

# SAFETYDATA SHEETS

According to the UN GHS revision 9

Version: 1.0  
Creation Date: Mar. 18, 2025  
Revision Date: Mar. 18, 2025

## 1. Identification

### 1.1 GHS Product identifier

**Product name** Human LPIN1(Lipin 1) ELISA Kit

### 1.2 Other means of identification

**Product number** -ELK5420

**Other names** -

### 1.3 Recommended use of the chemical and restrictions on use

**Identified uses** For research use only.

**Uses advised against** no data available

### 1.4 Supplier's details

**Company** ELK (Wuhan) BiotechnologyCO.,Ltd.

**Address** Building 4, Tumor Immunotherapy Industrial Base, No. 18, Gaoke Second Road, East Lake High-tech Development Zone, Wuhan City, Hubei Province, China

**Telephone** +86-27-59760950

### 1.5 Emergency phone number

**Emergency phone number** +86-18986165840

**Service hours** Monday to Friday, 9 am-5 pm (Standard time zone: UTC/GMT+8 hours).

## 2. Hazard identification

### 2.1 Classification of the substance or mixture

Not classified.

### 2.2 GHS label elements, including precautionary statements

**Hazard pictogram(s)** No symbol.

**Signal word** No signal word

**Hazard statement(s)** none

**Precautionary statement(s)**

**Prevention** none

**Response** none

**Storage** none

**Disposal** none

### 2.3 Other hazards which do not result in classification

no data available

## 3. Composition/information on ingredients

### 3.1 Substances

not applicable

### 3.2 Mixtures

Chemical name	Common names and synonyms	CAS number	EC number	% [weight]
Water	Water	7732-18-5	231-791-2	78.39%
Sodium chloride	Sodium chloride	7647-14-5	231-598-3	14.16%
Sucrose	Sucrose	57-50-1	200-334-9	2.28%
Poly(oxy-1,2-ethanediyl)α,-hydro-ω-hydroxy- Ethane-1,2-diol, ethoxylated	Poly (ethylene glycol) - 4000	25322-68-3	500-038-2	1.33%
Potassium sodium tartrate	Potassiumsodium tartrate tetrahydrate	6381-59-5	613-385-0	1.07%
Potassiumchloride	Potassiumchloride	7447-40-7	231-211-8	0.81%
Phosphoric acid, sodium salt, hydrate (1:2:12)	disodium hydrogen phosphate	10039-32-4	600-088-6	0.63%
Glycerol	Glycerol	56-81-5	200-289-5	0.51%
Trisodiumcitrate	Sodium citrate	68-04-2	200-675-3	0.42%
2-Pyrrolidinone, 1-ethenyl-, homopolymer	PVP40	9003-39-8	618-363-4	0.35%
Potassium dihydrogenorthosph#e	Potassium dihydrogen phosphate	7778-77-0	231-913-4	0.05%

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#### 4. First-aid measures

##### 4.1 Description of necessary first-aid measures

###### Following inhalation

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

###### Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water.

###### Following eye contact

Rinse with pure water for at least 15 minutes.

###### Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person.

##### 4.2 Most important symptoms/effects, acute and delayed

no data available

##### 4.3 Indication of immediate medical attention and special treatment needed, if necessary

no data available

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#### 5. Fire-fighting measures

##### 5.1 Suitable extinguishing media

Use dry chemical, carbon dioxide or alcohol-resistant foam.

##### 5.2 Specific hazards arising from the chemical

###### Hazardous combustion products

no data available

##### 5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

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#### 6. Accidental release measures

##### 6.1 Personal precautions, protective equipment and emergency procedures

Ventilation. Collect leaking and spilled liquid in covered containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

##### 6.2 Environmental precautions

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

##### 6.3 Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

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#### 7. Handling and storage

##### 7.1 Precautions for safe handling

Handling in a well ventilated place. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

##### 7.2 Conditions for safe storage, including any incompatibilities

Store the container tightly closed in a dry, cool and well-ventilated place. Store apart from foodstuff containers or incompatible materials.

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#### 8. Exposure controls/personal protection

##### 8.1 Control parameters

###### Occupational Exposure limit values

pure CAS 56-81-5: MAK: (inhalable fraction): 200 mg/m<sup>3</sup>; peak limitation category: I(2); pregnancy risk group: C

###### Biological limit values

no data available

##### 8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Setup emergency exits and the risk-elimination area.

##### 8.3 Individual protection measures, such as personal protective equipment (PPE)

**Eye/face protection**

Wear safety goggles.

