

**Enrofloxacin Liquid (20%) Formulation**

Version 4.0      Revision Date: 2023/09/30      SDS Number: 9743088-00007      Date of last issue: 2023/04/04  
Date of first issue: 2021/10/13

---

**1. PRODUCT AND COMPANY IDENTIFICATION**

Chemical product name : Enrofloxacin Liquid (20%) Formulation

**Supplier's company name, address and phone number**

Company name of supplier : MSD

Address : Kumagaya, Saitama Prefecture , Xicheng 810 MSD Co., Ltd.  
Menuuma factory

Telephone : 048-588-8411

E-mail address : EHSDATASTEWARD@msd.com

Emergency telephone number : +1-908-423-6000

**Recommended use of the chemical and restrictions on use**

Recommended use : Veterinary product

Restrictions on use : Not applicable

---

**2. HAZARDS IDENTIFICATION****GHS classification of chemical product**

Acute toxicity (Oral) : Category 4

Skin corrosion/irritation : Sub-category 1A

Serious eye damage/eye irritation : Category 1

Reproductive toxicity : Category 2

Specific target organ toxicity - repeated exposure : Category 1 (cartilage, Testis)

Short-term (acute) aquatic hazard : Category 1

Long-term (chronic) aquatic hazard : Category 1

**GHS label elements**

Hazard pictograms :



## Enrofloxacin Liquid (20%) Formulation

Version 4.0	Revision Date: 2023/09/30	SDS Number: 9743088-00007	Date of last issue: 2023/04/04 Date of first issue: 2021/10/13
----------------	------------------------------	------------------------------	---

Signal word : Danger

Hazard statements : H302 Harmful if swallowed.  
H314 Causes severe skin burns and eye damage.  
H361f Suspected of damaging fertility.  
H372 Causes damage to organs (cartilage, Testis) through prolonged or repeated exposure.  
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**  
P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P260 Do not breathe mist or vapours.  
P264 Wash skin thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response:**  
P301 + P330 + P331 + P310 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER/ doctor.  
P303 + P361 + P353 + P310 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Immediately call a POISON CENTER/ doctor.  
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.  
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.  
P308 + P313 IF exposed or concerned: Get medical advice/ attention.  
P363 Wash contaminated clothing before reuse.  
P391 Collect spillage.

**Storage:**  
P405 Store locked up.

**Disposal:**  
P501 Dispose of contents/ container to an approved waste disposal plant.

### Other hazards which do not result in classification

Important symptoms and out- : Corrosive to the respiratory tract.  
lines of the emergency as- May form explosive dust-air mixture during processing, han-  
sumed dling or other means.

## Enrofloxacin Liquid (20%) Formulation

Version 4.0      Revision Date: 2023/09/30      SDS Number: 9743088-00007      Date of last issue: 2023/04/04  
 Date of first issue: 2021/10/13

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

#### Components

Chemical name	CAS-No.	Concentration (% w/w)	ENCS No.
Enrofloxacin	93106-60-6	$\geq 20 - < 25$	
Potassium hydroxide	1310-58-3	$\geq 5 - < 10$	1-369
Disodium EDTA, dihydrate	6381-92-6	1	2-1265, 2-1265

### 4. FIRST AID MEASURES

- General advice : In the case of accident or if you feel unwell, seek medical advice immediately.  
 When symptoms persist or in all cases of doubt seek medical advice.
- If inhaled : If inhaled, remove to fresh air.  
 If not breathing, give artificial respiration.  
 If breathing is difficult, give oxygen.  
 Get medical attention immediately.
- In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.  
 Get medical attention immediately.  
 Wash clothing before reuse.  
 Thoroughly clean shoes before reuse.
- In case of eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.  
 If easy to do, remove contact lens, if worn.  
 Get medical attention immediately.
- If swallowed : If swallowed, DO NOT induce vomiting.  
 If vomiting occurs have person lean forward.  
 Call a physician or poison control centre immediately.  
 Rinse mouth thoroughly with water.  
 Never give anything by mouth to an unconscious person.
- Most important symptoms and effects, both acute and delayed : Harmful if swallowed.  
 Causes serious eye damage.  
 Suspected of damaging fertility.  
 Causes damage to organs through prolonged or repeated exposure.  
 Causes severe burns.  
 Causes digestive tract burns.  
 Corrosive to respiratory system.
- Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).
- Notes to physician : Treat symptomatically and supportively.

