

## Cloprostenol Formulation

Version 2.8      Revision Date: 08.12.2023      SDS Number: 25310-00020      Date of last issue: 30.11.2023  
Date of first issue: 24.10.2014

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**1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : Cloprostenol Formulation  
Other means of identification : ESTRUMATE® (A002698)  
ESTRUMATE SYNTHETIC PROSTAGLANDIN FOR CATTLE  
AND HORSES (36076)

**Manufacturer or supplier's details**

Company : MSD  
Address : 50 Tuas West Drive  
Singapore - Singapore 638408  
Telephone : +1-908-740-4000  
Emergency telephone number : 65 6697 2111 (24/7/365)  
E-mail address : EHSDATASTEWARD@msd.com

**Recommended use of the chemical and restrictions on use**

Recommended use : Veterinary product  
Restrictions on use : Not applicable

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**2. HAZARDS IDENTIFICATION****GHS Classification**

Not a hazardous substance or mixture.

**GHS label elements**

No hazard pictogram, no signal word, no hazard statement(s), no precautionary statement(s) required

**Other hazards which do not result in classification**

None known.

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Mixture

**Components**

Chemical name	CAS-No.	Concentration (% w/w)
Benzyl alcohol	100-51-6	>= 1 -< 10
Sodium [1 $\alpha$ (Z),2 $\beta$ (1E,3R*),3 $\alpha$ ,5 $\alpha$ ]-(+/-)-7-[2-[4-(3-chlorophenoxy)-3-hydroxybut-1-enyl]-3,5-dihydroxycyclopentyl]hept-5-enoate	55028-72-3	< 0.1

## Cloprostamol Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 30.11.2023
2.8	08.12.2023	25310-00020	Date of first issue: 24.10.2014

---

### 4. FIRST AID MEASURES

- |   |   |   |
|---|---|---|
| If inhaled  | : | If inhaled, remove to fresh air.<br>Get medical attention if symptoms occur.  |
| In case of skin contact                                     | : | Wash with water and soap as a precaution.<br>Get medical attention if symptoms occur.                                   |
| In case of eye contact                                      | : | Flush eyes with water as a precaution.<br>Get medical attention if irritation develops and persists.                    |
| If swallowed  | : | If swallowed, DO NOT induce vomiting.<br>Get medical attention if symptoms occur.<br>Rinse mouth thoroughly with water. |
| Most important symptoms and effects, both acute and delayed | : | None known.   |
| Protection of first-aiders                                  | : | No special precautions are necessary for first aid responders.  |
| Notes to physician  | : | Treat symptomatically and supportively.   |
- 

### 5. FIREFIGHTING MEASURES

- |   |   |   |
|---|---|---|
| Suitable extinguishing media                  | : | Water spray<br>Alcohol-resistant foam<br>Carbon dioxide (CO <sub>2</sub> )<br>Dry chemical  |
| Unsuitable extinguishing media                | : | None known.   |
| Specific hazards during fire-fighting         | : | Exposure to combustion products may be a hazard to health.  |
| Hazardous combustion products                 | : | Carbon oxides   |
| Specific extinguishing methods                | : | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.<br>Use water spray to cool unopened containers.<br>Remove undamaged containers from fire area if it is safe to do so.<br>Evacuate area. |
| Special protective equipment for firefighters | : | Wear self-contained breathing apparatus for firefighting if necessary.<br>Use personal protective equipment.  |
- 

### 6. ACCIDENTAL RELEASE MEASURES

- |   |   |   |
|---|---|---|
| Personal precautions, protective equipment and emergency procedures | : | Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).  |
| Environmental precautions   | : | Avoid release to the environment.<br>Prevent further leakage or spillage if safe to do so.<br>Prevent spreading over a wide area (e.g. by containment or oil barriers).<br>Retain and dispose of contaminated wash water. |

## Cloprostamol Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 30.11.2023
2.8	08.12.2023	25310-00020	Date of first issue: 24.10.2014

Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up : Soak up with inert absorbent material.  
 For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbent.  
 Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.  
 Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

## 7. HANDLING AND STORAGE

Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation : Use only with adequate ventilation.

Advice on safe handling : Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment  
 Take care to prevent spills, waste and minimize release to the environment.

Conditions for safe storage : Keep in properly labelled containers.  
 Store in accordance with the particular national regulations.

