1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Material Name: Lixotinic®

<table>
<thead>
<tr>
<th>Trade Name:</th>
<th>Lixotinic®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Family:</td>
<td>Mixture</td>
</tr>
<tr>
<td>Intended Use:</td>
<td>Veterinary product used as dietary supplement</td>
</tr>
</tbody>
</table>

Pfizer Animal Health
Pfizer Inc
235 East 42nd Street
New York, NY  10017
Poison Control Center Phone: 1-866-531-8896
Technical Services Phone: 1-800-366-5288

Pfizer Ltd,
Kent
CT13 9NJ
United Kingdom
+00 44 (0)1304 616161

Emergency telephone number:
CHEMTREC (24 hours): 1-800-424-9300
Contact E-Mail:  pfizer-MSDS@pfizer.com

2. HAZARDS IDENTIFICATION

Appearance: Dark brown liquid with an anise-licorice flavor

Statement of Hazard: Non-hazardous in accordance with international standards for workplace safety.

Additional Hazard Information: May cause eye irritation (based on components) An Occupational Exposure Limit has been established for one or more of the ingredients (see Section 8).

EU Indication of danger: Not classified

Australian Hazard Classification (NOHSC):

Note: This document has been prepared in accordance with standards for workplace safety, which require the inclusion of all known hazards of the product or its ingredients regardless of the potential risk. The precautionary statements and warnings included may not apply in all cases. Your needs may vary depending upon the potential for exposure in your workplace.

3. COMPOSITION/INFORMATION ON INGREDIENTS
Material Name:  Lixotinic®
Revision date: 10-Oct-2007

Hazardous Ingredient | CAS Number | EU EINECS/ELINCS List | Classification | %  
---|---|---|---|---
Sucrose | 57-50-1 | 200-334-9 | Not Listed | *  
Glycerin, USP | 56-81-5 | 200-289-5 | Not Listed | *  
Sodium hydroxide | 1310-73-2 | 215-185-5 | C;R35 | <0.01  
Citric acid | 77-92-9 | 201-069-1 | Xi; R36 | <1.0  
Cyanocobalamin (Vitamin B12) | 68-19-9 | 200-680-0 | Not Listed | *  
Riboflavin (Vitamin B2) | 83-88-5 | 201-507-1 | Not Listed | *  
Niacinamide | 98-92-0 | 202-713-4 | Not Listed | *  
Cupric sulfate | 7758-98-7 | 231-847-6 | N;R50-53 | <0.025  
Xi;R36/38  
Xn;R22  

Ingredient | CAS Number | EU EINECS/ELINCS List | Classification | %  
---|---|---|---|---
Corn syrup | 8029-43-4 | 232-436-4 | Not Listed | *  
Water | 7732-18-5 | 231-791-2 | Not Listed | *  
Beef Liver Paste | NOT ASSIGNED | Not listed | Not Listed | *  
Iron Proteinate | NOT ASSIGNED | Not listed | Not Listed | *  
Sodium citrate | 68-04-2 | 200-675-3 | Not Listed | *  
Pyridoxine Hydrochloride (Vitamin B6) | 58-56-0 | 200-386-2 | Not Listed | *  
Caramel | 8028-89-5 | 232-435-9 | Not Listed | *  
Potassium sorbate | 590-00-1 | Not listed | Not Listed | *  
Flavoring | NOT ASSIGNED | Not listed | Not Listed | *  
Thiamine | 67-03-8 | 200-641-8 | Not Listed | *  

Additional Information:  
* Proprietary  
Ingredient(s) indicated as hazardous have been assessed under standards for workplace safety.

For the full text of the R phrases mentioned in this Section, see Section 16

4. FIRST AID MEASURES

Eye Contact:  
Flush with water while holding eyelids open for at least 15 minutes. Seek medical attention immediately.

Skin Contact:  
Remove contaminated clothing. Flush area with large amounts of water. Use soap. Seek medical attention.

Ingestion:  
Never give anything by mouth to an unconscious person. Wash out mouth with water. Do not induce vomiting unless directed by medical personnel. Seek medical attention immediately.

Inhalation:  
Remove to fresh air and keep patient at rest. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES

Extinguishing Media:  
Use carbon dioxide, dry chemical, or water spray.

Hazardous Combustion Products:  
Toxic or corrosive gases are expected in fires involving this mixture.

Fire Fighting Procedures:  
During all fire fighting activities, wear appropriate protective equipment, including self-contained breathing apparatus.
6. ACCIDENTAL RELEASE MEASURES

Health and Safety Precautions: Personnel involved in clean-up should wear appropriate personal protective equipment (see Section 8). Minimize exposure.

