

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



HALLMARK WITH ZEON TECHNOLOGY

Version 14.1	Revision Date: 08.06.2023	SDS Number: S00044578541	This version replaces all previous versions.
-----------------	------------------------------	-----------------------------	--

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name	:	HALLMARK WITH ZEON TECHNOLOGY
Design code	:	A12690B
Product Registration Number	:	MAPP 12629
Unique Formula Identifier (UFI)	:	CNW4-70WA-E00R-66XA

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

Use of the Sub-stance/Mixture	:	Insecticide
Recommended restrictions on use	:	professional use

1.3 Details of the supplier of the safety data sheet

Company	:	Syngenta UK Limited CPC4, Capital Park Fulbourn, Cambridge CB21 5XE United Kingdom
Telephone	:	+44 (0) 1223 883400
Telefax	:	+44 (0) 1223 882195
E-mail address of person responsible for the SDS	:	customer.services@syngenta.com

1.4 Emergency telephone number

Emergency telephone number	:	+44 1484 538444
----------------------------	---	-----------------

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Acute toxicity, Category 4	H302: Harmful if swallowed.
Acute toxicity, Category 4	H332: Harmful if inhaled.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Short-term (acute) aquatic hazard, Category 1	H400: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard, Category 1	H410: Very toxic to aquatic life with long lasting effects.

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



HALLMARK WITH ZEON TECHNOLOGY

Version	Revision Date:	SDS Number:	This version replaces all previous versions.
14.1	08.06.2023	S00044578541	

Category 1

effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Hazard pictograms

:



Signal word

:

Warning

Hazard statements

:

H302 + H332 Harmful if swallowed or if inhaled.
H317 May cause an allergic skin reaction.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

:

Prevention:

P261 Avoid breathing mist or vapours.
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves.

Response:

P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P391 Collect spillage.

Disposal:

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.

Hazardous components which must be listed on the label:

lambda-cyhalothrin (ISO)
1,2-benzisothiazol-3(2H)-one

Additional Labelling

EUH401 To avoid risks to human health and the environment, comply with the instructions for use.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

May cause temporary itching, tingling, burning or numbness of exposed skin, called paresthesia.

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



HALLMARK WITH ZEON TECHNOLOGY

Version 14.1 Revision Date: 08.06.2023 SDS Number: S00044578541 This version replaces all previous versions.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
lambda-cyhalothrin (ISO)	91465-08-6 415-130-7 607-252-00-6	Acute Tox. 3; H301 Acute Tox. 2; H330 Acute Tox. 3; H311 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 100,00010,000 M-Factor (Chronic aquatic toxicity): 100,00010,000	>= 2.5 - < 10
hydrocarbons, C10-C13, aromatics, <1% naphthalene	Not Assigned UK-01-2250044631- 9-0001	Asp. Tox. 1; H304 Aquatic Chronic 2; H411	>= 2.5 - < 10
1,2-benzisothiazol-3(2H)-one	2634-33-5 220-120-9 613-088-00-6	Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Dam. 1; H318 Skin Sens. 1; H317 Aquatic Acute 1; H400 Aquatic Chronic 2; H411 M-Factor (Acute aquatic toxicity): 1 specific concentra- tion limit Skin Sens. 1; H317 >= 0.05 %	>= 0.05 - < 0.1
Substances with a workplace exposure limit :			
propane-1,2-diol	57-55-6 200-338-0		>= 20 - < 30

For explanation of abbreviations see section 16.

