ISK BIOSCIENCES

Safety Data Sheet

Conforms to UN Globally Harmonized System and WHMIS Hazard Communication requirements

Flazasulfuron 25WG Herbicide

SECTION 1. IDENTIFICATION

Product Name:	Flazasulfuron 25WG Herbicide
Synonyms:	Longrun, Katana, Chikara, SL-160
Chemical Name:	Flazasulfuron (*N*-[[(4,6-dimethoxy-2-pyrimidinyl)amino]carbonyl]-3-(trifluoromethyl)-2-pyridinesulfonamide (CA))
Chemical Family:	Sulfonylurea
Recommended Uses:	Agricultural industry: Herbicide
PMRA Registration No.:	32910
Company Identification:	ISK Biosciences Corporation 7470 Auburn Road, Suite A Concord, OH 44077-9703 1-440-357-4640
24 Hour Emergency Number:	For Transportation emergency, spills, leak, fire or accident call: CHEMTREC 1-800-424-9300 For Medical emergency call: 1-888-484-7546

SECTION 2. HAZARDS IDENTIFICATION

Hazard Classification: Specific Target Organ Toxicity, Repeated Exposure (Category 2)
Acute aquatic toxicity (Category 1)
Chronic aquatic toxicity (Category 1)

Signal Word: **WARNING**

Hazard Symbols:

Hazard Statements:
May cause damage to organs through prolonged or repeated exposure.
Very toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.

Precautionary Statements:
Do not breathe dust, mist, or vapors.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wear protective gloves, protective clothing and eye protection.
If exposed or concerned, get medical advice/attention.
Get medical attention if you feel unwell.
Store locked up.
Avoid release to the environment.
Collect spillage.
Dispose of contents and container in accordance with the product label.

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name:	CAS #:	% by Weight:	TLV/PEL:
Active Ingredient: Flazasulfuron*	104040-78-0	25	Not established
Silicon dioxide	7631-86-9	0 - 25	80 mg/m^3 (OSHA PEL) 6 mg/m^3 (NIOSH REL)

*_N_-[[(4,6-dimethoxy-2-pyrimidinyl)amino]carbonyl]-3-(trifluoromethyl)-2-pyridinesulfonamide (CA)

SECTION 4. FIRST-AID MEASURES

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 by mouth to an unconscious person.
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.
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.
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 treatment advice.

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

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing Media:	**SMALL FIRE:** Use carbon dioxide, foam or dry powder. **LARGE FIRE:** Use polar resistant foam or water fog. Avoid use of water jet.
Unusual Fire and Explosion Hazards:	May decompose under fire conditions emitting gases and vapors, which may be toxic and irritating to the respiratory tract.
Fire Fighting Instructions:	Wear full firefighting turn-out gear and self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Precautionary Measures:	Use protective equipment and engineering controls identified in section 8 of this document.
Containment and Clean-Up:	Contain spill. If on impervious surface, collect the product with a shovel and place in an adequately identified drum or other vessel. Remove to the area for chemical disposal. Wash the place with plenty of water, avoiding run-off to bodies of water. If on soil, collect the material according to the above description and also contaminated layer of soil. If in bodies of water, immediately discontinue human and animal consumption and contact local competent authorities.

SECTION 7. HANDLING AND STORAGE

Precautions:	Avoid contact with skin, eyes or clothing. 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 use.

SECTION 7. HANDLING AND STORAGE (Continued)

Storage:	Keep out of reach of children and animals. Store in original containers only. Store in a cool, dry place and avoid excess heat. Carefully open containers. After partial use, fold and roll back bags, clamp and close tightly. Do not put concentrate or dilute material into food or drink containers. Do not contaminate other pesticides, fertilizers, water, food or feed by storage or disposal.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

The recommendations in this section for exposure controls and Personal Protection are intended for industrial settings (such as formulation or packaging facilities) or for other non-application situations.

For commercial applications and/or on-farm applications of this product refer to the precautions/warnings on the product label. Always follow the label instructions when handling and applying this product.