Materials to avoid : Do not store with the following product types:  
 Strong oxidizing agents

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

## Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Sodium [1 $\alpha$ (Z),2 $\beta$ (1E,3R*),3 $\alpha$ ,5 $\alpha$ ]-(+/-)-7-[2-[4-(3-chlorophenoxy)-3-hydroxybut-1-enyl]-3,5-dihydroxycyclopentyl]hept-5-enoate	55028-72-3	TWA	0.01 ug/m <sup>3</sup> (OEB 5)	Internal
Further information: RSEN, Skin				
		Wipe limit	0.1 ug/100 cm <sup>2</sup>	Internal

Engineering measures : Use closed processing systems or containment technologies to control at source (e.g., glove boxes/isolators) and to prevent leakage of compounds into the workplace.

## Cloprostamol Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 30.11.2023
2.8	08.12.2023	25310-00020	Date of first issue: 24.10.2014

---

All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment.  
No open handling permitted.  
Totally enclosed processes and materials transport systems are required.  
Operations require the use of appropriate containment technology designed to prevent leakage of compounds into the workplace.

**Personal protective equipment**

- Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.
- Filter type : Organic vapour type
- Hand protection
- Material : Chemical-resistant gloves
- Remarks : Consider double gloving.
- Eye protection : Wear safety glasses with side shields or goggles.  
If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles.  
Wear a faceshield or other full face protection if there is a potential for direct contact to the face with dusts, mists, or aerosols.
- Skin and body protection : Work uniform or laboratory coat.  
Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, disposable suits) to avoid exposed skin surfaces.  
Use appropriate degowning techniques to remove potentially contaminated clothing.
- Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.  
When using do not eat, drink or smoke.  
Wash contaminated clothing before re-use.  
The effective operation of a facility should include review of engineering controls, proper personal protective equipment, appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the use of administrative controls.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

- Appearance : Aqueous solution
- Colour : clear
- Odour : No data available
- Odour Threshold : No data available

## Cloprostamol Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 30.11.2023
2.8	08.12.2023	25310-00020	Date of first issue: 24.10.2014

---

pH	:	5.6 - 6.1 (20 - 25 °C)
Melting point/freezing point	:	No data available
Initial boiling point and boiling range	:	No data available
Flash point	:	No data available
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable
Flammability (liquids)	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	No data available
Relative vapour density	:	No data available
Relative density	:	1
Density	:	No data available
Solubility(ies) Water solubility	:	soluble
Partition coefficient: n-octanol/water	:	Not applicable
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity Viscosity, kinematic	:	No data available
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Molecular weight	:	No data available
Particle size	:	Not applicable

**Cloprostenol Formulation**

Version 2.8      Revision Date: 08.12.2023      SDS Number: 25310-00020      Date of last issue: 30.11.2023  
Date of first issue: 24.10.2014

---

**10. STABILITY AND REACTIVITY**

Reactivity : Not classified as a reactivity hazard.  
Chemical stability : Stable under normal conditions.  
Possibility of hazardous reactions : Can react with strong oxidizing agents.  
Conditions to avoid : None known.  
Incompatible materials : Oxidizing agents  
Hazardous decomposition products : No hazardous decomposition products are known.

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**11. TOXICOLOGICAL INFORMATION**

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

**Acute toxicity**

Not classified based on available information.

**Product:**

Acute oral toxicity : Acute toxicity estimate: > 2,000 mg/kg  
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: > 5 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: Calculation method

**Components:****Benzyl alcohol:**

Acute oral toxicity : LD50 (Rat): 1,620 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 4.178 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 403

**Sodium [1 $\alpha$ (Z),2 $\beta$ (1E,3R\*),3 $\alpha$ ,5 $\alpha$ ]-(+/-)-7-[2-[4-(3-chlorophenoxy)-3-hydroxybut-1-enyl]-3,5-dihydroxycyclopentyl]hept-5-enoate:**

Acute oral toxicity : LD50 (Rat): > 25 mg/kg  
Remarks: No mortality observed at this dose.

Acute toxicity (other routes of administration) : LD50 (Rat): > 50 mg/kg  
Application Route: Subcutaneous

LD50 (Rat): > 50 mg/kg  
Application Route: Intramuscular

## Cloprostenol Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 30.11.2023
2.8	08.12.2023	25310-00020	Date of first issue: 24.10.2014

---

LD50 (Rat): 5 mg/kg  
Application Route: Intravenous  
Remarks: No mortality observed at this dose.

LD50 (Mouse): 350 mg/kg  
Application Route: Intramuscular

LD50 (Mouse): 54.7 mg/kg  
Application Route: Intravenous

TDL<sub>o</sub> (Monkey): 0.0025 - 0.025 mg/kg  
Application Route: Intramuscular  
Target Organs: Lungs  
Symptoms: Diarrhoea, Vomiting, Rapid respiration

TDL<sub>o</sub> (Monkey): 0.0013 mg/kg  
Application Route: Intramuscular  
Target Organs: ovaries

**Skin corrosion/irritation**

Not classified based on available information.

