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Meridian agritech

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# Safety Data Sheet

# SPIRAL 500 EC

**Reg. No: L 7982 (Act No 36 of 1947)**
**Namibian Reg. No. N-AR 1536**

| **1) PRODUCT AND COMPANY IDENTIFICATION** | |
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| **Product name:** | SPIRAL 500 EC |
| **Other means of identification:** | Spiroxamine 500 g/L EC |
| **Chemical Name:** | 8-*tert*-butyl-1,4-dioxaspiro[4.5]decan-2-ylmethyl (ethyl)-(propyl)-amine (IUPAC) |
| **Recommended use:** | Fungicide |
| **Restrictions on use:** | Agriculture |
| **UN No:** | 2902 |
| **Distributed by:** | MERIDIAN AGRITECH<br>P O BOX 436<br>MODDERFONTEIN<br>TEL 011 8228509 FAX 0866901386<br>MOBILE: 0834006056<br>www.agritech.co.za |
| **Emergency Number:** | POISON CENTRE (UNITAS HOSPITAL)<br>012 664 1100<br>TYGERBERG:021 931 6129<br>RED CROSS 021 689 5227<br>GRIFFON POISON CENTRE: 082 446 8946 |
| **2) HAZARDS IDENTIFICATION** | |
| **Classification of the substance/mixture:** | Acute Toxicity (Oral) Category 4<br>Acute Toxicity (Dermal) Category 4<br>Acute Toxicity (Inhalation) Category 4<br>Skin Irritation Category 2<br>Skin Sensitization Category 1<br>Reproductive Toxicity Category 2<br>STOT RE Category 2<br>Aquatic Acute Category 1<br>Aquatic Chronic Category 1 |
| **Label Elements:**<br>**Globally Harmonized System, EU (GHS):** | **Pictograms:**<br>  <br>Signal word: Warning<br><br>**Hazard Statements:**<br>**H302:** Harmful if swallowed.<br>**H312:** Harmful in contact with skin.<br>**H315:** Causes skin irritation.<br>**H317:** May cause an allergic skin reaction.<br>**H332:** Harmful if inhaled.<br>**H361d:** Suspected of damaging the unborn child.<br>**H373:** May cause damage to organs through prolonged or repeated exposure (eyes).<br>**H400:** Very toxic to aquatic life.<br>**H410:** Very toxic to aquatic life with long-lasting effects.<br><br>**Precautionary Statements:**<br>**P201:** Obtain special instructions before use.<br>**P202:** Do not handle until all safety precautions have been read and understood. |

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| | **P260:** Do not breathe dust/mist/spray.<br>**P262:** Do not get in eyes, on skin, or on clothing.<br>**P270:** Do not eat, drink or smoke when using the product.<br>**P272:** Contaminated work clothing should not be allowed out of the workplace.<br>**P273:** Avoid release to the environment.<br>**P280:** Wear protective gloves, protective clothing, eye protection.<br>**P321:** Specific treatment (See First aid measures on this label)<br>**P362+P364:** Take off contaminated clothing and wash it before reuse.<br>**P405:** Store locked up. |
| **According to Directive 67/548/EEC No. 1272/2008 [CLP]** | **Hazard Symbol(s):**<br>Xn – dangerous to health<br>Xi - Irritant<br>N – dangerous for the environment<br><br>**R-phrase(s):**<br>**R20/21/22:** Harmful by inhalation, in contact with skin and if swallowed.<br>**R38:** Irritating to skin.<br>**R41:** Risk of serious damage to eyes.<br><br>**S-phrase(s):**<br>**S2:** Keep out of reach of children.<br>**S13:** Keep away from food, drink and animal feeding stuffs.<br>**S20/21:** When using, do not eat drink or smoke.<br>**S26:** In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.<br>**S28:** After contact with skin, wash immediately with plenty of water and soap.<br>**S36/37/39:** Wear suitable protective clothing, gloves and eye/face protection.<br>**S46:** If swallowed, seek medical advice immediately and show this container<br>**S62:** If swallowed, do not induce vomiting: seek medical advice immediately |

## 3) COMPOSITION / INFORMATION ON INGREDIENTS

**3.1 Substances:**
Not applicable
**3.2 Mixtures:**

| Chemical name | Concentration | CAS No. | EC No. | Classification according to Regulation EC 1272/2008 (CLP) |
|---|---|---|---|---|
| Spiroxamine | 500 g/L | 118134-30-8 | 601-505-4 | Acute Tox 4 (H302)<br>Acute Tox 4 (H312)<br>Skin Irrit 2 (H315)<br>Skin Sens 1 (H317)<br>Acute Tox 4 (H332)<br>STOT RE 2 (H373, eye)<br>Aquatic Acute 1 (H400)<br>Aquatic Chronic 1 (H410)<br>Repr 2 (H361d) |
| Benzyl alcohol | <35% | 100-51-6 | 202-859-9 | Acute Tox 4 (H302)<br>Acute Tox 4 (H332) |

