# SAFETY DATA SHEET

| Issue No: 1.2 | Revision date: 6 March 2023<br>First print date: 1 November 2019 |
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## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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| Product Name: | **EVOLVE 480 SC** |
| Other means of identification: | Azoxystrobin 240 g/ℓ + Fludioxonil 240 g/ℓ |
| Recommended Use: | Agricultural fungicide |
| Supplier: | ICA International Chemicals (Pty) Ltd |
| Address: | 28 Planken Street<br>Plankenbrug Industrial<br>STELLENBOSCH · 7600 · SOUTH AFRICA |
| Telephone No: | +27-21 886 9812 |
| Fax No: | +27-21 886 8209 |
| Emergency Tel No: | Griffon Poison Information Centre: +27-82 446 8946<br>Human Poison Helpline: +27-861 555 777 |

## 2. HAZARD IDENTIFICATION

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|---|---|
| GHS Classification of product | Acute Toxicity Oral – Category 4<br>Acute Toxicity Dermal – Category 5<br>Acute Aquatic Toxicity – Category 1<br>Chronic Aquatic Toxicity – Category 1 |
| Label Elements<br>Classification and Labelling of Chemicals (GHS) Rev 9, 2021; Regulation EC No. 1272/2008 [EU-GHS/CLP] | |
| Signal word | **WARNING** |
| Hazard Statements | H302 – Harmful if swallowed<br>H313 – May be harmful in contact with skin<br>H410 – Very toxic to aquatic life with long lasting effects |
| General Precautionary Statements | P101: If medical advice is needed, have product container or label at hand.<br>P102: Keep out of reach of children.<br>P103: Read carefully and follow all instructions. |
| Prevention Precautionary Statements | P264: Wash hands and exposed skin thoroughly after handling.<br>P270: Do not eat, drink, or smoke when using this product.<br>P273: Avoid release to the environment.<br>P280: Wear protective gloves/protective clothing/eye and face protection. |
| Response Precautionary Statements | P301 + P330 + P317: IF SWALLOWED: Rinse mouth. Get medical help.<br>P302 + P352 + P317: IF ON SKIN: Wash with plenty of soap and water. Get medical help.<br>P362 + P364: Take off contaminated clothing and wash it before reuse.<br>P391: Collect spillage. |
| Disposal Precautionary Statements | P501: Dispose of contents and container in accordance with national regulations. |

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

| INGREDIENT(S) | CAS NO: | CONCENTRATION % (w/v) | CLASSIFICATION EC1272/2008 |
|---|---|---|---|
| Azoxystrobin | 131860-33-8 | 24 | Acute Inhalation Toxicity Category 3, H331<br>Aquatic Acute Category 1, H400<br>Aquatic Chronic Category 1, H410 |

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|---|---|---|---|
| Fludioxonil | 131341-86-1 | 24 | Aquatic Acute Category 1, H400<br>Aquatic Chronic Category 1, H410 |
| 1,2-benzisothiazol-3-one | 2634-33-5 | < 1 | Skin Sensitization Category 1, H317 |

There are no additional ingredients present which, within the current knowledge of the provider of this SDS, and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section. See section 16 for legend of additional H-statements not mentioned in section 2.

## 4. FIRST AID MEASURES

**Show this SAFETY DATA SHEET to a doctor.**

**INHALATION:**

- Remove the victim from immediate source of exposure. Move victim to fresh air, if it can be done safely, and keep comfortable.
- If victim's breathing has stopped, perform artificial respiration.
- Administer oxygen if victim's breathing is difficult or irregular.
- Get medical help.

**SKIN:**

- Remove and isolate contaminated clothing, shoes, and leather goods immediately and take a shower.
- Rinse affected areas (skin) with non-abrasive soap or mild detergent and large amounts of running water. Wash contaminated clothing before reuse. Get medical help if irritation develops and persists.

**EYES:**

- Rinse eyes cautiously with clean running water for at least 15 minutes, while holding eyelids apart. Remove contact lenses after 5 minutes if present and easy to do. Continue rinsing while holding eyelids apart.
- Seek medical help if irritation continues.

**INGESTION:**

- If swallowed, DO NOT induce vomiting, unless instructed to do so by poison control center or doctor. Have person sip a glass of water if able to swallow.
- Never give anything by mouth to an unconscious person. Get medical help.

**NOTE TO PHYSICIAN:**

- There is no specific antidote. All treatments should be based on observed signs and symptoms of distress in the patient.

