Safety Data Sheet

Conforms to UN Globally Harmonized System and WHMIS Hazard Communication requirements

TOLPYRALATE 400SC Herbicide

SECTION 1. IDENTIFICATION

Product Name:	Tolpyralate 400SC Herbicide
Synonyms:	SL-573 400SC, Shieldex 400SC Herbicide
Chemical Name:	Tolpyralate (1-[[1-ethyl-4-[3-(2-methoxyethoxy)-2-methyl-4-(methylsulfonyl)benzoyl]-1*H*-pyrazol-5-yl]oxy]ethyl methyl carbonate (CA))
Chemical Family:	Benzoyl pyrazole
Recommended Uses:	Agricultural industry: Herbicide
PMRA Registration No.:	32901
Company Identification:	ISK Biosciences Corporation 7470 Auburn Road, Suite A Concord, OH 44077-9703 (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 eye, liver and kidney 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/vapors.
Avoid release to the environment.
Get medical attention if you feel unwell.
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: Tolpyralate*	1101132-67-5	35.7	Not established
Propylene glycol	57-55-6	5 – 10	Not established

*1-[[1-ethyl-4-[3-(2-methoxyethoxy)-2-methyl-4-(methylsulfonyl)benzoyl]-1*H*-pyrazol-5-yl]oxy]ethyl methyl carbonate (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 such as nitrous vapors, oxides of sulfur and carbon monoxide, 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. Absorb with an inert material and put the spilled material in an appropriate waste disposal container. Wash spillage area with water. Do not allow wash water to enter drains or surface waters. 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.
Storage:	Store in original container, in a secured, dry and cool place separate from fertilizer, food, and feed. Do not contaminate 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 additional information, refer to the precautions/warnings on the product label. Always follow the label instructions when handling and using 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.
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:	Where eye contact is likely, use protective eyewear (such as chemical splash goggles).
Skin Contact:	Where contact is likely, wear chemical-resistant gloves (such as polyethylene, polyvinyl chloride (PVC), or nitrile rubber), coveralls over long-sleeved shirt and long pants, socks and chemical-resistant footwear.
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 particulate respirator with any N, R, P or HE filter.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Appearance:	Viscous off-white/yellow liquid
Odor:	Mild paint/acrylic odor
pH:	7.33 @ 25°C
Boiling Point:	221°F (105°C)
Melting Point:	Not available
Freezing Point:	Not applicable
Evaporation Rate:	Not available
Flash Point:	None; substance boils and extinguishes flame at 221°F
Flammable Limits:	Not established
Vapor Pressure:	5.9×10^{-4} Pa @ 25°C (active ingredient)
Vapor Density:	Not available
Density:	1.102 g/mL
Solubility:	Not available
N-Octanol/Water:	$Log_{10}P_{ow} = 1.9$ (active ingredient)
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}):	> 2000 mg/kg [Rat]
	Acute dermal toxicity (LD_{50}):	> 2000 mg/kg [Rat]
	Acute inhalation toxicity (LC_{50}):	> 2.74 mg/L [actual airborne concentration]; > 311 mg/L (nominal) 4 hour(s) [Rat].
Skin Irritation:	Non-irritating; Primary dermal irritation index = 0 [Rabbit]	
Eye Irritation:	Essentially non-irritating; Any observed redness subsided within 24 hours in test animals [Rabbit]	
Sensitization:	Not a sensitizer	
Mutagenicity:	No evidence of mutagenicity.	
Carcinogenicity:	Tests on mice and rats exposed to tolpyralate showed no potential for carcinogenicity.	
Reproductive Toxicity:	A two-generation study on rats with tolpyralate showed no evidence of reproductive toxicity at dietary doses of up to 1000 ppm (up to 90 mg/kg bw/day).	
Target Organ Effects:	Ocular opacity was observed in rats and dogs at exposure levels ranging from 50 – 2000 ppm of tolpyralate. Systemic effects to liver and kidneys were seen at extremely high doses of 2000 ppm or greater.	
Aspiration:	No data available.	

SECTION 12. ECOLOGICAL INFORMATION

Summary of Effects:
Tolpyralate is practically non-toxic to birds, fish and aquatic invertebrates. Tolpyralate is highly toxic to terrestrial and aquatic plants.

Ecotoxicity Data (Tolpyralate):

Fish (Rainbow Trout) 96-hour LC_{50} > 1000 mg/L

Invertebrate (*Daphnia magna*) 48-hour EC_{50} > 1000 mg/L

Algae (*Pseudokirchneriella subcapitata*) 96-hour ErC_{50} > 1000 mg/L

Aquatic plant (*Lemna gibba*) 7-day E_rC_{50}: > 244 µg a.i./L; NOEC = 1.02 µg a.i./L

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} > 5000 ppm in diet for both Quail and Mallard

Persistence / Degradability:	Tolpyralate degrades rapidly with half-life values ranging from 0.2 to 1.2 days in aerobic soil. Hydrolysis is dependent on pH, with increasing pH causing faster degradation. Hydrolysis @ 25°C: DT_{50} = 311 days @ pH 4, 31 days @ pH 7, 8.5 hours @ pH 9.

SECTION 12. ECOLOGICAL INFORMATION (continued)	
Bioaccumulative Potential:	The potential for tolpyralate to bioaccumulate is extremely low (Log P_{ow} = 1.9).
Mobility in Soil:	Tolpyralate shows high to very high mobility in various soils under laboratory conditions, but field dissipation studies show limited downward movement 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. Not regulated when shipped in non-bulk packaging by highway or rail.

	Non-bulk (Ground Transport)	Bulk (Ground Transport)
Proper Shipping Name:	Not regulated	Environmentally Hazardous Substance, Liquid, N.O.S. (Tolpyralate)
Hazard Class:	Not regulated	Class 9
Identification Number:	Not regulated	UN 3082
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 highway or rail within the U.S. [49CFR 172.504(f)(9)].	
	IATA (Air Transport)	**IMDG (Ocean Transport)**
Proper Shipping Name:	Environmentally Hazardous Substance, Liquid, N.O.S. (Tolpyralate)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TOLPYRALATE)
Hazard Class:	Class 9	CLASS 9
Identification Number:	UN 3082	UN 3082
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
- **Listed as carcinogen by:**
  - **IARC:** Not Listed
  - **NTP:** Not Listed
  - **OSHA:** Not Listed
  - **CA Prop 65:** Not Listed
- **TSCA:** Exempt, subject to FIFRA

SECTION 15. REGULATORY INFORMATION (Continued)

Canada (PMRA): Registered under PCP No. 32943

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:

Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling. Remove and wash contaminated clothing before reuse. 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. This product is toxic to aquatic organisms and non-target terrestrial plants. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. The use of Tolpyralate 400SC Herbicide in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

SECTION 16. OTHER INFORMATION

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

Notice to Reader

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