SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Dexamethasone (with Ethanol) Formulation

Manufacturer or supplier’s details
Company : MSD
Address : Talcahuano 750, 6th floor, Ciudad Autonoma Buenos Aires, Argentina C1013AAP
Telephone : 908-740-4000
Emergency telephone : 1-908-423-6000
E-mail address : EHSDATASTEWARD@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
Flammable liquids : Category 4

GHS label elements
Signal Word : Warning
Hazard Statements : H227 Combustible liquid.
Precautionary Statements : Prevention:
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

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
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.

In case of skin contact: In case of contact, immediately flush skin with soap and plenty of water. Remove 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. Get medical attention. Rinse mouth thoroughly with water.

Most important symptoms and effects, both acute and delayed: None known.

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

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.
### SECTION 6. ACCIDENTAL RELEASE MEASURES

<table>
<thead>
<tr>
<th><strong>Personal precautions, protective equipment and emergency procedures</strong></th>
<th><strong>Environmental precautions</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Evacuate area.</td>
<td>Discharge into the environment must be avoided.</td>
</tr>
<tr>
<td>In the event of fire, wear self-contained breathing apparatus.</td>
<td>Prevent further leakage or spillage if safe to do so.</td>
</tr>
<tr>
<td>Use personal protective equipment.</td>
<td>Prevent spreading over a wide area (e.g., by containment or oil barriers).</td>
</tr>
<tr>
<td>Follow safe handling advice and personal protective equipment recommendations.</td>
<td>Retain and dispose of contaminated wash water.</td>
</tr>
<tr>
<td>Use personal protective equipment.</td>
<td>Local authorities should be advised if significant spillages cannot be contained.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Methods and materials for containment and cleaning up</strong></th>
<th><strong>Methods and materials for containment and cleaning up</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-sparking tools should be used.</td>
<td>Non-sparking tools should be used.</td>
</tr>
<tr>
<td>Soak up with inert absorbent material.</td>
<td>Soak up with inert absorbent material.</td>
</tr>
<tr>
<td>Suppress (knock down) gases/vapors/mists with a water spray jet.</td>
<td>Suppress (knock down) gases/vapors/mists with a water spray jet.</td>
</tr>
<tr>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>Clean up remaining materials from spill with suitable absorbent.</td>
<td>Clean up remaining materials from spill with suitable absorbent.</td>
</tr>
<tr>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.</td>
<td>Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.</td>
</tr>
</tbody>
</table>

### SECTION 7. HANDLING AND STORAGE

<table>
<thead>
<tr>
<th><strong>Technical measures</strong></th>
<th><strong>Local/Total ventilation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.</td>
<td>If sufficient ventilation is unavailable, use with local exhaust ventilation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Advice on safe handling</strong></th>
<th><strong>Advice on safe handling</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not get on skin or clothing.</td>
<td>Do not get on skin or clothing.</td>
</tr>
<tr>
<td>Do not breathe vapors or spray mist.</td>
<td>Do not breathe vapors or spray mist.</td>
</tr>
<tr>
<td>Do not swallow.</td>
<td>Do not swallow.</td>
</tr>
<tr>
<td>Avoid contact with eyes.</td>
<td>Avoid contact with eyes.</td>
</tr>
<tr>
<td>Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment</td>
<td>Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment</td>
</tr>
<tr>
<td>Keep container tightly closed.</td>
<td>Keep container tightly closed.</td>
</tr>
<tr>
<td>Keep away from heat and sources of ignition.</td>
<td>Keep away from heat and sources of ignition.</td>
</tr>
<tr>
<td>Take precautionary measures against static discharges.</td>
<td>Take precautionary measures against static discharges.</td>
</tr>
<tr>
<td>Take care to prevent spills, waste and minimize release to the environment.</td>
<td>Take care to prevent spills, waste and minimize release to the environment.</td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET

Dexamethasone (with Ethanol) Formulation

Conditions for safe storage: Keep in properly labeled containers.
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
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>Ethanol</td>
<td>64-17-5</td>
<td>CMP</td>
<td>1.000 ppm</td>
<td>AR OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Further information: A4 - Not classifiable as a human carcinogen: Agents which cause concern that they could be carcinogenic for humans but which cannot be assessed conclusively because of a lack of data. In vitro or animal studies do not provide indications of carcinogenicity which are sufficient to classify the agent into one of the other categories., Irritation STEL</td>
<td>1.000 ppm</td>
</tr>
<tr>
<td>Dexamethasone</td>
<td>50-02-2</td>
<td>TWA</td>
<td>10 µg/m3 (OEB 3)</td>
<td>Internal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Further information: Skin Wipe limit</td>
<td>100 µg/100 cm²</td>
</tr>
</tbody>
</table>

Engineering measures: Minimize workplace exposure concentrations.
If sufficient ventilation is unavailable, use with local exhaust ventilation.