**Components:****Benzyl alcohol:**

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : No skin irritation

**Sodium [1 $\alpha$ (Z),2 $\beta$ (1E,3R\*),3 $\alpha$ ,5 $\alpha$ ]-(+/-)-7-[2-[4-(3-chlorophenoxy)-3-hydroxybut-1-enyl]-3,5-dihydroxycyclopentyl]hept-5-enoate:**

Remarks : Not classified due to lack of data.  
Can be absorbed through skin.

**Serious eye damage/eye irritation**

Not classified based on available information.

**Components:****Benzyl alcohol:**

Species : Rabbit  
Result : Irritation to eyes, reversing within 21 days  
Method : OECD Test Guideline 405

**Sodium [1 $\alpha$ (Z),2 $\beta$ (1E,3R\*),3 $\alpha$ ,5 $\alpha$ ]-(+/-)-7-[2-[4-(3-chlorophenoxy)-3-hydroxybut-1-enyl]-3,5-dihydroxycyclopentyl]hept-5-enoate:**

Remarks : Not classified due to lack of data.

## Cloprostamol Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 30.11.2023
2.8	08.12.2023	25310-00020	Date of first issue: 24.10.2014

---

**Respiratory or skin sensitisation****Skin sensitisation**

Not classified based on available information.

**Respiratory sensitisation**

Not classified based on available information.

**Components:****Benzyl alcohol:**

Test Type	:	Maximisation Test
Exposure routes	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	negative

**Sodium [1 $\alpha$ (Z),2 $\beta$ (1E,3R\*),3 $\alpha$ ,5 $\alpha$ ](+/-)-7-[2-[4-(3-chlorophenoxy)-3-hydroxybut-1-enyl]-3,5-dihydroxycyclopentyl]hept-5-enoate:**

Result	:	Sensitiser
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**Germ cell mutagenicity**

Not classified based on available information.

**Components:****Benzyl alcohol:**

Genotoxicity in vitro	:	Test Type: Bacterial reverse mutation assay (AMES) Result: negative
Genotoxicity in vivo	:	Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay) Species: Mouse Application Route: Intraperitoneal injection Result: negative

**Sodium [1 $\alpha$ (Z),2 $\beta$ (1E,3R\*),3 $\alpha$ ,5 $\alpha$ ](+/-)-7-[2-[4-(3-chlorophenoxy)-3-hydroxybut-1-enyl]-3,5-dihydroxycyclopentyl]hept-5-enoate:**

Genotoxicity in vitro	:	Test Type: Bacterial reverse mutation assay (AMES) Result: negative
		Test Type: In vitro mammalian cell gene mutation test Test system: mouse lymphoma cells Result: negative
		Test Type: Chromosomal aberration Test system: Human lymphocytes Result: equivocal
Genotoxicity in vivo	:	Test Type: Micronucleus test Species: Mouse



## Cloprostamol Formulation

Version 2.8      Revision Date: 08.12.2023      SDS Number: 25310-00020      Date of last issue: 30.11.2023  
Date of first issue: 24.10.2014

---

Cell type: Bone marrow  
Application Route: Intraperitoneal  
Result: negative

**Carcinogenicity**

Not classified based on available information.

**Components:****Benzyl alcohol:**

Species : Mouse  
Application Route : Ingestion  
Exposure time : 103 weeks  
Method : OECD Test Guideline 451  
Result : negative

**Sodium [1 $\alpha$ (Z),2 $\beta$ (1E,3R\*),3 $\alpha$ ,5 $\alpha$ ](+/-)-7-[2-[4-(3-chlorophenoxy)-3-hydroxybut-1-enyl]-3,5-dihydroxycyclopentyl]hept-5-enoate:**

Remarks : Not classified due to lack of data.

**Reproductive toxicity**

Not classified based on available information.

**Components:****Benzyl alcohol:**

Effects on fertility : Test Type: Fertility/early embryonic development  
Species: Rat  
Application Route: Ingestion  
Result: negative  
Remarks: Based on data from similar materials

Effects on foetal development : Test Type: Embryo-foetal development  
Species: Mouse  
Application Route: Ingestion  
Result: negative

**Sodium [1 $\alpha$ (Z),2 $\beta$ (1E,3R\*),3 $\alpha$ ,5 $\alpha$ ](+/-)-7-[2-[4-(3-chlorophenoxy)-3-hydroxybut-1-enyl]-3,5-dihydroxycyclopentyl]hept-5-enoate:**

Effects on fertility : Test Type: Three-generation study  
Species: Rat  
Application Route: Oral  
General Toxicity F1: NOAEL: 0.015 mg/kg body weight  
Fertility: NOAEL: > 0.04 mg/kg body weight  
Result: Animal testing did not show any effects on fertility.

