


SAFETY DATA SHEET
Product: FLAIL 480 SC

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1 - IDENTIFICATION	
Product identification:	FLAIL 480 SC
Product main recommended use:	Used as an agricultural herbicide.
Supplier:	LONGWIND CROPSCIENCE BRAZIL LTDA Rua dos Andradas, 1091 / 115 - Praça da Alfândega - Centro Histórico Porto Alegre – RS – Brasil
Emergency medical number:	(11) 3032-2090

2 - HAZARD IDENTIFICATION	
Classification of substance or mixtures:	Acute toxicity - Oral: Category 5. Acute toxicity - Dermal: Category 5. Acute toxicity - Inhalation: Category 4. Reproductive toxicity: Category 2. Hazard to aquatic environment - acute: Category 1.
The classification system used:	Standard ABNT-NBR 14725-2023. Global Harmonized System for the Classification and Labelling of Chemicals, United Nations.
Appropriate labeling elements	
Pictogram:	



SDS

Conforms to NBR 14725:2023

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Signal word:	DANGER
Hazard statements:	H303 - May be harmful if swallowed. H313 - May be harmful if contact with skin. H332 - Harmful if inhaled. H361d - Suspected of damaging the unborn child.. H400 - Very toxic to aquatic life.
Precautionary Statements: :	PREVENTION P201 - Obtain special instructions before use. P202 - Do not handle until all safety precautions have been read and understood. P261 - Avoid breathing dust/fume/gas/mist/vapours/spray. P271 - Use only outdoors or in a well-ventilated area. P273 - Avoid release to the environment. P280 - Wear protective gloves / protective clothing / eye protection /face protection / hearing protection. RESPONSE P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. P302 + P352 - IF ON SKIN: Wash with plenty of soap and water. P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P308 + P313 - IF exposed or concerned: Get medical advice/attention. P312 - If you feel unwell, please contact the Toxicology/Medical Information Center. P391 - Collect spillage. STORAGE P405 - Store locked up. DISPOSAL P501 - Handle contents and containers in accordance with city, state, and federal laws.

3 - COMPOSITION/INFORMATION ON INGREDIENTS

MIXTURE

Hazardous ingredients or impurities:

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Componentes	Concentration	CAS Number
Flumioxazin	40,0 – 44,0%	103361-09-7

4 - FIRST AID MEASURES	
Inhalation:	Move the person to a ventilated area and rest in a position that does not interfere with breathing. If you feel unwell, contact your doctor. Take this file.
Skin contact:	Rinse exposed skin with enough water to remove the product. Remove and isolate contaminated clothing and shoes. Seek medical attention if skin irritation occurs. Take this document.
Eye contact:	Rinse thoroughly with water for a few minutes. If using contact lenses, remove them if it is easy and continue rinsing. If eye irritation persists: Consult a doctor. Take this file
Ingestion:	Flush the victim's mouth with plenty of water. Do not give anything orally to an unconscious person. If you feel unwell, contact your doctor. Take this file.
Notes for doctors:	Avoid touching materials during disaster relief. If necessary, symptomatic treatment should include supportive measures such as correcting electrolyte disturbances, metabolic disturbances, and respiratory assistance. If in contact with skin, do not rub the affected area.

5 - FIRE FIGHTING MEASURES	
Extinguishing methods:	Application: Carbon dioxide (CO ₂), foam, water mist and chemical powder.
Protection of firefighters:	Use self-contained respiratory protection equipment (SCBA) with positive pressure and full protective clothing. Containers and storage tanks involved in fires must be cooled with water mist.
Special hazards of chemical combustion:	Combustion of the product or its packaging can form irritating and toxic gases such as carbon monoxide and carbon dioxide. Steam can be denser than air and tends to accumulate in low-lying or confined areas, such as manholes and basements.

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6 - ACCIDENTAL RELEASE MEASURES

Personal precautions	
Personal note:	<p>Non-emergency service personnel: Isolate leaks from fire sources. Keep unauthorized people away from the area. If there is no risk, stop the leak. No smoking. Do not touch damaged containers or spilled products without wearing appropriate clothing. Avoid touching the product. Use the personal protective equipment described in Section 8.</p> <p>For the emergency services: Wear complete personal protective equipment, including safety glasses, safety gloves, appropriate protective clothing, and closed shoes. In case of leakage, it is recommended to use an appropriate respiratory protective mask in places with high exposure.</p>
Environmental considerations:	Close the stormwater inlet to prevent pollution of the waterway. Prevent spilled product residue from reaching the water collection.
Cleaning method:	Use water mist or steam suppression foam to reduce the dispersion of steam. Use natural barriers or leak control barriers. Collect spilled products and place them in appropriate containers. Adsorb the remaining product with dry sand, soil, vermiculite or any other inert material. Place the adsorbed product in an appropriate container and move it to a safe place.