**Enrofloxacin Liquid (20%) Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/04
4.0	2023/09/30	9743088-00007	Date of first issue: 2021/10/13

---

**5. FIREFIGHTING MEASURES**

- Suitable extinguishing media : Water spray  
Alcohol-resistant foam  
Carbon dioxide (CO<sub>2</sub>)  
Dry chemical
- Unsuitable extinguishing media : None known.
- Specific hazards during fire-fighting : Exposure to combustion products may be a hazard to health.
- Hazardous combustion products : Carbon oxides  
Metal oxides  
Nitrogen oxides (NO<sub>x</sub>)
- Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
Use water spray to cool unopened containers.  
Remove undamaged containers from fire area if it is safe to do so.  
Evacuate area.
- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.  
Use personal protective equipment.
- 

**6. ACCIDENTAL RELEASE MEASURES**

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.  
Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).
- Environmental precautions : Avoid release to the environment.  
Prevent further leakage or spillage if safe to do so.  
Prevent spreading over a wide area (e.g. by containment or oil barriers).  
Retain and dispose of contaminated wash water.  
Local authorities should be advised if significant spillages cannot be contained.
- Methods and materials for containment and cleaning up : Soak up with inert absorbent material.  
Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).  
Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration.  
For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container.  
Clean up remaining materials from spill with suitable absorbent.  
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.

## Enrofloxacin Liquid (20%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/04
4.0	2023/09/30	9743088-00007	Date of first issue: 2021/10/13

---

Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

---

### 7. HANDLING AND STORAGE

#### Handling

- |                         |   |  |
|-------------------------|---|--|
| Technical measures      | : | Static electricity may accumulate and ignite suspended dust causing an explosion.<br>Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.   |
| Local/Total ventilation | : | If sufficient ventilation is unavailable, use with local exhaust ventilation.  |
| Advice on safe handling | : | Do not get on skin or clothing.<br>Do not breathe mist or vapours.<br>Do not swallow.<br>Do not get in eyes.<br>Wash skin thoroughly after handling.<br>Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment<br>Keep container tightly closed.<br>Minimize dust generation and accumulation.<br>Keep container closed when not in use.<br>Keep away from heat and sources of ignition.<br>Take precautionary measures against static discharges.<br>Do not eat, drink or smoke when using this product.<br>Take care to prevent spills, waste and minimize release to the environment. |
| Avoidance of contact    | : | Oxidizing agents<br>Acids  |
| Hygiene measures        | : | If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.<br>When using do not eat, drink or smoke.<br>Wash contaminated clothing before re-use.<br>The effective operation of a facility should include review of engineering controls, proper personal protective equipment, appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the use of administrative controls.   |

#### Storage

- |                             |   |  |
|-----------------------------|---|--|
| Conditions for safe storage | : | Keep in properly labelled containers.<br>Store locked up.<br>Keep tightly closed.<br>Store in accordance with the particular national regulations. |
| Materials to avoid          | : | Do not store with the following product types:<br>Strong oxidizing agents  |
| Packaging material          | : | Unsuitable material: None known.   |

## Enrofloxacin Liquid (20%) Formulation

Version 4.0      Revision Date: 2023/09/30      SDS Number: 9743088-00007      Date of last issue: 2023/04/04  
 Date of first issue: 2021/10/13

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Threshold limit value and permissible exposure limits for each component in the work environment**

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Reference concentration / Permissible concentration	Basis
Enrofloxacin	93106-60-6	TWA	0.2 mg/m <sup>3</sup> (OEB 2)	Internal
Potassium hydroxide	1310-58-3	OEL-C	2 mg/m <sup>3</sup>	JP OEL JSOH
		C	2 mg/m <sup>3</sup>	ACGIH

**Engineering measures** : Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., drip-less quick connections).  
 All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment.  
 Laboratory operations do not require special containment.

#### Personal protective equipment

Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.

Filter type : Particulates type

Hand protection  
 Material : Chemical-resistant gloves

Eye protection : Wear safety glasses with side shields or goggles.  
 If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles.  
 Wear a faceshield or other full face protection if there is a potential for direct contact to the face with dusts, mists, or aerosols.

Skin and body protection : Work uniform or laboratory coat.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state : Aqueous solution

Colour : light yellow

Odour : No data available

Odour Threshold : No data available

Melting point/freezing point : No data available

**Enrofloxacin Liquid (20%) Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/04
4.0	2023/09/30	9743088-00007	Date of first issue: 2021/10/13

---

Boiling point, initial boiling point and boiling range : No data available

Flammability (solid, gas) : May form explosive dust-air mixture during processing, handling or other means.