Species: Cattle  
Application Route: Intramuscular  
General Toxicity - Parent: LOAEL: 0.16  $\mu$ g/kg  
Result: positive

## Cloprostenol Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 30.11.2023
2.8	08.12.2023	25310-00020	Date of first issue: 24.10.2014

---

Remarks: Abortion

Effects on foetal development : Test Type: Development  
Species: Rabbit  
Application Route: Subcutaneous  
Teratogenicity: NOAEL: 0.250 µg/kg  
Result: No teratogenic effects

Test Type: Development  
Species: Rat  
Application Route: Oral  
Teratogenicity: NOAEL: 100 µg/kg  
Result: No teratogenic effects

Reproductive toxicity - Assessment : May damage fertility.

**STOT - single exposure**

Not classified based on available information.

**Components:**

**Sodium [1α(Z),2β(1E,3R\*),3α,5α]-(+/-)-7-[2-[4-(3-chlorophenoxy)-3-hydroxybut-1-enyl]-3,5-dihydroxycyclopentyl]hept-5-enoate:**

Target Organs : Lungs  
Assessment : Causes damage to organs.

**STOT - repeated exposure**

Not classified based on available information.

**Components:**

**Sodium [1α(Z),2β(1E,3R\*),3α,5α]-(+/-)-7-[2-[4-(3-chlorophenoxy)-3-hydroxybut-1-enyl]-3,5-dihydroxycyclopentyl]hept-5-enoate:**

Target Organs : Ovary  
Assessment : Causes damage to organs through prolonged or repeated exposure.

**Repeated dose toxicity****Components:****Benzyl alcohol:**

Species : Rat  
NOAEL : 1.072 mg/l  
Application Route : inhalation (dust/mist/fume)  
Exposure time : 28 Days  
Method : OECD Test Guideline 412

**Sodium [1α(Z),2β(1E,3R\*),3α,5α]-(+/-)-7-[2-[4-(3-chlorophenoxy)-3-hydroxybut-1-enyl]-3,5-dihydroxycyclopentyl]hept-5-enoate:**

Species : Rat

## Cloprostamol Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 30.11.2023
2.8	08.12.2023	25310-00020	Date of first issue: 24.10.2014

---

NOAEL : 0.05 mg/kg  
 LOAEL : 0.15 mg/kg  
 Application Route : Oral  
 Exposure time : 3 Months  
 Target Organs : Ovary

Species : Rat  
 LOAEL : 0.0125 mg/kg  
 Application Route : Subcutaneous  
 Exposure time : 30 Days  
 Target Organs : Ovary

Species : Monkey  
 NOAEL : 0.05 mg/kg  
 LOAEL : 0.15 mg/kg  
 Application Route : Oral  
 Exposure time : 3 Months  
 Target Organs : Heart, Testis

**Aspiration toxicity**

Not classified based on available information.

**Components:**

**Sodium [1 $\alpha$ (Z),2 $\beta$ (1E,3R\*),3 $\alpha$ ,5 $\alpha$ ]-(+/-)-7-[2-[4-(3-chlorophenoxy)-3-hydroxybut-1-enyl]-3,5-dihydroxycyclopentyl]hept-5-enoate:**

Not applicable

**Experience with human exposure****Components:**

**Sodium [1 $\alpha$ (Z),2 $\beta$ (1E,3R\*),3 $\alpha$ ,5 $\alpha$ ]-(+/-)-7-[2-[4-(3-chlorophenoxy)-3-hydroxybut-1-enyl]-3,5-dihydroxycyclopentyl]hept-5-enoate:**

General Information	: Target Organs: Uterus (including cervix) Symptoms: Embryo-foetal toxicity, foetal mortality, menstrual irregularities, miscarriage Target Organs: Lungs Symptoms: Asthma, bronchospasm
Inhalation	: Target Organs: Lungs Symptoms: bronchospasm, Asthma Remarks: May cause sensitisation of susceptible persons by inhalation of aerosol or dust. Target Organs: Uterus (including cervix) Symptoms: Embryo-lethal effects, menstrual irregularities
Skin contact	: Target Organs: Lungs Symptoms: bronchospasm Remarks: Can be absorbed through skin. Target Organs: Uterus (including cervix) Symptoms: Embryo-lethal effects

