classifications on the product label. Certain sections of this SDS are superseded by federal law under EPA FIFRA for a registered pesticide. Please see Section 15, REGULATORY INFORMATION for an explanation.

**Classification** - (per U.S. OSHA 29 CFR 1910.1200 (Hazcom 2012))

| | |
|---|---|
| Acute toxicity - Inhalation (Dusts/Mists) | Category 4 |
| Reproductive toxicity | Category 2 |
| Specific target organ toxicity (repeated exposure) | Category 2 (Bone Marrow) |

**Label elements**

**EMERGENCY OVERVIEW**

## WARNING

**Hazard statements**
Harmful if inhaled
Suspected of damaging fertility or the unborn child
May cause damage to bone marrow through prolonged or repeated exposure.

**Precautionary statements**

**Prevention**
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required.
Use only outdoors or in a well-ventilated area
Avoid breathing dust/fume/gas/mist/vapors/spray

**Response**
IF EXPOSED OR CONCERNED: Get medical advice/attention
**Eyes** None.
**Skin** None.
**Inhalation** IF INHALED: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
**Ingestion** None.
**FIRE** None.
**Spill** None.

**Storage**
Store locked up

**Disposal**
Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**
**Other Information**
• Very toxic to aquatic life with long lasting effects.

For information on Transportation requirements, see Section 14.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical name | CAS No. | Weight-% | TRADE SECRET |
|---|---|---|---|
| Flumioxazin | 103361-09-7 | 41.4 | |
| Aluminum oxide | 1344-28-1 | 0.05- 0.9 | * |
| Propylene glycol | 57-55-6 | 5 - 8 | * |
| Others | Various CAS#s | 44 - 56 | * |

* The chemical name, CAS number and/or exact percentage have been withheld as a trade secret

Other ingredients, which may be maintained as trade secrets, are any substances other than an active ingredient contained in this product. Some of these may be hazardous, but their identities are withheld because they are considered trade secrets. The hazards associated with the other ingredients are addressed in this document. Specific information on other ingredients for the management of exposures, spills, or safety assessments can be obtained by a treating physician or nurse by calling **(800) 892-0099** at any time.

## 4. FIRST AID MEASURES

**EMERGENCY NUMBER (800) 892-0099**

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact **1-800-892-0099** for emergency medical treatment information.

**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 poison control center or doctor for treatment advice.

**SKIN CONTACT:**
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:**
Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. DO NOT induce vomiting unless told to do so by the poison control center or doctor. Do not give anything to an unconscious person.

**INHALATION:**
Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

**NOTES TO PHYSICIAN:**
None

## 5. FIRE FIGHTING MEASURES

| | |
|---|---|
| **Flash point °C** | > 100 °C |
| **Flash point °F** | > 212 °F |
| **EXTINGUISHING MEDIA:** | Water fog, carbon dioxide, foam, dry chemical |

**NFPA RATING:**

| | |
|---|---|
| Health: | 1 |
| Flammability: | 1 |
| Reactivity: | 0 |
| Special: | None |

(Least-0, Slight-1, Moderate-2, High-3, Extreme-4). These values are obtained using professional judgement. Values were not available in the guidelines or published evaluations prepared by the National Fire Protection Association, NFPA.

**FIRE FIGHTING INSTRUCTIONS:** As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH approved (or equivalent) and full protective gear. Evacuate area and fight fire upwind from a safe distance to avoid hazardous vapors and decomposition products. Dike and collect water used to fight fire to prevent environmental damage due to run off.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Thermal decomposition or combustion may produce harmful/irritant gas or fumes such as nitrogen oxides, carbon oxides, hydrogen fluoride or organic compounds.

## 6. ACCIDENTAL RELEASE MEASURES

**VALENT EMERGENCY PHONE NUMBER: (800) 892-0099**
**CHEMTREC EMERGENCY PHONE NUMBER: (800) 424-9300**
**OBSERVE PRECAUTIONS IN SECTION 8: PERSONAL PROTECTION**
Stop the source of the spill if safe to do so. Contain the spill to prevent further contamination of the soil, surface water, or ground water. For additional spill response information refer to the North American Emergency Response Guidebook.

