SAFETY DATA SHEET

Diminazene / Phenazone Formulation

1.1 Product identifier
Trade name : Diminazene / Phenazone Formulation

1.2 Relevant identified uses of the substance or mixture and uses advised against
Use of the Substance/Mixture : Veterinary product

1.3 Details of the supplier of the safety data sheet
Company : MSD
20 Spartan Road
1619 Spartan, South Africa

Telephone : +27119239300

E-mail address of person responsible for the SDS : EHSDATASTEWARD@msd.com

1.4 Emergency telephone number
+1-908-423-6000

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Skin irritation, Category 2 : H315: Causes skin irritation.
Specific target organ toxicity - single exposure, Category 1 : H370: Causes damage to organs.
Specific target organ toxicity - repeated exposure, Category 1 : H372: Causes damage to organs through prolonged or repeated exposure.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms : ⚠️

Signal word : Danger

Hazard statements : H315 Causes skin irritation.
H370 Causes damage to organs.
H372 Causes damage to organs through prolonged or repeated exposure.

Precautionary statements : Prevention:
P264 Wash skin thoroughly after handling.
SAFETY DATA SHEET

Diminazene / Phenazone Formulation

Version: 2.4  Revision Date: 27.08.2021  SDS Number: 4834925-00006  Date of last issue: 09.04.2021
Date of first issue: 10.09.2019

P270  Do not eat, drink or smoke when using this product.
P280  Wear protective gloves.

Response:
P308 + P311  IF exposed or concerned: Call a POISON CENTER/ doctor.
P332 + P313  If skin irritation occurs: Get medical advice/ attention.
P362 + P364  Take off contaminated clothing and wash it before reuse.

Hazardous components which must be listed on the label:
Diminazene

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.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No. EC-No. Index-No. Registration number</th>
<th>Classification</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diminazene</td>
<td>536-71-0 208-644-6</td>
<td>Skin Irrit. 2; H315 STOT SE 1; H370 (Brain) STOT RE 1; H372 (Brain)</td>
<td>&gt;= 30 - &lt; 50</td>
</tr>
<tr>
<td>Phenazone</td>
<td>60-80-0 200-486-6</td>
<td>Acute Tox. 4; H302</td>
<td>&gt;= 1 - &lt; 10</td>
</tr>
</tbody>
</table>

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice:
In the case of accident or if you feel unwell, seek medical advice immediately. When symptoms persist or in all cases of doubt seek medical advice.

Protection of first-aiders:
First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).

If inhaled:
If inhaled, remove to fresh air.
Get medical attention if symptoms occur.

In case of skin contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

In case of eye contact: Flush eyes with water as a precaution. Get medical attention if irritation develops and persists.

If swallowed: If swallowed, DO NOT induce vomiting unless directed to do so by medical personnel. Get medical attention. Rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed
Risks: Causes skin irritation. Causes damage to organs. Causes damage to organs through prolonged or repeated exposure.

4.3 Indication of any immediate medical attention and special treatment needed
Treatment: Treat symptomatically and supportively.

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing media: Water spray
Alcohol-resistant foam
Carbon dioxide (CO2)
Dry chemical

Unsuitable extinguishing media: None known.

5.2 Special hazards arising from the substance or mixture
Specific hazards during firefighting: Exposure to combustion products may be a hazard to health.

Hazardous combustion products: Carbon oxides
Nitrogen oxides (NOx)

5.3 Advice for firefighters
Special protective equipment for firefighters: In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

Specific extinguishing methods: Use extinguishing measures that are appropriate to local cir-
ods

cumstances and the surrounding environment.
Use water spray to cool unopened containers.
Remove undamaged containers from fire area if it is safe to do
so.
Evacuate area.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Personal precautions : Use personal protective equipment.
Follow safe handling advice (see section 7) and personal pro-
tective equipment recommendations (see section 8).

6.2 Environmental precautions
Environmental precautions : Avoid release to the environment.
Prevent further leakage or spillage if safe to do so.
Prevent spreading over a wide area (e.g. by containment or oil
barriers).
Retain and dispose of contaminated wash water.
Local authorities should be advised if significant spillages
cannot be contained.

6.3 Methods and material for containment and cleaning up
Methods for cleaning up : Soak up with inert absorbent material.
For large spills, provide dyking or other appropriate contain-
ment 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 absorb-
ent.
Local or national regulations may apply to releases and dis-
posal of this material, as well as those materials and items
employed in the cleanup of releases. You will need to deter-
mine which regulations are applicable.
Sections 13 and 15 of this SDS provide information regarding
certain local or national requirements.

