

SAFETY DATA SHEET



EMESTO® SILVER

Version 6.0 / USA
102000022709

1/11
Revision Date: 01/09/2023
Print Date: 01/11/2023

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

Product identifier

Trade name EMESTO® SILVER
Product code (UVP) 79521642
SDS Number 102000022709
EPA Registration No. 264-1123

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

Use Seed treatment, Fungicide
Restrictions on use See product label for restrictions.

Information on supplier

Supplier Bayer CropScience LP
800 North Lindbergh Blvd.
St. Louis, MO 63167
USA
Responsible Department Email: SDSINFO.BCS-NA@bayer.com

Emergency telephone no.

Emergency Telephone Number (24hr/ 7 days) 1-800-334-7577
Product Information Telephone Number 1-866-99BAYER (1-866-992-2937)

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200

This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Labelling in accordance with regulation HCS 29CFR §1910.1200

Precautionary statements

Protect from sunlight.

Hazards Not Otherwise Classified (HNOC)

No physical hazards not otherwise classified.
No health hazards not otherwise classified.

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SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

| Hazardous Component Name | CAS-No. | Concentration % by weight |
|--------------------------|-------------|---------------------------|
| Penflufen | 494793-67-8 | 9.35 |
| Prothioconazole | 178928-70-6 | 1.68 |

SECTION 4: FIRST AID MEASURES

Description of first aid measures

| | |
|-----------------------|---|
| General advice | When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment. |
| Inhalation | Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately. |
| Skin contact | Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately. |
| Eye contact | Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately. |
| Ingestion | Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended. |

Most important symptoms and effects, both acute and delayed

Symptoms To date no symptoms are known.

Indication of any immediate medical attention and special treatment needed

Treatment Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

| | |
|-------------------|--|
| Suitable | Water spray, Carbon dioxide (CO ₂), Foam, Sand |
| Unsuitable | High volume water jet |

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| 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 (NOx), Hydrogen fluoride, Sulphur oxides, Hydrogen chloride (HCl) |
| Advice for firefighters | |
| Special protective equipment for firefighters | In the event of fire and/or explosion do not breathe fumes. Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing. |
| Further information | Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Contain the spread of the fire-fighting media. Do not allow run-off from fire fighting to enter drains or water courses. |

Specific hazards from the substance or mixture which can increase the fire

| | |
|----------------------------------|---|
| Flash point | >100 °C / 212 °F No flash point - Determination conducted up to the boiling point. |
| Auto-ignition temperature | 510 °C / 950 °F |
| Lower explosion limit | No data available |
| Upper explosion limit | No data available |
| Explosivity | Not explosive 92/69/EEC, A.14 / OECD 113 |

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

| | |
|--------------------|--|
| Precautions | Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces. |
|--------------------|--|

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. |
|--------------------------------|---|

| | |
|--------------------------|--|
| Additional advice | Use personal protective equipment. If the product is accidentally spilled, do not allow to enter soil, waterways or waste water canal. |
|--------------------------|--|

| | |
|------------------------------------|---|
| 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. |
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SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Use only in area provided with appropriate exhaust ventilation. Handle and open container in a manner as to prevent spillage.

Advice on protection against fire and explosion Keep away from heat and sources of ignition.

Hygiene measures Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.
Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area. Keep away from direct sunlight. Protect from freezing.

Advice on common storage Keep away from food, drink and animal feedingstuffs.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

| Components | CAS-No. | Control parameters | Update | Basis |
|-----------------|-------------|-----------------------------------|--------|----------|
| Penflufen | 494793-67-8 | 1.1 mg/m ³ (TWA) | | OES BCS* |
| Prothioconazole | 178928-70-6 | 1.4 mg/m ³ (SK-ABS) | | OES BCS* |

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

Exposure controls

Personal protective equipment

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 When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

Hand protection Chemical-resistant gloves (barrier laminate, butyl rubber, nitrile rubber or Viton)

Eye protection Safety glasses with side-shields

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| Skin and body protection | Wear long-sleeved shirt and long pants and shoes plus socks. |
| General protective measures | Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry. |

