

SAFETY DATA SHEET



Revision date: 29-Jan-2014

Version: 2.1

Page 1 of 12

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

Product Identifier

Material Name: Lixotinic®

Trade Name: Lixotinic®
Chemical Family: Mixture

Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Intended Use: Veterinary product used as dietary supplement
Restrictions on Use: Not for human use

Details of the Supplier of the Safety Data Sheet

Zoetis Inc.
100 Campus Drive, P.O. Box 651
Florham Park, New Jersey 07932 (USA)
Rocky Mountain Poison Control Center Phone: 1-866-531-8896
Product Support/Technical Services Phone: 1-800-366-5288

Zoetis Belgium S.A.
Mercuriusstraat 20
1930 Zaventem
Belgium

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

Emergency telephone number:
International CHEMTREC (24 hours): +1-703-527-3887

2. HAZARDS IDENTIFICATION

Appearance: Dark brown liquid with an anise-licorice flavor

Classification of the Substance or Mixture

GHS - Classification Not classified as hazardous

EU Classification:

EU Indication of danger: Not classified

Label Elements

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

Other Hazards

Short Term: May cause eye and skin irritation (based on components) .
Australian Hazard Classification (NOHSC): Non-Hazardous Substance. Non-Dangerous Goods.

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.

SAFETY DATA SHEET

Material Name: Lixotinic®
Revision date: 29-Jan-2014

Page 2 of 12
Version: 2.1

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous

Ingredient	CAS Number	EU EINECS/ELINCS List	EU Classification	GHS Classification	%
Cyanocobalamin (Vitamin B12)	68-19-9	200-680-0	Not Listed	Not Listed	1
Riboflavin (Vitamin B2)	83-88-5	201-507-1	Not Listed	Not Listed	1
Sucrose	57-50-1	200-334-9	Not Listed	Not Listed	1
Glycerin, USP	56-81-5	200-289-5	Not Listed	Not Listed	1
Beef Liver Paste	NOT ASSIGNED	Not Listed	Xn;R22	Acute Tox. 4 (H302)	1
Iron Proteinate	NOT ASSIGNED	Not Listed	Xn;R22	Acute Tox. 4 (H302)	1
Niacinamide	98-92-0	202-713-4	Not Listed	Not Listed	1
Citric acid	77-92-9	201-069-1	Xi; R36	Eye Irrit. 2 (H319)	<1.0
Cupric sulfate	7758-98-7	231-847-6	Xn; R22 Xi; R36/38 N; R50-53	Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Aquatic Chronic 1 (H410) Aquatic Acute 1 (H400) Eye Irrit. 2 (H319)	##
Sodium hydroxide	1310-73-2	215-185-5	C; R35	Skin Corr. 1A (H314)	##

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

Additional Information:

Trace

* Proprietary

Ingredient(s) indicated as hazardous have been assessed under standards for workplace safety.

For the full text of the R phrases and CLP/GHS abbreviations mentioned in this Section, see Section 16

4. FIRST AID MEASURES

Description of 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.

SAFETY DATA SHEET

Material Name: Lixotinic®
Revision date: 29-Jan-2014

Page 3 of 12
Version: 2.1

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.

Most Important Symptoms and Effects, Both Acute and Delayed

Symptoms and Effects of No data available

Exposure:

Medical Conditions None known

Aggravated by Exposure:

Indication of the Immediate Medical Attention and Special Treatment Needed

Notes to Physician: None

5. FIRE-FIGHTING MEASURES

Extinguishing Media: Extinguish fires with CO₂, extinguishing powder, foam, or water.

Special Hazards Arising from the Substance or Mixture

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

Fire / Explosion Hazards: Fine particles (such as dust and mists) may fuel fires/explosions.

Advice for Fire-Fighters

During all fire fighting activities, wear appropriate protective equipment, including self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

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

Environmental Precautions

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

Methods and Material for Containment and Cleaning Up

Measures for Cleaning / Collecting: Contain the source of the spill if it is safe to do so. 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.