**Skin protection**

Handle with gloves. Wash and dry hands.

**Respiratory protection**

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

**Thermal hazards**

no data available

**9. Physical and chemical properties**

<b>Physical state</b>	Transparent liquid.
<b>Colour</b>	Colourless.
<b>Odour</b>	Weak odour.
<b>Melting point/freezing point</b>	pure CAS7732-18-5: 0 °C; pure CAS7647-14-5: 801 °C. Atm. press.: 1 atm.; pure CAS57-50-1: 190-192 °C; pure CAS6381-59-5: 70-80 °C; pure CAS7447-40-7: 770-773 °C; pure CAS 10039-32-4: 35 °C; pure CAS56-81-5: 18 °C; pure CAS68-04-2: >300 °C; pure CAS7778-77-0: 253 °C
<b>Boiling point or initial boiling point and boiling range</b>	pure CAS7732-18-5: 100 °C (lit.); pure CAS7647-14-5: 1465 °C/1 atm (lit.); pure CAS57-50-1: 697.1 °C at 760 mmHg; pure CAS6381-59-5: 399.3 °C at 760 mmHg; pure CAS7447-40-7: 146 °C; pure CAS 10039-32-4: 158 °C at 760 mmHg; pure CAS56-81-5: 290 °C; pure CAS7778-77-0: > 449.85 °C. Atm. press.: Pa.
<b>Flammability</b>	non flammable
<b>Lower and upper explosion limit/flammability limit</b>	no data available
<b>Flashpoint</b>	no data available
<b>Auto-ignition temperature</b>	pure CAS 56-81-5: 393 °C
<b>Decomposition temperature</b>	no data available
<b>pH</b>	pure CAS 7447-40-7: 7. Remarks: Temperature and concentration not reported.; pure CAS 68-04-2: 8.4. Remarks: Ambient temperature.; pure CAS7778-77-0: Between 4,2 and 4,8 (1 % solution)
<b>Kinematic viscosity</b>	pure CAS56-81-5: dynamic viscosity (in mPa s) = 1 412. Temperature: 20 °C.; dynamic viscosity (in mPa s) = 612. Temperature: 30.0 °C.; dynamic viscosity (in mPa s) = 14.8. Temperature: 100.0 °C.
<b>Solubility</b>	pure CAS 7647-14-5: In water: 317 g/L. Temperature: 20 °C. pH: >= 7 - <= 10. Remarks: At 1 vol%.; pure CAS 57-50-1: Solubility in water, g/100 ml at 25 °C: 200 ; pure CAS6381-59-5: In water: 630 g/L (20 °C); pure CAS 7447-40-7: Solubility in water at 20 °C: good ; pure CAS 10039-32-4: In water: 218 g/L (20 °C); pure CAS 56-81-5: Solubility in water: miscible; pure CAS 68-04-2: Solubility in water, g/100 ml at 25 °C: 42.5 ; pure CAS7778-77-0: Solubility in water, g/100ml: 22
<b>Partition coefficient n-octanol/water</b>	pure CAS57-50-1: -3.67; pure CAS56-81-5: -1.76; pure CAS 68-04-2: log Pow = -1.72.
<b>Vapour pressure</b>	pure CAS7732-18-5: 3 mmHg ( 37 °C); pure CAS7647-14-5: 1 mmHg ( 865 °C); pure CAS 56-81-5: 0.01 Pa (25 °C); pure CAS68-04-2: 0 Pa. Temperature: 25 °C. Remarks: Extrapolated.; pure CAS7778-77-0: 4.5 fPa. Temperature: 25 °C.
<b>Density and/or relative density</b>	pure CAS7732-18-5: 1.000 g/mL at 3.98 °C (lit.); pure CAS7647-14-5: 2.16. Temperature: 25 °C.; pure CAS57-50-1: 1.6 g/cm <sup>3</sup> ; pure CAS6381-59-5: 1.79; pure CAS7447-40-7: 1.98 g/cm <sup>3</sup> ; pure CAS 10039-32-4: 1.52 g/cm <sup>3</sup> ; pure CAS56-81-5: 1.26; pure CAS68-04-2: 1.857. Temperature: 20 °C.; pure CAS7778-77-0: 2.34 g/cm <sup>3</sup>
<b>Relative vapour density</b>	pure CAS7732-18-5: <1 (vs air); pure CAS56-81-5: 3.1 (vs air)
<b>Particle characteristics</b>	not applicable

**10. Stability and reactivity**

**10.1 Reactivity**

No hazardous reactions if stored and handled as prescribed/indicated.

