

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

COMPANY ADDRESS:	EMERGENCY TELEPHONE NUMBERS:
RedEagle International LLC	(800) 424-9300 (CHEMTREC, transportation and spills)
5143 S. Lakeland Drive - Suite 4	(800) 222-1222 American Association of Poison Control Centers
Lakeland, FL 33813	
PRODUCT NAME:	Flumioxazin 44%SC
CHEMICAL NAME:	2-[7-fluoro-3,4-dihydro-3-oxo-(2-propynyl)-2H-1,4-benzoxazin-6-yl]-4,5,6,7-tetrahydro-1H-isoindole-1,3(2H)-dione
PRODUCT USE:	Herbicide
PRODUCT CODE:	EPA Reg. No. 85678-53

SECTION 2 - HAZARDS IDENTIFICATION SUMMARY

As defined by OSHA Hazard Communication Standard, 29 CFR 1910.1200

Off white/milky liquid

HEALTH HAZARDS: WARNING Suspected of damaging fertility of the unborn child. Reproductive toxicity Category 2. Harmful if swallowed, inhaled, or absorbed through the skin. Causes moderate eye irritation.

PHYSICAL HAZARDS: Thermal decomposition may release toxic and/or hazardous gases.

ENVIRONMENTAL HAZARDS: Toxic to aquatic invertebrates and non-target plants.



SECTION 3 – COMPOSITION, INFORMATION OF INGREDIENTS

COMPONENT	PERCENTAGE	CAS No.
Flumioxazin	44	103361-09-7
Propylene glycol	5	57-55-6
Others	51	<u>n/a</u>

SECTION 4 - FIRST AID MEASURES

First Aid responders should use protective equipment in Section 8 if there is a potential for exposure to product.

IF IN EYES: 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.

IF ON SKIN OR CLOTHING: 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.

IF SWALLOWED: Call a poison control center or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by poison control center or doctor. Do not give any liquid to a person. Do not give anything by mouth to an unconscious person.

IF INHALED: Move person 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 poison control center or doctor for further treatment advice.

NOTE TO PHYSICIAN: None

Have a product container or label with you when calling a poison control center or doctor or going for treatment.

SECTION 5 - FIRE FIGHTING MEASURES

NFPA (National Fire Protection Association) HAZARD RATINGS

HEALTH	FLAMMABILITY	REACTIVITY
1	1	0

4=Severe 3=Serious 2=Moderate 1=Slight 0=Minimal

FLASHPOINT: Not applicable

EXTINGUISHING MEDIA: Use foam, dry chemical, carbon dioxide, or water spray when fighting fires involving this material.

FIRE AND EXPLOSION HAZARD: Can release irritating and toxic gases due to thermal decomposition or combustion.

FIRE FIGHTING INSTRUCTIONS: 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. Minimize use of water to prevent environmental contamination.

FIRE FIGHTING EQUIPMENT: Full firefighting turn-out gear (Bunker gear) including self-contained breathing apparatus with full face piece.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILLS: Clean up spills immediately. Reduce airborne dust and avoid breathing dust. Wear appropriate safety equipment. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Consult Section 8 of this document for additional precautions.

SMALL SPILL: Vacuum or sweep up material and place in a container for reuse or disposal.

LARGE SPILL: Avoid creating dust cloud. Vacuum or sweep up material and place in a container for reuse or disposal. Pick up wash liquid with additional absorbent for disposal. After removal, flush contaminated area thoroughly with water.

CAUTION: Minimize use of water to prevent runoff into municipal sewers or other open bodies of water and minimize environmental contamination. Contact your State Pesticide or Environmental Control Agency, or nearest EPA Regional Office for guidance on disposal.

SECTION 7 - HANDLING AND STORAGE

KEEP OUT OF REACH OF CHILDREN!

HANDLING: Use only in a well-ventilated area. Wear proper safety equipment specified in Section 8 when mixing, loading or otherwise handling concentrate. Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing if pesticide gets inside clothing. Then wash thoroughly and put on clean clothing. Remove PPE after handling this product. Wash outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing. Do not reuse container.

