SAFETY DATA SHEET

MSDS completed:1.3.2023
Revision: (N/A)
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1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

NEPTUNE

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

Professional use fungicide

1.3 Details of the supplier of the safety data sheet

Nuvaros IP Ltd
Suite 4, Berkeley House,
Whitbarrow Road,
Lymm, Cheshire,
WA13 9AR.
Tel: +44 (0) 1925 202230
Fax: +44 (0) 1925 595801
Email: support@novastarlink.com

1.4 Emergency telephone number

Nuvaros IP Limited - Tel: +44 (0) 1925 202230 (during normal office hours)

IN CASE OF TOXIC OR TRANSPORT EMERGENCY
National Chemical Emergency Centre: Telephone 01865 407333.

Healthcare professionals: For emergency information telephone the National Poisons Information Service at one of the following numbers: UK 0344 892 0111, Ireland (01) 809 2566

General public: For poisons information please contact: Wales (NHS Direct): 0845 4647, In England (NHS 111): 111, In Scotland (NHS 24): 111, In Northern Ireland: contact your local GP or pharmacist during normal hours.

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification in accordance with Regulation (EC) No 1272/2008:

Specific target organ toxicity after single exposure, Category 3; H335
Skin Irritation, Category 2; H315

Eye Irritation, Category 2; H319
Reproductive toxicity, Category 2; H361d
Hazardous to the aquatic environment, Short term hazard, Category 1; H400
Hazardous to the aquatic environment, Long term hazard, Category 1; H410

2.2 Label elements

Label elements in accordance with Regulation (EC) No 1272/2008:

Pictograms: GHS07, GHS08, GHS09

Signal word: **Warning**

Hazard statements:
H315: Causes skin irritation
H319: Causes serious eye irritation
H335: May cause respiratory irritation
H361d: Suspected of damaging the unborn child.
H410: Very toxic to aquatic life with long lasting effects.
EUH401: To avoid risks to human health and the environment, comply with the instructions for use.
EUH208: Contains 2-[2-(1-chlorocyclopropyl)-2-hydroxy-3-phenylpropyl]-2,4-dihydro-3H-1,2,4-triazole-3-thione. May produce an allergic reaction.

Precautionary statements:
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P308 + P311: IF exposed or concerned: Call a POISON CENTER/ doctor/ physician.
P391: Collect spillage.
P501: Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for empty clean containers which can be disposed of as non-hazardous waste.

2.3 Other hazards
No other hazards known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Chemical Name	CAS / EC Number	Annex Index Number	Classification according to Regulation (EC) 1272/2008	Concentration (%)
Prothioconazole	178928-70-6	-	Aquatic Acute 1, H400 Aquatic Chronic 1, H410	13.1
Tebuconazole	107534-96-3	-	Acute Tox. 4, H302 Repr. 2, H361d Aquatic Acute 1, H400 Aquatic Chronic 1, H410	12.9
N,N-Dimethyl decanamide	14433-76-2	-	Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Aquatic Chronic 3, H412	58.5

Please refer to section 16 for full text of hazard phrases if not displayed in section 2 or 3.

4. FIRST AID MEASURES

4.1 Description of first aid measures:

General notes: Move out of dangerous area. Remove contaminated clothing immediately and dispose of safely.
Inhalation: Move to fresh air. Keep patient warm and at rest. Call a physician or poison control center immediately.
Eye contact: 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 contact: 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: Do NOT induce vomiting. Keep at rest. Rinse mouth. Call a physician or poison control center immediately.

4.2 Most important symptoms and effects, both acute and delayed

No symptoms known or expected.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. 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. There is no specific antidote.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable Extinguishing Media:
Water spray, Foam, Carbon dioxide (CO2), Dry powder.

Unsuitable Extinguishing Media:
High volume water jet

5.2 Specific hazards arising from the substance or mixture

In the event of fire the following may be released:, Hydrogen chloride (HCl), Hydrogen cyanide (hydrocyanic acid), Carbon monoxide (CO), Sulphur oxides, Nitrogen oxides (NOx)

5.3 Advice for firefighters

In the event of fire and/or explosion do not breathe fumes. Wear self-contained breathing apparatus and protective suit.
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

6.1. Personal precautions, protective equipment and emergency procedures

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

6.2 Environmental precautions

Do not allow to get into surface water, drains and ground water. If spillage enters drains leading to sewage works inform local water company immediately. If spillage enters rivers or watercourses, inform the Environment Agency (emergency telephone number 0800 807060).