**10.2 Chemical stability**

Stable under recommended storage conditions.

**10.3 Possibility of hazardous reactions**

No hazardous reactions are known under conditions of normal use.

**10.4 Conditions to avoid**

Avoid high temperatures and direct sunlight.

**10.5 Incompatible materials**

no data available

**10.6 Hazardous decomposition products**

No hazardous decomposition products if stored and handled as prescribed/indicated.

**11. Toxicological information**

#### Acute toxicity

- Oral: pure CAS 25322-68-3: LD50 - rat (female) - > 2 000 mg/kgbw.; pure CAS 7447-40-7: LD50 - rat (female) - ca. 3 020 mg/kgbw. Remarks: Death occurred in less than 2 hours after dosing due to respiratory failure and prostration was the most common pre-mortem clinical sign.; pure CAS 56-81-5: LD50 Rat oral 12.6 g/kg; pure CAS 68-04-2: LD50 - mouse (male/female) - 5 400 mg/kgbw. Remarks: Observation limited to 10 days.; pure CAS 7778-77-0: LD50 Mouse oral 2820 mg/kgbw
- Inhalation: pure CAS 56-81-5: LC50 Rat inhalation > 570 mg/cu m/1 hr
- Dermal: pure CAS 25322-68-3: LD50 - rat (male/female) - > 2 000 mg/kgbw.; pure CAS 68-04-2: LD50 - rat (male/female) - > 2 000 mg/kgbw.; pure CAS 7778-77-0: LD50 - rat (male/female) - > 2 000 mg/kg bw.

#### Skin corrosion/irritation

no data available

#### Serious eye damage/irritation

no data available

#### Respiratory or skin sensitization

no data available

#### Germ cell mutagenicity

no data available

#### Carcinogenicity

no data available

#### Reproductive toxicity

no data available

#### STOT-single exposure

pure CAS 57-50-1: May cause mechanical irritation.; pure CAS 7447-40-7: The substance is irritating to the eyes and respiratory tract. Ingestion of large amounts could cause effects on the cardiovascular system. This may result in cardiac dysrhythmia.; pure CAS 68-04-2: The substance is irritating to the eyes and respiratory tract.; pure CAS 7778-77-0: The substance is irritating to the eyes, skin and respiratory tract.

#### STOT-repeated exposure

pure CAS 57-50-1: The substance may have effects on the teeth. This may result in dental caries. Repeated or prolonged contact with skin may cause dermatitis.

#### Aspiration hazard

pure CAS 25322-68-3: A nuisance-causing concentration of airborne particles can be reached quickly when dispersed.; pure CAS 7447-40-7: Evaporation at 20°C is negligible; a nuisance-causing concentration of airborne particles can, however, be reached quickly when dispersed, especially if powdered.; pure CAS 56-81-5: Evaporation at 20°C is negligible; a nuisance-causing concentration of airborne particles can, however, be reached quickly on spraying.; pure CAS 68-04-2: Evaporation at 20°C is negligible; a nuisance-causing concentration of airborne particles can, however, be reached quickly when dispersed.; pure CAS 7778-77-0: A harmful concentration of airborne particles can be reached quickly when dispersed, especially if powdered.

