SAFETY DATA SHEET

Flunixin Liquid (with Alcohol) Formulation

Version: 3.2  Revision Date: 09/13/2019  SDS Number: 954146-00008  Date of last issue: 24.04.2019
Date of first issue: 28.10.2016

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Flunixin Liquid (with Alcohol) Formulation

Manufacturer or supplier’s details
Company: MSD
Address: Rua Coronel Bento Soares, 530
          Cruzeiro - Sao Paulo - Brazil  CEP 12730-340
Telephone: 908-740-4000
Emergency telephone: 1-908-423-6000
E-mail address: EHSDATATESTeward@msd.com
Telefax: 908-735-1496

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

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification in accordance with ABNT NBR 14725 Standard
Flammable liquids: Category 3
Acute toxicity (Oral): Category 4
Acute toxicity (Inhalation): Category 2
Serious eye damage: Category 1
Specific target organ toxicity - repeated exposure: Category 1 (Gastrointestinal tract, Kidney, Blood)
Short-term (acute) aquatic hazard: Category 3
Long-term (chronic) aquatic hazard: Category 3

GHS label elements in accordance with ABNT NBR 14725 Standard
Hazard pictograms:

Signal Word: Danger
Hazard Statements: H226 Flammable liquid and vapor.
H302 Harmful if swallowed.
H318 Causes serious eye damage.
H330 Fatal if inhaled.
H372 Causes damage to organs (Gastrointestinal tract, Kidney, Blood) through prolonged or repeated exposure.
H412 Harmful to aquatic life with long lasting effects.

Precautionary Statements:

Prevention:
P210 Keep away from heat/sparks/open flames/hot surfaces.
No smoking.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
P314 Get medical advice/ attention if you feel unwell.

Other hazards which do not result in classification
Vapors may form explosive mixture with air.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Classification</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Pyrrolidone</td>
<td>616-45-5</td>
<td>Eye irritation, Category 2B</td>
<td>&gt;= 30 &lt; 50</td>
</tr>
<tr>
<td>Benzyl alcohol</td>
<td>100-51-6</td>
<td>Acute toxicity (Oral), Category 4</td>
<td>&gt;= 20 &lt; 30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acute toxicity (Inhalation), Category 4</td>
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<tr>
<td></td>
<td></td>
<td>Eye irritation, Category 2A</td>
<td></td>
</tr>
<tr>
<td>1-Deoxy-1-(methylamino)-D-glucitol 2-[2-methyl-3-(perfluoromethyl)anilino]nicotinate</td>
<td>42461-84-7</td>
<td>Acute toxicity (Oral), Category 3</td>
<td>&gt;= 10 &lt; 20</td>
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<tr>
<td></td>
<td></td>
<td>Acute toxicity (Inhalation), Category 2</td>
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<tr>
<td></td>
<td></td>
<td>Serious eye damage, Category 1</td>
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<td></td>
<td>Specific target organ toxicity - single exposure,</td>
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<td>Category 3</td>
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<td>Specific target organ toxicity - repeated</td>
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</tbody>
</table>
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## Flunixin Liquid (with Alcohol) Formulation

<table>
<thead>
<tr>
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</thead>
</table>

### Exposure:
- Short-term (acute) aquatic hazard, Category 1
- Long-term (chronic) aquatic hazard, Category 2

<table>
<thead>
<tr>
<th>L-menthol</th>
<th>2216-51-5</th>
<th>Acute toxicity (Inhalation), Category 5</th>
<th>&gt;= 10 -&lt; 20</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Skin irritation, Category 2</td>
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<tr>
<td></td>
<td></td>
<td>Eye irritation, Category 2B</td>
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<tr>
<td></td>
<td></td>
<td>Short-term (acute) aquatic hazard, Category 3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Propan-2-ol</th>
<th>67-63-0</th>
<th>Flammable liquids, Category 2</th>
<th>&gt;= 5 -&lt; 10</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Eye irritation, Category 2A</td>
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<tr>
<td></td>
<td></td>
<td>Specific target organ toxicity - single exposure, Category 3</td>
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</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. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**In case of skin contact**: In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

**In case of eye contact**: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lens, if worn. Get medical attention immediately.