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

Precautions for Safe Handling

Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. When handling, use appropriate personal protective equipment (see Section 8). Releases to the environment should be avoided.

Conditions for Safe Storage, Including any Incompatibilities

Storage Conditions: Store as directed by product packaging.

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

Specific end use(s): No data available

SAFETY DATA SHEET

Material Name: Lixotinic®
Revision date: 29-Jan-2014

Page 4 of 12
Version: 2.1

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters

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

Riboflavin (Vitamin B2)

Latvia OEL - TWA	1 mg/m ³
Lithuania OEL - TWA	1 mg/m ³

Sucrose

ACGIH Threshold Limit Value (TWA)	10 mg/m ³
Australia TWA	10 mg/m ³
Belgium OEL - TWA	10 mg/m ³
Bulgaria OEL - TWA	10.0 mg/m ³
Estonia OEL - TWA	10 mg/m ³
France OEL - TWA	10 mg/m ³
Ireland OEL - TWAs	10 mg/m ³
Latvia OEL - TWA	5 mg/m ³
Lithuania OEL - TWA	10 mg/m ³
OSHA - Final PELs - TWAs:	15 mg/m ³
Portugal OEL - TWA	10 mg/m ³
Slovakia OEL - TWA	6 mg/m ³
Spain OEL - TWA	10 mg/m ³

Glycerin, USP

Australia TWA	10 mg/m ³
Belgium OEL - TWA	10 mg/m ³
Czech Republic OEL - TWA	10 mg/m ³
Estonia OEL - TWA	10 mg/m ³
Finland OEL - TWA	20 mg/m ³
France OEL - TWA	10 mg/m ³
Germany (DFG) - MAK	50 mg/m ³
Greece OEL - TWA	10 mg/m ³
Ireland OEL - TWAs	10 mg/m ³
OSHA - Final PELs - TWAs:	15 mg/m ³
Poland OEL - TWA	10 mg/m ³
Portugal OEL - TWA	10 mg/m ³
Spain OEL - TWA	10 mg/m ³
Switzerland OEL - TWAs	50 mg/m ³

Niacinamide

Zoetis OEL TWA 8-hr	250 µg/m ³
Latvia OEL - TWA	1 mg/m ³
Lithuania OEL - TWA	1 mg/m ³

Cupric sulfate

ACGIH Threshold Limit Value (TWA)	1 mg/m ³
Finland OEL - TWA	1 mg/m ³

Sodium hydroxide

ACGIH Ceiling Threshold Limit:	2 mg/m ³
Australia PEAK	2 mg/m ³
Austria OEL - MAKs	2 mg/m ³

SAFETY DATA SHEET

Material Name: Lixotinic®
Revision date: 29-Jan-2014

Page 5 of 12
Version: 2.1

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Bulgaria OEL - TWA	2.0 mg/m ³
Czech Republic OEL - TWA	1 mg/m ³
Estonia OEL - TWA	1 mg/m ³
France OEL - TWA	2 mg/m ³
Greece OEL - TWA	2 mg/m ³
Hungary OEL - TWA	2 mg/m ³
Japan - OELs - Ceilings	2 mg/m ³
Latvia OEL - TWA	0.5 mg/m ³
OSHA - Final PELs - TWAs:	2 mg/m ³
Poland OEL - TWA	0.5 mg/m ³
Slovakia OEL - TWA	2 mg/m ³
Slovenia OEL - TWA	2 mg/m ³
Sweden OEL - TWAs	1 mg/m ³
Switzerland OEL - TWAs	2 mg/m ³

The purpose of the Occupational Exposure Band (OEB) classification system is to separate substances into different Hazard categories when the available data are sufficient to do so, but inadequate to establish an Occupational Exposure Limit (OEL). The OEB given is based upon an analysis of all currently available data; as such, this value may be subject to revision when new information becomes available.