Flammability (liquids) : Not applicable

Lower explosion limit and upper explosion limit / flammability limit  
Upper explosion limit / Upper flammability limit : No data available

Lower explosion limit / Lower flammability limit : No data available

Flash point : No data available

Decomposition temperature : No data available

pH : 10.5 - 12.5

Evaporation rate : No data available

Auto-ignition temperature : No data available

Viscosity  
Viscosity, kinematic : No data available

Solubility(ies)  
Water solubility : No data available

Partition coefficient: n-octanol/water : Not applicable

Vapour pressure : No data available

Density and / or relative density  
Relative density : No data available

Density : 0.950 - 1.150 g/cm<sup>3</sup>

Relative vapour density : No data available

Explosive properties : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.

Molecular weight : No data available

Particle characteristics  
Particle size : Not applicable

## Enrofloxacin Liquid (20%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/04
4.0	2023/09/30	9743088-00007	Date of first issue: 2021/10/13

---

### 10. STABILITY AND REACTIVITY

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	May form explosive dust-air mixture during processing, handling or other means. Can react with strong oxidizing agents.
Conditions to avoid	:	Heat, flames and sparks. Avoid dust formation.
Incompatible materials	:	Oxidizing agents Acids
Hazardous decomposition products	:	No hazardous decomposition products are known.

---

### 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	:	Inhalation Skin contact Ingestion Eye contact
--	---	--

#### Acute toxicity

Harmful if swallowed.

#### Product:

Acute oral toxicity	:	Acute toxicity estimate: 1,818 mg/kg Method: Calculation method
---------------------	---	--

Acute inhalation toxicity	:	Acute toxicity estimate: > 5 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: Calculation method
---------------------------	---	---

#### Components:

##### **Enrofloxacin:**

Acute oral toxicity	:	LD50 (Rabbit): 500 - 800 mg/kg
		LD50 (Rat): > 5,000 mg/kg
		LD50 (Mouse): > 5,000 mg/kg
Acute dermal toxicity	:	LD50 (Rabbit): > 2,000 mg/kg

##### **Potassium hydroxide:**

Acute oral toxicity	:	LD50 (Rat): 333 mg/kg
---------------------	---	-----------------------



**Enrofloxacin Liquid (20%) Formulation**

Version 4.0      Revision Date: 2023/09/30      SDS Number: 9743088-00007      Date of last issue: 2023/04/04  
Date of first issue: 2021/10/13

---

|| Acute inhalation toxicity : Assessment: Corrosive to the respiratory tract.

**Disodium EDTA, dihydrate:**

|| Acute oral toxicity : LD50 (Rat): 2,800 mg/kg  
|| Acute inhalation toxicity : LC50 (Rat, male): > 1 mg/l  
Exposure time: 6 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 412

**Skin corrosion/irritation**

Causes severe burns.

**Components:****Enrofloxacin:**

|| Result : No skin irritation

**Potassium hydroxide:**

|| Species : Rabbit  
|| Result : Corrosive after 3 minutes or less of exposure

**Serious eye damage/eye irritation**

Causes serious eye damage.

**Components:****Enrofloxacin:**

|| Result : Mild eye irritation

**Potassium hydroxide:**

|| Species : Rabbit  
|| Result : Irreversible effects on the eye

**Disodium EDTA, dihydrate:**

|| Species : Rabbit  
|| Result : No eye irritation

**Respiratory or skin sensitisation****Skin sensitisation**

Not classified based on available information.

**Respiratory sensitisation**

Not classified based on available information.

## Enrofloxacin Liquid (20%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/04
4.0	2023/09/30	9743088-00007	Date of first issue: 2021/10/13

---

### Components:

#### **Enrofloxacin:**

Test Type	: Maximisation Test
Exposure routes	: Dermal
Species	: Guinea pig
Result	: Not a skin sensitizer.

#### **Potassium hydroxide:**

Test Type	: Intracutaneous test
Exposure routes	: Skin contact
Species	: Guinea pig
Result	: negative

#### **Disodium EDTA, dihydrate:**

Test Type	: Maximisation Test
Exposure routes	: Skin contact
Species	: Guinea pig
Method	: OECD Test Guideline 406
Result	: negative
Remarks	: Based on data from similar materials

### **Germ cell mutagenicity**

Not classified based on available information.

