



MATERIAL SAFETY DATA SHEET

ZEOCIN

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Chemical product name : Phleomycin from *Streptomyces verticillus*
Common chemical name : ZEOCIN
Synonyms : --
Chemical formula : $C_{55}H_{85}O_{21}N_{20}S_2Cu.HCl = 1526.5$
CAS no. : 11006-33-0
EINECS no. :
Supplier's name : Duchefa Biochemie B.V.
Supplier's address : A. Hofmanweg 71
2031 BH Haarlem
The Netherlands
Emergency telephone : (+31) - (0)23 - 5319093

2. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/preparation:

Chemical name	CAS no.	% (w/w)	Symbol	R phrases
ZEOCIN	11006-33-0	--	Xn	R: 22-40-42/43

3. HAZARDS IDENTIFICATION

Physical/chemical hazards : --
Environmental hazards : None
Effect(s) of (over) exposure : --
Symptom(s) of (over) exposure :
Inhalation : Harmful if inhaled
Ingestion : Harmful if swallowed
Skin contact : Harmful if absorbed through skin
Eye contact : Can cause irritation
Aggravating conditions : --



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4. FIRST AID MEASURES

Fresh air. If you feel unwell seek medical advice and show the MSDS if possible

SKIN CONTACT	:	Take off contaminated clothes. Wash skin with soap and copious amounts of water.
EYE CONTACT	:	Rinse eyes with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Consult a medical doctor.
INGESTION, INHALATION	:	If swallowed, wash out mouth with water, provided person is conscious. Consult a medical doctor. If inhaled, remove from exposure to fresh air.

5. FIRE FIGHTING MEASURES

Suitable extinguishing media	:	Fight fire with water, CO ₂ or powder.
Hazardous thermal decomposition and combustion products	:	Could cause fire in high temperatures. When heated to decomposition material emit toxic fumes (NO _x).
Special fire fighting procedures	:	None
Protection of fire-fighters	:	Fire-fighters must wear self contained breathing equipment and impervious clothing.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Avoid contact with skin and eyes. Do not swallow. Do not breathe dust. Wear suitable protective clothing. Use rubber gloves and eye/face protection and use respirator.
Environmental precautions	:	Avoid contact with environment
Methods for cleaning up	:	--



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7. HANDLING AND STORAGE

Handling	:	Use with adequate ventilation. Keep containers closed and moisture free.
Storage	:	Store dry
Packaging materials	:	Glass or plastic containers

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering measures	:	Safety shower and eye bath. Mechanical exhaust required
Hygienic measures	:	Do not eat, drink and/or smoke during work. Wash after handling
<u>Personal protection</u>		
Respiratory system	:	Do not inhale powder use respirator
Skin and body	:	Use protective clothing
Hands	:	Use rubber gloves
Eyes	:	Use eye/face protection
<u>Occupational exposure limits</u>		
TLV (USA)	:	--
"MAK" (Germany)	:	--
MAC (Netherlands)	:	--

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	
Colour	:	Blue
Odour	:	Odourless
Melting point	:	°C
Boiling point	:	--
Density	:	--
Solubility	:	Soluble in water
Flash point	:	--
Lower explosion limit	:	--
Upper explosion limit	:	--



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10. STABILITY AND REACTIVITY

Stability	:	Stable at 2 – 8 °C.
Conditions to avoid	:	Heat
Materials to avoid	:	--
Hazardous decomposition products	:	Toxic fumes of carbon monoxide, carbon dioxide, nitrogen oxides.
Hazardous polymerization	:	will not occur