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



HALLMARK WITH ZEON TECHNOLOGY

Version	Revision Date:	SDS Number:	This version replaces all previous versions.
14.1	08.06.2023	S00044578541	

SECTION 4: First aid measures

4.1 Description of first aid measures

- | | | |
|-------------------------|---|---|
| General advice | : | Have the product container, label or Safety Data Sheet with you when calling the emergency number, a poison control center or physician, or going for treatment. |
| If inhaled | : | Move the victim to fresh air.
If breathing is irregular or stopped, administer artificial respiration.
Keep patient warm and at rest.
Call a physician or poison control centre immediately. |
| In case of skin contact | : | Take off all contaminated clothing immediately.
Wash off immediately with plenty of water.
If skin irritation persists, call a physician.
Wash contaminated clothing before re-use. |
| In case of eye contact | : | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Remove contact lenses.
Immediate medical attention is required. |
| If swallowed | : | If swallowed, seek medical advice immediately and show this container or label.
Do NOT induce vomiting. |

4.2 Most important symptoms and effects, both acute and delayed

- | | | |
|----------|---|--|
| Symptoms | : | Aspiration may cause pulmonary oedema and pneumonitis.
Skin contact paresthesia effects (itching, tingling, burning or numbness) are transient, lasting up to 24 hours. |
|----------|---|--|

4.3 Indication of any immediate medical attention and special treatment needed

- | | | |
|-----------|---|--|
| Treatment | : | Do not induce vomiting: contains petroleum distillates and/or aromatic solvents.
Treat symptomatically. |
|-----------|---|--|

SECTION 5: Firefighting measures

5.1 Extinguishing media

- | | | |
|------------------------------|---|---|
| Suitable extinguishing media | : | Extinguishing media - small fires
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Extinguishing media - large fires
Alcohol-resistant foam
or
Water spray |
|------------------------------|---|---|

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



HALLMARK WITH ZEON TECHNOLOGY

Version 14.1	Revision Date: 08.06.2023	SDS Number: S00044578541	This version replaces all previous versions.
-----------------	------------------------------	-----------------------------	--

Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : As the product contains combustible organic components, fire will produce dense black smoke containing hazardous products of combustion (see section 10).
Exposure to decomposition products may be a hazard to health.

5.3 Advice for firefighters

Special protective equipment for firefighters : Wear full protective clothing and self-contained breathing apparatus.

Further information : Do not allow run-off from fire fighting to enter drains or water courses.
Cool closed containers exposed to fire with water spray.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Refer to protective measures listed in sections 7 and 8.

6.2 Environmental precautions

Environmental precautions : Prevent further leakage or spillage if safe to do so.
Do not flush into surface water or sanitary sewer system.
If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).
Clean contaminated surface thoroughly.
Clean with detergents. Avoid solvents.
Retain and dispose of contaminated wash water.

6.4 Reference to other sections

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

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : No special protective measures against fire required.
Avoid contact with skin and eyes.
When using do not eat, drink or smoke.

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



HALLMARK WITH ZEON TECHNOLOGY

Version 14.1 Revision Date: 08.06.2023 SDS Number: S00044578541 This version replaces all previous versions.

For personal protection see section 8.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : No special storage conditions required. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Keep away from food, drink and animal feedingstuffs.

7.3 Specific end use(s)

Specific use(s) : For proper and safe use of this product, please refer to the approval conditions laid down on the product label.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
propane-1,2-diol	57-55-6	TWA (particles)	10 mg/m ³	GB EH40
		TWA (Total vapour and particles)	150 ppm 474 mg/m ³	GB EH40
lambda-cyhalothrin (ISO)	91465-08-6	TWA	0.04 mg/m ³ (Skin)	Syngenta
hydrocarbons, C10-C13, aromatics, <1% naphthalene	Not Assigned	TWA	8 ppm 50 mg/m ³	Supplier

Derived No Effect Level (DNEL):

Substance name	End Use	Exposure routes	Potential health effects	Value
propane-1,2-diol	Workers	Inhalation	Long-term systemic effects	168 mg/m ³
	Consumers	Inhalation	Long-term local effects	10 mg/m ³
	Consumers	Inhalation	Long-term systemic effects	30 mg/m ³
	Workers	Inhalation	Long-term local effects	10 mg/m ³
hydrocarbons, C10-C13, aromatics, <1% naphthalene	Workers	Inhalation	Long-term systemic effects	151 mg/m ³
	Workers	Dermal	Long-term systemic effects	12.5 mg/kg
	Consumers	Inhalation	Long-term systemic effects	32 mg/m ³
	Consumers	Dermal	Long-term systemic effects	7.5 mg/kg

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



HALLMARK WITH ZEON TECHNOLOGY

Version 14.1 Revision Date: 08.06.2023 SDS Number: S00044578541 This version replaces all previous versions.

