

SAFETY DATA SHEET



EMESTO QUANTUM

Version 1.0 / CDN
102000022950

1/12
Revision Date: 12/15/2022
Print Date: 12/16/2022

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

Product identifier

| | |
|----------------------|----------------|
| Trade name | EMESTO QUANTUM |
| Product code (UVP) | 79868774 |
| SDS Number | 102000022950 |
| PCP Registration No. | 30362 |

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

| | |
|---------------------|-------------------------------------|
| Use | Seed treatment, Insecticide |
| Restrictions on use | See product label for restrictions. |

Information on supplier

| | |
|------------------------|---|
| Supplier | Bayer CropScience Inc #200, 160 Quarry Park Blvd, SE Calgary, Alberta T2C 3G3 Canada |
| 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 | 1-888-283-6847 |

SECTION 2: HAZARDS IDENTIFICATION

Classified in accordance with Part 2 of the Hazardous Products Regulations
Carcinogenicity: Category 2

Labelling in accordance with Part 3 of the Hazardous Products Regulations



Signal word: Warning

Hazard statements

Suspected of causing cancer.

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Precautionary statements

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wear protective gloves/protective clothing/eye protection/face protection.
IF exposed or concerned: Get medical advice/ attention.
Store locked up.
Dispose of contents/container in accordance with local regulation.

Hazards Not Otherwise Classified (HNOC)

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

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

| Hazardous Component Name | CAS-No. | Concentration % by weight |
|--|-------------|---------------------------|
| Clothianidin | 210880-92-5 | 18.6 |
| Penflufen | 494793-67-8 | 5.99 |
| Polyoxyethylene tridecyl ether phosphate | 9046-01-9 | 1.29 |

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

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

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

| | |
|-----------------|--|
| Suitable | Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. |
|-----------------|--|

| | |
|-------------------|-----------------------|
| Unsuitable | High volume water jet |
|-------------------|-----------------------|

| | |
|--|---|
| Special hazards arising from the substance or mixture | Dangerous gases are evolved in the event of a fire. |
|--|---|

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. 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 | Not relevant; aqueous solution |
|--------------------|--------------------------------|

| | |
|----------------------------------|---------------------|
| Auto-ignition temperature | > 450 °C / > 842 °F |
|----------------------------------|---------------------|

| | |
|------------------------------|-------------------|
| Lower explosion limit | No data available |
|------------------------------|-------------------|

| | |
|------------------------------|-------------------|
| Upper explosion limit | No data available |
|------------------------------|-------------------|

| | |
|--------------------|---|
| Explosivity | Not explosive 92/69/EEC, A.14 / OECD 113 |
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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.

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.

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. 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 |
|--------------|-------------|-----------------------|---------|--------|
| Clothianidin | 210880-92-5 | 0.1 mg/m ³ | 01 2022 | CAD MB |

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| (Inhalable fraction.) | | (TWA) | | OEL |
|-----------------------|-------------|--------------------------------|--|----------|
| Clothianidin | 210880-92-5 | 2.8 mg/m ³ (TWA) | | 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

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 | Liquid |
| Colour | white to beige |
| Odour | very faint |
| Odour Threshold | No data available |
| pH | 5.0 - 6.0 (100 %) (23 °C) |
| Melting point/range | No data available |
| Boiling Point | No data available |
| Flash point | Not relevant; aqueous solution |
| Flammability | No data available |
| Auto-ignition temperature | > 450 °C |
| Thermal decomposition | No data available |
| Minimum ignition energy | No data available |
| Self-accelerating | No data available |

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decomposition temperature (SADT)

| | |
|---|---|
| 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 | 1.11 g/cm ³ (20 °C) |
| Water solubility | dispersible |
| Partition coefficient: n-octanol/water | Penflufen: log Pow: 3.3 (25 °C) Clothianidin: log Pow: 0.9 |
| Viscosity, dynamic | 600 - 1,000 mPa.s (20 °C) |
| 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. |

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SECTION 11: TOXICOLOGICAL INFORMATION

| | |
|---|---|
| Exposure routes | Ingestion, Inhalation, Eye contact, 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 | May be harmful if inhaled. |
| Information on toxicological effects | |
| Acute oral toxicity | LD50 (Rat) > 2,000 mg/kg |
| Acute inhalation toxicity | LC50 (Rat) > 2.748 mg/l Exposure time: 4 h Determined in the form of a respirable aerosol. Highest attainable concentration. |
| Acute dermal toxicity | LD50 (Rat) > 2,000 mg/kg |
| Skin corrosion/irritation | No skin irritation (Rabbit) |
| Serious eye damage/eye irritation | Slight irritant effect - does not require labelling. (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.
Clothianidin: 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.
Clothianidin 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.
Clothianidin 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.
Clothianidin was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH

Clothianidin 210880-92-5 Group A4

NTP

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None.