**POTENTIAL HEALTH EFFECTS, ACUTE AND DELAYED**

No significant adverse effects expected. Effects of exposure (inhalation, ingestion, or skin contact) to substance may be delayed.

## 5. FIRE FIGHTING MEASURES

**SUITABLE EXTINGUISHING MEDIA:**

**Small fires:** Dry chemical powder, carbon dioxide ($CO_2$), water spray or alcohol-resistant foam

**Large fires:** Water spray, fog, or alcohol-resistant foam

**FIRE INVOLVING TANKS:**

Cool containers with flooding quantities of water until well after fire is out. DO NOT get water inside containers.

**UNSUITABLE EXTINGUISHING MEDIA:**

DO NOT use high volume water jet, due to contamination risk.

**SPECIFIC EXTINGUISHING METHODS:**

Fight fire from maximum distance. For massive fire, use unmanned hose holder or monitor nozzles. Collect contaminated extinguishing water separately; do not allow contaminated water to reach the sewage or effluent systems.

**SPECIFIC HAZARDS ARISING FROM COMBUSTION PRODUCTS:**

In case of fire, the formation of Carbon dioxide ($CO_2$), Carbon monoxide (CO), Nitrogen oxides ($NO_x$), and Hydrogen chloride (HCℓ), can be expected.

**PRECAUTIONS FOR FIRE FIGHTERS:**

Fire fighters should wear full protective gear including self-contained breathing apparatus (SCBA). Fight fire from safe distance. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes, and vapours. Clean all clothing before reuse. Severely contaminated clothing that cannot be adequately decontaminated must be disposed as hazardous waste. Shower with soap and water after contact with chemical product.

**FURTHER INFORMATION:**

- If possible, safely move undamaged intact containers away from the area around the fire.
- Keep containers cool by spraying with water if exposed to fire.
- Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.
- In case of fire and/or explosion do not breathe fumes.

## 6. ACCIDENTAL RELEASE MEASURES

**SPILL OR LEAK:**

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| **PERSONAL PRECAUTIONS:** | Avoid contact with skin and eyes. Do not touch or walk through spilled material. Do not inhale spray or fumes. |
| **PROTECTIVE EQUIPMENT:** | Wear personal protective clothing and equipment (see section 8). |
| **EMERGENCY PROCEDURES:** | Keep people and animals away. Eliminate all ignition sources (no smoking, flares, sparks, or flames) from immediate area. All equipment used when handling the product must be grounded.<br>Use water spray to reduce vapours or divert vapour cloud drift. |
| **ENVIRONMENTAL PRECAUTIONS:** | PREVENT spilled material from entering waterway and sewer systems, basements, and confined areas. If the product contaminates rivers and lakes or waterways immediately inform respective authorities. |
| **METHODS AND MATERIALS FOR CONTAINMENT:** | Contain and absorb liquid spills with inert material, remove by scoop or vacuum. Use approved industrial vacuum cleaner for removal and place in clearly marked waste containers. |
| **METHODS AND MATERIALS FOR CLEANING UP:** | Contain spillage, and then collect with non-combustible absorbent material, (e.g., sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Use clean, non-sparking tools to collect absorbed material. |
| **SECONDARY DISASTER PREVENTION MEASURES:** | NA |

## 7. HANDLING AND STORAGE

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| **PRECAUTIONS FOR SAFE HANDLING:**<br>- Suitable Technical Measures<br>- Suitable Precautions<br>- Prevention of contact | · Always store fungicides in their original containers, which include the label listing ingredients, directions for use, and first aid steps in case of accidental poisoning.<br>· Never transfer fungicides to soft drink bottles or other containers. Children or others may mistake them for something to eat or drink.<br>· Wear suitable protective clothing which includes chemical-resistant overalls, footwear, socks, dust mask, eye shields and gloves.<br>· Wash hands before eating, drinking, chewing gum, smoking, or using the toilet. Wash hands, arms, and face after application. Wash gloves and contaminated protective clothing daily before reuse. |
| **CONDITIONS FOR SAFE STORAGE:**<br>- Suitable Technical Measures<br>- Separation measures from incompatible substances and mixtures | · Keep out of reach of unauthorized persons, children, and animals. Always store fungicides in their original containers, which include the label listing ingredients, in a cool, dry, and well-ventilated area out of direct sunlight.<br>· Segregate from foods and animal feeds.<br>· DO NOT reuse the container for any other purpose. |
| **PACKAGING MATERIAL** | HDPE Fluorinated Containers |
| **FIRE PRECAUTIONS:** | Not applicable |

## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

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| **ADI – Acceptable Daily Intake** | **Azoxystrobin** = 0.2 mg $kg^{-1}$ bw $day^{-1}$<br>**Fludioxonil** = 0.37 mg $kg^{-1}$ bw $day^{-1}$ |
| **AOEL – Accepted Operator Exposure Level** | **Azoxystrobin** = 0.2 mg $kg^{-1}$ bw $day^{-1}$<br>**Fludioxonil** = 0.59 mg $kg^{-1}$ bw $day^{-1}$ |
| **NATIONAL EXPOSURE STANDARDS:** | None allocated |
| **BIOLOGICAL LIMIT VALUES:** | None allocated |
| **ENGENEERING CONTROLS:** | Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated. If airborne mist/vapours are generated use local exhaust ventilation controls. Facilities should be equipped with an eyewash station and a safety shower. Where necessary, seek additional occupational hygiene advice. |
| **PERSONAL PROTECTIVE EQUIPMENT:** | **Respiratory Protection:** Where exposure through inhalation may occur when handling and/or when preparing the spray mixture, wear a face mask. If the product is used in confined spaces a respirator suitable for protection from dusts and mists of pesticides is adequate. |

**Hand Protection:** Wear chemical-resistant gloves made of any waterproof material such as nitrile rubber. Glove thickness: 0.5 mm

**Eye Protection:** The use of safety goggles (full-face shield) is recommended.

**Skin and Body Protection:** Wear suitable protective clothing which includes chemical-resistant overalls, footwear, socks, dust mask, eye shields and gloves. Remove and wash contaminated protective clothing daily.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

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| **PHYSICAL STATE:** | Liquid |
| **COLOUR:** | Beige |
| **ODOUR:** | Slight chemical |
| **MELTING POINT / FREEZING POINT °C:** | **Azoxystrobin** = 116 °C<br>**Fludioxonil** = 199.8 °C |
| **BOILING POINT:** | 96.6 – 102.7 °C |
| **DECOMPOSITION TEMPERATURE (a.i):** | Not available |
| **FLAMMABILITY:** | Not available |
| **FLASH POINT:** | > 84 °C |
| **EXPLOSIVE LIMITS:** | **EVOLVE 480 SC** is not considered an explosive |
| **AUTO-IGNITION TEMPERATURE:** | Not available |
| **pH (1% IN WATER):** | 6.0 – 8.0 |
| **KINEMATIC VISCOSITY:**<br>$\text{Kinematic viscosity} = \frac{\text{Dynamic viscosity (mPa/s)}}{\text{Density (g/cm}^3\text{)}}$ | $\text{Kinematic viscosity} = \frac{2712\ \text{(mPa/s)}}{1.1663\ \text{(g/mL)}}$<br>$\text{Kinematic viscosity} = 2325.3\ \text{mm}^2/\text{s}$ |
| **VISCOSITY:** | 2712 mPa/s |
| **DENSITY / RELATIVE DENSITY:** | 1.1663 g/mℓ |
| **SOLUBILITY - WATER (a.i):** | **Azoxystrobin** = 6.7 mg/L (pH 7) 20 °C<br>**Fludioxonil** = 1.8 mg/L (pH 7) 20 °C |
| **N-OCTANOL / WATER PARTITION COEFFICIENT (a.i):** | **Azoxystrobin**: log $P_{ow}$ = 2.5 at 20 °C<br>**Fludioxonil**: log $P_{ow}$ = 4.12 at 20 °C |
| **VAPOUR PRESSURE (a.i):** | **Azoxystrobin** = 1.10 X $10^{-07}$ mPa at 20 °C<br>**Fludioxonil** = 3.90 X $10^{-05}$ mPa at 20 °C |
| **RELATIVE VAPOUR DENSITY:** | Not available |

## 10. STABILITY AND REACTIVITY

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| **REACTIVITY:** | Not applicable |
| **CHEMICAL STABILITY:** | Stable under normal use and storage conditions. |
| **HAZARDOUS REACTION:** | Not applicable |
| **CONDITIONS TO AVOID:**<br>**(e.g. – heat, freezing, pressure, static discharge, shock, or vibration)** | Avoid excessive heat and freezing. |
| **INCOMPATIBLE MATERIALS:** | Strong acids, bases, and Oxidizing agents |
| **HAZARDOUS DECOMPOSITION PRODUCTS:** | When heated to decomposition, irritant or dangerous fumes/vapours may be emitted. See section 5. |