**UN/NA NUMBER:** Not applicable **EMERGENCY RESPONSE GUIDEBOOK NO.:** Not applicable

**FOR SPILLS AND LEAKS**

**CONTAINMENT:** This material will disperse or dissolve in water. Stop the source of the release. Contain and isolate to prevent further release on to soil or into surface water.
Dike spill using absorbent or impervious materials such as earth, sand or clay. Collect and contain contaminated absorbent and dike material for disposal.

**CLEANUP:** Pump free liquid into an appropriate container. Absorb residual with inert absorbent material. Wash entire spill area with detergent slurry, absorb and sweep into container for disposal. Decontaminate tools and equipment following cleanup. See Section 13: DISPOSAL CONSIDERATIONS for more information.

## 7. HANDLING AND STORAGE

**END USER MUST READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL.**

**HANDLING:**

Avoid contact with eyes, skin or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

**STORAGE:**

Keep pesticide in original container. Do not store or transport near food or feed. Do not contaminate food or feed. Do not put concentrate into food or drink containers. Do not dilute concentrate in food or drink containers. Store in a cool, dry place, away from heat, flame and strong acids. Do not store at temperatures below 32 ºF (0 °C). If the product is exposed to temperatures below 32 ºF (0 °C), thaw at room temperature to 50 ºF (10 °C) or warmer and shake gently to unify the product.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**END USER MUST READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL.**

**ENGINEERING CONTROLS:** Where engineering controls are indicated by specific use conditions or a potential for excessive exposure, use local exhaust ventilation at the point of generation.

**EYES & FACE:** When working with any chemical, avoid contact with eyes. Eye contact can be avoided by wearing safety glasses.

**SKIN & HAND PROTECTION:** Applicators and other handlers must wear: long-sleeved shirt and long pants, shoes plus socks and chemical-resistant gloves made of any waterproof material.

Follow manufacturer's instructions for cleaning/maintaining PPE. If there are no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

**EXPOSURE LIMITS**

| Chemical name | ACGIH Exposure Limits | OSHA Exposure Limits | Manufacturer's Exposure Limits |
|---|---|---|---|
| Flumioxazin | None | None | None |
| Aluminum oxide | TWA: 1 mg/m³ respirable particulate matter | TWA: 15 mg/m³ total dust<br>TWA: 5 mg/m³ respirable fraction<br>(vacated) TWA: 10 mg/m³ total dust<br>(vacated) TWA: 5 mg/m³ | None |

| | | | |
|---|---|---|---|
| | | respirable fraction | |
| Propylene glycol | None | None | None |
| Others | None | None | None |

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Physical state** Liquid
**Appearance** Viscous
**Color** White
**Odor** Moderately sour
**Odor threshold** No information available

| PROPERTIES | Values | Remarks • Method |
|---|---|---|
| **pH** | 6.38 | @ 25°C (1% aqueous solution) |
| **Melting point/freezing point** | No information available | |
| **Boiling point/boiling range** | No information available | |
| **Flash point** | > 100 °C / > 212 °F | Aqueous composition |
| **Evaporation rate** | No information available | |
| **Flammability (solid, gas)** | No information available | |
| **Flammability Limits in Air** | | |
| **Upper flammability limits** | No information available | |
| **Lower flammability limit** | No information available | |
| **Vapor pressure** | No information available | |
| **Vapor density** | No information available | |
| **Specific Gravity** | No information available | |
| **Water solubility** | No information available | |
| **Solubility in other solvents** | No information available | |
| **Partition coefficient** | No information available | |
| **Autoignition temperature** | No information available | |
| **Decomposition temperature** | No information available | |
| **Viscosity** | 487.2cP @24°C<br>266.8 cP @40°C | |
| **Explosive properties** | Active ingredient not expected to be explosive based upon structure and formulated products contains no explosive ingredients | |
| **Oxidizing properties** | Based on similar products, not expected to be an oxidizing or reducing agent. | |
| **Liquid Density** | No information available | |
| **Bulk density** | 1.15 g/ml @20° C or 9.6 lbs/gal @20° C | |