IARC

None.

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.

Clothianidin 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 Clothianidin is related to parental toxicity.

Assessment developmental toxicity

Penflufen did not cause developmental toxicity in rats and rabbits.

Clothianidin did not cause developmental toxicity in rats.

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

Aspiration hazard

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

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish

LC50 (Cyprinus carpio (Carp)) 0.103 mg/l

Exposure time: 96 h

The value mentioned relates to the active ingredient penflufen.

LC50 (Oncorhynchus mykiss (rainbow trout)) > 104.2 mg/l

Exposure time: 96 h

The value mentioned relates to the active ingredient clothianidin.

Toxicity to aquatic invertebrates

EC50 (Daphnia magna (Water flea)) > 4.66 mg/l

Exposure time: 48 h

The value mentioned relates to the active ingredient penflufen.

No acute toxicity was observed at its limit of water solubility.

EC50 (Daphnia magna (Water flea)) > 40 mg/l

Exposure time: 48 h

The value mentioned relates to the active ingredient clothianidin.

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| | |
|--|---|
| Chronic toxicity to aquatic invertebrates | EC15 (Chironomus riparius (non-biting midge)): 0.00072 mg/l Exposure time: 28 d The value mentioned relates to the active ingredient clothianidin. |
| Toxicity to aquatic plants | EC50 (Raphidocelis subcapitata (freshwater green alga)) > 5.1 mg/l Growth rate; Exposure time: 96 h The value mentioned relates to the active ingredient penflufen. No acute toxicity was observed at its limit of water solubility. IC50 (Raphidocelis subcapitata (freshwater green alga)) > 120 mg/l Growth rate; Exposure time: 72 h The value mentioned relates to the active ingredient clothianidin. |
| Biodegradability | Penflufen: Not rapidly biodegradable Clothianidin: Not rapidly biodegradable |
| Koc | Penflufen: Koc: 280 Clothianidin: Koc: 84 - 345 |
| Bioaccumulation | Penflufen: Bioconcentration factor (BCF) 142 Does not bioaccumulate. Clothianidin: Does not bioaccumulate. |
| Mobility in soil | Penflufen: Moderately mobile in soils Clothianidin: Moderately 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). Clothianidin: 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. |
| 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. |

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

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

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Contaminated packaging Consult state and local regulations regarding the proper disposal of container.
Follow advice on product label and/or leaflet.

SECTION 14: TRANSPORT INFORMATION

TDG

| | |
|----------------------|--|
| UN number | 3082 |
| Labels | 9 |
| Packaging group | III |
| Marine pollutant | Marine pollutant |
| Proper shipping name | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CLOTHIANIDIN, PENFLUFEN) |

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. (CLOTHIANIDIN, 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. (CLOTHIANIDIN, 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.

Further Information Exempt from regulation when transported by road or rail, in accordance with TDG Regulations 1.45.1.
This exemption provides that this product does not require dangerous goods shipping documentation or safety marks when transported on land by road or rail.

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SECTION 15: REGULATORY INFORMATION

PCP Registration No. 30362

PMRA Information:

Read the label, authorized under the Pest Control Products Act, prior to using or handling the pest control product.

This chemical is a pest control product regulated by Health Canada Pest Management Regulatory Agency and is subject to certain labelling requirements under the Pest Control Products Act. These requirements differ from the classification criteria and hazard information required for GHS-consistent safety data sheets. The following is the hazard information required on the pest control product label:

Hazard statements: Keep out of the reach of children.

There are Canada-specific environmental requirements for handling, use, and disposal of this pest control product that are indicated on the label.

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

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Reason for Revision: New Safety Data Sheet.

Revision Date: 12/15/2022

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

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