

# SAFETY DATA SHEET



## 1. Identification

**Product identifier** Ketamine Hydrochloride Injection

**Other means of identification**

**Synonyms** Ketaset® \* KETASET \* Rogarsetic \* Vetalar \* Ketaset Injectable

**Recommended use** Veterinary product used as anesthetic agent

**Recommended restrictions** Not for human use

### Manufacturer/Importer/Supplier/Distributor information

**Company Name (USA)** Zoetis Inc.  
10 Sylvan Way  
Parsippany, New Jersey 07054 (USA)

**Rocky Mountain Poison & Drug Safety** 1-866-531-8896

**Product Support/Technical Services** 1-888-963-8471

**Emergency telephone numbers** CHEMTREC (24 hours): 1-800-424-9300  
International CHEMTREC (24 hours): +1-703-527-3887

**Company Name (CA)** Zoetis Canada Inc.  
16740 Trans-Canada Highway  
Kirkland, Quebec, H9H 4M7

**Emergency telephone number** CHEMTREC (24 hours): 1-800-424-9300

**Contact E-Mail** productsupport@zoetis.com

**Product Support** 1-800-461-0917

All Safety Data Sheets are available via our Zoetis Canada website at <https://www.zoetis.ca/sds/sds.aspx>

**Supplier** Not available.

## 2. Hazard identification

**Physical hazards** Not classified.

**Health hazards** Not classified.

**Environmental hazards** Not classified.

### Label elements

**Hazard symbol** None.

**Signal word** None.

**Hazard statement** The mixture does not meet the criteria for classification.

**Precautionary statement**

**Prevention** Observe good industrial hygiene practices.

**Response** Wash hands after handling.

**Storage** Store away from incompatible materials.

**Disposal** Dispose of waste and residues in accordance with local authority requirements.

**Supplemental information** Anesthetic drug: may cause central nervous system and cardiovascular system effects. May be absorbed through the skin and cause systemic effects.

**Other hazards** None known.

## 3. Composition/information on ingredients

### Mixtures

Chemical name	Common name and synonyms	CAS number	%
Water for Injection		7732-18-5	90
Ketamine Hydrochloride		1867-66-9	10
Benzethonium chloride		121-54-0	0.01

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

#### 4. First-aid measures

<b>Inhalation</b>	For breathing difficulties, oxygen may be necessary.
<b>Skin contact</b>	Wash off immediately with soap and plenty of water. Get medical advice/attention if you feel unwell. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse. May be absorbed through the skin and cause systemic effects. In the event of accidental self injection or needle stick injury, wash the injury thoroughly with clean running water. Get medical attention immediately.
<b>Eye contact</b>	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Remove contact lenses, if present and easy to do.
<b>Ingestion</b>	Rinse mouth. Call a physician or poison control centre immediately. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person.
<b>Most important symptoms/effects, acute and delayed</b>	Direct contact with eyes may cause temporary irritation. Exposed individuals may experience eye tearing, redness, and discomfort. Ketamine is an anesthetic agent which is known to cause double vision, motor incoordination, delirium, hallucinations, irrational behavior, and temporary elevation of blood pressure and pulse rate.
<b>Indication of immediate medical attention and special treatment needed</b>	Monitor respiratory, cardiac and central nervous system. Anesthetic drug: may cause central nervous system and cardiovascular system effects.
<b>General information</b>	IF exposed or concerned: Get medical advice/attention. For personal protection, see section 8 of the SDS.

#### 5. Fire-fighting measures

<b>Suitable extinguishing media</b>	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO <sub>2</sub> ).
<b>Unsuitable extinguishing media</b>	Do not use water jet as an extinguisher, as this will spread the fire.
<b>Specific hazards arising from the chemical</b>	During fire, gases hazardous to health may be formed.
<b>Special protective equipment and precautions for firefighters</b>	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
<b>Fire fighting equipment/instructions</b>	Move containers from fire area if you can do so without risk.
<b>Specific methods</b>	Use standard firefighting procedures and consider the hazards of other involved materials.
<b>General fire hazards</b>	No unusual fire or explosion hazards noted.