### Components:

#### **Enrofloxacin:**

Genotoxicity in vitro	: Test Type: Chromosomal aberration Result: positive
Genotoxicity in vivo	: Test Type: Micronucleus test Species: Mouse Result: negative
	: Test Type: Mammalian bone marrow sister chromatid exchange Species: Hamster Result: negative
	: Test Type: Chromosomal aberration Species: Rat Result: negative

#### **Potassium hydroxide:**

Genotoxicity in vitro	: Test Type: Bacterial reverse mutation assay (AMES) Result: negative
-----------------------	--

#### **Disodium EDTA, dihydrate:**

## Enrofloxacin Liquid (20%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/04
4.0	2023/09/30	9743088-00007	Date of first issue: 2021/10/13

---

Genotoxicity in vitro	:	<p>Test Type: Bacterial reverse mutation assay (AMES)          Result: negative          Remarks: Based on data from similar materials</p> <p>Test Type: In vitro mammalian cell gene mutation test          Result: negative</p> <p>Test Type: Chromosome aberration test in vitro          Result: negative          Remarks: Based on data from similar materials</p>
Genotoxicity in vivo	:	<p>Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)          Species: Mouse          Application Route: Ingestion          Method: OECD Test Guideline 474          Result: negative</p>

### Carcinogenicity

Not classified based on available information.

### Components:

#### Enrofloxacin:

Species	:	Rat
Application Route	:	Oral
Exposure time	:	2 Years
Result	:	negative

Species	:	Mouse
Application Route	:	Oral
Exposure time	:	2 Years
Result	:	negative

#### Disodium EDTA, dihydrate:

Species	:	Rat
Application Route	:	Ingestion
Exposure time	:	103 weeks
Result	:	negative
Remarks	:	Based on data from similar materials

### Reproductive toxicity

Suspected of damaging fertility.

### Components:

#### Enrofloxacin:

Effects on fertility	:	<p>Test Type: Two-generation study          Species: Rat          Application Route: Oral          Fertility: LOAEL: 15 mg/kg body weight</p>
----------------------	---	---

## Enrofloxacin Liquid (20%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/04
4.0	2023/09/30	9743088-00007	Date of first issue: 2021/10/13

---

		Result: Effects on fertility, alteration in sperm morphology
Effects on foetal development	:	Test Type: Development Species: Rat Application Route: Oral Developmental Toxicity: LOAEL: 210 mg/kg body weight Result: Reduced foetal weight, No teratogenic effects Remarks: Maternal toxicity observed.
		Test Type: Development Species: Rabbit Application Route: Oral Developmental Toxicity: NOAEL: 25 mg/kg body weight Result: No fetotoxicity, No teratogenic effects
Reproductive toxicity - Assessment	:	Some evidence of adverse effects on sexual function and fertility, based on animal experiments.

### Disodium EDTA, dihydrate:

Effects on fertility	:	Test Type: Four-generation reproduction toxicity study Species: Rat Application Route: Ingestion Result: negative Remarks: Based on data from similar materials
Effects on foetal development	:	Test Type: Embryo-foetal development Species: Rat Application Route: Ingestion Result: negative

### STOT - single exposure

Not classified based on available information.

### STOT - repeated exposure

Causes damage to organs (cartilage, Testis) through prolonged or repeated exposure.

### Components:

#### Enrofloxacin:

Target Organs	:	cartilage, Testis
Assessment	:	Causes damage to organs through prolonged or repeated exposure.

#### Disodium EDTA, dihydrate:

Exposure routes	:	inhalation (dust/mist/fume)
Target Organs	:	Respiratory Tract
Assessment	:	May cause damage to organs through prolonged or repeated exposure.

## Enrofloxacin Liquid (20%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/04
4.0	2023/09/30	9743088-00007	Date of first issue: 2021/10/13

---

### Repeated dose toxicity

#### Components:

##### **Enrofloxacin:**

Species	: Rat
NOAEL	: 36 mg/kg
LOAEL	: 150 mg/kg
Application Route	: Oral
Exposure time	: 13 Weeks
Target Organs	: Testis

Species	: Dog
NOAEL	: 3 mg/kg
LOAEL	: 9.6 mg/kg
Application Route	: Oral
Exposure time	: 13 Weeks
Target Organs	: cartilage

Species	: Cat
NOAEL	: 25 mg/kg
Application Route	: Oral
Exposure time	: 30 Days
Remarks	: No significant adverse effects were reported

##### **Disodium EDTA, dihydrate:**

Species	: Rat
NOAEL	: 500 mg/kg
Application Route	: Ingestion
Exposure time	: 13 Weeks

Species	: Rat
LOAEL	: 0.03 mg/l
Application Route	: inhalation (dust/mist/fume)
Exposure time	: 4 Weeks
Method	: OECD Test Guideline 412

### Aspiration toxicity

Not classified based on available information.

