LUNSUMIO Vials 30 mg/30 ml

Version	Revision Date:	Date of last issue: -
1.0	06/10/2025	Date of first issue: 06/10/2025

SECTION 1. IDENTIFICATION

Product name : LUNSUMIO Vials 30 mg/30 ml

Product code : RO703-0816/F02-04

Common name(s), synonym(s) of the substance : anti-CD20/CD3 TDB
Bispecific human anti-CD20/CD3 TDB antibody

Manufacturer or supplier's details

Company name of supplier : Genentech, Inc.

Address : 1 DNA Way
South San Francisco, CA 94080
USA

Telephone : 001-(650) 225-1000
E-mail address : info.sds@roche.com
Emergency telephone
In case of emergencies: : US CHEMTREC PHONE (800)-424-9300

Recommended use of the chemical and restrictions on use

Recommended use : Formulated pharmaceutical active substance

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Hazardous properties cannot be ruled out. Always exercise caution and follow good industrial hygiene practices when handling chemicals.

Not a hazardous substance or mixture.

GHS label elements

Hazardous properties cannot be ruled out. Always exercise caution and follow good industrial hygiene practices when handling chemicals.

No hazard pictogram, no signal word, no hazard statement(s), no precautionary statement(s) required.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
Mosunetuzumab	1905409-39-3	0.1
.alpha.-D-Glucopyranoside, .beta.-D-	57-50-1	8.2

fructofuranosyl		
L-Histidine	71-00-1	0.16
L-Methionine	63-68-3	0.15
Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs.	9005-64-5	0.1
Acetic acid	64-19-7	0.1
Water	7732-18-5	91

SECTION 4. FIRST AID MEASURES

General advice : