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Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Name Linezolid Injection

Product Code(s) LINEZOLID INJECTION

Trade Name: ZYVOX, ZYVOXID, ZYVOXAM; Relneu IV

Chemical Family: Mixture

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Pharmaceutical product used as antibiotic agent

1.3. Details of the supplier of the safety data sheet

Pfizer Inc Pfizer Ireland Pharmaceuticals

66 Hudson Boulevard East OSG Building

New York, New York 10001 Ringaskiddy, Co. Cork.

1-800-879-3477 Ireland

+353 21 4378701

E-mail address pfizer-MSDS@pfizer.com

1.4. Emergency telephone number

Emergency Telephone Chemtrec 1-800-424-9300 International Chemtrec (24 hours):+1-703-527-3887

Section 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

GHS - Classification: Not classified as hazardous

2.2. Label elements

Signal word Not classified

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

2.3. Other hazards

Other hazards An Occupational Exposure Value has been established for one or more of the ingredients

(see Section 8).

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.

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Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Substances Not applicable

3.2 Mixtures

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Chemical name	Weight-%	REACH Registration Number	EC No	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
Linezolid (CAS #: 165800-03-3)	0.2		Not Listed	STOT RE 2 (H373) Aquatic Acute 2 (H401) Aquatic Chronic 2 (H411)	Not Listed	No data available	No data available
Citric acid (CAS #: 77-92-9)	<1		201-069-1	Eye Irrit. 2A (H319)SE 3 (H335)	Not Listed	No data available	No data available
NonHazardous	147 : 1 : 07	DEAGU	E0.11	1 01 101 11			
Chemical name	Weight-%	REACH Registration Number	EC No	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
Water (CAS #: 7732-18-5)	*	-	231-791-2	Not classified as hazardous	Not Listed	No data available	No data available
Dextrose (CAS #: 14431-43-7)	*		Not Listed	Not classified as hazardous	Not Listed	No data available	No data available
Sodium citrate (CAS #: 68-04-2)	*	-	200-675-3	Not classified as hazardous	Not Listed	No data available	No data available
SODIUM CHLORIDE (CAS #: 7647-14-5)	*	-	231-598-3	Not classified as hazardous	Not Listed	No data available	No data available

Full text of H- and EUH-phrases: see section 16

Acute Toxicity Estimate

Chemical name	Oral LD50	Dermal LD50		Inhalation LC50 - 4	Inhalation LC50 - 4
			hour - dust/mist - mg/L	hour - vapor - mg/L	hour - gas - ppm
Water 7732-18-5	89838.9	No data available	No data available	No data available	No data available
SODIUM CHLORIDE 7647-14-5	3000	10000	No data available	No data available	No data available
Citric acid 77-92-9	5400	>2000	No data available	No data available	No data available

Additional information

* Proprietary

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Ingredient(s) indicated as hazardous have been assessed under standards for workplace safety. In accordance with 29 CFR 1910.1200, the exact percentage composition of this mixture has been withheld as a trade secret.

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Section 4: FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation Remove to fresh air. Seek immediate medical attention/advice.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids.

Consult a physician.

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.

4.2. Most important symptoms and effects, both acute and delayed

Most important symptoms and

effects

For information on potential signs and symptoms of exposure, See Section 2 - Hazards

Identification and/or Section 11 - Toxicological Information.

4.3. Indication of any immediate medical attention and special treatment needed

Note to physicians None.

Section 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media Dry chemical, CO2, alcohol-resistant foam or water spray.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the

chemical

Fine particles (such as dust and mists) may fuel fires/explosions.

Hazardous combustion products Formation of toxic gases is possible during heating or fire.

5.3. Advice for firefighters

Special protective equipment for

fire-fighters

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

Use personal protection equipment.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Personnel involved in clean-up should wear appropriate personal protective equipment (see

Section 8). Minimize exposure.

6.2. Environmental precautions

Environmental precautions Place waste in an appropriately labeled, sealed container for disposal. Care should be

taken to avoid environmental release.

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6.3. Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Contain the source of spill if it is safe to do so. Collect spill with absorbent material. Clean

spill area thoroughly.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sectionsSee section 8 for more information. See section 13 for more information.

Section 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Advice on safe handling

Avoid breathing vapor or mist. Avoid contact with eyes, skin and clothing. When handling, use appropriate personal protective equipment (see Section 8). Wash thoroughly after handling. Releases to the environment should be avoided. Review and implement appropriate technical and procedural waste water and waste disposal measures to prevent occupational exposure or environmental releases. Potential points of process emissions of this material to the atmosphere should be controlled with dust collectors, HEPA filtration systems or other equivalent controls.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Store as directed by product packaging.

7.3. Specific end use(s)

Specific use(s) Pharmaceutical drug product.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure Limits

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

Linezolid

Pfizer OEL TWA-8 Hr: 750 µg/m³

SODIUM CHLORIDE

Latvia 5 mg/m³
Russia MAC: 5 mg/m³

Citric acid

Czech Republic 4 mg/m³ Germany 2 mg/m³

Ceiling / Peak: 4 mg/m³

 Germany
 2 mg/m³

 Russia
 MAC: 1 mg/m³

 Switzerland
 2 mg/m³

 STEL: 4 mg/m³

8.2. Exposure controls

Engineering controls Engineering controls should be used as the primary means to control exposures. General

room ventilation is adequate unless the process generates dust, mist or fumes. Keep airborne contamination levels below the exposure limits listed above in this section.

Environmental exposure controls No information available.

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Personal protective equipment Refer to applicable national standards and regulations in the selection and use of personal

protective equipment (PPE). Contact your safety and health professional or safety equipment supplier for assistance in selecting the correct protective clothing/equipment based on an assessment of the workplace conditions, other chemicals used or present in

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the workplace and specific operational processes.

Eye/face protection Wear safety glasses or goggles if eye contact is possible. (Eye protection must meet the

standards in accordance with EN166, ANSI Z87.1 or international equivalent.).

Hand protection Impervious gloves (e.g. Nitrile, etc.) are recommended if skin contact with drug product is

possible and for bulk processing operations. (Protective gloves must meet the standards in

accordance with EN374, ASTM F1001 or international equivalent.).

Skin and body protection Impervious protective clothing is recommended if skin contact with drug product is possible

and for bulk processing operations. (Protective clothing must meet the standards in

accordance with EN13982, ANSI 103 or international equivalent.).

Respiratory protection 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 (e.g. particulate respirator with a half mask, P3 filter). (Respirators must meet the standards in accordance with EN140, EN143, ASTM F2704-10

or international equivalent.)

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state Liquid

Color Clear, colorless

Odor No information available.

Odor threshold No information available

Molecular formula Mixture

Molecular weight Mixture

<u>Property</u> <u>Values</u>

pH No data available
Melting point / freezing point No data available

Boiling point / boiling range

Flash point

No information available
Evaporation rate

No data available

Flammability (solid, gas)

No data available
Flammability Limit in Air

Upper flammability limit: No data available

Lower flammability limit: No data available

No data available Vapor pressure Vapor density No data available Relative density No data available Water solubility No data available Solubility(ies) No data available Partition coefficient No data available **Autoignition temperature** No data available **Decomposition temperature** No data available Kinematic viscosity No data available No data available **Dynamic viscosity**

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Particle characteristics

Particle Size No information available **Particle Size Distribution** No information available No information available **Explosive properties**

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

Linezolid

Measured 6-8 Log D 0.55

9.2. Other information No information available

9.2.1. Information with regard to physical hazard classes

No information available

9.2.2. Other safety characteristics

No information available

Section 10: STABILITY AND REACTIVITY

10.1. Reactivity

Reactivity No data available.

10.2. Chemical stability

Stable under normal conditions. Stability

Explosion data

Sensitivity to Mechanical Impact No data available. Sensitivity to Static Discharge No data available.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions No information available.

10.4. Conditions to avoid

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

10.5. Incompatible materials

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

10.6. Hazardous decomposition products

Hazardous decomposition products No data available.

Section 11: TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

The information included in this section describes the potential hazards of the individual **General Information:**

ingredients

Repeat-dose studies in animals have shown a potential to cause adverse effects on Long Term:

reproductive system the developing fetus.

Known Clinical Effects: The most common adverse effects reported with clinical use were diarrhea, nausea, rash,

and vomiting. Effects on blood and blood-forming organs have also occurred.

Acute toxicity Serious eye damage/eye irritation

Skin corrosion/irritation Respiratory or skin sensitization

STOT - single exposure STOT - repeated exposure Reproductive toxicity Germ cell mutagenicity Carcinogenicity

Based on available data, the classification criteria are not met. Based on available data, the classification criteria are not met. Based on available data, the classification criteria are not met. Based on available data, the classification criteria are not met.

Based on available data, the classification criteria are not met. Based on available data, the classification criteria are not met. Based on available data, the classification criteria are not met. Based on available data, the classification criteria are not met. Based on available data, the classification criteria are not met.

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Aspiration hazard

Based on available data, the classification criteria are not met.

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

SODIUM CHLORIDE

Rat Sub-tenon injection (eye) LC50/1hr > 42 g/m³

Rat Oral LD 50 3 g/kg Mouse Oral LD 50 4 g/kg Rabbit Dermal LD 50 > 10 g/kg

Linezolid

Rat (F) Oral Minimum Lethal Dose 5000 mg/kg
Rat (M) Oral Minimum Lethal Dose > 5000 mg/kg
Dog Oral Minimum Lethal Dose > 2000 mg/kg

Citric acid

Mouse Oral LD50 5400 mg/kg

Modeo Char Ebec Chec high	Ng .		
Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Water	> 90 mL/kg (Rat)	-	-
SODIUM CHLORIDE	= 3 g/kg (Rat)	> 10000 mg/kg (Rabbit)	> 42 mg/L (Rat)1 h
Citric acid	= 3 g/kg (Rat)	> 2000 mg/kg (Rat)	-

Acute Toxicity Comments:

A greater than symbol (>) indicates that the toxicity endpoint being tested was not achievable at the highest dose used in the test.

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

SODIUM CHLORIDE

Skin irritation Rabbit Mild Eye irritation Rabbit Mild

Linezolid

Eye Irritation Rabbit Minimal Skin Irritation Rabbit Minimal

Antigenicity- Passive cutaneous anaphylaxis Mouse Negative

Antigenicity- Active anaphylaxis Guinea Pig Negative

Citric acid

Eye Irritation Rabbit Severe Skin Irritation Rabbit Mild

Repeated Dose Toxicity: (Duration, Species, Route, Dose, End Point, Target Organ)

Linezolid

1 Month(s) Rat Oral 20 mg/kg/day NOAEL Blood forming organs, Blood 3 Month(s) Rat Oral 10 mg/kg/day NOAEL Blood forming organs, Blood

1 Month(s) Dog Oral 20 mg/kg/day NOAEL Blood forming organs, Blood, Gastrointestinal system 3 Month(s) Dog Oral 20 mg/kg/day NOAEL Blood forming organs, Blood, Gastrointestinal system

Reproduction & Development Toxicity: (Duration, Species, Route, Dose, End Point, Effect(s)) Linezolid

Reproductive & Fertility Rat Oral 50 mg/kg/day NOAEL Fertility

Embryo / Fetal Development Rat Oral 2.5 mg/kg/day NOAEL Fetotoxicity, Not Teratogenic

Embryo / Fetal Development Rat Oral 15 mg/kg/day NOAEL Maternal Toxicity

Embryo / Fetal Development Mouse Oral 150 mg/kg/day NOAEL Fetotoxicity, Maternal Toxicity, Not Teratogenic

Genetic Toxicity: (Study Type, Cell Type/Organism, Result)

Linezolid

In Vitro Unscheduled DNA Synthesis Negative Bacterial Mutagenicity (Ames) Salmonella Negative

In Vitro Chromosome Aberration Human Lymphocytes Negative

In Vivo Micronucleus Mouse Negative

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Carcinogenicity

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

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Endocrine disrupting properties No information available.

11.2.2. Other information

Other adverse effects No information available.

Section 12: ECOLOGICAL INFORMATION

Environmental Overview: Environmental properties have not been investigated. Releases to the environment should

be avoided.

12.1. Toxicity

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

Linezolid

Daphnia magna (Water Flea) OECD EC50 48 hours > 100 mg/L

Oncorhynchus mykiss (Rainbow Trout) OECD LC50 96 hours > 1.4 mg/L

Anabaena flos-aquae (Cyanobacteria) Algae OECD ErC50 96 hours 2.0 mg/L

Anabaena flos-aquae (Cyanobacteria) OECD NOEC 96 hours 1.0 mg/L

Bacterial Inhibition: (Inoculum, Method, End Point, Result)

Linezolid

Activated sludge OECD EC50 / EC15 > 1000 mg/L

Aspergillus niger (Fungus) OECD MIC 600 mg/L

Trichoderma viride (Fungus) OECD MIC > 1000 mg/L

Clostridium perfingens (Bacterium) OECD MIC 2 mg/L

Bacillus subtilis (Bacterium) OECD MIC 0.4 mg/L

Chronic Aquatic Toxicity: (Species, Method, Duration, Endpoint, Result, Adverse Endpoint)

Linezolid

Pimephales promelas (Fathead Minnow) OECD 32 Day(s) NOEC 9.9 mg/L Sublethal effects

Daphnia magna (Water Flea) OECD 21 Day(s) NOEC 24 mg/L Reproduction

Ceriodaphnia dubia (Daphnids) OECD 7 Day(s) NOEC 31 mg/L Reproduction, Survival

12.2. Persistence and degradability

Persistence and degradability

<u>Biodegradation: (Method, Inoculum, Biodeg Study, Result, Endpoint, Duration, Classification)</u> Linezolid

OECD Activated sludge Die-away, Mineralization (CO2 Evolution) 84 % in 28 Day(s)

OECD Activated sludge Mineralization (CO2 Evolution) -3.4% Not readily biodegradable

OECD Water - Sediment (various) Mineralization (CO2 Evolution) 44 - 52.7 % in 102 Day(s)

OECD Water - Sediment (various) Total System DT50 23 - 24.7 Day(s)

12.3. Bioaccumulative potential

Bioaccumulation

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

Linezolid

Measured 6-8 Log D 0.55

12.4. Mobility in soil

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Mobility in soil

Sorption:

Linezolid (165800-03-3)

<u>Method</u>	<u>Inoculum</u>	End Point	Result
OECD	Activated sludge	Kd	3.0
OECD	Activated sludge	Koc	8.6
OECD	Soil (various)	Kd (Geometric mean)	18.8
OECD	Soil (various)	Koc (Geometric mean)	922

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment

Chemical name	PBT and vPvB assessment
Sodium citrate	The substance is not PBT / vPvB PBT assessment does
	not apply
SODIUM CHLORIDE	The substance is not PBT / vPvB PBT assessment does
	not apply
Citric acid	The substance is not PBT / vPvB

12.6. Endocrine disrupting properties

Endocrine disrupting properties No information available.

12.7. Other adverse effects

No information available.

Section 13: DISPOSAL CONSIDERATIONS

13.1. 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 wastewater 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.

Section 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.

UN number:
UN proper shipping name:
Transport hazard class(es):
Packing group:
Environmental Hazard(s):
Not applicable
Not applicable
Not applicable

Special precautions for user: Not applicable

LINEZOLID INJECTION

Section 15: REGULATORY INFORMATION

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

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CERCLA/SARA Section 313 de minimus % Not Listed
California Proposition 65 Not Listed
TSCA Present
EINECS 231-791-2
AICS Present
Dextrose

CERCLA/SARA Section 313 de minimus % Not Listed
California Proposition 65 Not Listed
EINECS Not Listed
AICS Present

Sodium citrate

CERCLA/SARA Section 313 de minimus % Not Listed
California Proposition 65 Not Listed
TSCA Present
EINECS 200-675-3
AICS Present
Standard for Uniform Scheduling of Medicines and Schedule 5

Poisons (SUSMP) SODIUM CHLORIDE

CERCLA/SARA Section 313 de minimus % Not Listed
California Proposition 65 Not Listed
TSCA Present
EINECS 231-598-3
AICS Present

Linezolid

CERCLA/SARA Section 313 de minimus % Not Listed
California Proposition 65 Not Listed
EINECS Not Listed
Standard for Uniform Scheduling of Medicines and Schedule 4

Poisons (SUSMP)

Citric acid

CERCLA/SARA Section 313 de minimus % Not Listed
California Proposition 65 Not Listed
TSCA Present
EINECS 201-069-1
AICS Present

France

Occupational Illnesses (R-463-3, France)

Chemical name	French RG number	Title
SODIUM CHLORIDE	RG 78	-
7647-14-5		

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Authorizations and/or restrictions on use:

This product does not contain substances subject to authorization (Regulation (EC) No. 1907/2006 (REACH), Annex XIV) This product does not contain substances subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

Chemical name	Restricted substance per REACH	Substance subject to authorization per
	Annex XVII	REACH Annex XIV
Citric acid - 77-92-9	Use restricted. See item 75.	

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Persistent Organic Pollutants

Not applicable

Ozone-depleting substances (ODS) regulation (EC) 1005/2009

Not applicable

Plant protection products directive (91/414/EEC)

Train protocion producto directive (01/41-4/220)				
Chemical name	Plant protection products directive (91/414/EEC)			
SODIUM CHLORIDE - 7647-14-5	Plant protection agent			

EU - Biocides

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

AICS - Australian Inventory of Chemical Substances

15.2. Chemical safety assessment

Chemical Safety Report No information available

Section 16: OTHER INFORMATION

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of H-Statements referred to under section 3

Specific target organ toxicity, repeated exposure-Cat.2; H373 - May cause damage to organs through prolonged or repeated exposure. Serious eye damage/eye irritation-Cat.2A; H319 - Causes serious eye irritation. Specific target organ toxicity, single exposure; Respiratory tract irritation-Cat.3; H335 - May cause respiratory irritation. Hazardous to the aquatic environment, acute toxicity-Cat.2; H401 - Toxic to aquatic life. Hazardous to the aquatic environment, chronic toxicity-Cat.2; H411 - Toxic to aquatic life with long lasting effects.

Data Sources: Pfizer proprietary drug development information. Safety data sheets for individual

ingredients. Publicly available toxicity information.

Reason for revision Updated Section 1 - Identification of the Substance/Preparation and the

Company/Undertaking. Updated Section 3 - Composition / Information on Ingredients. Updated Section 11 - Toxicology Information. Updated Section 12 - Ecological Information. Updated Section 15 - Regulatory Information. Updated Section 16 - Other Information.

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Prepared By Pfizer Global Environment, Health, and Safety

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