

**WARNING: - Resistance management:**

For resistance management, apply a maximum of three sprays per season and rotate with fungicides from a different chemical group.

**MODE OF ACTION:**

Twist 500 SC is a suspension concentrate for the control of a wide range of diseases. **Twist 500 SC** is a fungicide of the chemical group, strobilurins. It has mesostemic activity characterized by a high affinity with the plant surface, distribution by superficial vapor movement and re-deposition onto the plant surface, penetration of plant tissue and translaminar movement. **Twist 500 SC** is particularly active on the plant surface by the inhibition of spore germination and growth of mycelium and also inhibits pathogen development such as haustoria's formation, thereby preventing infection from taking place.

**PREPARING MIXTURE:**

Make sure that application equipment is clean and not contaminated. Do not pre-mix for more than a day's work.

If **Twist 500 SC** is tank mixed with other products, it should be mixed first followed by other products. Half fill the spray tank with clean water, start agitation, add the calculated and measured quantity of product and continue to fill the spray tank while agitating.

Knapsack - half fill the sprayer with clean water and add the calculated measured quantity of product, close the knapsack lid and shake well for a short time and continue to fill the sprayer with clean water.

**NB. Ensure thorough agitation of the mixture in the bulk tank during mixing and spraying.**

**DIRECTIONS FOR USE:** Use only as directed

CROPS	DISEASE	DOSAGE	REMARKS
Roses	Powdery mildew	25-50 ml/ 100 l water	Apply as a high volume spray. Repeat at 10-14 day interval. Apply as a preventative or when first signs of the infection are noticed.
Fine beans	Rust	250-500 ml/ha	Apply as a preventative treatment or as soon as first signs of infection are noticed. Apply as a full cover spray in 400-500 l water/ha. Repeat after every 10-14 days if necessary.
Paprika	Powdery mildew	25-50 ml/ 100 l water	Apply as a high volume spray. Repeat at 10-14 day interval. Apply as a preventative or when first signs of the infection are noticed.
Hypericums	Rust	25-50 ml/ 100 l water	Apply as a high volume spray. Repeat at 10-14 day interval. Apply as a preventative or when first signs of the infection are noticed.

**COMPATIBILITY:**

The compatibility of **Twist 500 SC** with other products may be influenced by the formulation of the other products as well as the quality of water. A physical compatibility test should be carried out prior to application. **Twist 500 SC** has been tested and found to be compatible with **Metasystox R 250 EC**, **Tamaron 600 SL**, **Thioflo SC**, **Decis Forte**, **Melody Duo 69 WG** and **Mikal M**.

**Decis**®, **Melody**®, **Mikal**®, **Thioflo**® and **Tamaron**® are registered trademarks of Bayer CropScience AG, Germany.



# TWIST® 500 SC

Reg. No.

CONTENTS: 1L

**COMPOSITION:**

trifloxystrobin..... 500 g/l  
inert ingredients ..... 500 g/l

**MASS/VOLUME**

Chemical Group : strobilurin

**A SUSPENSION CONCENTRATE FUNGICIDE WITH MESOSTEMIC PROPERTIES FOR THE CONTROL OF POWDERY MILDEW ON ROSES & PAPRIKA, RUST ON FINE BEANS & HYPERICUM.**



**TO CAUSE A HAZARD IN THE USE, STORAGE OR DISPOSAL OF THIS SUBSTANCE IS AN OFFENCE.**

**PRECAUTIONS:**

1. **Handle with care:** Avoid splashing/contact, poisonous by swallowing, inhalation and contact with the skin.
2. **Wear protective clothing**, i.e. rubber gloves, overall and gumboots.
3. **Do not eat, drink or smoke** while handling or applying **Twist 500 SC**.
4. **Toxic to fish and wild life.**
5. **Do not contaminate drinking pools, dams, rivers and waterways.**
6. **Keep out of reach of children, uninformed persons and animals.**
7. **Keep apart from food and foodstuffs.**
8. Store in original container, in a cool dry place and **keep under lock and key.**
9. Do not inhale spray mist and avoid drift onto adjacent crops, grazing, rivers, dams and boreholes.
10. Rinse empty container three times and add the rinsing to the contents of the tank before disposing of the container.
11. Wash hands with soap and water including contaminated clothing after spraying.
12. Destroy empty container by perforation and flattening and never use for any other purpose. Bury or burn and bury the ashes in the safe prescribed manner.
13. **Re-entry:** Do not enter treated area until spray deposit has dried unless you are wearing protective clothing.