#### 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapour. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. Avoid contact with eyes, skin, and clothing. For personal protection, see section 8 of the SDS.
<b>Methods and materials for containment and cleaning up</b>	Avoid release to the environment. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Ensure adequate ventilation. Prevent product from entering drains.  Large Spills: Stop the flow of material, if this is without risk. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Clean surface thoroughly to remove residual contamination.  Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.
<b>Environmental precautions</b>	Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

## 7. Handling and storage

### Precautions for safe handling

Do not breathe mist or vapour. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Wear appropriate personal protective equipment. Wash thoroughly after handling. Avoid release to the environment. Wash contaminated clothing before reuse. Observe good industrial hygiene practices. Use with adequate ventilation. Avoid accidental injection.

### Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Store in a cool, dry place out of direct sunlight. Keep container tightly closed. Store in a well-ventilated place. Do not allow material to freeze. Keep out of the reach of children. Store away from incompatible materials (see Section 10 of the SDS). Protect from light. Storage Temperature: 15-30°C (59-86°F).

## 8. Exposure controls/personal protection

### Occupational exposure limits

#### Zoetis

#### Components

Ketamine Hydrochloride  
(CAS 1867-66-9)

#### Type

TWA

#### Value

0.2 mg/m<sup>3</sup>

### Biological limit values

No biological exposure limits noted for the ingredient(s).

### Exposure guidelines

Ketamine hydrochloride STEL: 0.5 mg/m<sup>3</sup>; Skin ( May be absorbed through the skin and cause systemic effects. )

### Control banding approach

Not available.

### Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Ensure adequate ventilation, especially in confined areas. Engineering controls should be used as the primary means to control exposures.

### Individual protection measures, such as personal protective equipment

#### Eye/face protection

If contact is likely, safety glasses with side shields are recommended.

#### Skin protection

##### Hand protection

Wear impervious gloves if skin contact is possible.

##### Other

Use protective clothing (uniforms, lab coats, disposable coveralls, etc.) in both production and laboratory areas.

#### Respiratory protection

No personal respiratory protective equipment normally required. In case of insufficient ventilation, wear suitable respiratory equipment. Whenever air contamination (mist, vapor or odor) is generated, respiratory protection is recommended as a precaution to minimize exposure. 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.

#### Thermal hazards

None known.

### General hygiene considerations

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

## 9. Physical and chemical properties

### Appearance

Liquid solution.

#### Physical state

Liquid.

#### Form

Liquid.

#### Colour

Colorless - Pale yellow.

### Odour

Not available.

### Odour threshold

Not available.

### pH

> 3.5 - < 5.5

### Melting point/freezing point

Not available.

### Initial boiling point and boiling range

Not available.

### Flash point

>93.3 °C (>200.0 °F)

### Evaporation rate

Not available.

### Flammability (solid, gas)

Not applicable.

**Upper/lower flammability or explosive limits****Explosive limit - lower (%)** Not available.**Explosive limit – upper (%)** Not available.**Vapour pressure** Not available.**Vapour density** Not available.**Relative density** Not available.**Solubility(ies)****Solubility (water)** Soluble**Partition coefficient (n-octanol/water)** Not available.**Auto-ignition temperature** Not available.**Decomposition temperature** Not available.**Viscosity** Not available.**Other information****Explosive properties** Not explosive.**Flammability class** Combustible IIIB estimated**Oxidising properties** Not oxidising.**Specific gravity** > 1.01 - < 1.03**10. Stability and reactivity****Reactivity** The product is stable and non-reactive under normal conditions of use, storage and transport.**Chemical stability** Material is stable under normal conditions.**Possibility of hazardous reactions** No dangerous reaction known under conditions of normal use.**Conditions to avoid** Sunlight. Exposure to light. Heat, flames and sparks. Avoid temperatures exceeding the flash point. Contact with incompatible materials.**Incompatible materials** Strong oxidising agents.**Hazardous decomposition products** Irritating and/or toxic fumes and gases may be emitted upon the product's decomposition. Carbon oxides. Nitrogen oxides (NOx). May include hydrogen chloride.**11. Toxicological information****Information on likely routes of exposure****Inhalation** May be harmful if inhaled. May cause drowsiness and dizziness.**Skin contact** Prolonged skin contact may cause temporary irritation. May be absorbed through the skin and cause systemic effects.