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

| | |
|---|--|
| Form | suspension |
| Colour | red |
| Odour | weak, characteristic |
| Odour Threshold | No data available |
| pH | 5.0 - 6.5 (100 %) (23 °C) |
| Melting point/range | No data available |
| Boiling Point | No data available |
| Flash point | > 100 °C / 212 °F No flash point - Determination conducted up to the boiling point. |
| Flammability | No data available |
| Auto-ignition temperature | 510 °C / 950 °F |
| Thermal decomposition | No data available |
| Minimum ignition energy | Not applicable |
| Self-accelerating decomposition temperature (SADT) | No data available |
| Upper explosion limit | No data available |
| Lower explosion limit | No data available |
| Vapour pressure | No data available |
| Evaporation rate | No data available |
| Relative vapour density | No data available |
| Relative density | No data available |
| Density | ca. 1.07 g/cm ³ (20 °C) |
| Water solubility | dispersible |
| Partition coefficient: n-octanol/water | Penflufen: log Pow: 3.3 (25 °C) Prothioconazole: log Pow: 3.82 (20 °C) (pH 7) |

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|-----------------------------|---|
| Viscosity, dynamic | 150 - 250 mPa.s (20 °C) Velocity gradient 20 /s 65 - 85 mPa.s (20 °C) Velocity gradient 100 /s |
| Viscosity, kinematic | No data available |
| Impact sensitivity | Not impact sensitive. |
| Oxidizing properties | No oxidizing properties |
| Explosivity | Not explosive 92/69/EEC, A.14 / OECD 113 |
| Other information | Further safety related physical-chemical data are not known. |

SECTION 10: STABILITY AND REACTIVITY

| | |
|---|--|
| Reactivity | Stable under normal conditions. |
| Chemical stability | Stable under recommended storage conditions. |
| Possibility of hazardous reactions | No hazardous reactions when stored and handled according to prescribed instructions. |
| Conditions to avoid | Extremes of temperature and direct sunlight. |
| Incompatible materials | No incompatible materials known. |
| Hazardous decomposition products | No decomposition products expected under normal conditions of use. |

SECTION 11: TOXICOLOGICAL INFORMATION

| | |
|---|---|
| Exposure routes | Ingestion, Eye contact, Inhalation, Skin contact |
| Immediate Effects | |
| Eye | Not expected to produce significant adverse effects when recommended use instructions are followed. |
| Skin | May be harmful in contact with skin. |
| Ingestion | May be harmful if swallowed. |
| Inhalation | Not expected to produce significant adverse effects when recommended use instructions are followed. |
| Information on toxicological effects | |
| Acute oral toxicity | LD50 (female Rat) > 2,000 mg/kg |

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| Acute inhalation toxicity | LC50 (male/female combined Rat) > 3.875 mg/l Exposure time: 4 h Determined in the form of liquid aerosol. Highest attainable concentration. |
| Acute dermal toxicity | LD50 (male/female combined Rat) > 2,000 mg/kg |
| Skin corrosion/irritation | No skin irritation (Rabbit) |
| Serious eye damage/eye irritation | No eye irritation (Rabbit) |
| Respiratory or skin sensitisation | Skin: Non-sensitizing. (Mouse) OECD Test Guideline 429, local lymph node assay (LLNA) |

Assessment STOT Specific target organ toxicity – single exposure

Penflufen: Based on available data, the classification criteria are not met.
Prothioconazole: Based on available data, the classification criteria are not met.

Assessment STOT Specific target organ toxicity – repeated exposure

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

Assessment mutagenicity

Penflufen was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.
Prothioconazole was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Penflufen caused at high dose levels an increased incidence of tumours in rats in the following organ(s): ovaries, Brain, hematopoietic system. The mechanism that triggers these tumours is not relevant to humans.
Prothioconazole was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH

None.

NTP

None.

IARC

None.

Assessment toxicity to reproduction

Penflufen did not cause reproductive toxicity in a two-generation study in rats.
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.

Assessment developmental toxicity

Penflufen did not cause developmental toxicity in rats and rabbits.
Prothioconazole caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Prothioconazole are related to maternal toxicity.

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Aspiration hazard

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

Further information

Only acute toxicity studies have been performed on the formulated product.
The non-acute information pertains to the active ingredient(s).