**SYMPTOMS OF POISONING:**

No known case of human poisoning.

**FIRST AID TREATMENT:**

1. Remove patient from source of poisoning to a well-ventilated area and keep him/her quiet and reassured.
2. Remove contaminated clothing and wash contaminated body area thoroughly with plenty of soap and water.
3. If eyes are contaminated, flush eyes with clean water for 15 minutes.
4. If swallowed, give a large quantity of medical charcoal in plenty of water. Never give anything by mouth to an unconscious person.
5. Seek medical attention and show this label to attending doctor.

**NOTE TO PHYSICIAN:**

There is no known specific antidote. Treat symptomatically.

**WARRANTY:**

Provided that the recommendations for usage of this product are strictly followed it should give excellent results, but since the performance of crop protection chemicals and pesticides can be influenced by factors outside the manufacturer's control, the manufacturer and seller give no guarantee or warranty, either express or implied, concerning the use and/or storage of this product, and accept no responsibility or liability of any nature whatsoever for any damage, injury or financial loss of any nature from the use thereof.

**Packed For:**

Bayer Zimbabwe (Pvt) Ltd  
P.O. Box AY 78, Amby, Harare, Zimbabwe.  
Tel. 487211/487245/7 Fax. 487242  
Emergency Tel. +27(21) 931-6129  
Manufactured by Bayer CropScience AG

**Twist**® is a registered trademark of Bayer CropScience AG, Germany

Date of Manufacture : See on pack  
Batch No.: See on pack



**Bayer CropScience**

UN No. 3082

Zim/1008/Twist 500 SC 1L/Sales Panel  
Code:



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**SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**

**1.1 Product identifier**

**Trade name** TWIST SC500  
**Product code (UVP)** 05671213

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

**Use** Fungicide

**1.3 Details of the supplier of the safety data sheet**

**Supplier** Bayer (Pty) Ltd.  
27 Wrench Road, P.O. Box 143  
1600 Isando  
South Africa  
**Telephone** +27 (011) 921 5911  
**Telefax** +27 (011) 921 5766  
**Responsible Department** QHSE - Nigel, South Africa  
+27 (011) 365 8675 (during business hours only)

**1.4 Emergency telephone no.**

**Emergency telephone no.** +27 (0861) 555 777 (Western Cape Poisons Helpline)  
**Global Incident Response Hotline (24h)** +1 (760) 476 3964 (Company 3E for Bayer CropScience)

**SECTION 2: HAZARDS IDENTIFICATION**

**2.1 Classification of the substance or mixture**

**Globally Harmonised System of Classification and Labelling of Chemicals (GHS)**

Acute aquatic toxicity: Category 1  
H400 Very toxic to aquatic life.

Chronic aquatic toxicity: Category 1  
H410 Very toxic to aquatic life with long lasting effects.

**2.2 Label elements**

**Labelling in accordance with Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures, as amended.**

Hazard label for supply/use required.

**Hazardous components which must be listed on the label:**

- Trifloxystrobin



**Signal word:** Warning

**Hazard statements**



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- H410 Very toxic to aquatic life with long lasting effects.  
 EUH208 Contains Trifloxystrobin, 1,2-benzisothiazolin-3-one, 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one. May produce an allergic reaction.  
 EUH401 To avoid risks to human health and the environment, comply with the instructions for use.

**Precautionary statements**

- P280 Wear protective gloves/protective clothing/eye protection/face protection.  
 P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.  
 P501 Dispose of contents/container in accordance with local regulation.

**2.3 Other hazards**

No other hazards known.