Benzethonium chloride Severity: Mild - Severe

**Eye contact** Direct contact with eyes may cause temporary irritation.Benzethonium chloride Species: Rabbit  
Severity: Severe**Ingestion** May be harmful if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.**Symptoms related to the physical, chemical and toxicological characteristics** Direct contact with eyes may cause temporary irritation. Exposed individuals may experience eye tearing, redness, and discomfort. Ketamine is an anesthetic agent which is known to cause double vision, motor incoordination, delirium, hallucinations, irrational behavior, and temporary elevation of blood pressure and pulse rate.**Information on toxicological effects****Acute toxicity** May be harmful if inhaled. May be harmful in contact with skin. May be harmful if swallowed.

Product	Species	Test Results
Ketamine Hydrochloride Injection		
<b>Acute</b>		
<b>Oral</b>		
ATE		4545 mg/kg

Components	Species	Test Results
Benzethonium chloride (CAS 121-54-0)		
<b>Acute</b>		
<b>Intravenous</b>		
LD50	Rat	19 mg/kg
<b>Oral</b>		
LD50	Rat	368 mg/kg 295 mg/kg
<b>Subcutaneous</b>		
LD50	Rat	119 mg/kg
<b>Chronic</b>		
<b>Dermal</b>		
	Mouse	2 years Not carcinogenic
	Rat	2 years Not carcinogenic
Ketamine Hydrochloride (CAS 1867-66-9)		
<b>Acute</b>		
<b>Intravenous</b>		
LD50	Mouse	55.9 mg/kg
	Rat	58.9 mg/kg
<b>Oral</b>		
LD50	Mouse	617 mg/kg
	Rat	447 mg/kg
<b>Subacute</b>		
<b>Intramuscular</b>		
NOAEL	Dog	40 mg/kg/day, 6 weeks No effects at maximum dose
<b>Intravenous</b>		
NOAEL	Rat	10 mg/kg/day, 6 weeks No effects at maximum dose
<b>Skin corrosion/irritation</b>	Prolonged skin contact may cause temporary irritation.	
<b>Corrosivity</b>	Severity: Mild - Severe	
Benzethonium chloride		
<b>Serious eye damage/eye irritation</b>	Direct contact with eyes may cause temporary irritation.	
<b>Eye contact</b>	Species: Rabbit	
Benzethonium chloride	Severity: Severe	
<b>Respiratory or skin sensitisation</b>		
<b>Respiratory sensitisation</b>	Not a respiratory sensitiser.	
<b>Skin sensitisation</b>	This product is not expected to cause skin sensitisation.	
<b>Germ cell mutagenicity</b>	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
<b>Mutagenicity</b>		
Benzethonium chloride	Ames (Salmonella) Result: Negative	
Ketamine Hydrochloride	Bacterial Mutagenicity (Ames) Result: Negative Species: Salmonella , E. coli	
Benzethonium chloride	In vitro chromosomal aberration Result: Negative	

**Mutagenicity**  
Ketamine Hydrochloride

In Vitro Sister Chromatid Exchange  
Result: positive  
Species: Chinese Hamster Ovary (CHO) cells

Benzethonium chloride

Sister Chromatid Exchange (SCE)  
Result: Negative

**Carcinogenicity**

This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

**Reproductive toxicity**

This product is not expected to cause reproductive or developmental effects.

**Developmental effects**  
Ketamine Hydrochloride

120 mg/kg/day Embryo / Fetal Development, Not Teratogenic  
Result: NOAEL  
Species: Rat  
Organ: Intramuscular

24 mg/kg/day Embryo / Fetal Development, Not Teratogenic  
Result: NOAEL  
Species: Rabbit  
Organ: Intramuscular

300 mg/kg/day Embryo / Fetal Development, Not Teratogenic  
Result: NOAEL  
Species: Mouse  
Organ: Intravenous

**Reproductivity**  
Ketamine Hydrochloride

60 Reproductive & Fertility, No effects at maximum dose  
Result: NOAEL  
Species: Rat  
Organ: Intravenous

**Specific target organ toxicity - single exposure** Not classified.

**Specific target organ toxicity - repeated exposure** Not classified.

**Aspiration hazard** Not an aspiration hazard.

**Chronic effects** Prolonged inhalation may be harmful.

**Further information** CAUTION! Anesthetic drug: may cause central nervous system and cardiovascular system effects. Individuals sensitive to this material or other materials in its chemical class may develop allergic reactions.