Exposure Limits:	Not established.
Engineering Controls:	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection:	
Ingestion:	Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.
Eye Contact:	Applicators and other handlers must wear protective eyewear (such as chemical splash goggles).
Skin Contact:	Applicators and other handlers must wear long-sleeved shirt and long pants, shoes plus socks, and chemical resistant gloves made of any waterproof material.
Inhalation:	A respirator is not normally required when handling sealed containers. Use effective engineering controls to comply with facility occupational exposure limits. In case of emergency spills, use a NIOSH approved respirator with any N, R, P or HE filter.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Appearance:	Solid (brown granule)
Odor:	Cinnamon-like odor
pH:	5.06 (1% solution @ 25°C)
Boiling Point:	Not applicable
Melting Point:	150°C (based on active ingredient)
Freezing Point:	Not applicable
Flash Point:	None observed
Evaporation Rate:	Not available
Flammability:	Non-flammable
Flammable Limits:	Not established
Vapor Pressure:	$<1.0 \times 10^{-7}$ torr (based on active ingredient)
Vapor Density:	Not available
Density:	0.79 g/cm^3

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES (Continued)	
Solubility:	Water Solubility: 27 ppm @ pH 5; 2100 ppm @ pH 7 (based on active ingredient)
N-Octanol/Water:	Kow (active ingredient) < 10 (pH 7 buffer); 20.0 (pH 5 buffer)
Auto-Ignition Temperature:	Not available
Decomposition Temperature:	Not available
Volatility:	Not available

SECTION 10. STABILITY AND REACTIVITY	
Reactivity:	No evidence of reactivity.
Stability:	This product is stable under normal use and storage conditions.
Possibility of Hazardous Reactions:	None known.
Conditions to Avoid:	Avoid contact with heat or open flame.
Incompatible Materials:	None known.
Hazardous Decomposition Products:	May decompose under fire conditions to release vapors or gases which are toxic and irritating to the respiratory tract.

SECTION 11. TOXICOLOGICAL INFORMATION		
Acute Toxicity:	Acute oral toxicity (LD_{50}):	4694 mg/kg [Rat-male] 4908 mg/kg [Rat-female]
	Acute dermal toxicity (LD_{50}):	>2000 mg/kg [Rat]
	Acute inhalation toxicity (LC_{50}):	>6.17 mg/L [actual airborne concentration]; >20.1 mg/L (nominal) 4 hour(s) [Rat].
Skin Irritation:	Non-irritating; Primary dermal irritation index = 0.0 [Rabbit]	
Eye Irritation:	Essentially non-irritating; Any observed redness subsided within 48 – 72 hours in test animals [Rabbit]	
Sensitization:	Not a sensitizer	
Mutagenicity:	Multiple genotoxicity tests with the active ingredient showed no evidence of mutagenicity.	
Carcinogenicity:	Tests with the active ingredient showed no potential for carcinogenicity in rats fed up to 4000 ppm daily for two years, or in mice for 18 months.	
Reproductive Toxicity:	Animal studies show no evidence of toxicity from the active ingredient at the highest tested exposure level of 10,000 ppm (653 mg/kg bw/day).	
Target Organ Effects:	Kidney effects observed in male rats at 400 ppm and female rats at 4000 ppm in a two-year feeding study with the active ingredient were not observed in a similar study with mice.	
Aspiration:	No data available.	

SECTION 12. ECOLOGICAL INFORMATION

Summary of Effects:

As with all crop protection products, take precautions when handling and applying so as to prevent contamination of areas surrounding the application site. Flazasulfuron is practically non-toxic to birds, fish and aquatic invertebrates. Flazasulfuron is highly toxic to terrestrial and aquatic plants. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash waters or rinsate.