Riboflavin (Vitamin B2)

Zoetis OEB OEB 2 (control exposure to the range of 100ug/m³ to < 1000ug/m³)

Pyridoxine Hydrochloride (Vitamin B6)

Zoetis OEB OEB 2 (control exposure to the range of 100ug/m³ to < 1000ug/m³)

Exposure Controls

Engineering Controls:	Engineering controls should be used as the primary means to control exposures. Good general ventilation should be sufficient to control airborne levels.
Personal Protective Equipment:	Refer to applicable national standards and regulations in the selection and use of personal protective equipment (PPE).
Hands:	Wear impervious gloves if skin contact is possible.
Eyes:	Wear safety glasses or goggles if eye contact is possible.
Skin:	Use protective clothing (uniforms, lab coats, disposable coveralls, etc.) in both production and laboratory areas.
Respiratory protection:	None required under normal conditions of use. If airborne exposures are within or exceed the Occupational Exposure Band (OEB) range, wear an appropriate respirator with a protection factor sufficient to control exposures to the bottom of the OEB range.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid	Color:	Dark brown
Odor:	No data available.	Odor Threshold:	No data available.
Molecular Formula:	Mixture	Molecular Weight:	Mixture
Solvent Solubility:	No data available		
Water Solubility:	No data available		
Solubility:	Soluble: Water (based on components)		
pH:	4.2 - 4.8		
Melting/Freezing Point (°C):	No data available		
Boiling Point (°C):	No data available.		

SAFETY DATA SHEET

Material Name: Lixotinic®
Revision date: 29-Jan-2014

Page 6 of 12
Version: 2.1

9. PHYSICAL AND CHEMICAL PROPERTIES

Partition Coefficient: (Method, pH, Endpoint, Value)

No data available

Decomposition Temperature (°C): No data available.

Evaporation Rate (Gram/s): No data available

Vapor Pressure (kPa): No data available

Vapor Density (g/ml): No data available

Relative Density: No data available

Viscosity: No data available

Flammability:

Autoignition Temperature (Solid) (°C): No data available

Flammability (Solids): No data available

Flash Point (Liquid) (°C): Non-flammable based on major component

Upper Explosive Limits (Liquid) (% by Vol.): No data available

Lower Explosive Limits (Liquid) (% by Vol.): No data available

10. STABILITY AND REACTIVITY

Reactivity: No data available

Chemical Stability: Stable under normal conditions of use.

Possibility of Hazardous Reactions

Oxidizing Properties: No data available

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

Hazardous Decomposition Products: No data available

11. TOXICOLOGICAL INFORMATION

Information on Toxicological Effects

General Information: Toxicological properties of the formulation have not been investigated. The information included in this section describes the potential hazards of the individual ingredients.

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

Citric acid

Rat Oral LD50 3000 mg/kg

Sucrose

Rat Oral LD50 29.7 g/kg

Glycerin, USP

Mouse Oral LD50 4090 mg/kg

SAFETY DATA SHEET

Material Name: Lixotinic®
Revision date: 29-Jan-2014

Page 7 of 12
Version: 2.1

11. TOXICOLOGICAL INFORMATION

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

Niacinamide

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

Sodium hydroxide

Mouse IP LD50 40 mg/kg

Cupric sulfate

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

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

Citric acid

Eye Irritation Rabbit Severe
Skin Irritation Rabbit Mild

Glycerin, USP

Eye Irritation Rabbit Mild

Sodium hydroxide

Eye Irritation Rabbit Severe
Skin Irritation Rabbit Severe

Sucrose

Bacterial Mutagenicity (Ames) *Salmonella* Negative

Carcinogen Status: None of the components of this formulation are listed as a carcinogen by IARC, NTP or OSHA.

1.2

SAFETY DATA SHEET

Material Name: Lixotinic®
Revision date: 29-Jan-2014

Page 8 of 12
Version: 2.1

12. ECOLOGICAL INFORMATION

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

Toxicity:

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

Glycerin, USP

<i>Oncorhynchus mykiss</i> (Rainbow Trout)	LD50	96 Hours	50 mg/L
<i>Daphnia magna</i> (Water Flea)	EC50	24 Hours	>500 mg/L

Cupric sulfate

<i>Daphnia magna</i> (Water Flea)	EC50	48 Hours	0.024 mg/L
<i>Oncorhynchus mykiss</i> (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.