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

**3.2 Mixtures**

**Chemical nature**

Suspension concentrate (=flowable concentrate)(SC)  
Trifloxystrobin, 500 g/l

**Hazardous components**

Hazard statements according to Regulation (EC) No. 1272/2008

Name	CAS-No. / EC-No. / REACH Reg. No.	Classification	Conc. [%]
		Regulation (EC) No 1272/2008	
Trifloxystrobin	141517-21-7	Skin Sens. 1, H317 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	43,7
1,2-Benzisothiazol-3(2H)-one	2634-33-5	Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Acute 1, H400	> 0,005 – < 0,05
Mixture of: 5-chloro-2-methyl-4-isothi- azolin-3-one and 2-methyl-4-isothiazolin-3- one	55965-84-9	Acute Tox. 3, H331 Acute Tox. 3, H311 Acute Tox. 3, H301 Skin Sens. 1, H317 Skin Corr. 1B, H314 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	> 0,0002 – < 0,0015

**Further information**

Trifloxystrobin	141517-21-7	M-Factor: 100 (acute)
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For the full text of the H-Statements mentioned in this Section, see Section 16.



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**SECTION 4: FIRST AID MEASURES**

**4.1 Description of first aid measures**

<b>General advice</b>	Remove contaminated clothing immediately and dispose of safely. Move out of dangerous area. Place and transport victim in stable position (lying sideways).
<b>Inhalation</b>	Move to fresh air. Keep patient warm and at rest. Call a physician or poison control center immediately.
<b>Skin contact</b>	Wash off thoroughly with plenty of soap and water, if available with polyethyleneglycol 400, subsequently rinse with water.
<b>Eye contact</b>	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.
<b>Ingestion</b>	Do NOT induce vomiting. Call a physician or poison control center immediately. Rinse mouth.

**4.2 Most important symptoms and effects, both acute and delayed**

**Symptoms** No symptoms known or expected.

**4.3 Indication of any immediate medical attention and special treatment needed**

**Treatment** Treat symptomatically. Gastric lavage is not normally required. However, if a significant amount (more than a mouthful) has been ingested, administer activated charcoal and sodium sulphate. There is no specific antidote.

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**SECTION 5: FIREFIGHTING MEASURES**

**5.1 Extinguishing media**

<b>Suitable</b>	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
<b>Unsuitable</b>	High volume water jet

**5.2 Special hazards arising from the substance or mixture** In the event of fire the following may be released: Hydrogen cyanide (hydrocyanic acid), Carbon monoxide (CO), Nitrogen oxides (NO<sub>x</sub>), Hydrogen fluoride

**5.3 Advice for firefighters**

<b>Special protective equipment for firefighters</b>	In the event of fire, wear self-contained breathing apparatus. In the event of fire and/or explosion do not breathe fumes.
<b>Further information</b>	Contain the spread of the fire-fighting media. Do not allow run-off from fire fighting to enter drains or water courses.

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**SECTION 6: ACCIDENTAL RELEASE MEASURES**

**6.1 Personal precautions, protective equipment and emergency procedures**

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

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- 6.2 Environmental precautions** Do not allow to get into surface water, drains and ground water.
- 6.3 Methods and materials for containment and cleaning up**
- Methods for cleaning up** Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.
- 6.4 Reference to other sections** Information regarding safe handling, see section 7.  
Information regarding personal protective equipment, see section 8.  
Information regarding waste disposal, see section 13.

**SECTION 7: HANDLING AND STORAGE****7.1 Precautions for safe handling**

- Advice on safe handling** Use only in area provided with appropriate exhaust ventilation.
- Advice on protection against fire and explosion** No special precautions required.
- Hygiene measures** Avoid contact with skin, eyes and clothing. Keep working clothes separately. Wash hands before breaks and immediately after handling the product. Remove soiled clothing immediately and clean thoroughly before using again. Garments that cannot be cleaned must be destroyed (burnt).
- 7.2 Conditions for safe storage, including any incompatibilities**
- Requirements for storage areas and containers** Store in a place accessible by authorized persons only. Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from direct sunlight. Protect from frost.
- Advice on common storage** Keep away from food, drink and animal feedingstuffs.
- Suitable materials** HDPE (high density polyethylene)
- 7.3 Specific end use(s)** Refer to the label and/or leaflet.