7- HANDLING AND STORAGE

Appropriate technical measures:	
Safety handling precautions:	Dispose in a ventilated area or where there is a general local ventilation/exhaust system. Prevents steam from forming. Do not handle the product without the recommended PPE. Avoid contact with skin, eyes and mucous membranes. Use the personal protective equipment described in Section 8.
Sanitary measure:	Wash your hands and face thoroughly after handling and before eating, drinking, smoking or going to the toilet. Do not eat, drink or smoke while handling this product. Remove contaminated protective clothing and equipment before entering the feeding area. When you're done, take off your protective clothing and take a shower. Wash protective clothing separately from household clothing with gloves and a waterproof apron. After each use of this product, keep away from drinking water sources, maintain and clean the protective equipment. Contaminated clothing should be changed and washed before reuse.

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Secure storage conditions, including any incompatibilities:	
Fire and explosion prevention:	This product is not expected to pose a fire or explosion hazard.
Applicable conditions:	Store in a well-ventilated place away from sunlight. Keep the container closed. There is no need to add stabilizers and antioxidants to ensure durability.
Suitable materials for packaging:	Similar to the original packaging.
Materials not suitable for packaging:	There are no known unsuitable materials.

8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION	
Control parameters	
Occupational Exposure Limits:	Not established.
Biological indicators:	Not established.
Other limits and values:	Not established.
Engineering control measures:	A risk assessment is recommended to determine the engineering controls needed to eliminate or minimize the risk. These measures help to reduce exposure to the product.
Personal protection measures	
Eye/face Protection:	Safety glasses with side protection are recommended.
Skin and body protection:	Closed shoes and appropriate protective clothing. Appropriate protective gloves.
Respiratory protection:	A risk assessment should be carried out so that respiratory protection is properly defined according to the conditions of use of the material. Follow the Respiratory Protection Plan (PPR) guidelines.
Thermal hazards:	There are no known thermal hazards of the products.

9 - PHYSICAL AND CHEMICAL PROPERTIES	
Physical state:	Fluent liquid

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Color:	Off-white
Odor and Odor Limit:	Slight pungent smell
Melting point/point Freezing:	Not available
Boiling point or initial boiling point and range Boiling:	Not available
Flammability (solid; Liquids and gas):	Liquid fuel.
Lower/upper limit of Flammability or Explosivity:	Not available
Flash point:	>93°C(102.14 kPa) (Closed glass).
Self-ignition temperature:	Not available
Temperature of Decomposition	Not available
pH:	5-8 (20°C).
Viscosity:	302.1 mPa*s at shear rate 30 r/min at 20±0.2°C.
Solubility:	Not available
Octanol/water partition coefficient:	Not available
Vapor Pressure:	Not available
Density:	1,1653 g/cm ³
Relative vapour density:	Not available
Characteristics of particles (solids):	Not applicable
Other information:	Surface Tension: 42,01 N/m at 20°C. Corrosivity: sample (stainless steel, iron, aluminum, Copper and brass) after 7 days of exposure to the test substance, considered to be less than or equal to 0.0635 mm/ year.

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10 - STABILITY AND REACTIVITY	
Stability:	Product stable under normal temperature and pressure conditions.
Reactivity:	Reactivity is not expected under normal temperature and pressure conditions.
Possibility of reactions dangerous:	There are no known dangerous reactions to the product.
Conditions to avoid:	High temperatures.
Incompatible materials:	There are no known incompatible materials.
Dangerous products decomposition:	There are no known harmful breakdown products.

11 - TOXICOLOGICAL INFORMATION	
Toxicidade aguda:	<p>May be harmful if ingested and in contact with skin. It is not toxic to inhalation routes.</p> <p><u>Tests performed on formulated products:</u> LD50 Oral (rats): > 2000mg/kg (OECD 423). LD50 Dermal (rats): > 2000 mg/kg (OECD 402). LC50 Inhalation (rats) (4h): >2.87 mg/L (OECD 403).</p>
Skin corrosion/irritation:	<p>The product is not expected to cause skin irritation. <u>Teste</u></p> <p><u>Tests performed on formulated products:</u> The test was negative for skin irritation in rabbits exposed to the product (OECD 404).</p>
Serious eye injury/eye irritation:	<p>The product is not expected to cause eye irritation.</p> <p><u>Tests performed on formulated products:</u> The test was negative for eye irritation in rabbits exposed to the product (OECD 405).</p>
Respiratory or skin sensitisation:	<p>The product is not expected to cause skin sensitisation.</p> <p><u>Tests performed on formulated products:</u> Tests conducted in guinea pigs did not cause skin sensitization in exposed animals (OECD 406).</p>
Mutagenicity in germ cells:	<p>The product is not expected to have mutagenic potential.</p> <p><u>Tests performed on formulated products:</u> The reverse gene mutation test (Ames test - Salmonella Typhimurium) is considered non-mutagenic (OECD 471).</p>
Carcinogenicity:	The product is not expected to cause cancer.

