Safety Data Sheet
Doxercalcidol Injection

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

Material Name: Doxercalciferol Injection
Trade Name: Doxercalciferol Injection
Chemical Family: Not determined
Intended Use: Pharmaceutical product
Company: Heron(Shanghai) Pharmaceutical Science and Technology Co., Ltd.
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SECTION 2: HAZARDS IDENTIFICATION

Classification of the Substance or Mixture GHS - Classification
Flammable liquids- Category 4
Label Elements
Signal Word: Warning
Hazard Statements: H227 - Combustible liquid
Precautionary Statements: P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P370 + P378 - In case of fire: Use water fog, carbon dioxide, dry chemical or alcohol-resistant foam for extinction
P403 + P235 - Store in a well-ventilated place. Keep cool
P501 - Dispose of contents/container in accordance with all local and national regulations
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 requires the inclusion of all known hazards of the product or its ingredients regardless of the potential risk. The precautionary statements and warning included may not apply in all cases. Your needs may vary depending upon the potential for exposure in your workplace.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous

Ingredient	CAS Number	EU EINECS/ELINCS List	GHS Classification	%
Doxercalciferol	54573-75-0	Not Listed	Acute Tox 1 (H300)	0
ETHANOL	64-17-5	200-578-6	Flam. Liq. 2 (H225)	5
Butylated Hydroxytoluene	128-37-0	204-881-4	Not Listed	*

Ingredient	CAS Number	EU EINECS/ELINCS List	GHS Classification	%
SODIUM CHLORIDE	7647-14-5	231-598-3	Not Listed	*
Polysorbate 20	9005-64-5	Not Listed	Not Listed	*
Water for Injection	7732-18-5	231-791-2	Not Listed	*
Sodium Phosphate Dibasic Heptahydrate	7782-85-6	Not Listed	Not Listed	1.4
EDTA, disodium salt	139-33-3	205-358-3	Not Listed	*
Sodium phosphate, monobasic	7558-80-7	231-449-2	Not Listed	*

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

For the full text of the CLP/GHS abbreviations mentioned in this Section, see Section 1

SECTION 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.

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 Exposure:

For information on potential signs and symptoms of exposure, See Section 2 - Hazards Identification and/or Section 11 - Toxicological Information

Medical Conditions Aggravated by Exposure:

None known

Indication of the Immediate Medical Attention and Special Treatment Needed Notes to Physician:

None

SECTION 5: FIRE FIGHTING MEASURES

Extinguishing Media:

Dry chemical, carbon dioxide, water spray or alcohol-resistant foam

Special Hazards Arising from the Substance or Mixture

Hazardous Combustion Products:

Formation of toxic gases is possible during heating or fire. May include oxides of carbon

Fire / Explosion Hazards:

Combustible liquid. May generate flammable vapors. Vapors are heavier than air and may travel along surfaces to remote ignition sources and flash back.

Advice for Fire-Fighters

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

SECTION 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. Eliminate all sources of ignition and ventilate area using explosion-proof equipment.

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 spill if it is safe to do so. Collect spill with absorbent material. Clean spill area thoroughly.
Additional Consideration for Large Spills:	Non-essential personnel should be evacuated from affected area. Report emergency situations immediately. Cleanup operations should only be undertaken by trained personnel.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Restrict access to work area. 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.

Conditions for Safe Storage, Including any Incompatibilities

Storage Conditions:	Store as directed by product packaging.
Specific end use(s):	Pharmaceutical product