### Experience with human exposure

#### Components:

##### **Enrofloxacin:**

Ingestion	: Symptoms: Gastrointestinal disturbance, central nervous system effects, Sensitivity to light
-----------	--

## Enrofloxacin Liquid (20%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/04
4.0	2023/09/30	9743088-00007	Date of first issue: 2021/10/13

### 12. ECOLOGICAL INFORMATION

#### Ecotoxicity

##### Components:

##### **Enrofloxacin:**

Toxicity to fish	:	LC50 (Lepomis macrochirus (Bluegill sunfish)): 79.5 mg/l Exposure time: 96 h
		LC50 (Oncorhynchus mykiss (rainbow trout)): > 196 mg/l Exposure time: 96 h
		LC50 (Oryzias latipes (Japanese medaka)): > 100 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Hyaella azteca (Amphipod)): > 206 mg/l Exposure time: 96 h
		EC50 (Daphnia magna (Water flea)): 79.9 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 3.1 mg/l Exposure time: 72 h
		EC50 (Microcystis aeruginosa (blue-green algae)): 0.049 mg/l Exposure time: 5 d
M-Factor (Acute aquatic toxicity)	:	10
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 9.8 mg/l Exposure time: 21 d
		NOEC (Daphnia magna (Water flea)): 5 mg/l Exposure time: 21 d
		LOEC (Daphnia magna (Water flea)): 15 mg/l Exposure time: 21 d
M-Factor (Chronic aquatic toxicity)	:	10

##### **Disodium EDTA, dihydrate:**

Toxicity to fish	:	LC50 (Lepomis macrochirus (Bluegill sunfish)): > 100 mg/l Exposure time: 96 h Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 140 mg/l Exposure time: 48 h Method: DIN 38412

## Enrofloxacin Liquid (20%) Formulation

Version 4.0      Revision Date: 2023/09/30      SDS Number: 9743088-00007      Date of last issue: 2023/04/04  
Date of first issue: 2021/10/13

---

Toxicity to algae/aquatic plants	: ErC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials
	EC10 (Pseudokirchneriella subcapitata (green algae)): > 1 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	: NOEC (Daphnia magna (Water flea)): 25 mg/l Exposure time: 21 d
Toxicity to microorganisms	: EC10 (activated sludge): > 500 mg/l Exposure time: 30 min Method: OECD Test Guideline 209

**Persistence and degradability****Components:****Disodium EDTA, dihydrate:**

Biodegradability	: Result: Not readily biodegradable. Biodegradation: 2 % Exposure time: 28 d Method: OECD Test Guideline 301D
------------------	--

**Bioaccumulative potential****Components:****Enrofloxacin:**

Partition coefficient: n-octanol/water	: log Pow: 0.5
--	----------------

**Disodium EDTA, dihydrate:**

Bioaccumulation	: Species: Lepomis macrochirus (Bluegill sunfish) Bioconcentration factor (BCF): < 500 Remarks: Based on data from similar materials
-----------------	--

Partition coefficient: n-octanol/water	: log Pow: -4.3
--	-----------------

**Mobility in soil****Components:****Enrofloxacin:**

Distribution among environmental compartments	: Koc: 5.55
---	-------------

## Enrofloxacin Liquid (20%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/04
4.0	2023/09/30	9743088-00007	Date of first issue: 2021/10/13

---

### Hazardous to the ozone layer

Not applicable

### Other adverse effects

No data available

---

## 13. DISPOSAL CONSIDERATIONS

### Disposal methods

Waste from residues	:	Dispose of in accordance with local regulations. Do not dispose of waste into sewer.
Contaminated packaging	:	Empty containers should be taken to an approved waste handling site for recycling or disposal. If not otherwise specified: Dispose of as unused product.

---

## 14. TRANSPORT INFORMATION

### International Regulations

#### UNRTDG

UN number	:	UN 1814
Proper shipping name	:	POTASSIUM HYDROXIDE SOLUTION
Class	:	8
Packing group	:	II
Labels	:	8
Environmentally hazardous	:	no

#### IATA-DGR

UN/ID No.	:	UN 1814
Proper shipping name	:	Potassium hydroxide solution
Class	:	8
Packing group	:	II
Labels	:	Corrosive
Packing instruction (cargo aircraft)	:	855
Packing instruction (passenger aircraft)	:	851

#### IMDG-Code

UN number	:	UN 1814
Proper shipping name	:	POTASSIUM HYDROXIDE SOLUTION (Enrofloxacin)
Class	:	8
Packing group	:	II
Labels	:	8
EmS Code	:	F-A, S-B
Marine pollutant	:	yes

### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

### National Regulations

Refer to section 15 for specific national regulation.