## 4) FIRST AID MEASURES

**Description of First-Aid Measures:**

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| **Inhalation:** | Remove patient to fresh air. Loosen clothing around neck. Lie down and keep warm and rested. If breathing is shallow or has stopped ensure airway is clear and apply resuscitation. **Seek medical assistance immediately.** Administer oxygen if breathing is difficult. |
| **Skin contact:** | Remove contaminated clothing and footwear immediately and flush body with large amounts of water. Wash affected areas with soap and water. Do not rub skin. Seek medical advice. |
| **Eye contact:** | Flush eyes with plenty of water for 15 minutes holding eyelids open if necessary. Consult an eye specialist. |

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| **Ingestion:** | **Seek medical assistance immediately**.<br>If diluted mixture has been swallowed, induce vomiting, by tickling the back of the throat.<br>If concentrate has been swallowed, firstly give copious amounts of beaten egg, or white starch solution or Milk of Magnesia before inducing vomiting. Repeat this until vomit fluid is clear and free from smell of poison.<br>Never give anything by mouth to an unconscious person. Administer artificial respiration and/or closed chest massage if necessary. Do not apply direct mouth to mouth respiration. For advice, contact the National Poisons Centre. |
| **Most important symptoms and effects, both acute and delayed:** | Local contamination: Irritating to skin and respiratory tract.<br>Systemic contamination: Overexposure to benzyl alcohol may cause headache, nausea, vomiting, gastrointestinal irritation, convulsions, central nervous system depression. |
| **Indication of any immediate medical attention and special treatment needed:** | Risk of serious damage to eyes. Treat symptomatically after decontamination. In the case of skin or eye contamination: treat as above under first aid measures.<br>Spiroxamine belongs to the spiroketalamine chemical group. No specific antidote. |
| **5) FIRE-FIGHTING MEASURES** | |
| **Extinguishing Media:** | Fine water spray, foam, dry chemical, carbon dioxide, sand. |
| **Unsuitable Extinguishing Media:** | Do not use high volume water jet, due to contamination risk. |
| **Specific Hazards arising from the substance/mixture:** | Generating poisonous and corrosive fumes containing: carbon monoxide, nitrogen oxides, sulphur and hydrogen cyanide.<br><br>UNUSUAL FIRE OR EXPLOSION HAZARDS:<br>Combustion products are toxic and/or irritant. |
| **Fire Fighting:** | Remove spectators from surrounding area. Isolate the fire area and evacuate downwind. Use a recommended extinguishing agent for the type of surrounding fire.<br>Fight fire from maximum distance and use unmanned hose holder or monitor nozzles. Contain fire control agents for later disposal.<br>Avoid inhaling hazardous vapours and fumes from burning materials. Keep upwind. Remove intact containers from fire area if possible and without risk. Water can be used to cool unaffected containers but the water must then be contained for later disposal. Bund the area with sand or earth to prevent contamination of drains or waterways. Dispose of spillage safely at a later stage. Do not scatter the material. Avoid pollution of waterways. |
| **Protective clothing:** | Full protective clothing and self-contained breathing apparatus Well ventilated areas: full face mask with combination filter. Enclosed premises: respirator with independent air supply. |
| **6) ACCIDENTAL RELEASE MEASURES** | |
| **Personal precautions, protective equipment and emergency procedures:** | Avoid contact with skin and eyes. Do not breathe in spray or fumes. For personal protection see Section 8.<br>Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke. Wash contaminated clothing before re-use. |
| **Environmental precautions:** | Do not contaminate waterways, drains and groundwater. If contamination of waterways, drains, rivers or lakes is unavoidable, warn the local authorities (Police and Department of Water/Environmental affairs) immediately. |
| **Methods and material for containment and cleaning up:** | Wear protective clothing. Clear area of unprotected personnel. Spills may be slippery and should be cleaned up immediately. Extinguish or remove possible sources of ignition. Prevent spilled material from entering drains or watercourses. Contain and absorb liquid spills with inert material and place in waste containers. Wash area with |