**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION****8.1 Control parameters**

Components	CAS-No.	Control parameters	Update	Basis
Trifloxystrobin	141517-21-7	2,7 mg/m <sup>3</sup> (SK-SEN)		OES BCS*

\*OES BCS: Internal Bayer CropScience "Occupational Exposure Standard"

**8.2 Exposure controls**

- Respiratory protection** Respiratory protection is not required under anticipated circumstances of exposure.  
Respiratory protection should only be used to control residual risk of short duration activities, when all reasonably practicable steps have been taken to reduce exposure at source e.g. containment and/or local extract ventilation. Always follow respirator manufacturer's instructions regarding wearing and maintenance.

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<b>Hand protection</b>	Wear CE Marked (or equivalent) nitrile rubber gloves (minimum thickness of 0,4 mm). Wash when contaminated and dispose of when contaminated inside, when perforated or when contamination on the outside cannot be removed. Wash hands frequently and always before eating, drinking, smoking or using the toilet.
<b>Eye protection</b>	Wear goggles (conforming to EN166, Field of Use = 5 or equivalent).
<b>Skin and body protection</b>	Wear standard coveralls and Category 3 Type 6 suit. If there is a risk of significant exposure, consider a higher protective type suit. Wear two layers of clothing wherever possible. Polyester/cotton or cotton overalls should be worn under chemical protection suit and should be professionally laundered frequently.

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**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES****9.1 Information on basic physical and chemical properties**

<b>Form</b>	suspension
<b>Colour</b>	white to beige
<b>Odour</b>	weak, characteristic
<b>pH</b>	6,0 - 8,5 at 100 % (23 °C)
<b>Flash point</b>	> 100 °C
<b>Density</b>	ca. 1,14 g/cm <sup>3</sup> at 20 °C
<b>Water solubility</b>	miscible
<b>Partition coefficient: n-octanol/water</b>	Trifloxystrobin: log Pow: 4,5 at 25 °C

**9.2 Other information** Further safety related physical-chemical data are not known.

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**SECTION 10: STABILITY AND REACTIVITY****10.1 Reactivity**

**Thermal decomposition** Stable under normal conditions.

**10.2 Chemical stability** Stable under recommended storage conditions.

**10.3 Possibility of hazardous reactions** No hazardous reactions when stored and handled according to prescribed instructions.

**10.4 Conditions to avoid** Extremes of temperature and direct sunlight.

**10.5 Incompatible materials** Store only in the original container.

**10.6 Hazardous decomposition products** No decomposition products expected under normal conditions of use.

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**SECTION 11: TOXICOLOGICAL INFORMATION****11.1 Information on toxicological effects**

**Acute oral toxicity** LD50 (Rat) > 3.000 mg/kg

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	Test conducted with a similar formulation.
<b>Acute inhalation toxicity</b>	LC50 (Rat) > 1,994 mg/l Exposure time: 4 h Test conducted with a similar formulation.
<b>Acute dermal toxicity</b>	LD50 (Rat) > 4.000 mg/kg Test conducted with a similar formulation.
<b>Skin irritation</b>	Slight irritant effect - does not require labelling. (Rabbit) Test conducted with a similar formulation.
<b>Eye irritation</b>	No eye irritation (Rabbit) Test conducted with a similar formulation.
<b>Sensitisation</b>	Non-sensitizing. (Guinea pig) OECD Test Guideline 406, Magnusson & Kligman test Test conducted with a similar formulation.

**Assessment repeated dose toxicity**

Trifloxystrobin did not cause specific target organ toxicity in experimental animal studies.

**Assessment mutagenicity**

Trifloxystrobin was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

**Assessment carcinogenicity**

Trifloxystrobin was not carcinogenic in lifetime feeding studies in rats and mice.

**Assessment toxicity to reproduction**

Trifloxystrobin caused reproduction toxicity in a two-generation study in rats only at dose levels also toxic to the parent animals. The reproduction toxicity seen with Trifloxystrobin is related to parental toxicity.

**Assessment developmental toxicity**

Trifloxystrobin caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Trifloxystrobin are related to maternal toxicity.