SECTION 12: ECOLOGICAL INFORMATION

| | |
|---|---|
| Toxicity to fish | LC50 (Cyprinus carpio (Carp)) 1.41 mg/l static test; Exposure time: 96 h |
| Toxicity to aquatic invertebrates | EC50 (Daphnia magna (Water flea)) 40.7 mg/l Exposure time: 48 h |
| Toxicity to aquatic plants | EC50 (Raphidocelis subcapitata (freshwater green alga)) 71.3 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. |
| Biodegradability | Penflufen: Not rapidly biodegradable Prothioconazole: Not rapidly biodegradable |
| Koc | Penflufen: Koc: 280 Prothioconazole: Koc: 1765 |
| Bioaccumulation | Penflufen: Bioconcentration factor (BCF) 142 Does not bioaccumulate. Prothioconazole: Bioconcentration factor (BCF) 19 Does not bioaccumulate. |
| Mobility in soil | Penflufen: Moderately mobile in soils Prothioconazole: Slightly mobile in soils |
| Results of PBT and vPvB assessment | |
| PBT and vPvB assessment | Penflufen: 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). 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). |
| Additional ecological information | No other effects to be mentioned. |

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Environmental precautions Do not allow to get into surface water, drains and ground water.
Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water.
Drift and runoff from treated areas may be hazardous to aquatic organisms in adjacent sites.
Apply this product as specified on the label.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product Dispose in accordance with all local, state/provincial and federal regulations.

Contaminated packaging Consult state and local regulations regarding the proper disposal of container.
Follow advice on product label and/or leaflet.
Do not re-use empty containers.
Triple rinse containers.
If burned, stay out of smoke.

RCRA Information Characterization and proper disposal of this material as a special or hazardous waste is dependent upon Federal, State and local laws and are the user's responsibility. RCRA classification may apply.

SECTION 14: TRANSPORT INFORMATION

49CFR Not dangerous goods / not hazardous material

IMDG

UN number **3082**
Class 9
Packaging group III
Marine pollutant YES
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,
N.O.S.
(PENFLUFEN SOLUTION)

IATA

UN number **3082**
Class 9
Packaging group III
Environm. Hazardous Mark YES
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,
N.O.S.
(PENFLUFEN SOLUTION)

This transportation information is not intended to convey all specific regulatory information relating to this

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product. It does not address regulatory variations due to package size or special transportation requirements.

Freight Classification: INSECTICIDES OR FUNGICIDES, N.O.I., OTHER THAN POISON

SECTION 15: REGULATORY INFORMATION

EPA Registration No. 264-1123

US Federal Regulations

TSCA list

Water 7732-18-5

1,2-Propanediol 57-55-6

Calcium 4-[(5-chloro-4-methyl-2-

sulphonatophenyl)azo]-3-hydroxy-2-

naphthoate 104376-75-2

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

No export notification needs to be made.

SARA Title III - Section 302 - Notification and Information

Not applicable.

SARA Title III - Section 313 - Toxic Chemical Release Reporting

None.

US States Regulatory Reporting

CA Prop65

This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients

| | | |
|----------------------------|-------------|----------------|
| 1,2-Propanediol | 57-55-6 | MN, RI |
| Synthetic amorphous silica | 112926-00-8 | CA, CT, MN, RI |

Environmental

CERCLA

None.

Clean Water Section 307(a)(1)

None.

Safe Drinking Water Act Maximum Contaminant Levels

None.

EPA/FIFRA Information:

This chemical is a pesticide product regulated by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification

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criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information required on the pesticide label:

Signal word: Caution!

Hazard statements: Harmful if swallowed or absorbed through skin.

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms

| | |
|---------|---|
| 49CFR | Code of Federal Regulations, Title 49 |
| ACGIH | US. ACGIH Threshold Limit Values |
| ATE | Acute toxicity estimate |
| CAS-Nr. | Chemical Abstracts Service number |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| EINECS | European inventory of existing commercial substances |
| ELINCS | European list of notified chemical substances |
| IARC | International Agency for Research on Cancer |
| IATA | International Air Transport Association |
| IMDG | International Maritime Dangerous Goods |
| N.O.S. | Not otherwise specified |
| NTP | US. National Toxicology Program (NTP) Report on Carcinogens |
| OECD | Organization for Economic Co-operation and Development |
| TDG | Transportation of Dangerous Goods |
| TWA | Time weighted average |
| UN | United Nations |
| WHO | World health organisation |

NFPA 704 (National Fire Protection Association):

Health - 1 Flammability - 0 Instability - 0 Others - none

HMIS (Hazardous Materials Identification System, based on the Fourth Edition Ratings Guide)

Health - 1 Flammability - 0 Physical Hazard - 0 PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard,
* = chronic health hazard

Reason for Revision: The following sections have been revised: Section 2: Hazards Identification.
Reviewed and updated for general editorial purposes.

Revision Date: 01/09/2023

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

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