Measures for Cleaning / Collecting: Use non-combustible absorbent material to wipe up spill and place in a sealed container for disposal. Clean spill area thoroughly. Prevent discharge to drains.

Measures for Environmental Protections: Place waste in an appropriately labeled, sealed container for disposal. Care should be taken to avoid environmental release.

Additional Consideration for Large Spills: Non-essential personnel should be evacuated from affected area. Report emergency situations immediately. Clean up operations should only be undertaken by trained personnel.

7. HANDLING AND STORAGE

General Handling: Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Releases to the environment should be avoided. Refer to Section 12 - Ecological Information, for information on potential effects on the environment.

Storage Conditions: Store as directed by product packaging.

Storage Temperature: 15-30°C (59-86°F)

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Refer to available public information for specific member state Occupational Exposure Limits.

Sucrose
- ACGIH Threshold Limit Value (TWA) = 10 mg/m³ TWA
- Australia TWA = 10 mg/m³ TWA
- Belgium OEL - TWA = 10 mg/m³ TWA
- Bulgaria OEL - TWA = 10.0 mg/m³ TWA
- Estonia OEL - TWA = 10 mg/m³ TWA
- France OEL - TWA = 10 mg/m³ VME
- Ireland OEL - TWAs = 10 mg/m³ TWA
- Lithuania OEL - TWA = 10 mg/m³ IPRV
- OSHA - Final PELS - TWAs: = 15 mg/m³ TWA total
  = 5 mg/m³ TWA
- Portugal OEL - TWA = 10 mg/m³ TWA
- Slovakia OEL - TWA = 6 mg/m³ TWA
- Spain OEL - TWA = 10 mg/m³ VLA-ED

Glycerin, USP
- ACGIH Threshold Limit Value (TWA) = 10 mg/m³ TWA
- Australia TWA = 10 mg/m³ TWA
- Belgium OEL - TWA = 10 mg/m³ TWA
- Estonia OEL - TWA = 10 mg/m³ TWA
- Finland OEL - TWA = 20 mg/m³ TWA
- France OEL - TWA = 10 mg/m³ VME
- Greece OEL - TWA = 10 mg/m³ TWA
- Ireland OEL - TWAs = 10 mg/m³ TWA
**Material Name:** Lixotinic®  
**Revision date:** 10-Oct-2007  
**Version:** 1.1

### Sodium hydroxide

**ACGIH Ceiling Threshold Limit:**  
- **Australia** Peak: 2 mg/m³ Peak  
- **Austria OEL - MAKs:** 2 mg/m³ MAK  
- **Belgium OEL - TWA:** 2 mg/m³ TWA  
- **Bulgaria OEL - TWA:** 2.0 mg/m³ TWA  
- **Czech Republic OEL - TWA:** 1 mg/m³ TWA  
- **Finland OEL - TWA:** 2 mg/m³ TWA  
- **France OEL - TWA:** 2 mg/m³ VME  
- **Greece OEL - TWA:** 2 mg/m³ TWA  
- **Hungary OEL - TWA:** 2 mg/m³ TWA  
- **Latvia OEL - TWA:** 0.5 mg/m³ TWA  
- **OSHA - Final PELS - TWA:** 5 mg/m³ TWA  
- **Poland OEL - TWA:** 10 mg/m³ NDS  
- **Portugal OEL - TWA:** 10 mg/m³ TWA  
- **Spain OEL - TWA:** 10 mg/m³ VLA-ED  
- **Sweden OEL - TWA:** 2 mg/m³ TWA

### Cyanocobalamin (Vitamin B12)

**ACGIH Threshold Limit Value (TWA)**  
- **Australia TWA:** 0.02 mg/m³ TWA  
- **Bulgaria OEL - TWA:** 0.1 mg/m³ TWA  
- **Czech Republic OEL - TWA:** 0.05 mg/m³ TWA  
- **Denmark OEL - TWA:** 0.01 mg/m³ TWA  
- **Estonia OEL - TWA:** 0.05 mg/m³ TWA  
- **Finland OEL - TWA:** 0.05 mg/m³ TWA  
- **France OEL - TWA:** 5 mg/m³ TWA  
- **Greece OEL - TWA:** 0.1 mg/m³ TWA  
- **Hungary OEL - TWA:** 0.1 mg/m³ TWA  
- **Ireland OEL - TWA:** 0.1 mg/m³ TWA  
- **Lithuania OEL - TWA:** 0.05 mg/m³ IPRV  
- **OSHA - Final PELS - TWA:** 5 mg/m³ TWA  
- **OSHA - Final PELs - Skin Notations:** prevent or reduce skin absorption  
- **Portugal OEL - TWA:** 0.02 mg/m³ TWA  
- **Slovakia OEL - TWA:** 2 mg/m³ TWA  
- **Slovenia OEL - TWA:** 5 mg/m³ TWA  
- **Spain OEL - TWA:** 0.02 mg/m³ VLA-ED  
- **Sweden OEL - TWA:** 0.05 mg/m³ LLV