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**SECTION 12: ECOLOGICAL INFORMATION****12.1 Toxicity**

<b>Toxicity to fish</b>	LC50 (Oncorhynchus mykiss (rainbow trout)) 0,035 mg/l Exposure time: 96 h
<b>Toxicity to aquatic invertebrates</b>	EC50 (Daphnia magna (Water flea)) 0,087 mg/l Exposure time: 48 h
<b>Toxicity to aquatic plants</b>	EC50 (Raphidocelis subcapitata (freshwater green alga)) 0,034 mg/l Exposure time: 72 h

**12.2 Persistence and degradability**

**Biodegradability** Trifloxystrobin:  
Not rapidly biodegradable

**Koc** Trifloxystrobin: Koc: 2377

**12.3 Bioaccumulative potential**

**Bioaccumulation** Trifloxystrobin: Bioconcentration factor (BCF) 431  
Does not bioaccumulate.



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**12.4 Mobility in soil**

**Mobility in soil** Trifloxystrobin: Slightly mobile in soils

**12.5 Results of PBT and vPvB assessment**

**PBT and vPvB assessment** Trifloxystrobin: This substance is not considered to be persistent, bioaccumulative and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulative (vPvB).

**12.6 Other adverse effects**

**Additional ecological information** No other effects to be mentioned.

**SECTION 13: DISPOSAL CONSIDERATIONS**

**13.1 Waste treatment methods**

**Product** In accordance with current regulations and, if necessary, after consultation with the site operator and/or with the responsible authority, the product may be taken to a waste disposal site or incineration plant.

**Contaminated packaging** Not completely emptied packagings should be disposed of as hazardous waste.

**SECTION 14: TRANSPORT INFORMATION**

**SANS 10231**

14.1 UN number **3082**  
14.2 Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TRIFLOXYSTROBIN SOLUTION)  
14.3 Transport hazard class(es) 9  
14.4 Packing group III  
14.5 Environm. Hazardous Mark YES

**IMDG**

14.1 UN number **3082**  
14.2 Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TRIFLOXYSTROBIN SOLUTION)  
14.3 Transport hazard class(es) 9  
14.4 Packing group III  
14.5 Marine pollutant YES

**IATA**

14.1 UN number **3082**  
14.2 Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TRIFLOXYSTROBIN SOLUTION )  
14.3 Transport hazard class(es) 9  
14.4 Packing group III  
14.5 Environm. Hazardous Mark YES

**14.6 Special precautions for user**

See sections 6 to 8 of this Safety Data Sheet.



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No transport in bulk according to the IBC Code.

**SECTION 15: REGULATORY INFORMATION****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****Further information**

WHO-classification: III (Slightly hazardous)

**SECTION 16: OTHER INFORMATION****Text of the hazard statements mentioned in Section 3**

H301	Toxic if swallowed.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H331	Toxic if inhaled.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

**Abbreviations and acronyms**

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute toxicity estimate (ATE)
CAS-Nr.	Chemical Abstracts Service number
Conc.	Concentration
EC-No.	European community number
ECx	Effective concentration to x %
EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
EN	European Standard
EU	European Union
IATA	International Air Transport Association
IBC	International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code)
ICx	Inhibition concentration to x %
IMDG	International Maritime Dangerous Goods
LCx	Lethal concentration to x %
LDx	Lethal dose to x %
LOEC/LOEL	Lowest observed effect concentration/level
MARPOL	MARPOL: International Convention for the prevention of marine pollution from ships
N.O.S.	Not otherwise specified
NOEC/NOEL	No observed effect concentration/level
OECD	Organization for Economic Co-operation and Development
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
TWA	Time weighted average
UN	United Nations



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WHO World health organisation

The information contained within this Safety Data Sheet is in accordance with the guidelines established by Regulation (EU) 1907/2006 and Regulation (EU) 2015/830 amending Regulation (EU) No 1907/2006 and any subsequent amendments. This data sheet complements the user's instructions, but does not replace them. The information it contains is based on the knowledge available about the product concerned at the time it was compiled. Users are further reminded of the possible risks of using a product for purposes other than those for which it was intended. The required information complies with current EEC legislation. Addressees are requested to observe any additional national requirements.

**Reason for Revision:** Section 2: Hazards Identification. Section 3: Composition / Information on Ingredients.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.