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters

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

SODIUM CHLORIDE	
Latvia OEL - TWA	5 mg/m^3
Lithuania OEL - TWA	5 mg/m^3
ETHANOL	
ACGIH Threshold Limit Value (STEL)	1000 ppm
Australia TWA	1000 ppm
	1880 mg/m^3
Austria OEL - MAKs Belgium OEL – TWA	1900 mg/m^3
	1000 ppm
Bulgaria OEL – TWA	1000 mg/m^3
	1907 mg/m^3
Czech Republic OEL - TWA	1000 mg/m^3
Denmark OEL - TWA	1000 ppm
	1900 mg/m^3
Estonia OEL - TWA	500 ppm
	1000 mg/m^3
Finland OEL - TWA	1000 ppm
	1900 mg/m^3
France OEL - TWA	1000 ppm
	1900 mg/m^3
Germany - TRGS 900 - TWAs	500 ppm
	960 mg/m^3
Germany (DFG) - MAK	500 ppm
	960 mg/m^3
Greece OEL - TWA	1000 ppm
	1900 mg/m^3
Hungary OEL - TWA	1900 mg/m^3
Latvia OEL - TWA	1000 mg/m^3
Lithuania OEL - TWA	500 ppm
	1000 mg/m^3
Netherlands OEL - TWA	260 mg/m^3
OSHA - Final PELS - TWAs:	1000 ppm
	1900 mg/m^3
Poland OEL - TWA	1900 mg/m^3
Portugal OEL - TWA	1000 ppm
Romania OEL - TWA	1000 ppm
	1900 mg/m^3
Russia OEL - TWA	1000 mg/m^3
Slovakia OEL - TWA	500 ppm
	960 mg/m^3
Slovenia OEL - TWA	1000 ppm
	1900 mg/m^3
Sweden OEL - TWAs	500 ppm
	1000 mg/m^3
Switzerland OEL -TWAs	500 ppm
	960 mg/m^3
Vietnam OEL - TWAs	1000 mg/m^3

Butylated Hydroxytoluene	
ACGIH Threshold Limit Value (TWA)	2 mg/m^3
Australia TWA	10 mg/m^3
Austria OEL - MAKs	10 mg/m^3
Belgium OEL - TWA	2 mg/m^3
Bulgaria OEL - TWA	10 mg/m^3
Denmark OEL - TWA	10 mg/m^3
Finland OEL - TWA	10 mg/m^3
France OEL - TWA	10 mg/m^3
Germany - TRGS 900 - TWAs	10 mg/m^3
Germany (DFG) - MAK	10 mg/m^3 can occur as vapor and aerosol at the same time
Greece OEL – TWA	2mg/m^3
Ireland OEL - TWAs	10 mg/m^3
Portugal OEL – TWA	2 mg/m^3
Slovenia OEL - TWA	10 mg/m^3
Spain OEL - TWA	10 mg/m^3
Switzerland OEL -TWAs	10 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.

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 air contamination levels below the exposure limits or within the OEB range listed above in this section.

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 the workplace and specific operational processes.

Hands:

Impervious disposable gloves (e.g. Nitrile, etc.) (double 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.)

Eyes:

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.)

Skin:

Impervious disposable 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.)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Color: Colorless
Odor: Alcoholic
Molecular Formula: Mixture
Odor Threshold: No data available.
Molecular Weight: Mixture
Solvent Solubility: No data available
Water Solubility: Soluble
pH: No data available.
Melting/Freezing Point (°C): No data available
Boiling Point (°C): No data available.

Partition Coefficient: (Method, pH, Endpoint, Value)
ETHANOL:
No data available
Doxercalciferol:
No data available
Sodium Phosphate Dibasic Heptahydrate:
No data available
Water for Injection:
No data available
SODIUM CHLORIDE:
No data available
Butylated hydroxytoluene
No data available
Sodium phosphate, monobasic
No data available
EDTA, disodium salt No data available
Polysorbate 20
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

Flammablity:
Autoignition Temperature (Solid) (°C): No data available
Flammability (Solids): No data available
Flash Point (Liquid) (°C): ~62
Upper Explosive Limits (Liquid) (% by Vol.): 19
Lower Explosive Limits (Liquid) (% by Vol.): 3.3

SECTION 10: STABILITY AND REACTIVITY

Reactivity: No data available
Chemical Stability: Stable under normal conditions of use.
Possibility of Hazardous Reactions
Oxidizing Properties: None
Conditions to Avoid: Keep away from heat, spark, flames and all other sources of ignition.
Incompatible Materials: As a precautionary measure, keep away from strong oxidizers
Hazardous Decomposition Products: No data available

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects

General Information: The information in this section describes the potential hazards of the individual ingredients and the formulation.

Short Term: May cause eye irritation (based on components) .

Known Clinical Effects: Clinical use of this drug has caused effects on kidney, heart.