**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**: Harmful if swallowed. Causes serious eye damage.
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<th>Date of first issue:</th>
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</thead>
</table>

delayed
Fatal if inhaled.
Causes damage to organs through prolonged or repeated exposure.

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

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

Unsuitable extinguishing media
- High volume water jet

Specific hazards during fire fighting
- Do not use a solid water stream as it may scatter and spread fire.
- Flash back possible over considerable distance.
- Vapors may form explosive mixtures with air.
- Exposure to combustion products may be a hazard to health.

Hazardous combustion products
- Carbon oxides
- Fluorine compounds
- 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
- Evacuate personnel to safe areas.
- Only trained personnel should re-enter the area.
- Remove all sources of ignition.
- 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
- Non-sparking tools should be used.
- Soak up with inert absorbent material.
- Suppress (knock down) gases/vapors/mists with a water spray jet.
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/PERSONAL PROTECTION section.

Local/Total ventilation:
- If sufficient ventilation is unavailable, use with local exhaust ventilation.
- If advised by assessment of the local exposure potential, use only in an area equipped with explosion-proof exhaust ventilation.

Advice on safe handling:
- Do not breathe vapors or spray mist.
- Do not swallow.
- Do not get in eyes.
- Avoid prolonged or repeated contact with skin.
- Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment
- Non-sparking tools should be used.
- Keep container tightly closed.
- Keep away from heat and sources of ignition.
- Take precautionary measures against static discharges.
- 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.
- Keep tightly closed.
- Keep in a cool, well-ventilated place.
- Store in accordance with the particular national regulations.
- Keep away from heat and sources of ignition.

Materials to avoid:
- Do not store with the following product types:
  - Strong oxidizing agents
  - Organic peroxides
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Flammable liquids
Flammable solids
Pyrophoric liquids
Pyrophoric solids
Self-heating substances and mixtures
Substances and mixtures which in contact with water emit flammable gases
Explosives
Gases

SECTION 8. EXPOSURE CONTROLS/PERSONAL 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>1-Deoxy-1-(methylamino)-D-glucitol 2-[2-methyl-3-(perfluoromethyl)anilino]nicotinate</td>
<td>42461-84-7</td>
<td>TWA</td>
<td>40 µg/m³ (OEB 3)</td>
<td>Internal</td>
</tr>
<tr>
<td>Propan-2-ol</td>
<td>67-63-0</td>
<td>LT</td>
<td>310 ppm 765 mg/m³</td>
<td>BR OEL</td>
</tr>
<tr>
<td>Further information: Absorption through the skin, Degree of harmfulness: medium</td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>200 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>400 ppm</td>
<td>ACGIH</td>
</tr>
</tbody>
</table>

Biological occupational exposure limits

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Biological specimen</th>
<th>Sampling time</th>
<th>Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propan-2-ol</td>
<td>67-63-0</td>
<td>Acetone</td>
<td>Urine</td>
<td>End of shift at end of workweek</td>
<td>40 mg/l</td>
<td>ACGIH BEI</td>
</tr>
</tbody>
</table>

Engineering measures

Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., dripless 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.
Containment technologies suitable for controlling compounds are required to control at source and to prevent migration of the compound to uncontrolled areas (e.g., open-face containment devices).
Minimize open handling.