## 10. STABILITY AND REACTIVITY

**Reactivity**
Not reactive with water, monoammonium phosphate, zinc, and potassium permanganate.

**Chemical stability**
Stable under recommended storage conditions.

**Possibility of Hazardous Reactions**
None under normal processing.

**Conditions to avoid**
Extremes of temperature and direct sunlight.

**Incompatible materials**
None known based on information supplied.

**Hazardous Decomposition Products**
None known based on information supplied.

## 11. TOXICOLOGICAL INFORMATION

**ACUTE TOXICITY:**

| | | | |
|---|---|---|---|
| Oral Toxicity $LD_{50}$ (rats) | >5000 mg/kg | EPA Tox Category | IV |
| Dermal Toxicity $LD_{50}$ (rabbits) | >5000 mg/kg | EPA Tox Category | IV |
| Inhalation Toxicity $LC_{50}$ (rats) | >2.11 mg/L (4 h) | EPA Tox Category | IV |
| Eye Irritation (rabbits) | Mildly irritating | EPA Tox Category | III |
| Skin Irritation (rabbits) | Slightly irritating | EPA Tox Category | IV |
| Skin Sensitization (guinea pigs) | Non-sensitizer | EPA Tox Category | Not applicable |

**CARCINOGEN CLASSIFICATION**

| Chemical name | IARC Group 1 or 2 | OSHA - Select Carcinogens | NTP Carcinogen List |
|---|---|---|---|
| Flumioxazin | Not listed | Not listed | Not listed |
| Aluminum oxide | Not listed | Not listed | Not listed |
| Propylene glycol | Not listed | Not listed | Not listed |
| Others | Not listed | Not listed | Not listed |

**TOXICITY OF FLUMIOXAZIN TECHNICAL:**

**SUBCHRONIC:** Compound related effects of Flumioxazin Technical noted in rats following subchronic exposures at high dose levels were hematotoxicity including anemia, and increases in liver, spleen, heart, kidney and thyroid weights. In dogs, the effects produced 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. The lowest no-observable-effect-level (NOEL) in subchronic studies was 30 ppm in the three-month toxicity study in rats.

**CHRONIC/CARCINOGENICITY:** In a one year dog feeding study, Flumioxazin Technical produced treatment-related changes in blood chemistry and increased liver weights at 100 and 1000 mg/kg/day. Minimal treatment-related histological changes were noted in the livers of animals in the 1000 mg/kg/day group. Based on these data the NOEL is 10 mg/kg/day. Dietary administration of Flumioxazin Technical for 18 months produced liver changes in mice of the 3000 and 7000 ppm groups. There was no evidence of any treatment-related oncogenic effect. The NOEL for this study is 300 ppm. Dietary administration of Flumioxazin Technical for 24 months produced anemia and chronic nephropathy in rats of the 500 and 1000 ppm groups. The anemia lasted throughout the treatment period, however, it was not progressive nor aplastic in nature. No evidence of an oncogenic effect was observed. The NOEL for this study is 50 ppm.

**DEVELOPMENTAL TOXICITY:** Flumioxazin Technical produces 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. The developmental NOEL in the rat oral and dermal developmental toxicity studies were 10 and 100 mg/kg/day, respectively. The response in rabbits was very different from that in rats. No developmental toxicity was noted in rabbits at doses up to 3000 mg/kg/day, a dose well above the maternal NOEL of 1000 mg/kg/day.

Mechanistic studies indicate that the effects seen in the rat are highly unlikely to occur in the human and that flumioxazin would not be a developmental toxicant in the human.

**REPRODUCTION:** Reproductive toxicity was observed in F1 males, P1 females and F1 females at 300 ppm Flumioxazin Technical, the highest dose tested and a dose that also produced signs of systemic toxicity. Toxicity was also observed in the F1 and F2 offspring at doses of 200 ppm and greater.

**MUTAGENICITY:** Flumioxazin Technical 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 Technical was not mutagenic. The only positive response was observed in the *in vitro* chromosome aberration assay in the presence of metabolic activation. Overall, Flumioxazin Technical does not present a genetic hazard.

**STOT - repeated exposure** Cat 2 - Rat 90-day repeated dose toxicity study: Bone marrow.

For a summary of the potential for adverse health effects from exposure to this product, refer to Section 2. For information regarding regulations pertaining to this product, refer to Section 15.