### Riboflavin (Vitamin B2)

- **Latvia OEL - TWA:** 1 mg/m³ TWA  
- **Lithuania OEL - TWA:** 1 mg/m³ IPRV
10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions of use.

Conditions to Avoid: Fine particles (such as dust and mists) may fuel fires/explosions.

Incompatible Materials: As a precautionary measure, keep away from strong oxidizers.

11. TOXICOLOGICAL INFORMATION

The exposure limit(s) listed for solid components are only relevant if dust or mist may be generated.

Engineering Controls: Good general ventilation should be sufficient to control airborne levels. Engineering controls should be used as the primary means to control exposures.

Personal Protective Equipment:

Hands: Not required for the normal use of this product. Wear protective gloves when working with large quantities.

Eyes: Wear safety glasses or goggles if eye contact is possible.

Skin: Not required for the normal use of this product. Wear protective clothing when working with large quantities.

Respiratory protection: None required under normal conditions of use. If the applicable Occupational Exposure Limit (OEL) is exceeded, wear an appropriate respirator with a protection factor sufficient to control exposures to below the OEL.
General Information: The information included in this section describes the potential hazards of the individual ingredients.

1.2 **Acute Toxicity: (Species, Route, End Point, Dose)**

**Potassium sorbate**
Mouse Oral LD50 3800 mg/kg
Rat Oral LD50 4340 mg/kg

**Pyridoxine Hydrochloride (Vitamin B6)**
Rat Oral LD 50 4 g/kg

**Glycerin, USP**
Mouse Oral LD50 4090 mg/kg
Rat Oral LD50 12.6 g/kg
Rabbit Dermal LD50 > 10 g/kg
Rat Inhalation LC50 1hr > 570 mg/m³
Rat Dermal LD 50 >21.9 g/kg

**Sucrose**
Rat Oral LD50 29.7 g/kg

**Niacinamide**
Rat Oral LD50 3500 mg/kg
Mouse Oral LD50 2500 mg/kg
Rat Subcutaneous LD50 1680 g/kg
Mouse IP LD50 2050 mg/kg
Rabbit Dermal LD 50 >2000 mg/kg

**Cupric sulfate**
Rat Oral LD50 300 mg/kg
Rabbit Dermal LD 50 1000 mg/kg

**Citric acid**
Rat Oral LD50 3000 mg/kg

**Sodium hydroxide**
Mouse IP LD50 40 mg/kg

**Irritation / Sensitization: (Study Type, Species, Severity)**

**Glycerin, USP**
Eye Irritation Rabbit Mild

**Citric acid**
Eye Irritation Rabbit Severe
Skin Irritation Rabbit Mild

**Sodium hydroxide**
Eye Irritation Rabbit Severe
Skin Irritation Rabbit Severe

**Carcinogen Status:** See below
12. ECOLOGICAL INFORMATION

Environmental Overview: The environmental characteristics of this mixture have not been fully evaluated. Releases to the environment should be avoided.

Aquatic Toxicity: (Species, Method, End Point, Duration, Result)

Cyanocobalamin (Vitamin B12)
- IARC: Group 2B
- OSHA: Present

Glycerin, USP
- *Oncorhynchus mykiss* (Rainbow Trout) LD50 96 Hours 50 mg/L
- *Daphnia magna* (Water Flea) EC50 24 Hours >500 mg/L

Cupric sulfate
- *Daphnia magna* (Water Flea) EC50 48 Hours 0.024 mg/L
- *Oncorhynchus mykiss* (Rainbow Trout) LC50 96 Hours 0.1 mg/L

Aquatic Toxicity Comments: A greater than symbol (>) indicates that aquatic toxicity was not observed at the maximum dose tested.

13. DISPOSAL CONSIDERATIONS

Disposal Procedures: Dispose of waste in accordance with all applicable laws and regulations. Member State specific and Community specific provisions must be considered.