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
Hand protection
Material
Remarks
Eye protection
Skin and body protection

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Color
Odor
Odor Threshold
pH
Melting point/freezing point
Initial boiling point and boiling range
Flash point
Evaporation rate
Flammability (solid, gas)
Flammability (liquids)
Upper explosion limit / Upper flammability limit
Lower explosion limit / Lower flammability limit
Vapor pressure

: liquid
: yellow
: mint-like
: No data available
: 8.0
: < -20 °C
: No data available
: 43,33 °C
: No data available
: Not applicable
: Not applicable
: No data available
: No data available
: No data available
: No data available
: No data available
Relative vapor density: No data available
Relative density: No data available
Density: 1.05 g/cm³
Solubility(ies) Water solubility: No data available
Partition coefficient: n-octanol/water: Not applicable
Autoignition temperature: No data available
Decomposition temperature: No data available
Viscosity Visosity, kinematic: No data available
Explosive properties: Not explosive
Oxidizing properties: The substance or mixture is not classified as oxidizing.
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: Flammable liquid and vapor. Vapors may form explosive mixture with air. Can react with strong oxidizing agents.
Conditions to avoid: Heat, flames and sparks.
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
Harmful if swallowed.
Fatal if inhaled.

Product:
Acute oral toxicity: Acute toxicity estimate: 306.94 mg/kg
Method: Calculation method
Acute inhalation toxicity: Acute toxicity estimate: 0.301 mg/l
Components:

2-Pyrrolidone:
Acute oral toxicity: LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity: LC0 (Rat): 0.061 mg/l
Exposure time: 8 h
Test atmosphere: vapor

Acute dermal toxicity: LD50 (Rabbit): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

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

1-Deoxy-1-(methylamino)-D-glucitol 2-[2-methyl-3-(perfluoromethyl)anilino]nicotinate:
Acute oral toxicity: LD50 (Rat): 53 - 157 mg/kg
LD50 (Mouse): 176 - 249 mg/kg
LD50 (Guinea pig): 488.3 mg/kg
LD50 (Monkey): 300 mg/kg

Acute inhalation toxicity: LC50 (Rat): < 0.52 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute toxicity (other routes of administration): LD50 (Rat): 59.4 - 185.3 mg/kg
Application Route: Intraperitoneal
LD50 (Mouse): 164 - 363 mg/kg
Application Route: Intraperitoneal

L-menthol:
Acute inhalation toxicity: LC50 (Rat): 5,289 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Acute dermal toxicity: LD50 (Rabbit): > 5,000 mg/kg
Method: OECD Test Guideline 402

Propan-2-ol:
Acute oral toxicity: LD50 (Rat): > 5,000 mg/kg
Acute inhalation toxicity: LC50 (Rat): > 25 mg/l
Exposure time: 6 h
Test atmosphere: vapor
Acute dermal toxicity: LD50 (Rabbit): > 5,000 mg/kg

Skin corrosion/irritation
Not classified based on available information.

Components:

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

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

1-Deoxy-1-(methylamino)-D-glucitol 2-[2-methyl-3-(perfluoromethyl)anilino]nicotinate:
Species: Rabbit
Result: Mild skin irritation

L-menthol:
Species: Rabbit
Method: OECD Test Guideline 404
Result: Skin irritation

Propan-2-ol:
Species: Rabbit
Result: No skin irritation

Serious eye damage/eye irritation
Causes serious eye damage.

Components:

2-Pyrrolidone:
Species: Rabbit
Result: Irritation to eyes, reversing within 7 days
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Benzyl alcohol:
Species: Rabbit
Result: Irritation to eyes, reversing within 21 days
Method: OECD Test Guideline 405

1-Deoxy-1-(methylamino)-D-glucitol 2-[2-methyl-3-(perfluoromethyl)anilino]nicotinate:
Species: Rabbit
Result: Irreversible effects on the eye

L-menthol:
Species: Rabbit
Result: Irritation to eyes, reversing within 7 days
Method: OECD Test Guideline 405

Propan-2-ol:
Species: Rabbit
Result: Irritation to eyes, reversing within 21 days

Respiratory or skin sensitization
Skin sensitization
Not classified based on available information.
Respiratory sensitization
Not classified based on available information.