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

ETHANOL

Rat	Oral	LD 50	7060 mg/kg
Mouse	Oral	LD 50	3450mg/kg
Rat	Inhalation	LC 50	20000ppm/10H
Mouse	Inhalation	LC 50	39gm/m^3/4h

Doxercalciferol

Rat	Oral	LD50	3.5 mg/kg

SODIUM CHLORIDE

Rat	Sub-tenon injection (eye)	LC50/1hr	> 42 g/m^3
Rat	Oral	LD 50	3g/kg
Mouse	Oral	LD 50	4g/kg
Rabbit	Dermal	LD 50	> 10g/kg

Butylated Hydroxytoluene

Rat	Oral	LD50	1700 mg/kg
Mouse	Oral	LD50	650 mg/kg
Rat	Oral	LD50	890 mg/kg
Mouse	Intraperitoneal	LD 50	138 mg/kg

EDTA, disodium salt

Rat	Oral	LD50	2800 mg/kg

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)

ETHANOL

Eye Irritation	Rabbit	Severe
Skin Irritation	Rabbit	Mild

SODIUM CHLORIDE

Skin Irritation	Rabbit	Mild
Eye Irritation	Rabbit	Mild

Butylated hydroxytoluene

Eye Irritation	Rabbit	Moderate

SECTION 11: TOXICOLOGICAL INFORMATION

Skin Irritation Rabbit Moderate

EDTA, disodium salt

Skin Irritation Rabbit Non-irritating
Eye Irritation Rabbit Slight

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

Doxercalciferol

52 Week(s) Monkey No route specified 0.6 µg/kg/day NOAEL Bone

Butylated Hydroxytoluene

4 Week(s) Rat Oral 5185 mg/kg LOAEL Liver
4 Day(s) Mouse Oral 2000 mg/kg LOAEL Liver, Kidney, Ureter, Bladder

EDTA, disodium salt

5 Day(s) Rat Inhalation 30 mg/m^3 LOAEL Larynx, Lungs
13 Week(s) Rat Oral, in feed 500 mg/kg/day NOAEL Gastrointestinal system

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

Doxercalciferol

Fertility	Rat	Oral	2.5 ug/kg/day	NOAEL	No effects at maximum dose
Embryo / Fetal Development	Rabbit	No route specified	0.1 ug/kg/day	NOAEL	No evidence of impaired fertility or harm to the fetus
Embryo / Fetal Development	Rat	No route specified	20 ug/kg/day	NOAEL	Not Teratogenic, No fetotoxicity

Butylated Hydroxytoluene

Embryo / Fetal Development	Rat	Oral	6 g/kg	LOEL	Teratogenic,

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

Doxercalciferol

Bacterial Mutagenicity (Ames)	Bacteria	Negative
Mammalian Cell Mutagenicity	Mouse Lymphoma	Negative
In Vitro Chromosome Aberration	Human Lymphocytes	Positive with activation
In Vivo Micronucleus	Mouse	Negative

EDTA, disodium salt

In Vivo Micronucleus	Mouse Bone Marrow	Negative

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

ETHANOL
IARC: Group 1 (Carcinogenic to Humans)

Butylated Hydroxytoluene
IARC: Group 3 (Not Classifiable)

SECTION 12: ECOLOGICAL INFORMATION

Environmental Overview: Environmental properties have not been investigated.
Toxicity: No data available
Aquatic Toxicity: (Species, Method, End Point, Duration, Result)

ETHANOL

Oncorhynchus mykiss (Rainbow Trout)	NPDES	LC-50	96 Hours	12900 mg/L
Fingerling Trout	NPDES	LC-50	24 Hours	11200 mg/L
Fathead Minnow	NPDES	LC-50	96 Hours	14200 mg/L

Persistence and Degradability: No data available
Bio-accumulative Potential: No data available
Mobility in Soil: No data available

SECTION 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.

SECTION 14: TRANSPORT INFORMATION

The following refers to all modes of transportation unless specified below.
Aqueous products containing alcohol at 24 percent or less are not subject to the requirements of the EU ADR, IATA, or IMDG. They are similarly exempt from US DOT requirements provided that they contain no less than 50 percent water.

SECTION 15: REGULATORY INFORMATIO

Safety, health and environmental regulations/legislation specific for the substance or mixture
No data available
Chemical safety assessment
For this product a chemical safety assessment was not carried out

SECTION 16: OTHER INFORMATION

Text of CLP/GHS Classification abbreviations mentioned in Section 3
Acute toxicity, oral-Cat.1; H300 - Fatal if swallowed
Flammable liquids-Cat.2; H225 - Highly flammable liquid and vapor
Data Sources: The data contained in this MSDS may have been gathered from confidential internal sources, raw material suppliers, or from the published literature.
Prepared by: Heron(Shanghai) Pharmaceutical Science and Technology Co., Ltd.

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