



SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
US OSHA Hazard Communication Standard (29 CFR 1910.1200)

Fierce[®] MTZ Herbicide

Safety data sheet number 0523

Revision Number 9

Revision date 13-February-2025

1. Identification

Product identifier

Product Name Fierce[®] MTZ Herbicide
Synonym(s): V-10448 2.64 SC Herbicide
Registration Number(s) 59639-236

VC Number 2030, 2099, 2196, 2198, 2199

Recommended use of the chemical and restrictions on use

Recommended use Herbicide
Restrictions on use No information available
UN number or ID number UN3082

Other means of identification

Details of the supplier of the safety data sheet

Manufacturer Address

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

Emergency telephone number

Emergency Telephone HEALTH EMERGENCY (24 hr.):(800) 892-0099
TRANSPORTATION (24 hr.):
US Transportation: CHEMTREC (800) 424-9300
International Transportation: (703) 741-5970

2. Hazard(s) identification

Classification

Acute toxicity - Oral	Category 4
Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Reproductive toxicity	Category 2

Skin Corrosion/Irritation	Category 3
Eye Damage /Irritation	Category 2B
Short-Term (acute) Aquatic Hazard	Category 1
Long- Term (Chronic) Aquatic Hazard	Category 1

Hazards not otherwise classified (HNOC)

Not applicable

Label elements



WARNING

Hazard Statements

Harmful if swallowed.

Harmful if inhaled.

Suspected of damaging fertility or the unborn child.

Causes mild skin irritation.

Causes eye irritation.

Very toxic to aquatic life with short and long term effects,

Precautionary Statements - Prevention

Obtain, read and follow all safety instructions before use.

Wear protective gloves/protective clothing/eye protection.

Wash thoroughly after handling.

Do not eat, drink, or smoke when using this product.

Avoid breathing dust/fume/gas/mist/vapors/spray.

Use only outdoors or in a well-ventilated area.

Precautionary Statements – Response

IF EXPOSED OR CONCERNED: Get medical advice/attention.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

IF SWALLOWED: Get medical help. Rinse mouth. If skin irritation occurs: Get medical attention.

IF IN EYE: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical help.

Precautionary Statements - Storage

Store locked up.

Precautionary Statements - Disposal

Dispose of contents/container in accordance with local/regional/national regulations.

Other information

None.

3. Composition/information on ingredients

Substance

Not applicable.

Mixture

Chemical name	CAS No.	Weight-%	Trade secret
Flumioxazin	103361-09-7	5.29	
Pyroxasulfone	447399-55-5	6.76	
Metribuzin	21087-64-9	15.86	
Other ingredients*	Various CAS#s	72.09	

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

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

Description of first aid measures

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.
Note to physicians	Treat symptomatically and supportively.

5. Fire-fighting measures

Flash point °C	Not determined.
Flash point °F	Not determined.
Autoignition	Not determined.
Extinguishing media	Dry chemical powder, carbon dioxide, water spray Do NOT use water jet or straight streams
Fire fighting instructions	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH approved (or equivalent) and full protective gear. Prevent extinguishing media run off from entering drains, sewers, and bodies of water.
Hazardous decomposition products	Under fire conditions some components of this product may decompose. The smoke may

contain unidentified toxic and/or irritating compounds. Keep people away. Isolate fire area and deny unnecessary entry.

6. Accidental release measures

Methods and material for containment and cleaning up

Methods for containment Avoid runoff into storm sewers and ditches which lead to waterways. Contain spilled liquids with dry sorbents. Keep well ventilated. Wear proper personal protective equipment.

Methods for cleaning up Clean up spill immediately. Absorb spill with inert material (such as dry sand or earth), then place in a chemical waste container. Wash area with soap and water. Pick up wash liquid with additional absorbent and place in a chemical waste container. Prevent wash water from entering surface water or drains. Wear proper personal protective equipment.