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: Combined particulates and organic vapor type

Hand protection: Chemical-resistant gloves

Remarks: Choose gloves to protect hands against chemicals depending on the concentration specific to place of work. Breakthrough time is not determined for the product. Change gloves often! For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Take note that the product is flammable, which may impact the selection of hand protection. Wash hands before breaks and at the end of workday.

Eye protection: Wear the following personal protective equipment:
Safety glasses

Skin and body protection:
Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.
Wear the following personal protective equipment:
If assessment demonstrates that there is a risk of explosive atmospheres or flash fires, use flame retardant antistatic protective clothing.
Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: liquid
Color: clear
Odor: No data available
Odor Threshold: No data available
pH: 4,9
Melting point/freezing point: No data available
Initial boiling point and boiling range: No data available
Flash point: 68 °C
Evaporation rate: No data available
Flammability (solid, gas): Not applicable
Flammability (liquids): Not applicable
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
Density: No data available
Solubility(ies)
Water solubility: No data available
SECTION 10. STABILITY AND REACTIVITY

Reactivity: Not classified as a reactivity hazard.
Chemical stability: Stable under normal conditions.
Possibility of hazardous reactions:
- Combustible liquid.
- 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
Not classified based on available information.

Components:

Ethanol:
Acute oral toxicity: LD50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity: LC50 (Rat): 124.7 mg/l
Exposure time: 4 h
Test atmosphere: vapor

Dexamethasone:
Acute oral toxicity: LD50 (Rat): > 2,000 mg/kg
LD50 (Mouse): > 6.500 mg/kg

Acute toxicity (other routes of administration):
LD50 (Rat): 14 mg/kg
Application Route: Subcutaneous

Skin corrosion/irritation
Not classified based on available information.

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

Dexamethasone:
Species: Rabbit
Result: Mild skin irritation

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

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

Dexamethasone:
Species: Rabbit
Result: Mild eye irritation

Respiratory or skin sensitization

Skin sensitization
Not classified based on available information.

Respiratory sensitization
Not classified based on available information.

Components:
Ethanol:
Test Type: Local lymph node assay (LLNA)
Routes of exposure: Skin contact
Species: Mouse
Result: negative

Germ cell mutagenicity
Not classified based on available information.
Components:

Ethanol:
Genotoxicity in vitro:
- Test Type: In vitro mammalian cell gene mutation test
  - Result: negative
- Test Type: Bacterial reverse mutation assay (AMES)
  - Result: negative

Genotoxicity in vivo:
- Test Type: Rodent dominant lethal test (germ cell) (in vivo)
  - Species: Mouse
  - Application Route: Ingestion
  - Result: equivocal

Dexamethasone:
Genotoxicity in vitro:
- Test Type: Bacterial reverse mutation assay (AMES)
  - Result: negative
- Test Type: in vitro test
  - Test system: mouse lymphoma cells
  - Result: negative

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

Carcinogenicity
Not classified based on available information.

Reproductive toxicity
Not classified based on available information.

Components:

Ethanol:
Effects on fertility:
- Test Type: Two-generation reproduction toxicity study
  - Species: Mouse
  - Application Route: Ingestion
  - Result: negative

Dexamethasone:
Effects on fetal development:
- Test Type: Development
  - Species: Mouse
  - Application Route: Subcutaneous
  - Developmental Toxicity: LOAEL: 6 mg/kg body weight
  - Result: Specific developmental abnormalities., Cleft palate

- Species: Rabbit
  - Application Route: Intramuscular
  - Developmental Toxicity: NOAEL: 0.025 mg/kg body weight
  - Result: Specific developmental abnormalities.
Species: Rabbit  
Application Route: Intramuscular  
Developmental Toxicity: LOAEL: >= 0.062 mg/kg body weight  
Result: Specific developmental abnormalities.

Species: Rat  
Application Route: Subcutaneous  
Developmental Toxicity: LOAEL: >= 0.02 mg/kg body weight  
Result: Skeletal and visceral variations, Retardations.

Reproductive toxicity - Assessment:  
May damage the unborn child.

