1. PRODUCT AND COMPANY IDENTIFICATION
Product name: Tylosin tartrate
Product Number: 33847
Brand: Fluka
Supplier: Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63163
USA
Telephone: +1 800-325-5832
Fax: +1 800-325-5832
Emergency Phone #: (314) 776-6555
Preparation Information: Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8856

2. HAZARDS IDENTIFICATION
Emergency Overview
OSHA Hazards
Respiratory sensitizer, Skin sensitizer
GHS Classification
Respiratory sensitizer (Category 1)
Skin sensitizer (Category 1)
GHS Label elements, including precautionary statements
Pictogram
Signal word Danger
Hazard statement(s)
H317 May cause an allergic skin reaction.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Precautionary statement(s)
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P260 Wear protective gloves.
P301 + P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/ physician.

3. COMPOSITION/INFORMATION ON INGREDIENTS
<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tylosin tartrate, D</td>
<td>Resp. Sens. 1; Skin Sens. 1; H317, H334</td>
<td>10 - 39 %</td>
</tr>
<tr>
<td>Desmycoxin tartrate</td>
<td>Resp. Sens. 1; Skin Sens. 1; H317, H334</td>
<td>10 - 30 %</td>
</tr>
<tr>
<td>Macrin, D-tartrate</td>
<td>Resp. Sens. 1; Skin Sens. 1; H317, H334</td>
<td>10 - 30 %</td>
</tr>
<tr>
<td>Tylosin, (2R,3R)-2,3-dihydroxybutyrolactone (salt)</td>
<td>Resp. Sens. 1; Skin Sens. 1; H317, H334</td>
<td>10 - 30 %</td>
</tr>
</tbody>
</table>

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16.

4. FIRST AID MEASURES
General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
If Inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact
Wash off with soap and plenty of water. Consult a physician.
In case of eye contact
Flush eyes with water as a precaution.
If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES
Conditions of flammability
Not flammable or combustible.
Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Special protective equipment for firefighters
Wear self-contained breathing apparatus for fire fighting if necessary.
Hazardous decomposition products
Hazardous decomposition products formed under fire conditions: Carbon oxides, nitrogen oxides (NOx).

6. ACCIDENTAL RELEASE MEASURES
Personal precautions
Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
Environmental precautions
Do not let product enter drains.
7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.
Recommended storage temperature: 2 - 8 °C

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection
For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OVA5/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection
Face shield and safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete skin protection against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Form: powder
Colour: light yellow

Safety data
pH: no data available
Melting point/freezing point: no data available
Boiling point: no data available
Ignition temperature: no data available
Auto-Ignition temperature: no data available
Lower explosion limit: no data available

Upper explosion limit: no data available
Vapour pressure: no data available
Density: no data available
Water solubility: ca.50 g/l
Partition coefficient: n-octanol/water: no data available
Relative vapor density: no data available
Odour: no data available
Odour Threshold: no data available
Evaporation rate: no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
no data available

Materials to avoid
Strong oxidizing agents

Hazardous decomposition products
Other decomposition products: no data available
Hazardous decomposition products formed under fire conditions: - Carbon oxides, nitrogen oxides (NOx)

11. TOXICOLOGICAL INFORMATION

Acute toxicity
Oral LD50
LD50 Oral - rat: > 6,200 mg/kg (Tylosin, (2R,3R)-2,3-dihydroxybutanediol (salt))

Inhalation LC50
no data available (Tylosin, (2R,3R)-2,3-dihydroxybutanediol (salt))

Dermal LD50
no data available (Tylosin, (2R,3R)-2,3-dihydroxybutanediol (salt))

Other Information on acute toxicity
ToLb Subcutaneous - rat - 2,600 mg/kg (Tylosin, (2R,3R)-2,3-dihydroxybutanediol (salt))
Remarks: Dermatitis

LD50 Intravenous - rat - 695 mg/kg (Tylosin, (2R,3R)-2,3-dihydroxybutanediol (salt))

Skin corrosion/irritation
no data available (Tylosin, (2R,3R)-2,3-dihydroxybutanediol (salt))

Serious eye damage/eye irritation
no data available (Tylosin, (2R,3R)-2,3-dihydroxybutanediol (salt))

Respiratory or skin sensitization
May cause sensitization by inhalation. (Tylosin, (2R,3R)-2,3-dihydroxybutanediol (salt))
May cause sensitization by skin contact. (Tylosin, (2R,3R)-2,3-dihydroxybutanediol (salt))

Germ cell mutagenicity
no data available (Tylosin, (2R,3R)-2,3-dihydroxybutanediol (salt))
(Tylosin, (2R,3R)-2,3-dihydroxybutanediol (salt))
13. DISPOSAL CONSIDERATIONS

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods
IMDG
Not dangerous goods
IATA
Not dangerous goods

15. REGULATORY INFORMATION

OSHA Hazards
Respiratory sensitizer, Skin sensitizer

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (20 ppm) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard
Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

<table>
<thead>
<tr>
<th>Chemical</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tylosin tartrate, D</td>
<td>84416-37-5</td>
<td></td>
</tr>
<tr>
<td>Desmycosin tartrate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Macrocin, D-tartrate</td>
<td>11049-17-5</td>
<td></td>
</tr>
<tr>
<td>Tylosin, (2R,3R)-2,3-dihydroxybutanecolato (salt)</td>
<td>74610-55-2</td>
<td></td>
</tr>
</tbody>
</table>

New Jersey Right To Know Components

<table>
<thead>
<tr>
<th>Chemical</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tylosin tartrate, D</td>
<td>84416-37-5</td>
<td></td>
</tr>
<tr>
<td>Desmycosin tartrate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Macrocin, D-tartrate</td>
<td>11049-17-5</td>
<td></td>
</tr>
<tr>
<td>Tylosin, (2R,3R)-2,3-dihydroxybutanecolato (salt)</td>
<td>74610-55-2</td>
<td></td>
</tr>
</tbody>
</table>

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Test of H-code(s) and R-phrase(s) mentioned in Section 5

H317 May cause an allergic skin reaction.

H334 May cause allergic or asthma symptoms or breathing difficulties if inhaled.

Resp. Sens. Respiratory sensitization

Skin Sens. Skin sensitization