7. Handling and storage

Precautions for safe handling

Advice on safe handling Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse. 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.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep in original container. Store in cool, dry, secure place. Do not put formulation or dilute spray solution into food or drink containers. Do not contaminate water, food or feed by storage or disposal. Do not store or transport near food or feed. Not for use or storage in or around the home..

8. Exposure controls/personal protection

Control parameters

Exposure Limits The following ingredients are the only ingredients of the product above the cut-off level (or level that contributes to the hazard classification of the mixture) which have an exposure limit applicable in the region for which this safety data sheet is intended or other recommended limit. At this time, the other relevant constituents have no known exposure limits from the sources listed here.

Chemical name	ACGIH TLV	OSHA PEL	US WEEL
Metribuzin Technical (CAS No. 21087-64-9)	TWA: 5 mg/m ³	(vacated) TWA: 5 mg/m ³	-
Lignin, alkali, reaction products with formaldehyde and sodium bisulfite (CAS No. 68512-35-6)	TWA: 10 mg/m ³ , (Inhalable) 8 hours.	TWA: 15 mg/m ³ , (Total dust) 8 hours.	-
Methyl acetate (CAS No. 79-20-9)	200 ppm TWA 250 ppm STEL	200 ppm TWA 610 mg/m ³ TWA	-
Methyl alcohol (CAS No. 67-56-1)	200 ppm TWA	200 ppm TWA ;	-

	250 ppm STEL	260 mg/m3 TWA	
Propylene glycol	-	-	10 mg/m3 TWA
Glycerin (CAS No. 56-81-5)	-	5 mg/m3 TWA mist, respirable fraction 10 mg/m3 TWA mist, total particulate	-
Octamethylcyclotetrasiloxane (CAS No. 556-67-2)	-	-	10 ppm TWA
Sodium Hydroxide (CAS No. 1310-73-2)	2 mg/m3	2 mg/m3 OSHA-TRANS, Z1A	-

Appropriate engineering controls

Engineering controls When handlers use closed systems in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides[40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

Individual protection measures, such as personal protective equipment

Eye/face protection Do not get this material in your eyes. Eye contact can be avoided by wearing protective eyewear.

Skin and 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. 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.

Respiratory protection Not usually required. Use this material in a well-ventilated area. If necessary, use a NIOSH approved air purifying respirator with a dust-mist filter / organic vapor cartridge combination.

General hygiene considerations Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection.

9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state Liquid
Appearance Opaque off-white liquid
Color Opaque off-white
Odor Moderately strong
Odor threshold No data available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	6.0 - 8.0 @ 25 °C (1% dilution)	None known
pH (as aqueous solution)		None known
Melting point / freezing point	No data available	None known
Initial boiling point and boiling range	No data available	None known
Flash point	No data available	None known
Evaporation rate	No data available	None known
Flammability	No data available	None known

Flammability Limit in Air		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapor pressure	No data available	None known
Relative vapor density	No data available	None known
Relative density	No data available	None known
Water solubility	Miscible in water	None known
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature		None known
Viscosity	34.7 cP @ 20° C 19.4 cP @ 40° C	None known

Other information

Explosive properties	No information available
Oxidizing properties	No information available
Softening point	No information available
Molecular weight	No information available
VOC content	No information available
Liquid Density	1.12-1.13 g/mL
Bulk density	No information available

10. Stability and reactivity

Reactivity	No data available.
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:

The following information is for this product formulation unless noted differently.

Oral Toxicity LD 50 (rats)	1,750 mg/kg	EPA Tox Category	III
Dermal Toxicity LD 50 (rats)	> 5,000 mg/kg	EPA Tox Category	IV
Inhalation Toxicity LC 50 (rats)	> 2.15 mg/L (4 h)	EPA Tox Category	IV
Eye Irritation (rabbits)	Minimally irritating	EPA Tox Category	IV
Skin Irritation (rabbits)	Slightly irritating	EPA Tox Category	IV
Skin Sensitization (guinea pigs)	Non-sensitizer	EPA Tox Category	Not applicable

FLUMIOXAZIN TECHNICAL:

CHRONIC/CARCINOGENICITY: Flumioxazin was not carcinogenic in lifetime feeding studies in rats or mice. The NOAEL following chronic administration by capsule in dog was 10 mg/kg bw/d. NOAELs following chronic administration by feed in rats and mice were 50 ppm and 300 ppm.