6.3 Methods and material for containment and cleaning up

Recover the product by pumping, suction or absorption using a dry and inert absorbent clay. Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.

Check also for any local site procedures.

6.4 Reference to other sections

Refer to protective measures listed in sections 7 and 8. Refer to disposal considerations listed in section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

No specific precautions required when handling unopened packs/containers; follow relevant manual handling advice. Ensure adequate ventilation.

Avoid contact with skin, eyes and clothing. Keep working clothes separately. Remove contaminated clothing immediately and dispose of safely. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke.

7.2 Conditions for safe storage, including any incompatibilities

Store in original container. Store in a place accessible by authorized persons only. Protect from freezing. Keep away from direct sunlight.

Keep away from food, drink and animal feedingstuffs.

Suitable materials: HDPE (high density polyethylene)

7.3. Specific end use(s)

Refer to product label.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control Parameters

Components	CAS-No.	Control parameters	Update	Basis
Prothioconazole	178928-70-6	1.4 mg/m3 (SK-ABS)		OES BCS*
Tebuconazole	107534-96-3	0.2 mg/m3 (SK-ABS)		OES BCS*

*OES BCS: Internal Bayer AG, Crop Science Division "Occupational Exposure Standard"

8.2 Exposure Controls

Refer to COSHH assessment (Control of Substances Hazardous to Health (Amendment) Regulations 2004). Engineering controls should be used in preference to personal protective equipment wherever practicable. Refer also to COSHH Essentials.

Protective measures: In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection: Wear respirator with a particle filter mask (protection factor 4) conforming to European norm EN149FFP1 or equivalent.
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.

Hand protection: Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.
Wash gloves when contaminated. 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.

Material: Nitrile rubber
Rate of permeability: > 480 min
Glove thickness: > 0.4 mm
Protective index: Class 6
Directive: Protective gloves complying with EN

Eye Protection: Wear goggles (conforming to EN166, Field of Use = 5 or equivalent)

Skin and body protection: 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical State: Liquid
Form: Emulsifiable concentrate
Colour: tan
Odour: aromatic
Odour Threshold: No data available
pH: 5.0 - 7.0 (23 °C) (deionized water)
Melting point/range: No data available
Boiling point/boiling range: No data available
Flash point: > 148 °C
Evaporation rate: No data available
Flammability (solid, gas): No data available

Lower explosion limit: No data available
Upper explosion limit: No data available
Vapour pressure: No data available
Relative vapour density: No data available
Density: ca. 0.98 g/cm^3 at 20ºC
Solubility in other solvents: emulsifiable
Partition Coefficient n-octanol/water: Prothioconazole: log Pow: 3.82
Tebuconazole: log Pow: 3.7
Autoignition temperature: No data available
Thermal decomposition: No data available
Dynamic viscosity: 49.9 mPa.s 20°C
Explosive properties: Not explosive
Oxidizing properties: Not oxidizing
Surface tension: ca. 29.1 mN/m 20°C.

9.2 Other information

No other relevant information identified

10. STABILITY AND REACTIVITY

10.1 Reactivity

Stable under recommended storage 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.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute oral toxicity LD50 (Rat) > 2,500 mg/kg
Acute inhalation toxicity LC50 (Rat) > 5.153 mg/l
Exposure time: 4 h
Irritating to respiratory system.

Acute dermal toxicity LD50 (Rat) > 4,000 mg/kg

Skin corrosion/irritation Irritating to skin. (Rabbit)

Serious eye damage/eye irritation Irritating to eyes. (Rabbit)

Respiratory or skin sensitisation Skin: Non-sensitizing. (Guinea pig)
OECD Test Guideline 406

Assessment STOT Specific target organ toxicity – single exposure
Prothioconazole: Based on available data, the classification criteria are not met.
Tebuconazole: Based on available data, the classification criteria are not met.
N,N-Dimethyldecan-1-amide: May cause respiratory irritation.