## 12. Ecological information

### 12.1 Toxicity

- Toxicity to fish: pure CAS 7647-14-5: LC50 - *Lepomis macrochirus* - 5 840 mg/L - 96 h.; pure CAS 25322-68-3: LC50 - *Poecilia reticulata* - > 100 mg/L - 96 h.; pure CAS 7447-40-7: LC50 - *Pimephales promelas* - 880 mg/L - 96 h.; pure CAS 56-81-5: LC50 - *Oncorhynchus mykiss* (previous name: *Salmogairdneri*) - 54 000 mg/L - 96 h.; pure CAS 68-04-2: LC50 - *Leuciscusidus melanotus* - 440 mg/L - 48 h.; pure CAS 7778-77-0: LC50 - *Oncorhynchus mykiss* (previous name: *Salmo gairdneri*) - > 100 mg/L - 96 h. Remarks: Potassium.
- Toxicity to daphnia and other aquatic invertebrates: pure CAS 7647-14-5: LC50 - *Daphnia magna* - 874 mg/L - 48 h. Remarks: Complete immobilisation and no response to gentle agitation.; pure CAS 25322-68-3: LC50 - *Daphnia magna* - 9 096.488 mg/L - 24 h.; pure CAS 7447-40-7: EC50 - see below - >= 440 - <= 880 mg/L - 48 h.; pure CAS 56-81-5: LC50 - *Daphnia magna* - 1 955 mg/L - 48 h.; pure CAS 68-04-2: LC50 - *Daphnia magna* - 1 535 mg/L - 24 h.; pure CAS 7778-77-0: EC50 - *Daphnia magna* - > 100 mg/L - 48 h. Remarks: Phosphate.
- Toxicity to algae: pure CAS 7647-14-5: EC50 - *Nitzschia* sp. - 2 430 mg/L - 120 h.; pure CAS 25322-68-3: EC50 - *Pseudokirchneriella subcapitata* (previous names: *Raphidocelis subcapitata*, *Selenastrum capricornutum*) - 15 915 mg/L - 72 h.; pure CAS 7447-40-7: EC50 - *Desmodesmus subspicatus* (previous name: *Scenedesmus subspicatus*) - > 100 mg/L - 72 h.; pure CAS 56-81-5: EC3 - *Scenedesmus quadricauda* - > 10 000 mg/L - 8 d.; pure CAS 68-04-2: Toxicity Threshold - *Scenedesmus quadricauda* - 640 mg/L - 8 d.; pure CAS 7778-77-0: EC50 - *Desmodesmus subspicatus* (previous name: *Scenedesmus subspicatus*) - > 100 mg/L - 72 h.
- Toxicity to microorganisms: pure CAS 7647-14-5: NOEC - activated sludge - 5 000 - 8 000 mg/L. Remarks: Respiration rate.; pure CAS 25322-68-3: IGC50 - *Tetrahyena pyriformis* - 770.636 mg/L - 48 h.; pure CAS 7447-40-7: EC50 - activated sludge, domestic - > 1 000 mg/L - 3 h. Remarks: Respiration rate.; pure CAS 56-81-5: Toxicity Threshold - *Pseudomonas putida* - > 10 000 mg/L - 16 h.; pure CAS 68-04-2: TT - *Pseudomonas putida* - > 10 000 mg/L - 16 h.; pure CAS 7778-77-0: EC50 - activated sludge of a predominantly domestic sewage - > 1 000 mg/L - 3 h. Remarks: Respiration rate.

### 12.2 Persistence and degradability

AEROBIC: Glycerin, present at 100 mg/L, reached 63% of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test (1). Biodegradation rate constants of 0.258/day and 0.200/day in respirometric test systems employing activated sludge have also been reported, corresponding to 68% and 78% degradation, respectively (2).

### 12.3 Bioaccumulative potential

An estimated BCF of 3 was calculated in fish for glycerin (SRC), using a log K<sub>ow</sub> of 1.76 (1) and a regression-derived equation (2). According to a classification scheme (3), this BCF suggests the potential for bioconcentration in aquatic organisms is low (SRC).