6.4 Reference to other sections
See sections: 7, 8, 11, 12 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Technical measures : See Engineering measures under EXPOSURE
CONTROLS/PERSONAL PROTECTION section.
Local/Total ventilation : Use only with adequate ventilation.
Advice on safe handling : Do not get on skin or clothing.
Do not breathe mist or vapours.
Do not swallow.
Avoid contact with eyes.
Wash skin thoroughly after handling.
Handle in accordance with good industrial hygiene and safety
practice, based on the results of the workplace exposure assessment.
Do not eat, drink or smoke when using this product.
Take care to prevent spills, waste and minimize release to the environment.

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.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers

Keep in properly labelled containers. Store locked up. Store in accordance with the particular national regulations.

Advice on common storage

Do not store with the following product types:
Strong oxidizing agents
Organic peroxides
Explosives
Gases

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diminazene</td>
<td>536-71-0</td>
<td>TWA</td>
<td>200 µg/m³ (OEB 2)</td>
<td>Internal</td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Engineering measures

Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., drip-less quick connections).
All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment.
Laboratory operations do not require special containment.

Personal protective equipment

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 face shield or other full face protection if there is a potential for direct contact to the face with dusts, mists, or aerosols.
Hand protection
   Material : Chemical-resistant gloves

Skin and body protection : Work uniform or laboratory coat.
Respiratory protection  : If adequate local exhaust ventilation is not available or expo-
                         sure assessment demonstrates exposures outside the rec-
                         ommended guidelines, use respiratory protection.
   Filter type : Particles type (P)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

   Appearance : liquid
   Colour : yellow-orange
   Odour : No data available
   Odour Threshold : No data available
   pH : 5,0 - 7,0
   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
   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 : No data available
   Density : No data available
   Solubility(ies)
      Water solubility : No data available
      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.

### 9.2 Other information
- **Flammability (liquids):** No data available
- **Molecular weight:** No data available
- **Particle size:** Not applicable

## SECTION 10: Stability and reactivity

### 10.1 Reactivity
- Not classified as a reactivity hazard.

### 10.2 Chemical stability
- Stable under normal conditions.

### 10.3 Possibility of hazardous reactions
- Hazardous reactions:
  - Can react with strong oxidizing agents.

### 10.4 Conditions to avoid
- Conditions to avoid:
  - None known.

### 10.5 Incompatible materials
- Materials to avoid:
  - Oxidizing agents

### 10.6 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:** 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

#### Components:
- **Diminazene:**
  - Acute toxicity (other routes of):
    - LD50 (Rat): 663 mg/kg
SAFETY DATA SHEET

Diminazene / Phenazone Formulation

Application Route: Subcutaneous

LD50 (Mouse): 258 mg/kg
Application Route: Subcutaneous

LDLo (Dog): 20 mg/kg
Application Route: Intramuscular

Phenazone:
Acute oral toxicity: LD50 (Cat): 1.250 mg/kg
Acute toxicity estimate: 1.250 mg/kg
Method: Calculation method

Skin corrosion/irritation
Causes skin irritation.

Components:

Diminazene:
Species: Rabbit
Result: Skin irritation

Serious eye damage/eye irritation
Not classified based on available information.

Respiratory or skin sensitisation

Skin sensitisation
Not classified based on available information.

Respiratory sensitisation
Not classified based on available information.

Germ cell mutagenicity
Not classified based on available information.

Components:

Diminazene:
Genotoxicity in vitro: Test Type: Microbial mutagenesis assay (Ames test)
Test system: Salmonella typhimurium
Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay)
Result: negative

Test Type: Micronucleus test
Test system: Mouse
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster cells
Result: negative

Genotoxicity in vivo: Test Type: Micronucleus test
Species: Mouse
Result: negative

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

**Phenazone:**

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: Ingestion
  Method: OECD Test Guideline 474
  Result: negative

  Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
  Species: Rat
  Application Route: Ingestion
  Result: negative

**Carcinogenicity**
Not classified based on available information.

**Reproductive toxicity**
Not classified based on available information.

**Components:**

**Diminazene:**

Effects on foetal development
: Test Type: reproductive and developmental toxicity study
  Species: Rat
  Application Route: Oral
  General Toxicity Maternal: LOAEL: 800 mg/kg body weight
  Developmental Toxicity: LOAEL: 800 mg/kg body weight
  Symptoms: Skeletal malformations, Embryo-foetal toxicity

  Test Type: reproductive and developmental toxicity study
  Species: Rat
  Application Route: Oral
  General Toxicity Maternal: NOAEL: 400 mg/kg body weight
  Developmental Toxicity: NOAEL: 400 mg/kg body weight

Reproductive toxicity - Assessment
: Experiments have shown reproductive toxicity effects on laboratory animals.

**Phenazone:**

Effects on fertility
: Test Type: Two-generation reproduction toxicity study
  Species: Rat
  Application Route: Ingestion
  Result: negative
STOT - single exposure
Causes damage to organs.