	Consumers	Oral	Long-term systemic effects	7.5 mg/kg
1,2-benzisothiazol-3(2H)-one	Workers	Inhalation	Long-term systemic effects	6.81 mg/m3
	Workers	Dermal	Long-term systemic effects	0.966 mg/kg
	Consumers	Inhalation	Long-term systemic effects	1.2 mg/m3
	Consumers	Dermal	Long-term systemic effects	0.345 mg/kg

Predicted No Effect Concentration (PNEC):

Substance name	Environmental Compartment	Value
propane-1,2-diol	Fresh water	260 mg/l
	Marine water	26 mg/l
	Intermittent use/release	183 mg/l
	Sewage treatment plant	20000 mg/l
	Marine sediment	57.2 mg/kg
	Fresh water sediment	572 mg/kg
1,2-benzisothiazol-3(2H)-one	Soil	50 mg/kg
	Fresh water	0.00403 mg/l
	Marine water	0.000403 mg/l
	Sewage treatment plant	1.03 mg/l
	Fresh water sediment	0.0499 mg/kg
	Marine sediment	0.00499 mg/kg
	Freshwater - intermittent	0.0011 mg/l
	Marine water - intermittent	0.000110 mg/l
	Soil	3 mg/kg

8.2 Exposure controls

Engineering measures

Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated.

The extent of these protection measures depends on the actual risks in use.

Maintain air concentrations below occupational exposure standards.
Where necessary, seek additional occupational hygiene advice.

Personal protective equipment

Eye/face protection : No special protective equipment required.
Hand protection

Material : Nitrile rubber
Break through time : > 480 min
Glove thickness : 0.5 mm

Remarks : Wear protective gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other.
Please observe the instructions regarding permeability and

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



HALLMARK WITH ZEON TECHNOLOGY

Version 14.1	Revision Date: 08.06.2023	SDS Number: S00044578541	This version replaces all previous versions.
-----------------	------------------------------	-----------------------------	--

- 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. The break through time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
- Skin and body protection** : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.
Remove and wash contaminated clothing before re-use.
Wear as appropriate:
Impervious clothing
- Respiratory protection** : When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
Suitable respiratory equipment:
Respirator with a half face mask
The filter class for the respirator must be suitable for the maximum expected contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If this concentration is exceeded, self-contained breathing apparatus must be used.
- Protective measures** : The use of technical measures should always have priority over the use of personal protective equipment.
When selecting personal protective equipment, seek appropriate professional advice.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- Appearance : suspension
Colour : beige to cream
Odour : aromatic, weak
Odour Threshold : No data available
- pH : 4 - 8 (25 °C)
Concentration: 1 %w/v
- Melting point/range : No data available
- Boiling point/boiling range : 100 °C
Flash point : Method: Pensky-Martens closed cup
does not flash
- Evaporation rate : No data available
- Flammability (solid, gas) : No data available
- Upper explosion limit / Upper : No data available

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



HALLMARK WITH ZEON TECHNOLOGY

Version 14.1	Revision Date: 08.06.2023	SDS Number: S00044578541	This version replaces all previous versions.
-----------------	------------------------------	-----------------------------	--

flammability limit

Lower explosion limit / Lower
flammability limit : No data available

Vapour pressure : No data available

Relative vapour density : No data available

Density : 1.057 g/cm³ (20 °C)

Solubility(ies)

Water solubility : completely miscible

Solubility in other solvents : Solvent: Water

Partition coefficient: n-
octanol/water : No data available

Auto-ignition temperature : 465 °C

Decomposition temperature : No data available

Viscosity

Viscosity, kinematic : 107 mm²/s (20 °C)

Explosive properties : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.