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Reproductive toxicity:	It can damage fertility or the fetus.
Toxicity to target organs Specific-single exhibition:	The product is not expected to cause specific target organ toxicity by single exposure.
Specific target organ toxicity- exposure Repeated:	The product is not expected to cause specific target organ toxicity by repeated exposure.
Danger from aspiration:	No danger from aspiration is expected

12 - ECOLOGICAL INFORMATION
Environmental effects, behaviour and product impacts

Ecotoxicity:	<p>Harmful to aquatic organisms with prolonged effects. <u>Testes performed on formulated products:</u> Acute toxicity to fish: <i>Danio rerio</i>: LC50 (96h): >195,3 mg/L (OECD 203). Acute toxicity to microcrustaceans: <i>Daphnia magna</i>: EC50 (48h): >100 mg/L (OECD 202). Acute toxicity to algae: <i>Desmodesmus subspicatus</i>: ErC50 (72h): 0,125 mg/L and EyC50 (72h): 0,048 mg/L (OECD 201).</p>
Bioaccumulative potential:	The bioaccumulative potential of the product in aquatic organisms is not expected.
Mobility in soil:	Not available.
Other side effects:	Other environmental effects are unclear.

13 - DISPOSAL CONSIDERATIONS
Recommended methods for final destination

Products:	The handling and disposal of each product should be evaluated specifically. Reference should be made to federal, state and municipal legislation, including: Law 12.305 of 2 August 2010 (National Solid Waste Policy).
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Remains of products:	Keep any remaining products and/or valid products in their original packaging, sealed appropriately. Handling shall be carried out in accordance with product regulations.
Packaging used:	Do not reuse empty packaging. They may contain product residues and should be kept enclosed and properly disposed of in accordance with product regulations.

14 - TRANSPORT INFORMATION
National and international regulations

Terrestrial:	LAND TRANSPORTATION: Resolution ANTT 5998 of 03/11/2022
	UN Number: 3082 Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (FLUMIOXAZIN) Transport hazard class(es): 9 Risk number: 90 Packing group : III Marine pollutant: Yes
Waterway:	MARITIME TRANSPORT: DPC - Port and Coast Council (Transport in Brazilian Waters). Maritime Authority Rules: IMO - International Maritime Organization (IMO): IMDG Code - International Maritime Dangerous Goods Code.
UN number	UN number: 3082 Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (FLUMIOXAZIN) Transport hazard class(es) : 9 Packing group: III Marine pollutant: Yes

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15 - REGULATORY INFORMATION

Regulations	Federal Decree No. 10088 of November 5, 2019. ABNT NBR - 14725:2023 - July 3, 2023. Regulation No. 26 of the Ministry of Labour and Welfare (Safety sign).
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16 - OTHER INFORMATION

Important information, but not specifically described in the previous sections.

This document has been prepared on the basis of existing knowledge of the proper handling of the product under normal conditions of use for the application specified on the packaging. Any other forms of use of the product, including its combination with other materials, and different forms of use, are the responsibility of the user. It is important to note that handling any chemical requires the user to be aware of its hazards in advance. In the workplace, companies that use the product have a responsibility to promote training of their employees on the risks that may arise from exposure to the chemical.

SDS prepared in September 2024.

Subtitles and abbreviations:

ACGIH – *American Conference of Governmental Industrial Hygienists*

BCF – *Bioconcentration factor*

CAS – *Chemical Abstracts Service*

CE50 – *Effective concentration 50%*

CL50 – *Lethal concentration 50%*

DL50 – *Dose Letal 50%*

IDLH - *Inherently Dangerous to Human Life*

LT – *Limite de Tolerância*

MTE – *Ministry of Labour and Employment*

NA – *Not applicable*

NIOSH – *National Institute of Occupational Safety and Health*

ONU – *Organização das Nações Unidas*

SBCA – *Self Contained Breathing Apparatus*