11. TOXICOLOGICAL INFORMATION

Acute toxicity	:	
Intravenous	:	LD ₅₀ (rat): 4 mg/kg, LD ₅₀ (mouse): 21 mg/kg, LD ₅₀ (dog): 2.5 mg/kg,
Subcutaneous	:	LD ₅₀ (mouse): 25 mg/kg,
Ingestion (oral)	:	Harmful if swallowed. LD ₅₀ (rat): 649 mg/kg, LD ₅₀ (mouse): 371 mg/kg,
Inhalation	:	Harmful if inhaled. May be irritating to mucous membranes and upper respiratory tract.
Intraperitoneal	:	LD ₅₀ (mouse): 13 mg/kg,
Eye irritation	:	Can cause eye irritation
Skin irritation	:	Harmful if absorbed through skin
Sensitization	:	--
Chronic toxicity	:	--
Carcinogenicity	:	--
Mutagenicity	:	Laboratory experiments have shown mutagenic effects. Human (1 mg/l, leucocytes): other mutation test systems. Human (0.1 mg/l, leucocytes, 24 hours): cytogenetic analysis Mouse (2.5 mg/kg, subcutaneous): Cytogenetic analysis Mouse (1 mg/l, ovary): Cytogenetic analysis
Target organ	:	Lungs, liver.



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12. ECOLOGICAL INFORMATION

Mobility	:	Not known
Persistence and degradability	:	Not known
Bioaccumulative potential	:	Not known
Ecotoxicity	:	Not known

13. DISPOSAL CONSIDERATIONS

Responsibility of the receiver to have knowledge of national and local regulations.

Product:

There are no uniform EC Regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding laws and regulations. We recommend that you contact either the authorities in charge of approved waste disposal companies which will advise you on how to dispose of special waste.

Packaging:

Disposal in compliance with official regulations. Handle contaminated packaging in the same way as the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

Methods of disposal	:	--
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14. TRANSPORT INFORMATION

UN Number	:	--
Proper shipping name	:	--
Road/Railway/Inland waterways		
ADR/RID/ADNR Class	:	Non-hazardous for road transport
Packaging group	:	--
Sea		
IMDG Class	:	Non-hazardous for sea transport
Packaging group	:	--



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Air

IATA Class	:	Non-hazardous for air transport
Packaging group	:	--
Packing instructions (PA)	:	--
Packing instructions (CAO)	:	--

15. REGULATORY INFORMATION

Responsibility of the receiver to have knowledge of national and local regulations.

EC Classification

Label name	:	HARMFUL
Hazard symbol	:	



Risk phrases	:	22: Harmful if swallowed 40: Possible risk of irreversible effects 42/43: May cause sensitisation by inhalation and skin contact
Safety phrases	:	24/25: Avoid contact with skin and eyes 36/37/39: Wear suitable protective clothing, gloves and eye/face protection.

National regulations

WGK (Germany)	:	--
Listed on TSCA-inventory	:	--
Listed on DSL-inventory	:	--
Listed on AICS-inventory	:	--
Listed on MITI-inventory	:	--

16. OTHER INFORMATION

All information given by or on behalf of Duchefa as to properties, specifications, use, etc. of the products is based on research, including literature and is believed reliable.

Duchefa is not liable for any damage a Customer might suffer as a result of the fact that the products the Customer bought from Duchefa prove not to be suitable for the use to which the Customer wishes to apply the products, unless the Customer has been expressly advised by Duchefa in writing in this regard.



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Duchefa is not liable for damage caused by the actions or omissions of Customers themselves or by persons appointed by Customers or for whom Customers are otherwise responsible.

In this respect the buyer is obliged to check the quality and all other properties of the products. The buyer assumes all responsibilities connected with the use of the products and information.

Duchefa does not guarantee the manner of packaging, and/or the quality and/or the properties of the packaging of the goods unless Duchefa itself applied the packaging and/or had it applied and/or packed the goods itself and/or had them packed.

Communications by or on behalf of Duchefa on the quality, the composition, the handling (in the broadest sense of the word), application possibilities, properties and the like of the products supplied by Duchefa do not bind Duchefa unless these communications are made expressly, in the form of a written guarantee.

Furthermore the general terms and conditions of sale are applicable and upon request we will send the complete general terms and conditions of sale.

HISTORY

Printing date : **December 18, 2005**

Date previous MSDS : --