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| | water and absorb with further inert material. Heavily contaminated soil layers have to be dug out down to clean soil. If spill does enter waterways contact the local authority. Spilled product cannot be re-used and must be disposed of by incineration or disposal in a chemical waste disposal facility. If containers cannot be recycled, they should be disposed of together with the waste chemical. Generating poisonous and corrosive fumes. |
| **7) HANDLING & STORAGE** | |
| **Precautions for Safe Handling:** | Keep out of reach of children. Avoid skin and eye contact and inhalation of spray mist.<br>Avoid inhalation of fog and vapours. Protect from extreme temperatures. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. Wash gloves, goggles or face shield, and contaminated clothing after use.<br>APPROVED HANDLER: This product must be under the control of an approved handler when applied in a wide dispersive manner; or used by a commercial contractor.<br>BEWARE: Spray drift hazard. Apply this product carefully. Spray drift may cause serious damage to other desirable plants. |
| **Conditions for Safe Storage, including any incompatibilities:** | Store in original container tightly closed and in a locked, dry, cool area away from ignition sources, foodstuffs, fertilisers and seeds. Do not store for prolonged periods in direct sunlight.<br>Keep away from children or uninformed persons. |
| **8) EXPOSURE CONTROL / PERSONAL PROTECTION** | |
| **Appropriate Engineering Controls:** | It is essential to provide adequate ventilation. The measures appropriate for a particular work site depend on how this material is used and on the extent of exposure. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire, and other applicable regulations. Control process conditions to avoid contact. When opening containers use exhaust ventilation to prevent vapours from spreading. Use in a well-ventilated are only. |
| **Control Parameters: Occupational exposure limits:** | Ingredient: Spiroxamine; CAS#: 118134-30-8; Limit: 0.57 $mg/m^3$; Basis: TWA OES BCS |
| **<u>PERSONAL PROTECTIVE EQUIPMENT:</u>**<br>**Clothing:** | Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance.<br>Respiratory protection: Respirator with filter for organic vapour. |
| **Gloves:** | Employee must wear appropriate chemical-resistant gloves to prevent contact with this substance |
| **Eye protection:** | The use of safety goggles with side shields is recommended. |
| **Emergency eye wash:** | Where there is any possibility that an employee's eyes may be exposed to this substance, the employer should provide an eye wash fountain or appropriate alternative within the immediate work area for emergency use. |
| **9) PHYSICAL & CHEMICAL PROPERTIES** | |
| **Form:** | Liquid |
| **Colour:** | Brown |
| **Odour:** | Characteristic odour |
| **Solubility:** | Emulsifies in water |
| **pH:** | 9.4 (1% solution) |
| **Odour threshold:** | Not available |
| **Melting point / Freezing point** | Not available |
| **Initial boiling point and boiling range** | Not available |
| **Flash point:** | >100$^{o}$C |

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| **Evaporation rate:** | Not available |
| **Flammability (solid, gas)** | Not available |
| **Upper/ lower flammability or explosive limits:** | Not available |
| **Vapour pressure:** | 1.7 x $10^{-2}$ Pa (spiroxamine) |
| **Vapour density:** | Not available |
| **Relative density:** | 1.00 at 20°C |
| **Partition coefficient: n-octanol/water** | Log $P_{ow}$ = 1.28 to 5.08 at pH 3-9 at 20°C (Spiroxamine) |
| **Auto-ignition temperature:** | 265°C |
| **Decomposition Temperature:** | Not available |
| **Viscosity:** | Not available |
| **10) STABILITY & REACTIVITY** | |
| **Reactivity:**<br><br>**Chemical Stability:**<br><br><br><br>**Possibility of hazardous reactions:**<br><br>**Conditions to avoid:**<br><br>**Incompatible materials:**<br><br>**Hazardous decomposition product(s):** | No hazardous reactions if stored and handled as indicated.<br><br>When stored appropriately this product should show no significant degradation for 2 years from the date of manufacture.<br><br>None under normal conditions.<br><br>Heat, flames<br><br>Strong oxidizing agents, strong acids, plastics.<br><br>Heating can release vapours which can be ignited. Combustion products are toxic and/or irritant. |
| **11) TOXICOLOGICAL INFORMATION** | |
| **Acute Toxicity:**<br>**Oral:**<br>**Dermal:**<br>**Inhalation:** | <br>LD50 200-1000 mg/kg, rat.<br>LD50 > 1 500 mg/kg, rat.<br>LC50 (4h) 2 000 mg/m$^3$, rat. |
| **Skin Corrosion/Irritation:** | May cause moderate to severe irritation. |
| **Serious Eye Damage/Irritation:** | May cause damage to eyes. |
| **Respiratory or Skin Sensitization:** | May cause skin sensitization. |
| **Germ Cell Mutagenicity:** | Spiroxamine was not mutagenic. |
| **Carcinogenicity:** | Spiroxamine was not carcinogenic. |
| **Reproductive Toxicity:** | Suspected of damaging the unborn child. |
| **STOT-SE:** | No data available. |
| **STOT-RE:** | May cause damage to organs through prolonged or repeated exposure (eyes). |
| **Aspiration Hazard:** | No data available. |
| **12) ECOLOGICAL INFORMATION** | |
| **<u>Ecotoxicity:</u>**<br>**Birds:**<br><br>**Fish:**<br>**Daphnia:**<br>**Algae:**<br>**Worms:**<br>**Bees:** | <br>LD50 Bobwhite quail > 500 mg/kg. Dietary LC50 (8d) Bobwhite quail & Mallard ducklings >5 000 mg/kg diet.<br>LC50 (96h) Rainbow trout 18 mg/L, Bluegill sunfish 7 mg/L.<br>EC50 (48h) > 6 mg/L.<br>$E_rC_{50}$ (72h) *Scenedesmus subspicatus* 0.012 mg/l.<br>>1000 mg/kg.<br>LD50 (48h) Oral >100 µg/bee; Contact >4 µg/bee. |
| **Persistence and Degradability:** | Soil $DT_{50}$ 35 - 64 days. Photodegradation in water is not significant. $K_{oc}$ 659 – 6417 mL/g. In water/sediment studies, spiroxamine bound rapidly to the sediment; $DT_{50}$ in the supernatant water 12–13 hrs. Thoroughly degraded in the water/sediment systems, ultimately to $CO_2$. |
| **Bio-accumulative Potential:** | Unlikely to bioaccumulate in natural systems. |
| **Mobility in Soil:** | Unlikely to leach or to contaminate groundwater. |
| **13) DISPOSAL CONSIDERATIONS** | |
| **Waste Disposal:** | Triple or preferably pressure rinse container before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on site. In accordance with local and national regulationsIf recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush or puncture and bury empty containers in a local authority landfill. If no landfill is available, bury the container below 500mm in a disposal pit specifically set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt. Dispose of waste product through a reputable waste contractor. Do not contaminate water, food or feed by disposal. |
| **Container Disposal:** | Refer to the product label for instructions.<br>Empty containers should not be burnt. |