**12. Ecological information**

**Ecotoxicity** Avoid release to the environment. Based on available data, the classification criteria are not met for hazardous to the aquatic environment.

Components		Species	Test Results
Benzethonium chloride (CAS 121-54-0)			
<b>Aquatic</b>			
Algae	ErC50	Algae	0.3 mg/l, 72 hours
Crustacea	EC50	Daphnia magna (Water Flea)	0.22 mg/l, 48 hours
<i>Acute</i>			
Fish	LC50	Bluegill (Lepomis macrochirus)	1.4 mg/l, 96 hours

**Persistence and degradability** No data is available on the degradability of this product. The following information is available for the individual ingredients.

**Biodegradability**

**Percent Degradation (Aerobic Biodegradation)**

Benzethonium chloride 0 % OECD 301B  
Test Duration: 29 days

**Bioaccumulative potential** No data available.

**Mobility in soil** No data available.

**Other adverse effects** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

### 13. Disposal considerations

**Disposal instructions** Avoid release to the environment. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. 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. Dispose of contents/container in accordance with local/regional/national/international regulations.

**Local disposal regulations** Dispose in accordance with all applicable regulations.

**Hazardous waste code** The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

**Waste from residues / unused products** Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner.

**Contaminated packaging** Since emptied containers may retain product residue, follow label warnings even after container is emptied.

### 14. Transport information

**TDG**  
Not regulated as dangerous goods.

**IATA**  
Not regulated as dangerous goods.

**IMDG**  
Not regulated as dangerous goods.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not established.

### 15. Regulatory information

**Canadian regulations** This product has been classified in accordance with the hazard criteria of the HPR and the SDS contains all the information required by the HPR.

**Controlled Drugs and Substances Act**

Ketamine Hydrochloride (CAS 1867-66-9) 14(1)

**Export Control List (CEPA 1999, Schedule 3)**

Not listed.

**Greenhouse Gases**

Not listed.

**Narcotic Control Regulations (C.R.C., c. 1041) Controlled Drugs and Substances Act, as amended**

Ketamine Hydrochloride (CAS 1867-66-9)

**Precursor Control Regulations**

Not regulated.

**International regulations**

**Stockholm Convention**

Not applicable.

**Rotterdam Convention**

Not applicable.

**Kyoto Protocol**

Not applicable.

**Montreal Protocol**

Not applicable.

**Basel Convention**

Not applicable.

**International Inventories**

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Industrial Chemicals (AICIS)	No
Canada	Domestic Substances List (DSL)	No

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

## 16. Other information

**Issue date** 23-May-2017

**Revision date** 21-August-2023

**Version No.** 02

**List of abbreviations** ATE: Acute Toxicity Estimate according to REGULATION (EC) No 1272/2008 (CLP).

**Disclaimer** Zoetis Inc. believes that the information contained in this 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. The information in the sheet was written based on the best knowledge and experience currently available.

**Revision information** Identification: Recommended restrictions  
 First-aid measures: Skin contact  
 Accidental release measures: Personal precautions, protective equipment and emergency procedures  
 Accidental release measures: Methods and materials for containment and cleaning up  
 Handling and storage: Conditions for safe storage, including any incompatibilities  
 Exposure controls/personal protection: Appropriate engineering controls  
 Exposure controls/personal protection: Hand protection  
 Exposure controls/personal protection: Other  
 Physical & Chemical Properties: Multiple Properties  
 Stability and reactivity: Conditions to avoid  
 Toxicological Information: Toxicological Data  
 Ecological information: Ecotoxicity  
 Ecological information: Persistence and degradability  
 GHS: Classification