9.2 Other information

Surface tension : 37.0 mN/m, 20 °C

Particle size : No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

None reasonably foreseeable.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : No dangerous reaction known under conditions of normal use.

10.4 Conditions to avoid

Conditions to avoid : No decomposition if used as directed.

10.5 Incompatible materials

Materials to avoid : None known.

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



HALLMARK WITH ZEON TECHNOLOGY

Version 14.1	Revision Date: 08.06.2023	SDS Number: S00044578541	This version replaces all previous versions.
-----------------	------------------------------	-----------------------------	--

10.6 Hazardous decomposition products

Hazardous decomposition products : No hazardous decomposition products are known.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Information on likely routes of exposure :
Ingestion
Inhalation
Skin contact
Eye contact

Acute toxicity

Product:

Acute oral toxicity : LD50 (Rat, male): 334 mg/kg

Acute inhalation toxicity : (Rat, male and female): > 2.5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The component/mixture is moderately toxic after short term inhalation., The substance/mixture is not toxic on inhalation as defined by dangerous goods regulations.

Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Components:

lambda-cyhalothrin (ISO):

Acute oral toxicity : LD50 (Rat, female): 56 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): 0.06 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rat, male): 632 mg/kg

1,2-benzisothiazol-3(2H)-one:

Acute oral toxicity : LD50 (Rat, male): 670 mg/kg

Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



HALLMARK WITH ZEON TECHNOLOGY

Version 14.1	Revision Date: 08.06.2023	SDS Number: S00044578541	This version replaces all previous versions.
-----------------	------------------------------	-----------------------------	--

Skin corrosion/irritation

Product:

Species	: Rabbit
Result	: No skin irritation

Components:

lambda-cyhalothrin (ISO):

Species	: Rabbit
Result	: No skin irritation

hydrocarbons, C10-C13, aromatics, <1% naphthalene:

Result	: Repeated exposure may cause skin dryness or cracking.
--------	---

1,2-benzisothiazol-3(2H)-one:

Species	: Rabbit
Result	: Mild skin irritation

Serious eye damage/eye irritation

Product:

Species	: Rabbit
Result	: No eye irritation

Components:

lambda-cyhalothrin (ISO):

Species	: Rabbit
Result	: No eye irritation

1,2-benzisothiazol-3(2H)-one:

Species	: Rabbit
Result	: Risk of serious damage to eyes.

Respiratory or skin sensitisation

Product:

Species	: Humans
Result	: May cause sensitisation by skin contact.

Test Type	: Buehler Test
Species	: Guinea pig
Result	: Does not cause skin sensitisation.

Components:

lambda-cyhalothrin (ISO):

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



HALLMARK WITH ZEON TECHNOLOGY

Version 14.1	Revision Date: 08.06.2023	SDS Number: S00044578541	This version replaces all previous versions.
-----------------	------------------------------	-----------------------------	--

Test Type	: Maximisation Test
Species	: Guinea pig
Result	: Does not cause skin sensitisation.

Test Type	: Local lymph node assay (LLNA)
Species	: Mouse
Result	: Does not cause skin sensitisation.

1,2-benzisothiazol-3(2H)-one:

Result	: Probability or evidence of skin sensitisation in humans
--------	---

Germ cell mutagenicity

Components:

lambda-cyhalothrin (ISO):

Germ cell mutagenicity- Assessment	: Animal testing did not show any mutagenic effects.
------------------------------------	--

1,2-benzisothiazol-3(2H)-one:

Germ cell mutagenicity- Assessment	: Weight of evidence does not support classification as a germ cell mutagen.
------------------------------------	--

Carcinogenicity

Components:

lambda-cyhalothrin (ISO):

Carcinogenicity - Assessment	: Weight of evidence does not support classification as a carcinogen
------------------------------	--

Reproductive toxicity

Components:

lambda-cyhalothrin (ISO):

