SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Diminazene / Phenazone Formulation

Manufacturer or supplier’s details

Company name of supplier: MSD
Address: Avenida 16 de Septiembre No. 301
Xaltocan - Xochimilco Mexico 16090
Telephone: 52 55 57284444
Telefax: 908-735-1496
Emergency telephone: 1-908-423-6000
E-mail address: EHSDATASTEWARD@msd.com

Recommended use of the chemical and restrictions on use
Recommended use: Veterinary product

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Skin irritation: Category 2
Specific target organ toxicity - single exposure (Oral): Category 1 (Brain)
Specific target organ toxicity - repeated exposure (Oral): Category 1 (Brain)

GHS label elements

Hazard pictograms:

Signal Word: Danger

Hazard Statements:
H315 Causes skin irritation.
H370 Causes damage to organs (Brain) if swallowed.
H372 Causes damage to organs (Brain) through prolonged or repeated exposure if swallowed.

Precautionary Statements:

Prevention:
P260 Do not breathe mist or vapors.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves.

Response:
P302 + P352 IF ON SKIN: Wash with plenty of water.
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
SAFETY DATA SHEET

Diminazene / Phenazone Formulation

Section 1: Identification

- **Identification:** Diminazene / Phenazone Formulation
- **Revision Date:** 23.03.2020
- **SDS Number:** 4834920-00003
- **Date of last issue:** 09.10.2019
- **Date of first issue:** 10.09.2019

Section 2: Hazards Identification

- **Other hazards:** None known.

Section 3: Composition/Information on Ingredients

**Substance / Mixture:** Mixture

**Components:**

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diminazene</td>
<td>536-71-0</td>
<td>&gt;= 30 &lt; 50</td>
</tr>
<tr>
<td>Phenazone</td>
<td>60-80-0</td>
<td>&gt;= 5 &lt; 10</td>
</tr>
</tbody>
</table>

Section 4: 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.

- **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.

- **Most important symptoms and effects, both acute and delayed:** Causes skin irritation. Causes damage to organs if swallowed. Causes damage to organs through prolonged or repeated exposure if swallowed.

- **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).

- **Notes to physician:** Treat symptomatically and supportively.

Section 5: Fire-Fighting Measures

- **Fire-fighting measures:**
  - **Extinguishing media:** Suitable extinguishing media.
  - **Special hazards:** None known.
  - **Extinguishing media:** Suitable extinguishing media.
  - **Special hazards:** None known.
  - **Precautions to be taken:** None known.

- **Personnel protection:** Personal protective equipment should be used in the case of fire or spillage (see section 8).

Section 6: Accidental Release Measures

- **Personal precautions:** None known.

- **Environmental precautions:** None known.

- **Clean-up procedures:** None known.

Section 7: Handling and Storage

- **Handling:** None known.

- **Storing:** Store locked up.

- **Disposal:** Dispose of contents/container to an approved waste disposal plant.

- **Other hazards:** None known.

Section 8: Exposure Controls / Personal Protection

- **Respiratory protection:** None known.

- **Protective clothing and equipment:** None known.

- **Eye protection:** None known.

- **Hand protection:** None known.

- **Skin protection:** None known.

- **Other personal protection:** None known.

Section 9: Physical and Chemical Properties

- **Appearance:** None known.

- **Odour:** None known.

- **Odour threshold:** None known.

- **Specific gravity:** None known.

- **Flash point:** None known.

- **Ignitability:** None known.

- **Reactivity:** None known.

Section 10: Stability and Reactivity

- **Stability:** None known.

- **Reactivity:** None known.

- **Incompatible materials:** None known.

- **Hazardous degradation products:** None known.

Section 11: Toxicological Information

- **Toxicological effects:** None known.

- **Carcinogenicity:** None known.

- **Mutagenicity:** None known.

- **Teratogenicity:** None known.

- **Reproductive toxicity:** None known.

Section 12: Ecological Information

- **Toxicity of the substance to aquatic life:** None known.

- **Toxicity to algae:** None known.

- **Toxicity to fish:** None known.

- **Toxicity to amphibians:** None known.

- **Toxicity to other aquatic life:** None known.

- **Persistence and degradability:** None known.

- **Bioaccumulation:** None known.

- **Toxicity to soil:** None known.