STORAGE: Keep pesticide in original container. Keep container tightly closed when not in use. Store in a locked storage area. Avoid cross contamination with other pesticides or fertilizers during handling and storage. Store in a cool, dry place. Do not contaminate water, feed, or food by storage and disposal. Do not store diluted spray.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION
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EXPOSURE LIMITS:

COMPONENT	OSHA	ACIGH
Flumioxazin	None	None
Propylene Glycol	10 TWA None STEL	None
Sodium lauryl sulfate	None	None
Other	None	None

*** Respirable fraction**

ENGINEERING CONTROLS: Proper ventilation is required when handling or using this product to keep exposure to airborne contaminants below the exposure limit. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

PERSONAL PROTECTIVE EQUIPMENT:

EYE PROTECTION: Protective eyewear

SKIN PROTECTION: Long-sleeved shirt and long pants, shoes plus socks, chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride.

RESPIRATOR: Normally not required. If handling in an enclosed environment where dusts or mists may exceed acceptable levels, wear NIOSH approved air-purifying respirator approved for pesticides.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS: Wash hands 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. Remove PPE immediately after handling this product. Wash outside of gloves before removing. As soon as possible wash thoroughly and change into clean clothing.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Off white milky liquid
Odor:	Slight
Melting Point:	No information available
Boiling Point:	No information available
Flash Point:	Aqueous composition; >212° F (>100° C)
pH	5.13
Evaporation Rate:	No information available
Flammability:	No information available
Flammability Limits:	No information available
Vapor Pressure:	No information available
Vapor Density:	No information available
Relative Density:	1.13-1.16 (9.42-9.67 lb/gal)
Solubility:	Dispersible in water
Partition Coefficient:	No information available
Auto-Ignition Temperature:	No information available
Decomposition Temperature:	No information available
Viscosity:	Not applicable

SECTION 10 - STABILITY AND REACTIVITY

PRODUCT REACTIVITY:	No information available
CHEMICAL STABILITY:	Stable under normal use and storage conditions.
HAZARDOUS REACTION/POLYMERIZATION:	Product will not undergo polymerization.
CONDITIONS TO AVOID:	Avoid heat of open flame and high temperatures. Keep containers sealed.
INCOMPATIBLE MATERIALS:	Oxidizing materials. Strong acids or bases.
HAZARDOUS DECOMPOSITION PRODUCTS:	May produce gases such as nitrogen compounds, fluorine compounds, or oxides of carbon and nitrogen.

SECTION 11 - TOXICOLOGICAL INFORMATION

ACUTE TOXICITY:	EPA TOX CATEGORY	
Oral LD ₅₀ (rat):	> 5,000 mg/kg	IV
Dermal LD ₅₀ (rabbit):	> 2,000 mg/kg	III
Inhalation LC ₅₀ (rat):	> 0.97 mg/l	III
Eye irritation:	Minimal – brief/minor	III
Skin irritation:	Minimal – brief/minor	IV
Sensitization (guinea pig):	Not a contact sensitizer	na
CARCINOGEN STATUS:		
OSHA:	Not listed	
NTP:	Not listed	
IARC:	Not listed	

TOXICITY OF FLUMIOXAZIN TECHNICAL:

SUBCHRONIC: Effects from Flumioxazin Technical noted in rats following sub chronic exposures at high dose levels were hematotoxicity including anemia, and increases in liver, spleen, heart, kidney and thyroid weights. Effects 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. The lowest no-observable-effect-level (NOEL) in sub chronic 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 1,000 mg/kg/day. Minimal treatment-related histological changes were noted in the livers of animals in the 1,000 mg/kg/day group. Based on these data the lowest no-observable-effect-level (NOEL) is 10 mg/kg/day. Dietary administration of Flumioxazin Technical over 18 months produced liver changes in mice of the 3,000 and 7,000 ppm groups. There was no evidence of any treatment-related oncogenic effect. The lowest no-observable-effect-level (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 1,000 ppm groups. The anemia lasted through the treatment period; however, it was not progressive nor aplastic in nature. No evidence of an oncogenic effect was observed. The lowest no-observable-effect-level (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 lowest no-observable-effect-level (NOEL) in the rat oral and dermal developmental toxicity studies were 10 and 100 mg/kg/day, respectively. The response in rabbits was different from that in rats. No developmental toxicity was noted in rabbits at doses up to 3,000 mg/kg/day, a dose well above the maternal NOEL of 1,000 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.