Components:
2-Pyrrolidone:
Test Type: Local lymph node assay (LLNA)
Routes of exposure: Skin contact
Species: Mouse
Method: OECD Test Guideline 429
Result: negative
Remarks: Based on data from similar materials

Benzy alcohol:
Test Type: Maximization Test
Routes of exposure: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: negative

1-Deoxy-1-(methylamino)-D-glucitol 2-[2-methyl-3-(perfluoromethyl)anilino]nicotinate:
Test Type: Maximization Test
Routes of exposure: Dermal
Species: Guinea pig
Assessment: Does not cause skin sensitization.
Result: negative
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<table>
<thead>
<tr>
<th>Component</th>
<th>Test Type</th>
<th>Routes of exposure</th>
<th>Species</th>
<th>Method</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>L-menthol:</strong></td>
<td>Local lymph node assay (LLNA)</td>
<td>Skin contact</td>
<td>Mouse</td>
<td>OECD Test Guideline 429</td>
<td>negative</td>
</tr>
<tr>
<td><strong>Propan-2-ol:</strong></td>
<td>Buehler Test</td>
<td>Skin contact</td>
<td>Guinea pig</td>
<td>OECD Test Guideline 406</td>
<td>negative</td>
</tr>
<tr>
<td><strong>Germ cell mutagenicity</strong></td>
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<tr>
<td></td>
<td>Not classified based on available information.</td>
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<tr>
<td><strong>Components:</strong></td>
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</tr>
<tr>
<td><strong>2-Pyrrolidone:</strong></td>
<td>In vitro mammalian cell gene mutation test</td>
<td></td>
<td></td>
<td>OECD Test Guideline 476</td>
<td>negative</td>
</tr>
<tr>
<td>Genotoxicity in vitro</td>
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<tr>
<td>Genotoxicity in vivo</td>
<td>Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)</td>
<td></td>
<td>Mouse</td>
<td>OECD Test Guideline 474</td>
<td>negative</td>
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<tr>
<td><strong>Benzyl alcohol:</strong></td>
<td>Bacterial reverse mutation assay (AMES)</td>
<td></td>
<td></td>
<td></td>
<td>negative</td>
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<tr>
<td>Genotoxicity in vitro</td>
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<td>Genotoxicity in vivo</td>
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<tr>
<td><strong>1-Deoxy-1-(methylamino)-D-glucitol 2-[2-methyl-3-(perfluoromethyl)anilino]nicotinate:</strong></td>
<td>Bacterial reverse mutation assay (AMES)</td>
<td></td>
<td></td>
<td></td>
<td>negative</td>
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</tbody>
</table>

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Test Type: in vitro test  
Test system: mouse lymphoma cells  
Result: positive

Test Type: Chromosomal aberration  
Test system: Chinese hamster ovary cells  
Result: positive

Test Type: in vitro test  
Test system: Escherichia coli  
Result: positive

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

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

L-menthol:
Genotoxicity in vitro:
Test Type: Chromosome aberration test in vitro  
Result: negative  
Remarks: Based on data from similar materials

Genotoxicity in vivo:
Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Mouse  
Application Route: Intraperitoneal injection  
Method: OECD Test Guideline 474  
Result: negative  
Remarks: Based on data from similar materials

Propan-2-ol:
Genotoxicity in vitro:
Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative

Test Type: In vitro mammalian cell gene mutation test  
Result: negative

Genotoxicity in vivo:
Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Mouse  
Application Route: Intraperitoneal injection  
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

**1-Deoxy-1-(methylamino)-D-glucitol 2-[2-methyl-3-(perfluoromethyl)anilino]nicotinate:**
- **Species:** Rat
- **Application Route:** oral (feed)
- **Exposure time:** 104 w
- **LOAEL:** 2 mg/kg body weight
- **Result:** negative
- **Target Organs:** Gastrointestinal tract
- **Remarks:** Significant toxicity observed in testing