Section 13: Disposal Considerations

- **Disposal methods:** Dispose of contents/container to an approved waste disposal plant.

- **Precautions to be taken when using:** None known.

Section 14: Transport Information

- **Transport classification:** None known.

- **Shipping name:** None known.

- **UN number:** None known.

- **Risk phrases:** None known.

- **Safety phrases:** None known.

Section 15: Regulatory Information

- **Regulatory classification:** None known.

- **Labels:** None known.

- **Safety data sheet:** None known.
SAFETY DATA SHEET

Diminazene / Phenazone Formulation

Version 2.1
Revision Date: 23.03.2020
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Date of first issue: 10.09.2019

Suitable extinguishing media: Water spray
Alcohol-resistant foam
Carbon dioxide (CO2)
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
Nitrogen oxides (NOx)

Specific extinguishing methods:
Use extinguishing measures that are appropriate to local circumstances 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.

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

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:
Use personal protective equipment.
Follow safe handling advice and personal protective equipment recommendations.

Environmental precautions:
Discharge into the environment must be avoided.
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.

Methods and materials for containment and cleaning up:
Soak up with inert absorbent material.
For large spills, provide diking or other appropriate containment to keep material from spreading. If diked 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.

SECTION 7. HANDLING AND STORAGE

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

Local/Total ventilation:
Use only with adequate ventilation.

Advice on safe handling:
Do not get on skin or clothing.
Avoid inhalation of vapor or mist.
Do not swallow.
Avoid contact with eyes.
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.

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.

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

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

SECTION 8. EXPOSURE CONTROLS/PERSOAL PROTECTION

Ingredients with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</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>

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

Respiratory protection:
If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.

Filter type:
Particulates type

Hand protection:
Material:
Chemical-resistant gloves

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.

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- **Appearance**: liquid
- **Color**: yellow-orange
- **Odor**: No data available
- **Odor 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
- **Flammability (liquids)**: No data available
- **Upper explosion limit / Upper flammability limit**: No data available
- **Lower explosion limit / Lower flammability limit**: No data available
- **Vapor pressure**: No data available
- **Relative vapor density**: No data available
- **Relative density**: No data available
- **Density**: No data available
- **Solubility(ies)**: water solubility
  - **Water solubility**: No data available
- **Partition coefficient: n-octanol/water**: Not applicable
- **Autoignition 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

SECTION 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.

SECTION 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: > 5,000 mg/kg
Method: Calculation method

Components:

Diminazene:
Acute toxicity (other routes of administration) : LD50 (Rat): 663 mg/kg
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
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 sensitization

Skin sensitization
Not classified based on available information.

Respiratory sensitization
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 fetal 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-fetal 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 (Brain) if swallowed.

Components:

Diminazene:
Routes of exposure: 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 (Brain) through prolonged or repeated exposure if swallowed.
Components:

Diminazene:
Routes of exposure: 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
SAFETY DATA SHEET

Diminazene / Phenazone Formulation

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

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

- Toxicity to microorganisms:
  - EC50: 16,900 mg/l
  - Exposure time: 48 h

Persistence and degradability

Components:

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

Bioaccumulative potential

Components:

**Phenazone:**
- Partition coefficient: n-octanol/water: log Pow: 0.38

Mobility in soil
- No data available

Other adverse effects
- No data available
SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods
Waste from residues : Dispose of in accordance with local regulations.
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

International Regulations

UNRTDG
Not regulated as a dangerous good

IATA-DGR
Not regulated as a dangerous good

IMDG-Code
Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

Domestic regulation

NOM-002-SCT
Not regulated as a dangerous good

Special precautions for user
Not applicable

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture
Federal Law for the control of chemical precursors, essential chemical products and machinery for producing capsules, tablets and pills.: Not applicable

The ingredients of this product are reported in the following inventories:
AICS : not determined
DSL : not determined
IECSC : not determined

SECTION 16. OTHER INFORMATION

Full text of other abbreviations
SAFETY DATA SHEET

Diminazene / Phenazone Formulation

Version 2.1  
Revision Date: 23.03.2020  
SDS Number: 4834920-00003  
Date of last issue: 09.10.2019

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

Revision Date: 23.03.2020

The information is considered as correct, but not exhaustive, and will be used only as a guide, which is based in the current knowledge of the substance or mixture, and is applicable to proper safety precautions for the product.

MX / Z8