## 12. ECOLOGICAL INFORMATION

**AVIAN TOXICITY:** Based upon EPA designation, Flumioxazin Technical is practically non-toxic to avian species. The following results were obtained from studies with Flumioxazin Technical:

Oral $LD_{50}$ bobwhite quail: greater than 2,250 ppm
Dietary $LC_{50}$ bobwhite quail: greater than 5,620 ppm
Dietary $LC_{50}$ mallard duck: greater than 5,620 ppm.

Flumioxazin Technical in the diet. In mallard ducks, a slight, but not statistically significant reduction in hatchlings and 14-day old survivors was observed. Based on a possible, slight effect on egg production at 500 ppm, the NOEL for this study was 250 ppm.

**AQUATIC ORGANISM TOXICITY:** Based upon EPA designation, Flumioxazin Technical is slightly to moderately toxic to freshwater fish; moderately toxic to freshwater invertebrates; moderately toxic to estuarine/marine fish and moderately to highly toxic to estuarine/marine invertebrates, based on the following tests:

96-hour $LC_{50}$ rainbow trout: 2.3 mg/L
96-hour $LC_{50}$ bluegill sunfish: greater than 21 mg/L
48-hour $LC_{50}$ Daphnia magna: greater than 5.5 mg/L
96-hour $LC_{50}$ sheepshead minnow: greater than 4.7 mg/L
96-hour (shell deposition) $EC_{50}$ eastern oyster: 2.8 mg/L
96-hour $LC_{50}$ mysid shrimp: 0.23 mg/L
Fish early life-stage (rainbow trout): NOEC >7.7 µg/L, <16 µg/L
Chronic toxicity (mysid shrimp): NOEC >15 µg/L, <27 µg/L
Chronic toxicity (Daphnia magna): NOEC >52 µg/L, <99 µg/L.

**OTHER NON-TARGET ORGANISM TOXICITY:** Flumioxazin Technical is practically non-toxic to bees. The acute contact LC50 in bees was greater than 105 µg/bee.

## 13. DISPOSAL CONSIDERATIONS

**END USERS MUST DISPOSE OF ANY UNUSED PRODUCT AS PER THE LABEL RECOMMENDATIONS.**

**PRODUCT DISPOSAL:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

**CONTAINER DISPOSAL:** Clean container promptly after emptying. Triple rinse as follows: Empty the remaining

contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Offer for recycling, if available; otherwise dispose of in a sanitary landfill or incineration, or if allowed by State and local authorities, by burning. If burned, stay out of the smoke.

**DISPOSAL METHODS:** Check government regulations and local authorities for approved disposal of this material. Dispose of in accordance with applicable laws and regulations.

## 14. TRANSPORTATION INFORMATION

| | |
|---|---|
| **DOT (ground) SHIPPING NAME:** | Not regulated for domestic ground transport by US DOT or Canada TDG. |
| **EMERGENCY RESPONSE GUIDEBOOK NO.:** | Not applicable |
| **ICAO/IATA SHIPPING NAME:** | UN3082 Environmentally Hazardous Substance, Liquid, N.O.S. (Flumioxazin), 9, III, Marine Pollutant |
| **REMARKS:** | •Single or inner packaging less than 5 L (liquid) or 5 Kg net (solids) excepted from Dangerous Goods regulations -- see UN Special Provision 375. •For US shipping, Emergency Response Guidebook No. 171 |
| **IMDG SHIPPING NAME:** | UN3082 Environmentally Hazardous Substance, Liquid, N.O.S. (Flumioxazin), 9, III, Marine Pollutant |
| **REMARKS:** | •Single or inner packaging less than 5 L (liquid) or 5 Kg net (solids) excepted from Dangerous Goods regulations – see IMDG 2.10.2.7 |
| **EMS NO.:** | F-A, S-F |

## 15. REGULATORY INFORMATION

### EPA-FIFRA LABEL INFORMATION THAT DIFFERS FROM OSHA-GHS REQUIREMENTS:

Pesticide products in the U.S. are registered by the EPA under FIFRA and are subject to certain labeling requirements under federal pesticide law. These requirements may differ from the classification criteria and hazard information required by OSHA GHS for safety data sheets, and for workplace labels of non-pesticide chemicals. The following is the hazard information as required on the FIFRA pesticide label:

### EPA FIFRA SIGNAL WORD: CAUTION

- ***Harmful if inhaled***
- ***Avoid breathing vapors or spray.***
- ***Avoid contact with eyes, skin and clothing.***
- ***Keep out of reach of children.***

**PESTICIDE REGULATIONS:** All pesticides are governed under FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act). Therefore, the regulations presented below are pertinent only when handled outside of the normal use and applications of pesticides. This includes waste streams resulting from manufacturing/formulation facilities, spills or misuse of products, and storage of large quantities of products containing hazardous or extremely hazardous substances.