## 11. TOXICOLOGICAL INFORMATION

| | **ANIMAL ACUTE TOXICITY DATA** | |
|---|---|---|
| **ORAL:** | $LD_{50}$ (rat) > 500 mg a.i. /kg bw | **Category 4** (OECD 423) |
| **DERMAL:** | $LD_{50}$ (rat) > 2000 mg a.i. /kg bw | **Category 5** (OECD 402) |
| **INHALATION:** | $LC_{50}$ (4h) rat > 5.204 a.i. mg/ℓ | Not Classified (OECD 403) |
| **SKIN IRRITATION / CORROSION:** | | Not Classified (OECD 404) |
| **SERIOUS EYE IRRITATION / DAMAGE:** | | Not Classified (OECD 405) |
| **RESPIRATORY OR SKIN SENSITIZATION:** | | Not Classified (OECD 406) |
| **GERM CELL MUTAGENICITY:** | | Not Classified |

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| **CARCINOGENICITY:** | Not Classified |
| **REPRODUCTIVE TOXICITY:** | Not Classified |
| **SPECIFIC TARGET ORGAN TOXICITY – SINGLE EXPOSURE:** | Not Classified |
| **SPECIFIC TARGET ORGAN TOXICITY – REPEATED EXPOSURE:** | Not Classified |
| **ASPIRATION HAZARD:** | Not Classified |

## 12. ECOLOGICAL INFORMATION

**ECOTOXICITY:**

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|---|---|---|
| **AZOXYSTROBIN** | Birds: $LD_{50}$ (oral) | *Colinus virginianus* (Bobwhite quail)<br>Acute $LD_{50}$ > 2000 mg/kg bw/day<br>$LC_{50}/LD_{50}$ > 1179 mg/kg diet<br>Chronic NOEL = 1200 mg/kg bw/day |
| | Fish: $LC_{50}$ | *Oncorhynchus mykiss* (Rainbow trout)<br>Acute (96h) $LC_{50}$ = 0.47 mg a.i./ℓ<br>*Pimephales promelas* (Fathead minnow)<br>NOEC = 0.147 mg a.i./ℓ (21-day) |
| | Aquatic invertebrates - *Daphnia* | *Daphnia magna* (Water flea)<br>Acute (48h) $EC_{50}$ = 0.23 mg a.i./ℓ<br>Chronic (21-day) NOEC = 0.044 mg a.i./ℓ |
| | Aquatic crustaceans | *Americamysis bahia*<br>Acute (96h) $LC_{50}$ = 0.055 mg a.i./ℓ |
| | Algae - $EC_{50}$ / NOEC | *Pseudokirchneriella subcapitata*<br>Acute (72h) $EC_{50}$ = 0.36 mg a.i./ℓ<br>Chronic (96h) NOEC = 0.8 mg a.i./ℓ |
| | Bees | *Apis mellifera*<br>Acute contact 48-hour $LD_{50}$ > 200 (µg $bee^{-1}$)<br>Acute oral 48-hour $LD_{50}$ > 25 (µg $bee^{-1}$) |
| | Earthworms: $LC_{50}$ /NOEC | *Eisenia fetida*<br>Acute (14-day) $LC_{50}$ = 283 mg a.i./kg d.w. soil<br>Chronic NOEC = 3.0 mg a.i./kg d.w. |
| **FLUDIOXONIL** | Birds: $LD_{50}$ (oral) | *Colinus virginianus* (Bobwhite quail)<br>Acute $LD_{50}$ > 2000 mg/kg bw/day<br>$LC_{50}/LD_{50}$ > 833 mg/kg diet<br>Chronic NOEL = 11.1 mg/kg bw/day |
| | Fish: $LC_{50}$ | *Oncorhynchus mykiss* (Rainbow trout)<br>Acute (96h) $LC_{50}$ = 0.23 mg a.i./ℓ<br>NOEC = 0.04 mg a.i./ℓ (21-day) |
| | Aquatic invertebrates - *Daphnia* | *Daphnia magna* (Water flea)<br>Acute (48h) $EC_{50}$ = 0.4 mg a.i./ℓ<br>Chronic (21-day) NOEC = 0.005 mg a.i./ℓ |
| | Aquatic crustaceans | *Americamysis bahia*<br>Acute (96h) $LC_{50}$ = 0.27 mg a.i./ℓ |
| | Algae - $EC_{50}$ / NOEC | *Scenedesmus subcapitata*<br>Acute (72h) $EC_{50}$ = 0.024 mg a.i./ℓ |
| | Bees | *Apis mellifera*<br>Acute contact 48-hour $LD_{50}$ > 100 (µg $bee^{-1}$)<br>Acute oral 48-hour $LD_{50}$ > 100 (µg $bee^{-1}$) |
| | Earthworms: $LC_{50}$ /NOEC | *Eisenia fetida*<br>Acute (14-day) $LC_{50}$ = 1000 mg a.i./kg d.w. soil<br>Chronic NOEC = 20 mg a.i./kg d.w. |
| **AQUATIC TOXICITY:** | **Summation Method**<br>Aquatic Acute – Category 1<br>Aquatic Chronic – Category 1 | |