SECTION 12 - ECOLOGICAL INFORMATION

ENVIRONMENTAL SUMMARY: Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not apply where runoff might occur. Do not apply when weather conditions favor drift from treated areas. Do not contaminate water when cleaning equipment or disposing of equipment wash waters or rinsate.

FATE: Degrades rapidly in soil and water. Leaching potential is low.

FISH TOXICITY: (technical)

96 hour LC₅₀, Rainbow trout – 2.3 mg/l

96 hour LC₅₀, Bluegill - > 21 mg/l

48 hour EC₅₀, Daphnia – > 6 mg/l

96 hour LC₅₀, Sheepshead Minnow - > 4.7 mg/l

96 hour LC₅₀, Mysid Shrimp – 0.23 mg./l

AVIAN TOXICITY: (technical)

Oral LD₅₀, Bobwhite quail - > 2,250 mg/kg

Dietary LC₅₀, Bobwhite quail - > 5,620 ppm

Dietary LC₅₀, Mallard duck - > 2,250 ppm

BEE TOXICITY: Contact LC₅₀ - > 105 ug/bee

SECTION 13 - DISPOSAL CONSIDERATIONS

Do not contaminate water, food or feed by storage or disposal.

PESTICIDE DISPOSAL: Excess pesticide spray, mixture, or rinsate resulting from the use of this product can be disposed of onsite according to label instructions or at an approved waste disposal facility.

Improper disposal is a violation of Federal Law.

CONTAINER DISPOSAL:

Nonrefillable Containers 5 gallons or less: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available. Triple rinse container (or equivalent) 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. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned stay out of smoke.

Nonrefillable containers larger than 5 gallons: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available. If recycling or reconditioning not available, puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned stay out of smoke. Triple rinse or pressure rinse container (or equivalent) promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

SECTION 14 - TRANSPORT INFORMATION

DOT SHIPPING DESCRIPTION: Not regulated for domestic ground transport by US DOT.

ICAO/IATA: UN 3077 Environmentally Hazardous Substance, Solid, n.o.s. (Flumioxazin), 9, III, Marine Pollutant

NOTE: Single or inner packaging of less than 5 Kg net excepted from Dangerous Goods regulations – see UN Special Provision 375

IMDG: UN 3077 Environmentally Hazardous Substance, Solid, n.o.s. (Flumioxazin), 9, III, Marine Pollutant

EMS NO: F-A, S-F

SECTION 15 - REGULATORY INFORMATION
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CERCLA REPORTABLE QUANTITY: None

EPA FIFRA SIGNAL WORD: CAUTION

OSHA: Reproductive Toxicity – Category II.

SARA TITLE III

311/312 HAZARD CATEGORY: Immediate health (acute), Delayed health (chronic)

313 TOXIC CHEMICALS: None

CALIFORNIA PROP 65: WARNING: Not listed.

TSCA: Exempted - solely for FIFRA regulated use.

RCRA CLASSIFICATION: Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing this product or derived from the product should be classified as a hazardous waste.

Kaolin clay is listed or present on TSCA, on the Right to Know list in MA, NJ, PA, RI, and on the MN Hazardous Substance lists.

SECTION 16 - OTHER INFORMATION

NFPA (National Fire Protection Association) HAZARD RATINGS

HEALTH	FLAMMABILITY	REACTIVITY
1	1	0

4=Severe 3=Serious 2=Moderate 1=Slight 0=Minimal

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This Safety Data Sheet (SDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA APPROVED PRODUCT LABELING (attached to and accompanying the product container). 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, while the labeling provides that information specifically for product use in the ordinary course. Use, storage, and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information are set forth on that labeling. This data sheet is not a guarantee of safety. Users are responsible for ensuring that they have all current information necessary to safely use the product described by this data sheet for their specific purpose.

It is a violation of federal law to use a pesticide product in any manner not prescribed on the EPA-approved label.