Persistence and Degradability: No data available

Bio-accumulative Potential: No data available

Mobility in Soil: No data available

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods: Dispose of waste in accordance with all applicable laws and regulations. Member State specific and Community specific provisions must be considered. Considering the relevant known environmental and human health hazards of the material, review and implement appropriate technical and procedural waste water and waste disposal measures to prevent occupational exposure and environmental release. It is recommended that waste minimization be practiced. The best available technology should be utilized to prevent environmental releases. This may include destructive techniques for waste and wastewater.

14. TRANSPORT INFORMATION

The following refers to all modes of transportation unless specified below.

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

15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

SAFETY DATA SHEET

Material Name: Lixotinic®
Revision date: 29-Jan-2014

Page 9 of 12
Version: 2.1

15. REGULATORY INFORMATION

Canada - WHMIS: Classifications

WHMIS hazard class:

Non-controlled

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.

Cyanocobalamin (Vitamin B12)

CERCLA/SARA 313 Emission reporting	Not Listed
California Proposition 65	Not Listed
Inventory - United States TSCA - Sect. 8(b)	Present
Australia (AICS):	Present
EU EINECS/ELINCS List	200-680-0

Riboflavin (Vitamin B2)

CERCLA/SARA 313 Emission reporting	Not Listed
California Proposition 65	Not Listed
Inventory - United States TSCA - Sect. 8(b)	Present
Australia (AICS):	Present
EU EINECS/ELINCS List	201-507-1

Pyridoxine Hydrochloride (Vitamin B6)

CERCLA/SARA 313 Emission reporting	Not Listed
California Proposition 65	Not Listed
Inventory - United States TSCA - Sect. 8(b)	Present
Australia (AICS):	Present
EU EINECS/ELINCS List	200-386-2

Corn syrup

CERCLA/SARA 313 Emission reporting	Not Listed
California Proposition 65	Not Listed
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

Sucrose

CERCLA/SARA 313 Emission reporting	Not Listed
California Proposition 65	Not Listed
Inventory - United States TSCA - Sect. 8(b)	Present
Australia (AICS):	Present

SAFETY DATA SHEET

Material Name: Lixotinic®
Revision date: 29-Jan-2014

Page 10 of 12
Version: 2.1

15. REGULATORY INFORMATION

REACH - Annex IV - Exemptions from the obligations of Register:	Present
EU EINECS/ELINCS List	200-334-9
Glycerin, USP	
CERCLA/SARA 313 Emission reporting	Not Listed
California Proposition 65	Not Listed
Inventory - United States TSCA - Sect. 8(b)	Present
Australia (AICS):	Present
REACH - Annex V - Exemptions from the obligations of Register:	Present if not chemically modified, except they meet the criteria for classification as dangerous according to Directive 67/548/EEC, except those only classified as flammable [R10], as a skin irritant [R38] or as an eye irritant [R36], except they are persistent, bioaccumulative, and toxic or very persistent and very bioaccumulative in accordance with the criteria set out in Annex XIII, except they were identified in accordance with Article 59[1] at least two years previously as substances giving rise to an equivalent level of concern
EU EINECS/ELINCS List	200-289-5
Beef Liver Paste	
CERCLA/SARA 313 Emission reporting	Not Listed
California Proposition 65	Not Listed
EU EINECS/ELINCS List	Not Listed
Iron Proteinate	
CERCLA/SARA 313 Emission reporting	Not Listed
California Proposition 65	Not Listed
EU EINECS/ELINCS List	Not Listed
Sodium citrate	
CERCLA/SARA 313 Emission reporting	Not Listed
California Proposition 65	Not Listed
Inventory - United States TSCA - Sect. 8(b)	Present
Australia (AICS):	Present
EU EINECS/ELINCS List	200-675-3
Niacinamide	
CERCLA/SARA 313 Emission reporting	Not Listed
California Proposition 65	Not Listed
Inventory - United States TSCA - Sect. 8(b)	Present
Australia (AICS):	Present
EU EINECS/ELINCS List	202-713-4
Citric acid	
CERCLA/SARA 313 Emission reporting	Not Listed
California Proposition 65	Not Listed
Inventory - United States TSCA - Sect. 8(b)	Present
Australia (AICS):	Present
EU EINECS/ELINCS List	201-069-1
Cupric sulfate	
CERCLA/SARA 313 Emission reporting	Not Listed