## Cloprostenol Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 30.11.2023
2.8	08.12.2023	25310-00020	Date of first issue: 24.10.2014

---

## 12. ECOLOGICAL INFORMATION

## Ecotoxicity

**Components:****Benzyl alcohol:**

- Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 460 mg/l  
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 230 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202
- Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 770 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201
- NOEC (Pseudokirchneriella subcapitata (green algae)): 310 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 51 mg/l  
Exposure time: 21 d  
Method: OECD Test Guideline 211

**Sodium [1 $\alpha$ (Z),2 $\beta$ (1E,3R\*),3 $\alpha$ ,5 $\alpha$ ]-(+/-)-7-[2-[4-(3-chlorophenoxy)-3-hydroxybut-1-enyl]-3,5-dihydroxycyclopentyl]hept-5-enoate:****Ecotoxicology Assessment**

- Acute aquatic toxicity : Toxic effects cannot be excluded
- Chronic aquatic toxicity : Toxic effects cannot be excluded

**Persistence and degradability****Components:****Benzyl alcohol:**

- Biodegradability : Result: Readily biodegradable.  
Biodegradation: 92 - 96 %  
Exposure time: 14 d

**Bioaccumulative potential****Components:****Benzyl alcohol:**

- Partition coefficient: n- : log Pow: 1.05

## Cloprostenol Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 30.11.2023
2.8	08.12.2023	25310-00020	Date of first issue: 24.10.2014

---

octanol/water

### Mobility in soil

No data available

### Other adverse effects

No data available

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## 13. DISPOSAL CONSIDERATIONS

### Disposal methods

- |                        |   |   |
|------------------------|---|---|
| Waste from residues    | : | Do not dispose of waste into sewer.<br>Dispose of in accordance with local regulations.   |
| Contaminated packaging | : | Empty containers should be taken to an approved waste handling site for recycling or disposal.<br>If not otherwise specified: Dispose of as unused product. |
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## 14. TRANSPORT INFORMATION

### International Regulations

#### UNRTDG

- |                      |   |                |
|----------------------|---|----------------|
| UN number            | : | Not applicable |
| Proper shipping name | : | Not applicable |
| Class                | : | Not applicable |
| Subsidiary risk      | : | Not applicable |
| Packing group        | : | Not applicable |
| Labels               | : | Not applicable |

#### IATA-DGR

- |  |   |                |
|--|---|----------------|
| UN/ID No.                                | : | Not applicable |
| Proper shipping name                     | : | Not applicable |
| Class                                    | : | Not applicable |
| Subsidiary risk                          | : | Not applicable |
| Packing group                            | : | Not applicable |
| Labels                                   | : | Not applicable |
| Packing instruction (cargo aircraft)     | : | Not applicable |
| Packing instruction (passenger aircraft) | : | Not applicable |

#### IMDG-Code

- |                      |   |                |
|----------------------|---|----------------|
| UN number            | : | Not applicable |
| Proper shipping name | : | Not applicable |
| Class                | : | Not applicable |
| Subsidiary risk      | : | Not applicable |
| Packing group        | : | Not applicable |
| Labels               | : | Not applicable |
| EmS Code             | : | Not applicable |
| Marine pollutant     | : | Not applicable |

### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

## Cloprostenol Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 30.11.2023
2.8	08.12.2023	25310-00020	Date of first issue: 24.10.2014

---

### Special precautions for user

Not applicable

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## 15. REGULATORY INFORMATION

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

**Workplace Safety and Health Act and Workplace Safety and Health (General Provisions) Regulations: This product is subjected to the SDS, labelling, PEL and other requirements in the Act/Regulations.**

Environmental Protection and Management Act and : Not applicable  
Environmental Protection and Management (Hazardous Substances) Regulations

Fire Safety (Petroleum and Flammable Materials) : Not applicable  
Regulations

### The components of this product are reported in the following inventories:

AICS : not determined

DSL : not determined

IECSC : not determined

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## 16. OTHER INFORMATION

Revision Date : 08.12.2023

### Further information

Sources of key data used to : Internal technical data, data from raw material SDSs, OECD  
compile the Safety Data eChem Portal search results and European Chemicals Agen-  
Sheet cy, <http://echa.europa.eu/>

Date format : dd.mm.yyyy

### Full text of other abbreviations

AllC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); 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; ERG - Emergency Response Guide; 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 Chemi-

**Cloprostenol Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 30.11.2023
2.8	08.12.2023	25310-00020	Date of first issue: 24.10.2014

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cal 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; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; 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 Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; 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; WHMIS - Workplace Hazardous Materials Information System

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 is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

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