SECTION 12. ECOLOGICAL INFORMATION (Continued)

Ecotoxicity Data (Flazasulfuron):

Fish (Rainbow Trout) 96-hour LC_{50} = 120 ppm (practically non-toxic)

Invertebrate (*Daphnia magna*) 48-hour EC_{50} > 106 ppm (practically non-toxic)

Green Algae 72 hour EC_{50} = 5.1 ppb (highly toxic)

Bobwhite Quail Acute LD_{50} > 2000 mg/kg body weight (practically non-toxic)

Mallard Duck Acute LD_{50} > 2250 mg/kg body weight (practically non-toxic)

Sub-Acute Dietary Bird LD_{50} > 5620 ppm in diet for both Quail and Mallard

Persistence / Degradability:	Flazasulfuron degrades readily in the presence of water. Aqueous photolysis half-life = 8.5 days @ 22°C Hydrolysis @ 25°C: DT_{50} = 2.6 days @ pH 5, 11.3 days @ pH 7, 8.8 days @ pH 9.
Bioaccumulative Potential:	The potential for flazasulfuron to bioaccumulate is extremely low (Log P_{ow} = 1.30).
Mobility in Soil:	Field dissipation studies show no downward movement of flazasulfuron through soil leaching.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal:	Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.
Container Disposal:	Nonrefillable container. DO NOT reuse or refill this container. Proper disposal procedures depend on the size and composition of the product container, so follow the disposal directions on the product label which are specific to the container.

SECTION 14. TRANSPORT INFORMATION

US DOT Classification: CLASS 9, Marine Pollutant. Not regulated when shipped in non-bulk packaging.

	Non-bulk (Ground Transport)	Bulk (Ground Transport)
Proper Shipping Name:	Not regulated	Environmentally Hazardous Substance, Solid, N.O.S. (Flazasulfuron)
Hazard Class:	Not regulated	Class 9, Marine Pollutant
Identification Number:	Not regulated	UN 3077
Packing Group:	Not regulated	PG III
Hazardous Substances Reportable Quantity:	Not applicable.	
Special Provisions for Transport:	Class 9 Placard not required for non-bulk packaging transported by ground within the U.S. [49 CFR 172.504(f)(9)]	

	IATA (Air Transport)	IMDG (Ocean Transport)
Proper Shipping Name:	Environmentally Hazardous Substance, Solid, N.O.S. (Flazasulfuron)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (FLAZASULFURON)
Hazard Class:	Class 9	CLASS 9, MARINE POLLUTANT
Identification Number:	UN 3077	UN 3077
Packing Group:	PG III	PG III

SECTION 15. REGULATORY INFORMATION

U.S. Federal and State Regulations:

SARA 313 Inventory Ingredients: Not Listed

SARA 312 Hazards Classification: None

TSCA: Exempt from TSCA, subject to FIFRA.

Listed as carcinogen by:

IARC: Not listed

NTP: Not listed

OSHA: Not listed

Canada (PMRA): Registered under PCP No. 32910

This chemical is a pesticide product registered by the Pest Management Regulatory Agency and is subject to certain labeling requirements under federal law. PMRA requirements can differ from GHS classification criteria and hazard information required for safety data sheets in Section 2. Following is the hazard information as required by PMRA on the pesticide label:

CAUTION

Toxic to aquatic plants and non-target terrestrial plants. Avoid breathing vapor or spray mist. Do not swallow or allow to absorb through the skin. Harmful if swallowed or absorbed through skin. Avoid contact with skin, eyes or clothing. Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove contaminated clothing and wash separately from other laundry before reuse.

Canada (WHMIS): Exempt

SECTION 16. OTHER INFORMATION

NFPA Hazard Ratings		**0 Minimal**
Health:	2	**1 Slight**
Flammability:	0	**2 Moderate**
Instability:	0	**3 Serious**
		4 Extreme

Notice to Reader

All information contained in this Safety Data Sheet is furnished free of charge and is intended for your evaluation. In our opinion, the information as of the date of the Safety Data Sheet is reliable; however, it is your responsibility to determine the suitability of the information for your use. You are advised not to construe the information as absolutely complete since additional information may be necessary or desirable when particular, exceptional or variable conditions or circumstances exist or because of applicable laws or government regulations. Therefore, you should use this information only as a supplement to other information gathered by you; and you must make independent determinations of the suitability and completeness of the information from all sources to assure both proper use of the material described herein and the safety and health of employees. Accordingly, no guarantee expressed or implied is made by ISK Biosciences Corporation as to the results to be obtained based upon your use of the information, nor does ISK Biosciences Corporation assume any liability arising out of your use of the information.

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