1. Identification

Product identifier

Tenopa® SC

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

Relevant identified uses: biocide

Details of the supplier of the safety data sheet

Company:
BASF SE
67056 Ludwigshafen
GERMANY
Operating Division Crop Protection

Telephone: +49 621 60-27777
E-mail address: Produktinformation-Pflanzenschutz@bASF.com

Emergency telephone number

International emergency number:
Telephone: +49 180 2273-112

2. Hazards Identification

Classification of the substance or mixture

According to UN GHS criteria

Acute Tox. 5 (oral)
Repr. Additional category for effects on or via lactation.
STOT RE 2
Aquatic Acute 1
Aquatic Chronic 1

For the classifications not written out in full in this section the full text can be found in section 16.

Label elements

Globally Harmonized System (GHS)

Pictogram:

Signal Word:
Warning

Hazard Statement:
H303 May be harmful if swallowed.
H373 May cause damage to organs through prolonged or repeated exposure.
H362 May cause harm to breast-fed children.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements (Prevention):
P260 Do not breathe dust/gas/mist/vapours.
P202 Do not handle until all safety precautions have been read and understood.
P263 Avoid contact during pregnancy/while nursing.
P270 Do not eat, drink or smoke when using this product.
P264 Wash contaminated body parts thoroughly after handling.

Precautionary Statements (Response):
P308 + P311 IF exposed or concerned: Call a POISON CENTER or doctor/physician.
P391 Collect spillage.

Precautionary Statements (Disposal):
P501 Dispose of contents/container to hazardous or special waste collection point.

Labeling of special preparations (GHS):
May cause paraesthesia. ALPHA-CYPERMETHRIN

According to UN GHS criteria

Hazard determining component(s) for labelling: FLUFENOXURON, ALPHA-CYPERMETHRIN

Other hazards
According to UN GHS criteria

See section 12 - Results of PBT and vPvB assessment.

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

3. Composition/Information on Ingredients

Substances

Not applicable

Mixtures

Chemical nature
biocide, insecticide, suspension concentrate (SC)

Hazardous ingredients (GHS)
According to UN GHS criteria

.alpha.-cypermethrin (ISO); racemate comprising (R).alpha.-cyano-3-phenoxybenzyl (1S,3S)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate; (S).alpha.-cyano-3-phenoxybenzyl (1R,3R)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate

Content (W/W): 2.9 %
CAS Number: 67375-30-8
EC-Number: 257-842-9
Acute Tox. 4 (Inhalation - dust)
Acute Tox. 3 (oral)
Skin Corr./Irrit. 3
STOT SE 3 (irr. to respiratory syst.)
STOT RE (Nervous system) 2
Aquatic Acute 1
Aquatic Chronic 1

Benzamide, N-[[4-[2-chloro-4-(trifluoromethyl)phenoxy]-2- fluorophenyl]amino]carbonyl]-2,6-difluoro-
Content (W/W): 2.9 %
CAS Number: 101463-69-8
EC-Number: 417-680-3
Repr. Add. cat. lact.
Aquatic Acute 1
Aquatic Chronic 1
H362, H400, H410

Tributyl phenol polyglycol ether
Content (W/W): < 1 %
CAS Number: 9046-09-7
Acute Tox. 4 (oral)
Eye Dam./Irrit. 1
Aquatic Acute 2
Aquatic Chronic 2
H318, H302, H401, H411
4. First-Aid Measures

Description of first aid measures
Remove contaminated clothing.

If inhaled:
Keep patient calm, remove to fresh air, seek medical attention.

On skin contact:
Wash thoroughly with soap and water.

On contact with eyes:
Wash affected eyes for at least 15 minutes under running water with eyelids held open.