**Species:** Mouse
- **Application Route:** oral (feed)
- **Exposure time:** 97 w
- **NOAEL:** 0.6 mg/kg body weight
- **Result:** negative
- **Target Organs:** Gastrointestinal tract
- **Remarks:** Significant toxicity observed in testing

**L-menthol:**
- **Species:** Mouse
- **Application Route:** Ingestion
- **Exposure time:** 103 weeks
- **Method:** OECD Test Guideline 453
- **Result:** negative
- **Remarks:** Based on data from similar materials

**Propan-2-ol:**
- **Species:** Rat
- **Application Route:** inhalation (vapor)
- **Exposure time:** 104 weeks
- **Method:** OECD Test Guideline 451
- **Result:** negative

Reproductive toxicity
Not classified based on available information.

Components:

**2-Pyrrolidone:**
- **Effects on fertility:** Species: Rat
- **Application Route:** Ingestion
- **Result:** negative

- **Effects on fetal development:** Test Type: Embryo-fetal development
Species: Rat  
Application Route: Ingestion  
Result: negative

**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 fetal development: Test Type: Embryo-fetal development  
Species: Mouse  
Application Route: Ingestion  
Result: negative

**1-Deoxy-1-(methylamino)-D-glucitol 2-[2-methyl-3-(perfluoromethyl)anilino]nicotinate:**  

Effects on fertility: Test Type: Two-generation reproduction toxicity study  
Species: Rat  
Application Route: Oral  
General Toxicity Parent: LOAEL: 1 - 1,5 mg/kg body weight  
Symptoms: No fetal abnormalities.  
Result: No effects on fertility and early embryonic development were detected.

Effects on fetal development: Test Type: Development  
Species: Rat  
Application Route: Oral  
General Toxicity Maternal: LOAEL: 2 mg/kg body weight  
Embryo-fetal toxicity.: NOAEL: 2 mg/kg body weight  
Result: Embryotoxic effects and adverse effects on the offspring were detected only at high maternally toxic doses

Test Type: Embryo-fetal development  
Species: Rabbit  
Application Route: Oral  
General Toxicity Maternal: LOAEL: 3 mg/kg body weight  
Embryo-fetal toxicity.: NOAEL: 3 mg/kg body weight  
Result: Embryotoxic effects and adverse effects on the offspring were detected only at high maternally toxic doses

**L-menthol:**  

Effects on fetal development: Test Type: Embryo-fetal development  
Species: Rat  
Application Route: Ingestion  
Result: negative

**Propan-2-ol:**  

Effects on fertility: Test Type: Two-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Result: negative
Effects on fetal development:
Test Type: Embryo-fetal development
Species: Rat
Application Route: Ingestion
Result: negative

STOT-single exposure
Not classified based on available information.

Components:
1-Deoxy-1-(methylamino)-D-glucitol 2-[2-methyl-3-(perfluoromethyl)anilino]nicotinate:
Assessment: May cause respiratory irritation.

Propan-2-ol:
Assessment: May cause drowsiness or dizziness.

STOT-repeated exposure
Causes damage to organs (Gastrointestinal tract, Kidney, Blood) through prolonged or repeated exposure.

Components:
1-Deoxy-1-(methylamino)-D-glucitol 2-[2-methyl-3-(perfluoromethyl)anilino]nicotinate:
Target Organs: Gastrointestinal tract, Kidney, Blood
Assessment: Causes damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Components:
2-Pyrrolidone:
Species: Rat
NOAEL: 207 mg/kg
Application Route: Ingestion
Exposure time: 3 Months
Method: OECD Test Guideline 408

Benzyl alcohol:
Species: Rat
NOAEL: 1,072 mg/l
Application Route: inhalation (dust/mist/fume)
Exposure time: 28 Days
Method: OECD Test Guideline 412