Reproductive toxicity - Assessment	: Weight of evidence does not support classification for reproductive toxicity
------------------------------------	--

STOT - single exposure

Components:

lambda-cyhalothrin (ISO):

Assessment	: The substance or mixture is not classified as specific target organ toxicant, single exposure.
------------	--

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



HALLMARK WITH ZEON TECHNOLOGY

Version 14.1	Revision Date: 08.06.2023	SDS Number: S00044578541	This version replaces all previous versions.
-----------------	------------------------------	-----------------------------	--

STOT - repeated exposure

Components:

lambda-cyhalothrin (ISO):

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration toxicity

Components:

hydrocarbons, C10-C13, aromatics, <1% naphthalene:

May be fatal if swallowed and enters airways.

Further information

Product:

Remarks : May cause temporary itching, tingling, burning or numbness of exposed skin, called paresthesia.

Components:

lambda-cyhalothrin (ISO):

Remarks : May cause temporary itching, tingling, burning or numbness of exposed skin, called paresthesia.

SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to fish : LC50 (Cyprinus carpio (Carp)): 0.012 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.0026 mg/l
Exposure time: 48 h

Components:

lambda-cyhalothrin (ISO):

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 0.000078 mg/l
Exposure time: 96 h

LC50 (Ictalurus punctatus (channel catfish)): 0.00016 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.00036 mg/l
Exposure time: 48 h

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



HALLMARK WITH ZEON TECHNOLOGY

Version 14.1	Revision Date: 08.06.2023	SDS Number: S00044578541	This version replaces all previous versions.
-----------------	------------------------------	-----------------------------	--

LC50 (Americamysis): 0.000007 mg/l
Exposure time: 48 h

EC50 (Hyalella azteca (Amphipod)): 0.000002 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : ErC50 (Raphidocelis subcapitata (freshwater green alga)): > 0.31 mg/l
Exposure time: 96 h

M-Factor (Acute aquatic toxicity) : 10,000

Toxicity to microorganisms : EC50 (activated sludge): > 100 mg/l
Exposure time: 3 h

Toxicity to fish (Chronic toxicity) : NOEC: 0.000031 mg/l
Exposure time: 300 d
Species: Pimephales promelas (fathead minnow)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0.000002 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)

NOEC: 0.00022 µg/l
Exposure time: 28 d
Species: Americamysis

M-Factor (Chronic aquatic toxicity) : 10,000

hydrocarbons, C10-C13, aromatics, <1% naphthalene:

Toxicity to fish : LL50 (Oncorhynchus mykiss (rainbow trout)): 3.6 mg/l
Exposure time: 96 h
Remarks: Information given is based on data obtained from similar substances.

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): 1.1 mg/l
Exposure time: 48 h
Remarks: Information given is based on data obtained from similar substances.

Toxicity to algae/aquatic plants : EL50 (Raphidocelis subcapitata (freshwater green alga)): 7.9 mg/l
End point: Growth rate
Exposure time: 72 h
Remarks: Information given is based on data obtained from similar substances.

NOELR (Raphidocelis subcapitata (freshwater green alga)): 0.22 mg/l
End point: Growth rate
Exposure time: 72 h

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



HALLMARK WITH ZEON TECHNOLOGY

Version 14.1	Revision Date: 08.06.2023	SDS Number: S00044578541	This version replaces all previous versions.
-----------------	------------------------------	-----------------------------	--

Remarks: Information given is based on data obtained from similar substances.

Ecotoxicology Assessment

Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

1,2-benzisothiazol-3(2H)-one:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 2.18 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 2.94 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : ErC50 (Raphidocelis subcapitata (freshwater green alga)): 0.15 mg/l
Exposure time: 72 h

EC10 (Raphidocelis subcapitata (freshwater green alga)): 0.04 mg/l
End point: Growth rate
Exposure time: 72 h

M-Factor (Acute aquatic toxicity) : 1

Toxicity to fish (Chronic toxicity) : NOEC: 0.3 mg/l
Exposure time: 28 d
Species: Oncorhynchus mykiss (rainbow trout)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 1.7 mg/l
Exposure time: 21 d
Species: Daphnia (water flea)

12.2 Persistence and degradability

Components:

lambda-cyhalothrin (ISO):

Biodegradability : Result: Not readily biodegradable.