Assessment STOT Specific target organ toxicity – repeated exposure
Prothioconazole did not cause specific target organ toxicity in experimental animal studies.
Tebuconazole did not cause specific target organ toxicity in experimental animal studies.
N,N-Dimethyldecanamide did not cause specific target organ toxicity in experimental animal studies.

Assessment mutagenicity
Prothioconazole was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.
Tebuconazole was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.
N,N-Dimethyldecanamide was not genotoxic in a battery of in vitro tests.

Assessment carcinogenicity
Prothioconazole was not carcinogenic in lifetime feeding studies in rats and mice.
Tebuconazole caused at high dose levels an increased incidence of tumours in mice in the following organ(s): Liver. The mechanism of tumour formation is not considered to be relevant to man.
N,N-Dimethyldecanamide is not considered carcinogenic.

Assessment toxicity to reproduction
Prothioconazole 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 Prothioconazole is related to parental toxicity.

Tebuconazole 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 Tebuconazole is related to parental toxicity.
N,N-Dimethyldecanamide is not considered a reproductive toxicant at non-maternally toxic dose levels.

Assessment developmental toxicity
Prothioconazole caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Prothioconazole are related to maternal toxicity.
Tebuconazole caused developmental toxicity only at dose levels toxic to the dams.
Tebuconazole caused an increased incidence of post implantation losses, an increased incidence of non-specific malformations.
N,N-Dimethyldecanamide did not cause developmental toxicity in rats and rabbits.

Aspiration hazard
Based on available data, the classification criteria are not met.

Further information
No further toxicological information is available.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 (Oncorhynchus mykiss (rainbow trout)) 3.94 mg/l Exposure time: 96 h
Toxicity to aquatic invertebrates	EC50 (Daphnia magna (Water flea)) 8.8 mg/l Exposure time: 48 h
Chronic toxicity to aquatic invertebrates	NOEC (Daphnia (water flea)): 0.010 mg/l Exposure time: 21 d The value mentioned relates to the active ingredient tebuconazole.
Toxicity to aquatic plants	IC50 (Raphidocelis subcapitata (freshwater green alga)) 9.5 mg/l Growth rate; Exposure time: 72 h ErC50 (Skeletonema costatum) 0.03278 mg/l Exposure time: 72 h The value mentioned relates to the active ingredient prothioconazole. EC10 (Skeletonema costatum) 0.01427 mg/l Growth rate; Exposure time: 72 h The value mentioned relates to the active ingredient prothioconazole

12.2 Persistence and Degradability

Prothioconazole: Not rapidly biodegradable
Koc 1765

Tebuconazole: Not rapidly biodegradable
Koc 769

12.3 Bioaccumulative Potential

Prothioconazole: Bioconcentration factor (BCF) 19
Does not bioaccumulate.
Tebuconazole: Bioconcentration factor (BCF) 35 - 59
Does not bioaccumulate.

12.4 Mobility in Soil

Ethephon:

Prothioconazole: Slightly mobile in soils
Tebuconazole: Slightly mobile in soils

12.5 Results of PBT and vPvB Assessment

Prothioconazole: 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).

Tebuconazole: 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

No information available.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

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.
Advice may be obtained from the local waste regulation authority (part of the Environment Agency in the UK).

14. TRANSPORT INFORMATION

14.1 UN number

UN3082

14.2 UN proper shipping name

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(TEBUCONAZOLE, PROTHIOCONAZOLE SOLUTION)

14.3 Transport hazard class(es)

9

14.4 Packing group

III

14.5 Environmental hazards

Environmentally hazardous.

14.6 Special precautions for user

None specified.

14.7 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

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This mixture is classified and labelled in accordance with Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures and Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

15.2 Chemical Safety Assessment

Not required

16. OTHER INFORMATION

Full text of hazard statements not displayed in section 2 or 3:

H302 Harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H361d Suspected of damaging the unborn child.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.
H412 Harmful to aquatic life with long lasting effects.

The information provided in this safety data sheet is accurate at the date of publication and will be updated as and when appropriate. This Safety Data Sheet is prepared in compliance with Annex I of Regulation (EC) No 1907/2006 (REACH) as amended by Regulation (EU) 2015/830. No liability will be accepted for any injury, loss or damage resulting from any failure to take account of information or advice contained in this safety data sheet. This version replaces all previous versions.

END OF SAFETY DATA SHEET