14. TRANSPORT INFORMATION

Not regulated for transport under USDOT, EUADR, IATA, or IMDG regulations.

15. REGULATORY INFORMATION

EU Indication of danger: Not classified

OSHA Label: Non-hazardous in accordance with international standards for workplace safety.
Canada - WHMIS: Classifications

WHMIS hazard class:
None required
This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

Corn syrup
- Inventory - United States TSCA - Sect. 8(b): Present
- Australia (AICS): Present
- REACH - Annex IV - Exemptions from the obligations of Register: Present
- EU EINECS/ELINCS List: 232-436-4

Water
- Inventory - United States TSCA - Sect. 8(b): Present
- Australia (AICS): Present
- REACH - Annex IV - Exemptions from the obligations of Register: Present
- EU EINECS/ELINCS List: 231-791-2

Sucrose
- Inventory - United States TSCA - Sect. 8(b): Present
- Australia (AICS): Present
- REACH - Annex IV - Exemptions from the obligations of Register: Present
- EU EINECS/ELINCS List: 200-334-9

Glycerin, USP
- Inventory - United States TSCA - Sect. 8(b): Present
- Australia (AICS): Present
- EU EINECS/ELINCS List: 200-289-5

Sodium citrate
- Inventory - United States TSCA - Sect. 8(b): Present
- Australia (AICS): Present
- Standard for the Uniform Scheduling for Drugs and Poisons: Schedule 5
- Schedule 6
- EU EINECS/ELINCS List: 200-675-3

Sodium hydroxide
- CERCLA/SARA Hazardous Substances and their Reportable Quantities: = 1000 lb final RQ
  = 454 kg final RQ
- Inventory - United States TSCA - Sect. 8(b): Present
- Australia (AICS): Present
- Standard for the Uniform Scheduling for Drugs and Poisons: Schedule 5
  Schedule 6
EU EINECS/ELINCS List 215-185-5

Citrpic acid
Inventory - United States TSCA - Sect. 8(b) Present
Australia (AICS): Present
EU EINECS/ELINCS List 201-069-1

Cyanocobalamin (Vitamin B12)
CERCLA/SARA 313 Emission reporting = 0.1 % de minimis concentration
Inventory - United States TSCA - Sect. 8(b) Present
Australia (AICS): Present
EU EINECS/ELINCS List 200-680-0

Riboflavin (Vitamin B2)
Inventory - United States TSCA - Sect. 8(b) Present
Australia (AICS): Present
EU EINECS/ELINCS List 201-507-1

Pyridoxine Hydrochloride (Vitamin B6)
Inventory - United States TSCA - Sect. 8(b) Present
Australia (AICS): Present
EU EINECS/ELINCS List 200-386-2

Niacinamide
Inventory - United States TSCA - Sect. 8(b) Present
Australia (AICS): Present
EU EINECS/ELINCS List 202-713-4

Caramel
Inventory - United States TSCA - Sect. 8(b) Present
Australia (AICS): Present
EU EINECS/ELINCS List 232-435-9

Cupric sulfate
CERCLA/SARA 313 Emission reporting = 1.0 % de minimis concentration does not include copper
phthalocyanine compounds substituted only with hydrogen and/or bromine and/or chlorine, Chemical Category N100
CERCLA/SARA Hazardous Substances and their Reportable Quantities:
Inventory - United States TSCA - Sect. 8(b) Present
Australia (AICS): Present
Standard for the Uniform Scheduling for Drugs and Poisons:
Schedule 4: Schedule 5: Schedule 6: EU EINECS/ELINCS List 231-847-6

Potassium sorbate
Inventory - United States TSCA - Sect. 8(b) Present

Thiamine
Inventory - United States TSCA - Sect. 8(b) Present
Australia (AICS): Present
16. OTHER INFORMATION

Text of R phrases mentioned in Section 3

R22 - Harmful if swallowed.
R35 - Causes severe burns.
R36 - Irritating to eyes.
R36/38 - Irritating to eyes and skin.
R50/53 - Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Data Sources: Publicly available toxicity information. Safety data sheets for individual ingredients. Pfizer proprietary drug development information.

Reasons for Revision: Updated Section 2 - Hazard Identification. Updated Section 3 - Composition / Information on Ingredients. Updated Section 7 - Handling and Storage. Updated Section 9 - Physical and Chemical Properties. Updated Section 12 - Ecological Information. Updated Section 15 - Regulatory Information.

Prepared by: Toxicology and Hazard Communication
Pfizer Global Environment, Health, and Safety

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End of Safety Data Sheet