1-Deoxy-1-(methylamino)-D-glucitol 2-[2-methyl-3-(perfluoromethyl)anilino]nicotinate:
Species: Rat
NOAEL: 2 mg/kg
LOAEL: < 4 mg/kg
Application Route: Oral
Exposure time: 6 w
<table>
<thead>
<tr>
<th>Target Organs</th>
<th>Gastrointestinal tract</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species</td>
<td>Rat</td>
</tr>
<tr>
<td>NOAEL</td>
<td>1 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Oral</td>
</tr>
<tr>
<td>Exposure time</td>
<td>1 y</td>
</tr>
<tr>
<td>Target Organs</td>
<td>Gastrointestinal tract, Kidney</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target Organs</th>
<th>Gastrointestinal tract, Kidney</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species</td>
<td>Monkey</td>
</tr>
<tr>
<td>NOAEL</td>
<td>15 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Oral</td>
</tr>
<tr>
<td>Exposure time</td>
<td>90 d</td>
</tr>
<tr>
<td>Target Organs</td>
<td>Gastrointestinal tract, Blood</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target Organs</th>
<th>Gastrointestinal tract, Blood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species</td>
<td>Rabbit</td>
</tr>
<tr>
<td>LOAEL</td>
<td>80 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Dermal</td>
</tr>
<tr>
<td>Exposure time</td>
<td>21 d</td>
</tr>
<tr>
<td>Symptoms</td>
<td>Severe irritation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target Organs</th>
<th>Gastrointestinal tract</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species</td>
<td>Dog</td>
</tr>
<tr>
<td>LOAEL</td>
<td>11 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Oral</td>
</tr>
<tr>
<td>Exposure time</td>
<td>9 d</td>
</tr>
<tr>
<td>Target Organs</td>
<td>Gastrointestinal tract</td>
</tr>
<tr>
<td>Symptoms</td>
<td>Vomiting</td>
</tr>
</tbody>
</table>

**L-menthol:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Mouse</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>1.250 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Ingestion</td>
</tr>
<tr>
<td>Exposure time</td>
<td>91 Days</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 408</td>
</tr>
<tr>
<td>Remarks</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

**Propan-2-ol:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>12.5 mg/l</td>
</tr>
<tr>
<td>Application Route</td>
<td>inhalation (vapor)</td>
</tr>
<tr>
<td>Exposure time</td>
<td>104 Weeks</td>
</tr>
</tbody>
</table>

**Aspiration toxicity**

Not classified based on available information.

**Experience with human exposure**

**Components:**

**1-Deoxy-1-(methylamino)-D-glucitol 2-[2-methyl-3-(perfluoromethyl)anilino]nicotinate:**

Inhalation : Symptoms: respiratory tract irritation
Skin contact : Symptoms: Skin irritation
Eye contact : Symptoms: Severe irritation
Ingestion : Symptoms: Gastrointestinal disturbance, bleeding, hyperten-
ECOTOXICITY

COMPONENTS:

2-Pyrrolidone:
Toxicity to fish: LC50 (Danio rerio (zebra fish)): > 4,600 - 10,000 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): > 500 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants:
EC50 (Desmodesmus subspicatus (green algae)): > 500 mg/l
Exposure time: 72 h
EC10 (Desmodesmus subspicatus (green algae)): 22,2 mg/l
Exposure time: 72 h

Toxicity to microorganisms: EC50: > 1,000 mg/l
Exposure time: 30 min
Method: OECD Test Guideline 209

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

1-Deoxy-1-(methylamino)-D-glucitol 2-[2-methyl-3-(perfluoromethyl)anilino]nicotinate:
Toxicity to fish: LC50 (Lepomis macrochirus (Bluegill sunfish)): 28 mg/l
Exposure time: 96 h
Method: FDA 4.11
<table>
<thead>
<tr>
<th>Component</th>
<th>Toxicity to fish</th>
<th>Toxicity to daphnia and other aquatic invertebrates</th>
<th>Toxicity to algae/aquatic plants</th>
<th>Toxicity to microorganisms</th>
<th>Persistence and degradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-menthol:</td>
<td>LC50: 15.6 mg/l</td>
<td>EC50: 26.6 mg/l</td>
<td>NOEC: &gt; 10.000 mg/l</td>
<td>EC50: 237 mg/l</td>
<td>Readily biodegradable.</td>
</tr>
<tr>
<td>Propan-2-ol:</td>
<td>LC50: 9.640 mg/l</td>
<td>EC50: &gt; 10.000 mg/l</td>
<td>EC50: &gt; 1.050 mg/l</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Persistence and degradability:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Components:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-Pyrrolidone:</td>
<td>Biodegradability:</td>
<td>Result: Readily biodegradable.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Benzyl alcohol:
Biodegradability : Result: Readily biodegradable.  
Biodegradation: 92 - 96 %  
Exposure time: 14 d