Stability in water : Degradation half life (DT50): 7 d
Remarks: Product is not persistent.

hydrocarbons, C10-C13, aromatics, <1% naphthalene:

Biodegradability : Result: Readily biodegradable.

1,2-benzisothiazol-3(2H)-one:

Biodegradability : Result: rapidly degradable

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



HALLMARK WITH ZEON TECHNOLOGY

Version	Revision Date:	SDS Number:	This version replaces all previous versions.
14.1	08.06.2023	S00044578541	

12.3 Bioaccumulative potential

Components:

lambda-cyhalothrin (ISO):

Bioaccumulation : Remarks: Bioaccumulates

1,2-benzisothiazol-3(2H)-one:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

12.4 Mobility in soil

Components:

lambda-cyhalothrin (ISO):

Distribution among environmental compartments : Remarks: immobile

Stability in soil : Dissipation time: 56 d
Percentage dissipation: 50 % (DT50)
Remarks: Product is not persistent.

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Components:

lambda-cyhalothrin (ISO):

Assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT).. This substance is not considered to be very persistent and very bioaccumulating (vPvB).

1,2-benzisothiazol-3(2H)-one:

Assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT).. This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6 Other adverse effects

Product:

Endocrine disrupting potential : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



HALLMARK WITH ZEON TECHNOLOGY

Version 14.1	Revision Date: 08.06.2023	SDS Number: S00044578541	This version replaces all previous versions.
-----------------	------------------------------	-----------------------------	--

SECTION 13: Disposal considerations

13.1 Waste treatment methods

- | | |
|------------------------|---|
| Product | : Do not contaminate ponds, waterways or ditches with chemical or used container.
Do not dispose of waste into sewer.
Where possible recycling is preferred to disposal or incineration.
If recycling is not practicable, dispose of in compliance with local regulations. |
| Contaminated packaging | : Empty remaining contents.
Triple rinse containers.
Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not re-use empty containers. |

SECTION 14: Transport information

14.1 UN number

- | | |
|------|-----------|
| ADR | : UN 3082 |
| RID | : UN 3082 |
| IMDG | : UN 3082 |
| IATA | : UN 3082 |

14.2 UN proper shipping name

- | | |
|------|---|
| ADR | : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(LAMBDA-CYHALOTHRIN, SUBSTITUTED BENZENOID HYDROCARBONS) |
| RID | : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(LAMBDA-CYHALOTHRIN, SUBSTITUTED BENZENOID HYDROCARBONS) |
| IMDG | : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(LAMBDA-CYHALOTHRIN, SUBSTITUTED BENZENOID HYDROCARBONS) |
| IATA | : Environmentally hazardous substance, liquid, n.o.s.
(LAMBDA-CYHALOTHRIN, SUBSTITUTED BENZENOID HYDROCARBONS) |

14.3 Transport hazard class(es)

- | | |
|-----|-----|
| ADR | : 9 |
| RID | : 9 |

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



HALLMARK WITH ZEON TECHNOLOGY

Version	Revision Date:	SDS Number:	This version replaces all previous versions.
14.1	08.06.2023	S00044578541	

IMDG : 9

IATA : 9

14.4 Packing group

ADR

Packing group	: III
Classification Code	: M6
Hazard Identification Number	: 90
Labels	: 9
Tunnel restriction code	: (-)
Remarks	: This product can be subject to exemptions when packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids, or having a net mass of 5 kg or less for solids.

RID

Packing group	: III
Classification Code	: M6
Hazard Identification Number	: 90
Labels	: 9
Remarks	: This product can be subject to exemptions when packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids, or having a net mass of 5 kg or less for solids.