Components:
Diminazene:
Exposure routes : Oral
Target Organs : Brain
Assessment : Shown to produce significant health effects in animals at concentrations of 1000 mg/kg bw or less.

STOT - repeated exposure
Causes damage to organs through prolonged or repeated exposure.

Components:
Diminazene:
Exposure routes : Oral
Target Organs : Brain
Assessment : Causes damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Components:
Diminazene:
Species : Rat
NOAEL : 63 mg/kg
Application Route : Oral
Exposure time : 3 Months

Species : Rat
NOAEL : 300 mg/kg
Application Route : Oral
Exposure time : 9 Months

Species : Dog
LOAEL : 60 mg/kg
Application Route : Oral
Exposure time : 9 Months
Target Organs : Brain, Testis
Symptoms : Disorder

Phenazone:
Species : Dog
NOAEL : 63 mg/kg
Application Route : Ingestion
Exposure time : 6 Months

Aspiration toxicity
Not classified based on available information.
Experience with human exposure

Components:

Diminazene:
Ingestion:
- Target Organs: Stomach
- Symptoms: Vomiting
- Target Organs: Central nervous system
- Symptoms: paralysis
- Target Organs: Immune system
- Symptoms: Fever

SECTION 12: Ecological information

12.1 Toxicity

Components:

Phenazone:
Toxicity to fish:
- LC50 (Oryzias latipes (Japanese medaka)): > 100 mg/l
  Exposure time: 96 h
  Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates:
- EC50 (Daphnia magna (Water flea)): >= 1.000 mg/l
  Exposure time: 48 h
  Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants:
- ErC50 (Selenastrum capricornutum (green algae)): > 1.000 mg/l
  Exposure time: 72 h
  Method: OECD Test Guideline 201
  NOEC (Selenastrum capricornutum (green algae)): 10 mg/l
  Exposure time: 72 h
  Method: OECD Test Guideline 201

Toxicity to microorganisms:
- EC50: 16.900 mg/l
  Exposure time: 48 h

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
- NOEC: 100 mg/l
  Exposure time: 21 d
  Species: Daphnia magna (Water flea)
  Method: OECD Test Guideline 211

12.2 Persistence and degradability

Components:

Phenazone:
Biodegradability:
- Result: Not inherently biodegradable.
- Biodegradation: 50 %
- Exposure time: 20 d
12.3 Bioaccumulative potential

**Components:**

**Phenazone:**
Partition coefficient: n-octanol/water: \( \log \text{Pow} = 0.38 \)

12.4 Mobility in soil

No data available

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.

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.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

**Product:**
Dispose of in accordance with local regulations. According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

**Contaminated packaging:**
Empty containers should be taken to an approved waste handling site for recycling or disposal. If not otherwise specified: Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number
Not regulated as a dangerous good

14.2 UN proper shipping name
Not regulated as a dangerous good

14.3 Transport hazard class(es)
Not regulated as a dangerous good

14.4 Packing group
Not regulated as a dangerous good
SAFETY DATA SHEET

Diminazene / Phenazone Formulation

Version 2.4  Revision Date: 27.08.2021  SDS Number: 4834925-00006  Date of last issue: 09.04.2021  Date of first issue: 10.09.2019

14.5 Environmental hazards
Not regulated as a dangerous good

14.6 Special precautions for user
Not applicable

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code
Remarks: Not applicable for product as supplied.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
The components of this product are reported in the following inventories:
- AICS: not determined
- DSL: not determined
- IECSC: not determined

15.2 Chemical safety assessment
A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Other information: Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

Full text of H-statements
- H302: Harmful if swallowed.
- H315: Causes skin irritation.
- H370: Causes damage to organs if swallowed.
- H372: Causes damage to organs through prolonged or repeated exposure if swallowed.

Full text of other abbreviations
- Acute Tox.: Acute toxicity
- Skin Irrit.: Skin irritation
- STOT RE: Specific target organ toxicity - repeated exposure
- STOT SE: Specific target organ toxicity - single exposure

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AIIIC - 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 - Interna-
SAFETY DATA SHEET

Diminazene / Phenazon Formulation

Version 2.4 Revision Date: 27.08.2021 SDS Number: 4834925-00006 Date of last issue: 09.04.2021

Classification of the mixture:

<table>
<thead>
<tr>
<th>Skin Irrit.</th>
<th>H315</th>
<th>Classification procedure:</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOT SE 1</td>
<td>H370</td>
<td>Calculation method</td>
</tr>
<tr>
<td>STOT RE 1</td>
<td>H372</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

Further information

Sources of key data used to compile the Safety Data Sheet:


Classification procedure:

- 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 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.

ZA / EN