

SHIELDEX 400SC Herbicide

SECTION 1. IDENTIFICATION

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| Product Name: | SHIELDEX 400SC Herbicide |
| Synonyms: | SL-573 400SC |
| Chemical Name: | Tolpyralate (1-[[1-ethyl-4-[3-(2-methoxyethoxy)-2-methyl-4-(methylsulfonyl)benzoyl]-1H-pyrazol-5-yl]oxy]ethyl methyl carbonate (CA)) |
| Chemical Family: | Benzoyl pyrazole |
| Recommended Uses: | Agricultural industry: Herbicide |
| EPA Registration No.: | 71512-29 |
| Company Identification: | Summit Agro USA LLC 240 Leigh Farm Road, Suite 415 Durham, NC 27707 (984) 260-0407 |
| 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.

*According to OSHA criteria. For FIFRA criteria, see section 15

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

| Chemical Name: | CAS #: | % by Weight: | TLV/PEL: |
|--|--------------|--------------|-----------------|
| Active Ingredient: Tolpyralate* | 1101132-67-5 | 35.7 | Not established |
| *1-[[1-ethyl-4-[3-(2-methoxyethoxy)-2-methyl-4-(methylsulfonyl)benzoyl]-1 <i>H</i> -pyrazol-5-yl]oxy]ethyl methyl carbonate (CA) | | | |

SECTION 4. FIRST-AID MEASURES

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| 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

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| 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

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| 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

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| 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 x 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

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| 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

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| 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 LC₅₀ > 1000 mg/L

Invertebrate (*Daphnia magna*) 48-hour EC₅₀ > 1000 mg/L

Algae (*Pseudokirchneriella subcapitata*) 96-hour ErC₅₀ > 1000 mg/L

Aquatic plant (*Lemna gibba*) 7-day ErC₅₀: > 244 µg a.i./L; NOEC = 1.02 µg a.i./L

Bobwhite Quail Acute LD₅₀ > 2000 mg/kg body weight (practically non-toxic)

Mallard Duck Acute LD₅₀ > 2250 mg/kg body weight (practically non-toxic)

Sub-Acute Dietary Bird LD₅₀ > 5000 ppm in diet for both Quail and Mallard

Persistence / Degradability:

Tolpyralate degrades rapidly in soil, with half-life values ranging from 0.5 – 2.6 days in field conditions. Hydrolysis is dependent on pH, with increasing pH causing faster degradation. Hydrolysis @ 25°C:
DT₅₀ = 311 days @ pH 4, 31 days @ pH 7, 8.5 hours @ pH 9.

SECTION 12. ECOLOGICAL INFORMATION (continued)

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| 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

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| 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) |
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| 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 from TSCA, subject to FIFRA.

FIFRA:

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law (FIFRA). FIFRA requirements differ from the OSHA classification criteria and hazard information required for safety data sheets in Section 2 above, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required by FIFRA on the pesticide label:

CAUTION

Harmful if swallowed or absorbed through skin. 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 reuse. 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 rinse water. Do not apply where/when conditions could favor runoff.

SECTION 16. OTHER INFORMATION**NFPA Hazard Ratings**

Health: 1
Flammability: 1
Instability: 0

0 Minimal
1 Slight
2 Moderate
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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