## Enrofloxacin Liquid (20%) Formulation

Version 4.0      Revision Date: 2023/09/30      SDS Number: 9743088-00007      Date of last issue: 2023/04/04  
 Date of first issue: 2021/10/13

**Special precautions for user**

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

**ERG Code** : 154

**15. REGULATORY INFORMATION****Related Regulations****Fire Service Law**

Not applicable to dangerous materials / designated flammables.

**Chemical Substance Control Law****Priority Assessment Chemical Substance**

Chemical name	Number
Sodium salt of 2,2',2'',2'''-(ethane-1,2-diylidinitrilo)tetraacetic acid	268

**Industrial Safety and Health Law****Harmful Substances Prohibited from Manufacture**

Not applicable

**Harmful Substances Required Permission for Manufacture**

Not applicable

**Substances Prevented From Impairment of Health**

Not applicable

**Circular concerning Information on Chemicals having Mutagenicity - Annex 2: Information on Existing Chemicals having Mutagenicity**

Not applicable

**Circular concerning Information on Chemicals having Mutagenicity - Annex 1: Information on Notified Substances having Mutagenicity**

Not applicable

**Substances Subject to be Notified Names**

Article 57-2 (Enforcement Order Table 9)

Chemical name	Concentration (%)	Remarks
Potassium hydroxide	>=1 - <10	-

**Substances Subject to be Indicated Names**

Article 57 (Enforcement Order Article 18)

Chemical name	Remarks
Potassium hydroxide	-

**Ordinance on Prevention of Hazards Due to Specified Chemical Substances**

Not applicable

**Ordinance on Prevention of Lead Poisoning**

Not applicable

## Enrofloxacin Liquid (20%) Formulation

Version 4.0      Revision Date: 2023/09/30      SDS Number: 9743088-00007      Date of last issue: 2023/04/04  
 Date of first issue: 2021/10/13

### Ordinance on Prevention of Tetraalkyl Lead Poisoning

Not applicable

### Ordinance on Prevention of Organic Solvent Poisoning

Not applicable

### Enforcement Order of the Industrial Safety and Health Law - Attached table 1 (Dangerous Substances)

Not applicable

### Poisonous and Deleterious Substances Control Law

Not applicable

### Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof

### Class I Designated Chemical Substances

Chemical name	Administration number	Concentration (%)
Ethylenediaminetetraacetic acid and its potassium and sodium salts	595	1.0

### High Pressure Gas Safety Act

Not applicable

### Explosive Control Law

Not applicable

### Vessel Safety Law

Corrosive substances (Article 2 and 3 of rules on shipping and storage of dangerous goods and its Attached Table 1)

### Aviation Law

Corrosive substances (Article 194 of The Enforcement Rules of Aviation Law and its Attached Table 1)

### Marine Pollution and Sea Disaster Prevention etc Law

Bulk transportation : Noxious liquid substance(Category Z)

Pack transportation : Classified as marine pollutant

### Narcotics and Psychotropics Control Act

Narcotic or Psychotropic Raw Material (Export / Import Permission)

Not applicable

Specific Narcotic or Psychotropic Raw Material (Export / Import permission)

Not applicable

### Waste Disposal and Public Cleansing Law

Industrial waste

### The components of this product are reported in the following inventories:

AICS : not determined

DSL : not determined

## Enrofloxacin Liquid (20%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/04
4.0	2023/09/30	9743088-00007	Date of first issue: 2021/10/13

---

IECSC : not determined

### 16. OTHER INFORMATION

#### Further information

Sources of key data used to compile the Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

Date format : yyyy/mm/dd

#### Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)  
 JP OEL JSOH : Japan. The Japan Society for Occupational Health. Recommendation of Occupational Exposure Limits

ACGIH / C : Ceiling limit  
 JP OEL JSOH / OEL-C : Occupational Exposure Limit-Ceiling

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recom-

## Enrofloxacin Liquid (20%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 2023/04/04
4.0	2023/09/30	9743088-00007	Date of first issue: 2021/10/13

---

recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

JP / EN