### 12.4 Mobility in soil



<b>EC Inventory</b>			Listed.
<b>United States Toxic Substances Control Act (TSCA)Inventory</b>			Listed.
<b>China Catalog of Hazardous chemicals 2015</b>			Not Listed.
<b>New Zealand Inventory of Chemicals (NZIoC)</b>			Listed.
<b>Philippines Inventory of Chemicals and Chemical Substances (PICCS)</b>			Listed.
<b>Vietnam National Chemical Inventory</b>			Listed.
<b>Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)</b>			Listed.
<b>Korea Existing Chemicals List (KECL)</b>			Listed.
<b>Chemical name</b>	<b>Common names and synonyms</b>	<b>CAS number</b>	<b>EC number</b>
Poly(oxy-1,2-ethanediyl)α,-hydro-ω-hydroxy- Ethane-1,2-diol, ethoxylated	Poly (ethylene glycol) - 4000	25322-68-3	500-038-2
<b>European Inventory of Existing Commercial Chemical Substances (EINECS)</b>			Not Listed.
<b>EC Inventory</b>			Listed.
<b>United States Toxic Substances Control Act (TSCA)Inventory</b>			Listed.
<b>China Catalog of Hazardous chemicals 2015</b>			Not Listed.
<b>New Zealand Inventory of Chemicals (NZIoC)</b>			Listed.
<b>Philippines Inventory of Chemicals and Chemical Substances (PICCS)</b>			Listed.
<b>Vietnam National Chemical Inventory</b>			Listed.
<b>Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)</b>			Listed.
<b>Korea Existing Chemicals List (KECL)</b>			Listed.
<b>Chemical name</b>	<b>Common names and synonyms</b>	<b>CAS number</b>	<b>EC number</b>
Potassium sodium tartrate	Potassium sodium tartrate tetrahydrate	6381-59-5	613-385-0
<b>European Inventory of Existing Commercial Chemical Substances (EINECS)</b>			Not Listed.
<b>EC Inventory</b>			Not Listed.
<b>United States Toxic Substances Control Act (TSCA)Inventory</b>			Not Listed.
<b>China Catalog of Hazardous chemicals 2015</b>			Not Listed.
<b>New Zealand Inventory of Chemicals (NZIoC)</b>			Listed.
<b>Philippines Inventory of Chemicals and Chemical Substances (PICCS)</b>			Listed.
<b>Vietnam National Chemical Inventory</b>			Listed.
<b>Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)</b>			Listed.
<b>Korea Existing Chemicals List (KECL)</b>			Not Listed.
<b>Chemical name</b>	<b>Common names and synonyms</b>	<b>CAS number</b>	<b>EC number</b>
Potassiumchloride	Potassiumchloride	7447-40-7	231-211-8
<b>European Inventory of Existing Commercial Chemical Substances (EINECS)</b>			Listed.
<b>EC Inventory</b>			Listed.
<b>United States Toxic Substances Control Act (TSCA)Inventory</b>			Listed.
<b>China Catalog of Hazardous chemicals 2015</b>			Not Listed.
<b>New Zealand Inventory of Chemicals (NZIoC)</b>			Listed.
<b>Philippines Inventory of Chemicals and Chemical Substances (PICCS)</b>			Listed.
<b>Vietnam National Chemical Inventory</b>			Listed.
<b>Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)</b>			Listed.
<b>Korea Existing Chemicals List (KECL)</b>			Listed.
<b>Chemical name</b>	<b>Common names and synonyms</b>	<b>CAS number</b>	<b>EC number</b>
Phosphoric acid, sodium salt, hydrate (1:2:12)	disodium hydrogen phosphate	10039-32-4	600-088-6
<b>European Inventory of Existing Commercial Chemical Substances (EINECS)</b>			Not Listed.
<b>EC Inventory</b>			Not Listed.
<b>United States Toxic Substances Control Act (TSCA)Inventory</b>			Not Listed.
<b>China Catalog of Hazardous chemicals 2015</b>			Not Listed.
<b>New Zealand Inventory of Chemicals (NZIoC)</b>			Listed.
<b>Philippines Inventory of Chemicals and Chemical Substances (PICCS)</b>			Listed.
<b>Vietnam National Chemical Inventory</b>			Listed.
<b>Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)</b>			Listed.
<b>Korea Existing Chemicals List (KECL)</b>			Not Listed.

<b>Chemical name</b>	<b>Common names and synonyms</b>	<b>CAS number</b>	<b>EC number</b>
Glycerol	Glycerol	56-81-5	200-289-5
<b>European Inventory of Existing Commercial Chemical Substances (EINECS)</b>			Listed.
<b>EC Inventory</b>			Listed.
<b>United States Toxic Substances Control Act (TSCA)Inventory</b>			Listed.
<b>China Catalog of Hazardous chemicals 2015</b>			Not Listed.
<b>New Zealand Inventory of Chemicals (NZIoC)</b>			Listed.

Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.
Chemical name	Common names and synonyms	CAS number	EC number
Trisodiumcitrate	Sodium citrate	68-04-2	200-675-3
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA)Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.
Chemical name	Common names and synonyms	CASnumber	EC number
2-Pyrrolidinone, 1-ethenyl-, homopolymer	PVP40	9003-39-8	618-363-4
European Inventory of Existing Commercial Chemical Substances (EINECS)			Not Listed.
EC Inventory			Not Listed.
United States Toxic Substances Control Act (TSCA)Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.
Chemical name	Common names and synonyms	CASnumber	EC number
Potassium dihydrogenorthophosph#e	Potassium dihydrogen phosphate	7778-77-0	231-913-4
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA)Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.

## 16. Other information

### Information on revision

Creation Date	Mar. 18, 2024
Revision Date	Mar. 18, 2024

### Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

### References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=n](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=n)
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemid#e.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS - database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

