



EMESTO SILVER

Version 3.0 / USA
102000022709

1/11
Revision Date: 06/30/2015
Print Date: 08/12/2015

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
2 T.W. Alexander Drive
Research Triangle PK, NC 27709
United States

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.

Other hazards

No particular hazards known.

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



EMESTO SILVER

Version 3.0 / USA
102000022709

2/11
Revision Date: 06/30/2015
Print Date: 08/12/2015

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 No symptoms known or expected.

Indication of any immediate medical attention and special treatment needed

Treatment Treat symptomatically. 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 (CO₂), Foam, Sand

Unsuitable None known.

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_x), Hydrogen fluoride, Sulphur oxides, Hydrogen chloride (HCl)

Advice for firefighters

Special protective equipment for fire-fighters 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.



EMESTO SILVER

Version 3.0 / USA
102000022709

3/11
Revision Date: 06/30/2015
Print Date: 08/12/2015

	Contain the spread of the fire-fighting media. Do not allow water to come into direct contact with the product.
Flash point	> 100 °C No flash point - Determination conducted up to the boiling point.
Autoignition 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. 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.

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.



EMESTO SILVER

Version 3.0 / USA
102000022709

4/11
Revision Date: 06/30/2015
Print Date: 08/12/2015

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.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Prothioconazole	178928-70-6	5ug/m3 (AN ESL)	07 2011	TX ESL
Prothioconazole	178928-70-6	50ug/m3 (ST ESL)	07 2011	TX ESL
Prothioconazole	178928-70-6	1.4 mg/m3 (SK-ABS)		OES BCS*
1,2-Propanediol	57-55-6	100ug/m3 (AN ESL)	03 2014	TX ESL
1,2-Propanediol	57-55-6	1000ug/m3 (ST ESL)	03 2014	TX ESL
1,2-Propanediol	57-55-6	500ppb (ST ESL)	03 2014	TX ESL
1,2-Propanediol	57-55-6	50ppb (AN ESL)	03 2014	TX ESL
1,2-Propanediol (Aerosol.)	57-55-6	10 mg/m3 (TWA)	2010	WEEL
Synthetic amorphous silica	112926-00-8	6 mg/m3 (REL)	2010	NIOSH
Synthetic amorphous silica	112926-00-8	6 mg/m3 (TWA)	1989	OSHA Z1A
Synthetic amorphous silica	112926-00-8	6 mg/m3 (TWA)	06 2008	TN OEL
Synthetic amorphous silica	112926-00-8	27ug/m3 (ST ESL)	03 2014	TX ESL
Synthetic amorphous silica	112926-00-8	2ug/m3 (AN ESL)	03 2014	TX ESL
Synthetic amorphous silica	112926-00-8	20millions of particles per cubic foot of air (TWA)	2000	Z3
Synthetic amorphous silica	112926-00-8	0.8 mg/m3 (TWA)	2000	Z3

*OES BCS: Internal Bayer CropScience "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



EMESTO SILVER

Version 3.0 / USA
10200022709

5/11
Revision Date: 06/30/2015
Print Date: 08/12/2015

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 nitrile rubber gloves
Eye protection	Tightly fitting safety goggles
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

Appearance	red
Physical State	suspension
Odor	weak characteristic
Odour Threshold	no data available
pH	5.0 - 6.5 at 100 % (23 °C)
Vapor Pressure	no data available
Vapor Density (Air = 1)	no data available
Density	ca. 1.07 g/cm ³ at 20 °C
Evaporation rate	no data available
Boiling Point	no data available
Melting / Freezing Point	no data available
Water solubility	dispersible
Minimum Ignition Energy	not applicable
Decomposition temperature	no data available
Partition coefficient: n-octanol/water	not applicable
Viscosity	70 - 250 mPa.s at 20 °C Velocity gradient 20 /s 65 - 90 mPa.s at 20 °C Velocity gradient 100 /s
Flash point	> 100 °C No flash point - Determination conducted up to the boiling point.
Autoignition temperature	510 °C / 950 °F
Lower explosion limit	no data available