STOT-single exposure  
Not classified based on available information.

STOT-repeated exposure  
Not classified based on available information.

Components:

Dexamethasone:  
Routes of exposure: Oral  
Target Organs: Adrenal gland, Immune system, thymus gland  
Assessment: May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity  
Components:

Ethanol:  
Species: Rat  
NOAEL: 1.280 mg/kg  
LOAEL: 3.156 mg/kg  
Application Route: Ingestion  
Exposure time: 90 Days

Dexamethasone:  
Species: Rat  
NOAEL: 0.0015 mg/kg  
Application Route: Oral  
Exposure time: 7 d  
Target Organs: Liver  
Remarks: Significant toxicity observed in testing

Species: Rat  
LOAEL: 0.003 mg/kg  
Application Route: Oral  
Exposure time: 90 d  
Target Organs: Blood, Adrenal gland, thymus gland  
Remarks: Significant toxicity observed in testing

Species: Rat  
LOAEL: 0.125 mg/kg
Application Route: Oral
Exposure time: 6 Weeks
Target Organs: Adrenal gland
Remarks: Significant toxicity observed in testing

Species: Rat
LOAEL: 0,4 mg/kg
Application Route: Oral
Exposure time: 3 Months
Target Organs: Immune system
Remarks: Significant toxicity observed in testing

Species: Dog
LOAEL: 8 mg/kg
Application Route: Oral
Exposure time: 3 Months
Target Organs: Immune system
Remarks: Significant toxicity observed in testing

Aspiration toxicity
Not classified based on available information.

Experience with human exposure

Components:
Dexamethasone:
Ingestion:
Target Organs: Immune system
Target Organs: Adrenal gland
Target Organs: Bone
Symptoms: muscle weakness

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Ethanol:
Toxicity to fish: LC50 (Pimephales promelas (fathead minnow)): > 1.000 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50 (Ceriodaphnia (water flea)): > 1.000 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants:
ErC50 (Chlorella vulgaris (Fresh water algae)): 275 mg/l
Exposure time: 72 h
EC10 (Chlorella vulgaris (Fresh water algae)): 11,5 mg/l
Exposure time: 72 h

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
NOEC (Daphnia magna (Water flea)): 9,6 mg/l
Exposure time: 9 d

Toxicity to microorganisms: EC50 (Pseudomonas putida): 6.500 mg/l
Dexamethasone:  
Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): > 56 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202  

Exposure time: 16 h

Toxicity to algae/aquatic plants: EC50 (Pseudokirchneriella subcapitata (green algae)): > 9,2 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201  

NOEC (Pseudokirchneriella subcapitata (green algae)): 9,2 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

Toxicity to fish (Chronic toxicity): NOEC (Pimephales promelas (fathead minnow)): 0,033 mg/l  
Exposure time: 32 d  
Method: OECD Test Guideline 210

M-Factor (Chronic aquatic toxicity): 1  

Toxicity to microorganisms: EC50: > 1.000 mg/l  
Exposure time: 3 h  
Test Type: Respiration inhibition  
Method: OECD Test Guideline 209  

NOEC: 1.000 mg/l  
Exposure time: 3 h  
Test Type: Respiration inhibition  
Method: OECD Test Guideline 209

Persistence and degradability

Components:

Ethanol:  
Biodegradability: Result: Readily biodegradable.  
Biodegradation: 84 %  
Exposure time: 20 d

Dexamethasone:  
Biodegradability: Result: Not readily biodegradable.  
Biodegradation: 50 %  
Exposure time: 3,54 d  
Method: OECD Test Guideline 314

Bioaccumulative potential

Components:

Ethanol:
Partition coefficient: n-octanol/water : log Pow: -0.35

**Dexamethasone:**
Partition coefficient: n-octanol/water : log Pow: 1.83

**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. 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**
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.

---

### SECTION 15. REGULATORY INFORMATION

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

**Argentina. Carcinogenic Substances and Agents Registry**
Not applicable

**Control of precursors and essential chemicals for the preparation of drugs.**
Ethanol
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**

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


**Full text of other abbreviations**

- **ACGIH** : USA. ACGIH Threshold Limit Values (TLV)
- **AR OEL** : Argentina. Occupational Exposure Limits
- **ACGIH / STEL** : Short-term exposure limit
- **AR OEL / CMP** : TLV (Threshold Limit Value)

Abbreviations:

- AICS - Australian Inventory of Chemical Substances; 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 Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50% of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; 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; 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.

AR / Z8