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|---|---|---|
| **PERSISTENCE, DEGRADABILITY AND MOBILITY:** | **Azoxystrobin** is moderately persistent to very persistent in the soil and slightly mobile.<br>$DT_{50}$ = 78 – 180 days<br>$K_{oc}$ = 589<br>**Fludioxonil** is moderately to non-persistent in the soil and non-mobile.<br>$DT_{50}$ = 8 – 43 days<br>$K_{oc}$ = 145600 | |
| **BIO-ACCUMULATIVE POTENTIAL:** | **Fludioxonil:** BCF = 366 ℓ/kg | **Azoxystrobin:** BCF = Low risk |
| **SOIL MICRO-ORGANISMS:** | Carbon transformation | No significant adverse/long-term effect |
| | Nitrogen transformation | No significant adverse/long-term effect |

## 13. DISPOSAL CONSIDERATIONS

On site disposal of the concentrated product is not acceptable. Ideally, the product should be used for its intended purpose. If there is a need to dispose of the product, approach local authorities.

**TRIPLE RINSE THE EMPTY CONTAINER AS FOLLOWS:** Containers must be completely emptied before being disposed of. Invert the empty container over the spray or mixing tank and drain for at least 30 seconds until the flow has slowed down to a drip. Thereafter rinse the empty container three times in succession with one quarter of the container volume fresh water and decant the rinsate into the spray or mixing tank. Puncture the triple rinsed container and dispose of via an approved collector or recycler (www.croplife.co.za). Do not bury, burn, or donate the container to any other parties that may use it as a container for food or beverages.

## 14. TRANSPORT INFORMATION

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| **UN NUMBER:** | 3082 |
| **UN PROPER SHIPPING NAME:** | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID (24 % azoxystrobin + 24 % fludioxonil) |
| **TRANSAPORT HAZARD CLASS(ES):** | Class 9 |
| **PACKAGING GROUP:** | III (low danger) |
| **GHS TRANSPORT PICTOGRAM(S):** | |
| **ENVIRONMENTAL HAZARDS:** | Marine Pollutant: Yes – Category 1 |
| **TRANSPORT IN BULK:** | Not applicable, not to be transported in bulk. |
| **SPECIAL PRECAUTIONS FOR USER:** | Not applicable |

## 15. REGULATORY INFORMATION

Conforms to South Africa Regulation for Hazardous Chemical Agents, 2021.

South African Registration number L10644, Act 36 of 1947.

SDS valid for five years from date of issue.

## 16. OTHER INFORMATION

**Legend:** Full text of H-Statements referred to under sections 3:

H317 – May cause an allergic skin reaction

H331 – Toxic if inhaled

H400 – Very toxic to aquatic life

**Key literature references and sources of data:** Occupational Health and Safety Act 1993. Regulation for Hazardous Chemical Agents, 2021. Globally Harmonized System of Classification and Labelling of Chemicals (GHS) Rev 9, 2021. UN Model Regulations Rev. 22 (2021). EU REGULATION (EC) No. 1272/2008.

This Safety Data Sheet (SDS) summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this SDS and consider the information in the context of how to prevent accidents in the normal workplace including in conjunction with other products.

The information was obtained from sources which we believe are reliable. However, the information is provided in good faith. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and for these reasons we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used for this product only.

First Edition Date: 1 November 2019
Issue: 1.2 – 6 March 2023 (Section 14: Transport Information update).
END of SDS