DEVELOPMENTAL TOXICITY: Flumioxazin Technical produces developmental toxicity in rats in the absence of maternal toxicity at doses of 30 mg/kg bw/day by the oral route and 300 mg/kg bw/day by the dermal route. No developmental toxicity was noted in rabbits at doses up to 3000 mg/kg bw/day, a dose well above the maternal NOEL of 1000 mg/kg bw/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 was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.

PYROXASULFONE TECHNICAL:

CHRONIC/CARCINOGENICITY: Pyroxasulfone was not carcinogenic in lifetime feeding studies in mice. Pyroxasulfone produced an increased incidence of urinary bladder transitional cell papillomas in male rats in a two-year carcinogenicity study. The tumors seen with Pyroxasulfone were caused through a non-genotoxic mechanism, which is not relevant at low doses.

REPRODUCTION: Pyroxasulfone did not produce effects on fertility or the embryo at the dosage of which general toxicity to parental animals was observed.

MUTAGENICITY: Pyroxasulfone was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.

METRIBUZIN TECHNICAL:

CHRONIC/CARCINOGENICITY: Metribuzin was not carcinogenic in lifetime feeding studies in rats or mice. NOAELs following chronic administration by feed in rats and dogs were 30 ppm and 100 ppm.

DEVELOPMENTAL TOXICITY: Metribuzin caused developmental toxicity only at dose levels toxic to the dams. The NOAELs for developmental toxicity were 70 mg/kg bw/d and 15 mg/kg bw/d in rats and rabbits, respectively.

REPRODUCTION: Metribuzin caused reproductive toxicity in a two-generation study in rats only at dose levels also toxic to the parent animals. The NOAEL for reproductive toxicity in rats was 37.5 mg/kg bw/d.

MUTAGENICITY: Metribuzin was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.

12. ECOLOGICAL INFORMATION

FLUMIOXAZIN TECHNICAL:

Oral LD50 Bobwhite Quail: greater than 2,250 ppm
Dietary LC50 Bobwhite Quail: greater than 5,620 ppm
Dietary LC50 Mallard Duck: greater than 5,620 ppm

96-hour LC50 Rainbow Trout: 2.3 mg/L
96-hour LC50 Bluegill Sunfish: > 21 mg/L
96-hour LC50 Sheepshead Minnow: > 4.7 mg/L
48-hour LC50 Daphnia magna: > 5.5 mg/L
96-hour (shell deposition) EC50 Eastern Oyster: 2.4 mg/L
96-hour LC50 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 > 28 µg/L, < 57 µg/L
5-day EC50 Green Algae: 1.02 µg/L
5-day EC50 diatom (Navicula pelliculosa): 1.4 µg /L
5-day EC50 diatom (Skeletonema costatum): 19.2 µg /L
14-day EC50 Duckweed (Lemna gibba): 0.49 µg/L

Honeybee 48-hour contact LD50: > 105 µg/bee

PYROXASULFONE TECHNICAL:

Oral LD50 Bobwhite Quail: > 2,250 ppm
Oral LC50 Zebra Finch: > 2,250 ppm
Dietary LC50 Bobwhite Quail: > 5,620 ppm
Dietary LC50 Mallard Duck: > 5,620 ppm

96-hour LC50 Rainbow Trout: > 2.2 mg/L
96-hour LC50 Bluegill Sunfish: > 2.8 mg/L
96-hour LC50 Sheepshead Minnow: > 3.3 mg/L
48-hour EC50 Daphnia magna: > 4.4 mg/L
96-hour (shell deposition) EC50 Eastern Oyster: 3.6 mg/L
96-hour LC50 Mysid Shrimp: 1.4 mg/L
Fish early life-stage (Fathead Minnow): NOEC >2.0 mg/L, <3.9 mg/L
Chronic toxicity (Daphnia magna): NOEC > 1.9 mg/L
96-hour EC50 Green Algae: 0.38 µg/L
96-hour EC50 diatom (Navicula pelliculosa): > 3.2 mg/L
96-hour EC50 diatom (Skeletonema costatum): 0.66 mg/L
7-day EC50 Duckweed (Lemna gibba): 6.0 µg/L