1-Deoxy-1-(methylamino)-D-glucitol 2-[2-methyl-3-(perfluoromethyl)anilino]nicotinate:
Stability in water : Hydrolysis: 0 %(28 d)

L-menthol:
Biodegradability : Result: Readily biodegradable.  
Biodegradation: 64 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301D

Propan-2-ol:
Biodegradability : Result: rapidly degradable

BOD/COD : BOD: 1.19 (BOD5); COD: 2.23; BOD/COD: 53 %

Bioaccumulative potential
Components:

2-Pyrrolidone:
Partition coefficient: n-octanol/water : log Pow: -0,71

Benzyl alcohol:
Partition coefficient: n-octanol/water : log Pow: 1,05

1-Deoxy-1-(methylamino)-D-glucitol 2-[2-methyl-3-(perfluoromethyl)anilino]nicotinate:
Partition coefficient: n-octanol/water : log Pow: 1,34

L-menthol:
Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 0.5 - 15  
Exposure time: 6 Weeks  
Method: OECD Test Guideline 305  
Remarks: Based on data from similar materials

Partition coefficient: n-octanol/water : log Pow: 3,15

Propan-2-ol:
Partition coefficient: n-octanol/water : log Pow: 0,05
SAFETY DATA SHEET

Flunixin Liquid (with Alcohol) Formulation

Mobility in soil

Components:

1-Deoxy-1-(methylamino)-D-glucitol 2-{2-methyl-3-(perfluoromethyl)anilino}nicotinate:

Distribution among environmental compartments: log Koc: 1.92

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. Empty containers retain residue and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death. If not otherwise specified: Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG
UN number: UN 1993
Proper shipping name: FLAMMABLE LIQUID, N.O.S.
Class: 3
Packing group: III
Labels: 3

IATA-DGR
UN/ID No.: UN 1993
Proper shipping name: Flammable liquid, n.o.s.
Class: 3
Packing group: III
Labels: Flammable Liquids
Packing instruction (cargo aircraft): 366
Packing instruction (passenger aircraft): 355

IMDG-Code
UN number: UN 1993
Proper shipping name: FLAMMABLE LIQUID, N.O.S.
Class: 3
Packing group: III
Labels: 3
EmS Code: F-E, S-E
Marine pollutant: no

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

Not applicable for product as supplied.

**Domestic regulation**

**ANTT**
- UN number: UN 1993
- Proper shipping name: FLAMMABLE LIQUID, N.O.S. (Propan-2-ol)

**Class**: 3
**Packing group**: III
**Labels**: 3
**Hazard Identification Number**: 30

**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.

**SECTION 15. REGULATORY INFORMATION**

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

- National List of Carcinogenic Agents for Humans - (LINACH): Not applicable
- Brazil. Ordinance No. 1274 on the control and monitoring of chemicals: Propan-2-ol

**International Regulations**

**The ingredients of this product are reported in the following inventories:**

- AICS: not determined
- DSL: not determined
- IECSC: not determined

**SECTION 16. OTHER INFORMATION**

**Further information**


**Full text of other abbreviations**

- ACGIH: USA. ACGIH Threshold Limit Values (TLV)
- ACGIH BEI: ACGIH - Biological Exposure Indices (BEI)
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.