



MATERIAL SAFETY DATA SHEET

Manufacturer/information service:

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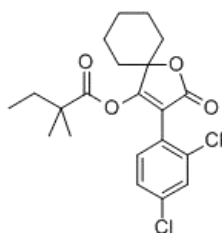
1. Chemical Product Identification

Product Name: Spirodiclofen 240 g/L SC

Molecular Formula: $C_{21}H_{24}Cl_2O_4$

Molecular Weight: 411.32 g/mol

Structural Formula:



Chemical Name:

3-(2,4-dichlorophenyl)-2-oxo-1-oxaspiro[4.5]dec-3-en-4-yl 2,2-dimethylbutanoate

Form: Liquid

Colour: White

CAS No.: 148477-71-8

2. Composition / Information On Ingredients

Composition	Chemical name	Content (w/v)
Active ingredient	Spirodiclofen	240 g/L min
Other ingredient	-----	Up to 1000 L



3. Hazards Identification

May be harmful if ingested, inhaled, or absorbed through the skin. May cause irritation. To the best of our knowledge, the toxicological properties of this compound have not been fully investigated. Exercise appropriate precautions to prevent opportunities for inhalation, and to prevent direct contact with skin and eyes. All uncharacterized chemicals should be treated as suspected toxins.

4. First Aid Measures

Eye: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Get medical attention if irritation develops and persists.

Skin: Wash off thoroughly with plenty of soap and water, if available with polyethyleneglycol 400, subsequently rinse with water. If symptoms persist, call a physician.

Ingestion: Rinse mouth. Do NOT induce vomiting. Call a physician or poison control center immediately..

Inhalation: Move person to fresh air. If person is not breathing, call an ambulance, and then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Note to Physician: In case of ingestion gastric lavage should be considered in cases of significant ingestions only within the first 2 hours. However, the application of activated charcoal and sodium sulphate is always advisable.

5. Fire-Fighting Measures

Extinguishing Media: Water spray, dry chemical powder, foam, Carbon dioxide, Sand.

Specific hazards during fire fighting:

In the event of fire the following may be released: Hydrogen chloride (HCl) Carbon monoxide (CO)

Special protective equipment for fire-fighters: In the event of fire and/or explosion do not breathe fumes. In the event of fire, wear self-contained breathing apparatus.

Further information: Contain the spread of the fire-fighting media. Do not allow run-off from fire fighting to enter drains or water courses.

6. Accidental Release Measures



Personal Precautions: Avoid contact with spilled product or contaminated surfaces. Use personal protective equipment.

Environmental Precautions: Do not allow to get into surface water, drains and ground water.

Methods for cleaning up: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder). Clean contaminated floors and objects thoroughly, observing environmental regulations. Keep in suitable, closed containers for disposal.

7. Handling And Storage

Handling:

Advice on safe handling: Use only in area provided with appropriate exhaust ventilation.

Storage:

Requirements for storage areas and containers: Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place. Store in a place accessible by authorized persons only. Keep away from direct sunlight.

Advice on common storage: Keep away from food, drink and animal feedingstuffs.

Suitable materials: HDPE (high density polyethylene).

8. Exposure Controls/personal protection

Engineering Controls: Where engineering controls are indicated by use conditions or a potential for excessive exposure exists, the following traditional exposure control techniques may be used to effectively minimize employee exposures: general area dilution/exhaust ventilation.

Eye/Face Protection: Eye and face protection requirements will vary dependent upon work environment conditions and material handling practices. Appropriate equipment should be selected for the particular use intended for this material. Eye contact should be prevented through use of chemical safety glasses with side shields or splash proof goggles. An emergency eye wash must be readily accessible to the work area.

Body Protection: Applicators and other handlers must wear long-sleeved shirts, long pants, chemical resistant, waterproof gloves, and shoes plus socks during mixing, loading, applying and clean-up and repair activities. Where overhead exposure is possible, chemical resistant headgear should be worn.

9. Physical And Chemical Properties



Appearance: White viscous flow liquid

pH: 6.0-9.0

Suspensibility: $\geq 90.0\%$

Specific Gravity: $1.06 \pm 0.02 \text{g/mL}$

Persistent foam: $\leq 25 \text{mL}$ (after 1 min)

Low temperature stability 0°C ,7days: Qualified

High temperature stability 54°C ,14days: Qualified

10. Stability And Reactivity

Chemical Stability: The product is stable if stored and handled as prescribed/indicated.

Conditions to avoid: See MSDS section 7 - Handling and storage.

Incompatible materials: Strong acids, strong bases and strong oxidising agents.

Hazardous decomposition products: When burnt it will produce toxic fumes.

Hazardous reactions: No hazardous reactions if stored and handled as prescribed/indicated.

11. Toxicological Information

Acute oral LD_{50} for rats: $>2500 \text{ a.i.mg/kg}$

Acute dermal LD_{50} for rats: $>2000 \text{ a.i.mg/kg}$

Acute inhalation toxicity: LC_{50} (4h) for rats: $>5.03 \text{ a.i.mg/l}$

Skin irritation: Non irritating to rabbits

Eye irritation: Non irritating to rabbits

Skin Sensitization: Sensitizing (maximization test, Guinea Pig)

12. Ecological And Ecotoxicological Information

Effects on birds: Acute oral LD_{50} for Japanese quail: $>2000 \text{ a.i.mg/kg}$.

Effects on fish: The LC_{50} values in rainbow trout(96 h): 0.0035 a.i.mg/L .

Effects on fish food specie: Acute LC_{50} for Daphnia magna(48h): $>0.051 \text{ a.i.mg/L}$.

Effects on bees: The contact LD_{50} in Honeybee(48 h): $>200 \text{ a.i.ug/bee}$.

Effects on Earthworm: LC_{50} (14 days): $> 1000 \text{ a.i.mg/kg d.w. soil}$.

13. Disposal Considerations

Waste disposal method: Dispose in accordance with local, state/provincial and federal regulations. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixtures



or rinsate is violation of federal law.

Container disposal method: Completely empty container into application equipment. Do not reuse empty container. Then dispose of empty container in a sanitary landfill, by incineration or by other procedures approved by state/provincial and local authorities. If burned, stay out of smoke.

14. Transport Information

Not applicable

15. Regulatory Information

Not applicable

16. Other Information

All information and instructions provided in this Material Safety Data Sheet (MSDS) are based on the current state of scientific and technical knowledge at the date indicated on the present MSDS and are presented in good faith and believed to be correct. This information applies to the product as such. In case of new formulations or mixes, it is necessary to ascertain that a new danger will not appear. It is the responsibility of persons on receipt of this MSDS to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. If the recipient subsequently produce formulations containing this product, it is the recipient's sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.