On ingestion:
Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

Most important symptoms and effects, both acute and delayed
Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11. Further symptoms are possible, numbness and tingling of hands and feet, lung oedema, convulsions

Indication of any immediate medical attention and special treatment needed
Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Extinguishing media
Suitable extinguishing media:
water spray, carbon dioxide, foam, dry powder

Special hazards arising from the substance or mixture
carbon monoxide, Hydrogen chloride, Hydrogen cyanide, Carbon dioxide, nitrogen oxides, organochloric compounds, sulfur oxides
The substances/groups of substances mentioned can be released in case of fire.

Advice for fire-fighters
Special protective equipment:
Wear self-contained breathing apparatus and chemical-protective clothing.

Further information:
In case of fire and/or explosion do not breathe fumes. Keep containers cool by spraying with water if exposed to fire. Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. Accidental Release Measures

**Personal precautions, protective equipment and emergency procedures**
Use personal protective clothing. Avoid contact with the skin, eyes and clothing. Do not breathe vapour/spray.

**Environmental precautions**
Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater.

**Methods and material for containment and cleaning up**
For small amounts: Pick up with suitable absorbent material (e.g. sand, sawdust, general-purpose binder, kieselguhr).
For large amounts: Dike spillage. Pump off product.
Dispose of absorbed material in accordance with regulations. Collect waste in suitable containers, which can be labeled and sealed. Clean contaminated floors and objects thoroughly with water and detergents, observing environmental regulations.

**Reference to other sections**
Information regarding exposure controls/personal protection and disposal considerations can be found in section 8 and 13.

7. Handling and Storage

**Precautions for safe handling**
No special measures necessary if stored and handled correctly. Ensure thorough ventilation of stores and work areas. When using do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift.

Protection against fire and explosion:
No special precautions necessary. The substance/product is non-combustible. Product is not explosive.

**Conditions for safe storage, including any incompatibilities**
Segregate from foods and animal feeds.
Further information on storage conditions: Keep away from heat. Protect against moisture. Protect from direct sunlight.

Storage stability:
Storage duration: 36 Months

Protect from temperatures below: -10 °C
The product can crystallize below the limit temperature.
Protect from temperatures above: 40 °C
Changes in the properties of the product may occur if substance/product is stored above indicated temperature for extended periods of time.

Specific end use(s)
For the relevant identified use(s) listed in Section 1 the advice mentioned in this section 7 is to be observed.

8. Exposure Controls/Personal Protection

Control parameters

Components with occupational exposure limits

57-55-6: Propane-1,2-diol
67375-30-8: α-cypermethrin (ISO); racemate comprising (R)-α-cyano-3-phenoxybenzyl (1S, 3S)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxy late; (S)-α-cyano-3-phenoxybenzyl (1R, 3R)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate

Exposure controls

Personal protective equipment
Respiratory protection:
Respiratory protection not required.

Hand protection:
Suitable chemical resistant safety gloves (EN 374) also with prolonged, direct contact
(Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN 374): E.g. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), butyl rubber (0.7 mm) etc.

Eye protection:
Safety glasses with side-shields (frame goggles) (e.g. EN 166)

Body protection:
Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

General safety and hygiene measures
The statements on personal protective equipment in the instructions for use apply when handling crop-protection agents in final-consumer packing. Wearing of closed work clothing is recommended. Store work clothing separately. Keep away from food, drink and animal feeding stuffs.
9. Physical and Chemical Properties

Information on basic physical and chemical properties

Form: suspension
Colour: white
Odour: slight odour
Odour threshold: Not determined due to potential health hazard by inhalation.

pH value: approx. 6 - 8 (20 °C) (measured with the undiluted substance)

Melting point: The product has not been tested.
Boiling point: approx. 100 °C
Flash point: Non-flammable. (Directive 92/69/EEC, A.9)
Evaporation rate: not applicable
Flammability: No dangerous quantities of flammable gases will be produced by contact with water. (Directive 92/69/EEC, A.12)

Lower explosion limit: As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.
Upper explosion limit: As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.