Honeybee 48-hour contact LD50: > 100 µg/bee

METRIBUZIN TECHNICAL:

Oral LD50 Bobwhite Quail: 169.2 ppm
Oral LD50 Mallard Duck: > 4,000 ppm
Dietary LC50 Bobwhite Quail: > 5,000 ppm

96-hour LC50 Rainbow Trout: 42 mg/L
96-hour LC50 Bluegill Sunfish: 65.7 mg/L
96-hour LC50 Sheepshead Minnow: 85 mg/L
48-hour LC50 Daphnia magna: 4.2 mg/L
96-hour (shell deposition) EC50 Eastern Oyster: 40.7 mg/L
Fish early life-stage (Rainbow Trout): NOEC >3.0 mg/L
Chronic toxicity (Daphnia magna): NOEC >1.29 mg/L, < 2.62 mg/L
96-hour EC50 Green Algae: 7.9 µg/L
96-hour EC50 diatom (Navicula pelliculosa): 11.9 µg /L
96-hour EC50 diatom (Skeletonema costatum): 9.0 µg /L
14-day EC50 Duckweed (Lemna gibba): 18 µg/L

OTHER ENVIRONMENTAL INFORMATION:

This product is toxic to non-target plants and aquatic invertebrates. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below mean high water mark. Do not apply where runoff is likely to occur. Do not apply where weather conditions favor drift from areas treated. Do not contaminate water when cleaning equipment or disposing of equipment washwater or rinsate.

13. DISPOSAL CONSIDERATIONS

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 U.S. DOT

ICAO/IATA SHIPPING NAME: UN3082 Environmentally Hazardous Substance, Liquid, N.O.S. (Flumioxazin, Metribuzin), 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 IATA Special Provision A197
- For US shipping, Emergency Response Guidebook No. 171

IMDG SHIPPING NAME: UN3082 Environmentally Hazardous Substance, Liquid, N.O.S. (Flumioxazin, Metribuzin), 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
- For US shipping, Emergency Response Guidebook No. 171

15. REGULATORY INFORMATION

EPA-FIFRA LABEL INFORMATION

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 swallowed*
- *Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.*
- *Remove contaminated clothing and wash before re-use.*
- *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.

Metribuzin

SARA 313 Chemicals 1.0% de minimis concentration

SARA (311, 312):

Immediate Health:	Yes
Chronic Health:	No
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.

State Right to Know

New Jersey Right to Know

Ammonium sulfate	CAS No. 7783-20-2
Methyl acetate	CAS No. 79-20-9
Methyl alcohol	CAS No. 67-56-1
Propylene glycol	CAS No. 57-55-6

Pennsylvania Right to Know

Ammonium sulfate	CAS No. 7783-20-2
Methyl acetate	CAS No. 79-20-9
Methyl alcohol	CAS No. 67-56-1
Propylene glycol	CAS No. 57-55-6

Massachusetts Right to Know

Ammonium sulfate	CAS No. 7783-20-2
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Methyl acetate CAS No. 79-20-9
Methyl alcohol CAS No. 67-56-1

California Prop. 65

WARNING! This product contains a chemical known to the State of California to cause cancer.

Ethylene oxide CAS No.75-21-8
Methyloxirane CAS No.75-56-9
1,4-dioxane CAS No.123-91-1

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

16. Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation
+	Sensitizers		

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
Environmental Protection Agency
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Revision date 13-February-2025
Revision Note Updates to section 3

Disclaimer

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.

End of Safety Data Sheet

United States of America

US SDS version information - AGHS

UL release:
GHS Revision 3
2023 Q3

United States of America

Full process, including GHS and Transportation Wizards