SAFETY DATA SHEET

Material Name: Lixotinic®
Revision date: 29-Jan-2014

Page 11 of 12
Version: 2.1

15. REGULATORY INFORMATION

CERCLA/SARA Hazardous Substances and their Reportable Quantities:	10 lb 4.54 kg
California Proposition 65 Inventory - United States TSCA - Sect. 8(b)	Not Listed Present
Australia (AICS): Standard for the Uniform Scheduling for Drugs and Poisons:	Present Schedule 6
EU EINECS/ELINCS List	231-847-6
Sodium hydroxide	
CERCLA/SARA 313 Emission reporting	Not Listed
CERCLA/SARA Hazardous Substances and their Reportable Quantities:	1000 lb 454 kg
California Proposition 65 Inventory - United States TSCA - Sect. 8(b)	Not Listed Present
Australia (AICS): Standard for the Uniform Scheduling for Drugs and Poisons:	Present Schedule 5 Schedule 6
EU EINECS/ELINCS List	215-185-5
Caramel	
CERCLA/SARA 313 Emission reporting	Not Listed
California Proposition 65 Inventory - United States TSCA - Sect. 8(b)	Not Listed Present
Australia (AICS): EU EINECS/ELINCS List	Present 232-435-9
Thiamine	
CERCLA/SARA 313 Emission reporting	Not Listed
California Proposition 65 Inventory - United States TSCA - Sect. 8(b)	Not Listed Present
Australia (AICS): EU EINECS/ELINCS List	Present 200-641-8
Potassium sorbate	
CERCLA/SARA 313 Emission reporting	Not Listed
California Proposition 65 Inventory - United States TSCA - Sect. 8(b)	Not Listed Present
EU EINECS/ELINCS List	Not Listed
Flavoring	
CERCLA/SARA 313 Emission reporting	Not Listed
California Proposition 65 Inventory - United States TSCA - Sect. 8(b)	Not Listed Not Listed
EU EINECS/ELINCS List	Not Listed

16. OTHER INFORMATION

Text of R phrases and GHS Classification abbreviations mentioned in Section 3

SAFETY DATA SHEET

Material Name: Lixotinic®
Revision date: 29-Jan-2014

Page 12 of 12
Version: 2.1

H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

C - Corrosive
N - Dangerous for the environment
Xi - Irritant
Xn - Harmful

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: The data contained in this MSDS may have been gathered from confidential internal sources, raw material suppliers, or from the published literature.

Reasons for Revision: Updated Section 1 - Identification of the Substance/Preparation and the Company/Undertaking. Updated Section 2 - Hazard Identification. Updated Section 3 - Composition / Information on Ingredients. Updated Section 7 - Handling and Storage. Updated Section 8 - Exposure Controls / Personal Protection. Updated Section 9 - Physical and Chemical Properties. Updated Section 12 - Ecological Information. Updated Section 15 - Regulatory Information.

Prepared by: Toxicology and Hazard Communication
Zoetis Global Risk Management

Zoetis Inc. believes that the information contained in this Material Safety Data Sheet is accurate, and while it is provided in good faith, it is without warranty of any kind, expressed or implied. If data for a hazard are not included in this document there is no known information at this time.

End of Safety Data Sheet