Vapour pressure: approx. 23 hPa (20 °C)
Density: approx. 1.03 g/cm³ (20 °C)
Relative vapour density (air): not applicable
Solubility in water: dispersible
Partitioning coefficient n-octanol/water (log Kow): not applicable
Thermal decomposition: 195 °C, 30 kJ/kg (DSC (OECD 113))
10. Stability and Reactivity

**Reactivity**
No hazardous reactions if stored and handled as prescribed/indicated.

Corrosion to metals: mild steel tin

**Chemical stability**
The product is stable if stored and handled as prescribed/indicated.

**Possibility of hazardous reactions**
No hazardous reactions if stored and handled as prescribed/indicated.

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

**Incompatible materials**
Substances to avoid:
strong bases, strong acids, strong oxidizing agents

**Hazardous decomposition products**
Hazardous decomposition products:
No hazardous decomposition products if stored and handled as prescribed/indicated.

11. Toxicological Information

**Information on toxicological effects**

**Acute toxicity**
Assessment of acute toxicity:
Of low toxicity after single ingestion. Virtually nontoxic after a single skin contact. Virtually nontoxic by inhalation. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Experimental/calculated data:
LD50 rat (oral): 4.478 mg/kg

LC50 rat (by inhalation): > 2.37 mg/l 4 h
Highest concentration available for testing. No mortality was observed. An aerosol was tested.

LD50 rat (dermal): > 2.000 mg/kg
No mortality was observed.

Irritation
Assessment of irritating effects:
Not irritating to the skin. Not irritating to the eyes. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Experimental/calculated data:
Skin corrosion/irritation rabbit: non-irritant

Serious eye damage/irritation rabbit: non-irritant

Respiratory/Skin sensitization
Assessment of sensitization:
There is no evidence of a skin-sensitizing potential. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Experimental/calculated data:
modified Buehler test guinea pig: Skin sensitizing effects were not observed in animal studies.

Germ cell mutagenicity
Assessment of mutagenicity:
The product has not been tested. The statement has been derived from the properties of the individual components. Mutagenicity tests revealed no genotoxic potential.

Carcinogenicity
Assessment of carcinogenicity:
The product has not been tested. The statement has been derived from the properties of the individual components. The results of various animal studies gave no indication of a carcinogenic effect.

Reproductive toxicity
Assessment of reproduction toxicity:
The product has not been tested. The statement has been derived from the properties of the individual components. The results of animal studies gave no indication of a fertility impairing effect.

Developmental toxicity

Assessment of teratogenicity:
The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: Benzamide, N-[[4-[2-chloro-4-(trifluoromethyl)phenoxy]-2-fluorophenyl]amino]carbonyl]-2,6-difluoro-
Assessment of teratogenicity:
May cause harm to breastfed babies.
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Specific target organ toxicity (single exposure)

Assessment of STOT single:
The available information is not sufficient for evaluation.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure)

Assessment of repeated dose toxicity:
The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: α-cypermethrin (ISO)
Assessment of repeated dose toxicity:
Repeated oral exposure may affect certain organs. Damages the peripheral nerve system.

Information on: Benzamide, N-[[4-[2-chloro-4-(trifluoromethyl)phenoxy]-2-fluorophenyl]amino]carbonyl]-2,6-difluoro-
Assessment of repeated dose toxicity:
The substance may cause the formation of methemoglobin after repeated uptake of high doses.
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Aspiration hazard

No aspiration hazard expected.

Other relevant toxicity information

Misuse can be harmful to health.

12. Ecological Information

Toxicity
Assessment of aquatic toxicity:
Very toxic to aquatic life with long lasting effects.
The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: α-cypermethrin (ISO)
Toxicity to fish:
LC50 (96 h) 0,00093 mg/l, Pimephales promelas (OPP 72-1 (EPA-Guideline), Flow through.)