**U.S. FEDERAL REGULATIONS:** Ingredients in this product are reviewed against an inclusive list of federal regulations. Therefore, the user should consult appropriate authorities. The federal regulations reviewed include: Clean Water Act, SARA, CERCLA, RCRA, DOT, TSCA and OSHA. If no components or information is listed in the space below this paragraph, then none of the regulations reviewed are applicable.

**Aluminum oxide**

| | |
|---|---|
| SARA 313 Chemicals | 1.0% de minimis concentration |

**SARA (311, 312):**

| | |
|---|---|
| Immediate Health: | Yes |
| Chronic Health: | Yes |
| Fire: | No |
| Sudden Pressure: | No |
| Reactivity: | No |

**STATE REGULATIONS:** Each state may promulgate standards more stringent than the federal government. This section cannot encompass an inclusive list of all state regulations. Therefore, the user should consult state or local authorities. The state regulations reviewed include: California Proposition 65, California Directors List of Hazardous Substances, Massachusetts Right to Know, Michigan Critical Materials List, New Jersey Right to Know, Pennsylvania Right to Know, Rhode Island Right to Know and the Minnesota Hazardous Substance list. For Washington State Right to Know, see Section 8 for Exposure Limit information. For Louisiana Right to Know refer to SARA information listed under U.S. Regulations above. If no components or information is listed in the space below this paragraph, then none of the regulations reviewed are applicable.

**Aluminum oxide**

| | |
|---|---|
| California - Directors List of Hazardous Substances | Present |
| MA Right To Know | Present |
| NJ Right To Know | 2891 |
| PA Right To Know | Environmental hazard |
| RI Right To Know | Listed |
| MN Hazardous Substance | Present |

**Propylene glycol**

| | |
|---|---|
| NJ Right To Know | 3595 |
| PA Right To Know | Present |
| RI Right To Know | Listed |
| MN Hazardous Substance | Present |

For information regarding potential adverse health effects from exposure to this product, refer to Sections 2 and 11.

## 16. OTHER INFORMATION

| | |
|---|---|
| **REASON FOR ISSUE:** | Updated Manufacturer/Distributor Address and General Review. |
| **SDS NO.:** | 0512 |
| **EPA REGISTRATION NUMBER:** | 59639-221 |
| **REVISION NUMBER:** | 5 |
| **REVISION DATE:** | 09/02/2020 |
| **SUPERCEDES DATE:** | 04/05/2019 |
| **RESPONSIBLE PERSON(S):** | Valent U.S.A. LLC, Corporate EH&S, (925) 256-2803 |

The information provided in this Safety Data Sheet (SDS) is provided in good faith and believed to be accurate at the time of preparation of the SDS. However, to the extent consistent with applicable law, Valent U.S.A. LLC and its subsidiaries or affiliates extend no warranties, make no representations, and assume no responsibility as to the accuracy, suitability, or completeness of such information. Additionally, to the extent consistent with applicable law, neither Valent U.S.A. LLC nor any of its subsidiaries or affiliates represents or guarantees that this information or product may be used without infringing the intellectual property rights of others. Except to the extent a particular use and particular information are expressly stated on the product label, it is the users' own responsibility to determine the suitability of this information for their own particular use of this product. If necessary, contact Valent U.S.A. LLC to confirm that you have the most current product label and SDS.

This SDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use as required by the Occupational Health and Safety Act (29 CFR 1910.1200, "Hazcom").

The product label provides information specifically for product use in the ordinary course. All necessary hazard classification and appropriate precautionary use, storage, and disposal information is set forth on that label or labeling accompanying the pesticide or to which reference is made on the label.