EMESTO SILVER

Version 3.0 / USA
102000022709

6/11
Revision Date: 06/30/2015
Print Date: 08/12/2015

Upper explosion limit	no data available
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

Thermal decomposition	no data available
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 data available
Hazardous decomposition products	No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes	Ingestion, Skin Absorption, Eye contact, Inhalation
Immediate Effects	
Skin	Harmful if absorbed through skin.
Ingestion	Harmful if swallowed.
Information on toxicological effects	
Acute oral toxicity	LD50 (rat) > 2,000 mg/kg
Acute inhalation toxicity	LC50 (rat) > 3.875 mg/l Exposure time: 4 h Determined in the form of liquid aerosol. Highest attainable concentration.
Acute dermal toxicity	LD50 (rat) > 2,000 mg/kg
Skin irritation	No skin irritation (rabbit)
Eye irritation	No eye irritation (rabbit)
Sensitisation	Non-sensitizing. (mouse) OECD Test Guideline 429, local lymph node assay (LLNA)
Assessment repeated dose toxicity	



EMESTO SILVER

Version 3.0 / USA
102000022709

7/11
Revision Date: 06/30/2015
Print Date: 08/12/2015

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): hematopoietic system, brain, ovaries. 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.

OSHA

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.

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
Exposure time: 96 h

Toxicity to aquatic invertebrates

EC50 (Daphnia magna (Water flea)) 40.7 mg/l
Exposure time: 48 h



EMESTO SILVER

Version 3.0 / USA
102000022709

8/11
Revision Date: 06/30/2015
Print Date: 08/12/2015

Toxicity to aquatic plants	EC50 (Raphidocelis subcapitata (freshwater green alga)) 71.3 mg/l Growth rate; Exposure time: 72 h
Biodegradability	Penflufen: not rapidly biodegradable Prothioconazole: not rapidly biodegradable
Koc	Penflufen: Koc: 280 Prothioconazole: Koc: 1765; log Koc: < 3
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
Additional ecological information	No other effects to be mentioned.
Environmental precautions	Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. 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	Do not contaminate water, food, or feed by disposal. Dispose in accordance with all local, state/provincial and federal regulations. Pesticide, spray mixture or rinse water that cannot be used according to label instructions may be disposed of on site or at an approved waste disposal facility.
Contaminated packaging	Do not re-use empty containers. Triple rinse containers. Dispose of empty container in a sanitary landfill or by incineration, or, if allowed by State/Provincial and local authorities, by burning. If burned, stay out of smoke. Follow advice on product label and/or leaflet.
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.



EMESTO SILVER

Version 3.0 / USA
102000022709

9/11
Revision Date: 06/30/2015
Print Date: 08/12/2015

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

SECTION 15: REGULATORY INFORMATION

EPA Registration No. 264-1123

US Federal Regulations

TSCA list

None.

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

None.

SARA Title III - Section 302 - Notification and Information

None.

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

None.



EMESTO SILVER

Version 3.0 / USA
102000022709

10/11
Revision Date: 06/30/2015
Print Date: 08/12/2015

Canadian Regulations
Canadian Domestic Substance List
None.

Environmental

CERCLA

None.

Clean Water Section 307 Priority Pollutants

None.

Safe Drinking Water Act Maximum Contaminant Levels

None.

EPA/FIFRA Information:

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification 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.
Avoid contact with skin, eyes and clothing.

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms

49CFR	Code of Federal Regulations, Title 49
ACGIH	US. ACGIH Threshold Limit Values
CAS-Nr.	Chemical Abstracts Service number
EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
IARC	US. IARC Monographs on Occupational Exposures to Chemical Agents
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



EMESTO SILVER

Version 3.0 / USA
102000022709

11/11
Revision Date: 06/30/2015
Print Date: 08/12/2015

NFPA 704 (National Fire Protection Association):

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

HMIS (Hazardous Materials Identification System, based on the Third 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

Reason for Revision: Revised according to the current OSHA Hazard Communication Standard (29CFR1910.1200)

Revision Date: 06/30/2015

This information is provided in good faith but without express or implied warranty. The customer assumes all responsibility for safety and use not in accordance with label instructions. The product names are registered trademarks of Bayer.