Information on: Benzamide, N-[[4-[2-chloro-4-(trifluoromethyl)phenoxy]-2-fluorophenyl]amino]carbonyl]-2,6-difluoro-
Toxicity to fish:
LC50 (96 h) > 0,0049 mg/l, Oncorhynchus mykiss (Flow through.)
LC50 (96 h) > 0,00519 mg/l, Brachydanio rerio (OPP 72-1 (EPA-Guideline), Flow through.)

Information on: α-cypermethrin (ISO)
Aquatic invertebrates:
EC50 (48 h) 0,000013 mg/l 12,6 ng/L, Chironomus riparius (OECD Guideline 202, part 1, static)
LC50 (96 h) 4,75ng/l, Americamysis bahia

Information on: Benzamide, N-[[4-[2-chloro-4-(trifluoromethyl)phenoxy]-2-fluorophenyl]amino]carbonyl]-2,6-difluoro-
Aquatic invertebrates:
EC50 (48 h) approx. 0,000051 mg/l, Daphnia magna (OECD Guideline 202, part 1, static)

Information on: α-cypermethrin (ISO)
Aquatic plants:
EC50 (7 d) > 0,0139 mg/l (growth rate), Lemna gibba (OECD Guideline 201)
No observed effect concentration (7 d) >= 1,39 µg/L (growth rate), Lemna gibba (OECD guideline 221, static)

Information on: Benzamide, N-[[4-[2-chloro-4-(trifluoromethyl)phenoxy]-2-fluorophenyl]amino]carbonyl]-2,6-difluoro-
Aquatic plants:
EC50 (96 h) > 0,004 mg/l, Selenastrum capricornutum

Information on: α-cypermethrin (ISO)
Chronic toxicity to fish:
No observed effect concentration (34 d) 0,03 µg/L, Pimephales promelas (OPP 72-4 (EPA-Guideline), Flow through.)

Information on: α-cypermethrin (ISO)
Chronic toxicity to aquatic invertebrates:
No observed effect concentration (28 d) 0,024 µg/L, Chironomus riparius (OECD 219, static)
No observed effect concentration (21 d) 0,03 µg/L, *Daphnia magna* (OPP 72-4 (EPA-Guideline), semistatic)

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**Persistence and degradability**

Assessment biodegradation and elimination (H2O):
The product has not been tested. The statement has been derived from the properties of the individual components.

*Information on: α-cypermethrin (ISO)*
Assessment biodegradation and elimination (H2O):
Not readily biodegradable (by OECD criteria). Poorly biodegradable.

*Information on: Benzamide, N-[[4-[2-chloro-4-(trifluoromethyl)phenoxy]-2-fluorophenyl]amino]carbonyl]-2,6-difluoro-
Assessment biodegradation and elimination (H2O):
Not readily biodegradable (by OECD criteria).

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**Bioaccumulative potential**

Assessment bioaccumulation potential:
The product has not been tested. The statement has been derived from the properties of the individual components.

*Information on: α-cypermethrin (ISO)*
Bioaccumulation potential:
Bioconcentration factor: 155 - 910 (73 d), *Cyprinus carpio* (OECD Guideline 305 C)

*Information on: Benzamide, N-[[4-[2-chloro-4-(trifluoromethyl)phenoxy]-2-fluorophenyl]amino]carbonyl]-2,6-difluoro-
Bioaccumulation potential:
Bioconcentration factor: 25,720, *Oncorhynchus mykiss*
Accumulation in organisms is expected.

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**Mobility in soil**

Assessment transport between environmental compartments:
Adsorption in soil: The product has not been tested. The statement has been derived from the properties of the individual components.

*Information on: α-cypermethrin (ISO)*
Assessment transport between environmental compartments:
Adsorption in soil: Following exposure to soil, adsorption to solid soil particles is probable, therefore contamination of groundwater is not expected.
Information on: Benzamide, N-[[4-[2-chloro-4-(trifluoromethyl)phenoxy]-2-fluorophenyl]amino]carbonyl]-2,6-difluoro-
Assessment transport between environmental compartments:
Volatility: The substance will not evaporate into the atmosphere from the water surface.
Adsorption in soil: Following exposure to soil, adsorption to solid soil particles is probable, therefore contamination of groundwater is not expected.