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| | Container Refilling and Disposal:<br>If the container is to be refilled, do not rinse with any material or introduce any pesticide other than this product.<br>DO NO REUSE THE CONTAINER FOR ANY OTHER PURPOSE.<br>Do not transport if this container is damaged or leaking. |
| **14) TRANSPORTATION INFORMATION** | |
| **Road Transport ADR / IRD:** | UN NUMBER: 2902<br>UN Proper Shipping name: Pesticide, Liquid, Toxic, N.O.S (contains spiroxamine)<br>Transport Hazard Class: 6.1<br>Packaging group: III<br>Labelling no: 6.1<br>Environmental Hazards: Not applicable<br>Special Precautions for User: Read safety instructions, SDS and emergency procedures before handling. |
| **Maritime Transport IMDG / IMO:** | UN NUMBER: 2902<br>UN Proper Shipping name: Pesticide, Liquid, Toxic, N.O.S (contains spiroxamine)<br>Transport Hazard Class: 6.1<br>Packaging group: III<br>Labelling no: 6.1<br>Environmental Hazards: Marine Pollutant<br>Special Precautions for User: Read safety instructions, SDS and emergency procedures before handling.<br>  |
| **Air Transport ICAO / IATA:** | UN NUMBER: 2902<br>UN Proper Shipping name: Pesticide, Liquid, Toxic, N.O.S (contains spiroxamine)<br>Transport Hazard Class: 6.1<br>Packaging group: III<br>Labelling no: 6.1<br>Environmental Hazards: Not applicable<br>Special Precautions for User: Read safety instructions, SDS and emergency procedures before handling. |
| **Transport in Bulk (according to Annex II of MARPOL 73/78 and the IBC Code):** | No transport in bulk according to the IBC Code. |
| **15) REGULATORY INFORMATION** | |
| **Safety, health and environmental regulations/legislation specific for the substance/mixture:** | For the user of this plant-protective product applies: 'To avoid risks to man and the environment, comply with the instructions for use.' (Directive 1999/45/EC, Article 10, No. 1.2) |
| **Chemical Safety Assessment:** | Advice on product handling can be found in sections 7 and 8 of this safety data sheet. |

**16) OTHER INFORMATION**

All information and instructions provided in this Safety Data Sheet (SDS) are based on the current state of scientific and technical knowledge at the date indicated on the present SDS 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.

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**Abbreviations and acronyms:**

1. CAS number: Chemical Abstracts Service number.
2. CLP: Classification, Labelling, Packaging.
3. $LD_{50}$: Lethal Dose for 50% of the test population.
4. $LC_{50}$: Lethal Concentration for 50% of the test population.
5. $DT_{50}$: Half-life.
6. GHS: Globally Harmonised System (of Classification and Labelling of Chemicals).
7. STOT: Specific Target Organ Toxicity
8. SE: Single exposure
9. RE: Repeated exposure
10. TWA: Time-weighted average.
11. OES: Occupational Exposure Standard
12. BCS: Bayer CropScience

**Literature References:**


- GHS: www.ccohs.ca/oshanswers/chemicals/ghs.html
- ECHA: https://echa.europa.eu/search-chemicals