IMDG

Packing group	: III
Labels	: 9
EmS Code	: F-A, S-F
Remarks	: This product can be subject to exemptions when packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids, or having a net mass of 5 kg or less for solids.

IATA (Cargo)

Packing instruction (cargo aircraft)	: 964
Packing instruction (LQ)	: Y964
Packing group	: III
Labels	: Miscellaneous
Remarks	: This product can be subject to exemptions when packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids, or having a net mass of 5 kg or less for solids.

IATA (Passenger)

Packing instruction (passenger aircraft)	: 964
Packing instruction (LQ)	: Y964
Packing group	: III
Labels	: Miscellaneous
Remarks	: This product can be subject to exemptions when packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids, or having a

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



HALLMARK WITH ZEON TECHNOLOGY

Version	Revision Date:	SDS Number:	This version replaces all previous versions.
14.1	08.06.2023	S00044578541	

net mass of 5 kg or less for solids.

14.5 Environmental hazards

ADR

Environmentally hazardous : yes

RID

Environmentally hazardous : yes

IMDG

Marine pollutant : yes

IATA (Passenger)

Environmentally hazardous : yes

IATA (Cargo)

Environmentally hazardous : yes

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

Relevant EU provisions transposed through retained EU law

UK REACH List of restrictions (Annex 17)	:	Conditions of restriction for the following entries should be considered: Number on list 3
UK REACH Candidate list of substances of very high concern (SVHC) for Authorisation	:	Not applicable
The Persistent Organic Pollutants Regulations (retained Regulation (EU) 2019/1021 as amended for Great Britain)	:	Not applicable
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	:	Not applicable
UK REACH List of substances subject to authorisation (Annex XIV)	:	Not applicable
GB Export and import of hazardous chemicals - Prior Informed Consent (PIC) Regulation	:	Not applicable
Control of Major Accident Hazards Regulations 2015 (COMAH)	E1	ENVIRONMENTAL HAZARDS

15.2 Chemical safety assessment

A Chemical Safety Assessment is not required for this substance when it is used in the specified applications.

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



HALLMARK WITH ZEON TECHNOLOGY

Version	Revision Date:	SDS Number:	This version replaces all previous versions.
14.1	08.06.2023	S00044578541	

SECTION 16: Other information

Full text of H-Statements

H301	: Toxic if swallowed.
H302	: Harmful if swallowed.
H304	: May be fatal if swallowed and enters airways.
H311	: Toxic in contact with skin.
H315	: Causes skin irritation.
H317	: May cause an allergic skin reaction.
H318	: Causes serious eye damage.
H330	: Fatal if inhaled.
H400	: Very toxic to aquatic life.
H410	: Very toxic to aquatic life with long lasting effects.
H411	: Toxic to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.	: Acute toxicity
Aquatic Acute	: Short-term (acute) aquatic hazard
Aquatic Chronic	: Long-term (chronic) aquatic hazard
Asp. Tox.	: Aspiration hazard
Eye Dam.	: Serious eye damage
Skin Irrit.	: Skin irritation
Skin Sens.	: Skin sensitisation
GB EH40	: UK. EH40 WEL - Workplace Exposure Limits
Syngenta	: Syngenta Occupational Exposure Limit
GB EH40 / TWA	: Long-term exposure limit (8-hour TWA reference period)
Syngenta / TWA	: Time weighted average

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



HALLMARK WITH ZEON TECHNOLOGY

Version	Revision Date:	SDS Number:	This version replaces all previous versions.
14.1	08.06.2023	S00044578541	

Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of very high concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Further information

Classification of the mixture:

Acute Tox. 4	H302
Acute Tox. 4	H332
Skin Sens. 1	H317
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

Classification procedure:

Based on product data or assessment
Based on product data or assessment
Based on product data or assessment
Based on product data or assessment
Calculation method

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

GB / EN