Results of PBT and vPvB assessment
The product contains a potential PBT substance.
The product contains a potential vPvB substance.

Other adverse effects
The product does not contain substances that are listed in the Montreal Protocol on substances that deplete the ozone layer.

Additional information
Other ecotoxicological advice:
Do not discharge product into the environment without control.

13. Disposal Considerations

Waste treatment methods
Must be disposed of or incinerated in accordance with local regulations.

Contaminated packaging:
Contaminated packaging should be emptied as far as possible and disposed of in the same manner as the substance/product.

14. Transport Information

Land transport

ADR
UN number UN3082
UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains ALPHA-CYPERMETHRIN, FLUFENOXURON)

Transport hazard class(es): 9, EHSM
Packing group: III
Environmental hazards: yes
Special precautions for user: Tunnel code: E

RID
UN number: UN3082
UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains ALPHA-CYPERMETHRIN, FLUFENOXURON)
Transport hazard class(es): 9, EHSM
Packing group: III
Environmental hazards: yes
Special precautions for user: None known

Inland waterway transport
ADN
UN number: UN3082
UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains ALPHA-CYPERMETHRIN, FLUFENOXURON)
Transport hazard class(es): 9, EHSM
Packing group: III
Environmental hazards: yes
Special precautions for user: None known

Transport in inland waterway vessel
Not evaluated

Sea transport
IMDG
UN number: UN 3082
UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains ALPHA-CYPERMETHRIN, FLUFENOXURON)
Transport hazard class(es): 9, EHSM
Packing group: III
Environmental hazards: Marine pollutant: YES
Special precautions for user: None known
Air transport

IATA/ICAO

UN number: UN 3082
UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains ALPHA-CYPERMETHRIN, FLUFENOXURON)
Transport hazard class(es): 9, EHSM
Packing group: III
Environmental hazards: yes
Special precautions for user: None known

UN number
See corresponding entries for “UN number” for the respective regulations in the tables above.

UN proper shipping name
See corresponding entries for “UN proper shipping name” for the respective regulations in the tables above.

Transport hazard class(es)
See corresponding entries for “Transport hazard class(es)” for the respective regulations in the tables above.

Packing group
See corresponding entries for “Packing group” for the respective regulations in the tables above.

Environmental hazards
See corresponding entries for “Environmental hazards” for the respective regulations in the tables above.

Special precautions for user
See corresponding entries for “Special precautions for user” for the respective regulations in the tables above.

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Regulation: Not evaluated
Shipment approved: Not evaluated
Pollution name: Not evaluated
Pollution category: Not evaluated
Ship Type: Not evaluated

15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture
If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

16. Other Information

Full text of classifications, hazard symbols and hazard statements, if mentioned in section 2 or 3:
- Acute Tox. Acute toxicity
- Repr. Reproductive toxicity
- STOT RE Specific target organ toxicity — repeated exposure
- Aquatic Acute Hazardous to the aquatic environment - acute
- Aquatic Chronic Hazardous to the aquatic environment - chronic
- Skin Corr./Irrit. Skin corrosion/irritation
- STOT SE Specific target organ toxicity — single exposure
- Eye Dam./Irrit. Serious eye damage/eye irritation
- H362 May cause harm to breast-fed children.
- H400 Very toxic to aquatic life.
- H410 Very toxic to aquatic life with long lasting effects.
- H318 Causes serious eye damage.
- H302 Harmful if swallowed.
- H401 Toxic to aquatic life.
- H411 Toxic to aquatic life with long lasting effects.

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. The data do not describe the product’s properties (product specification). Neither should any agreed property nor the suitability of the product for any specific purpose be deduced from the data contained in the safety data sheet. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.

Vertical lines in the left hand margin indicate an amendment from the previous version.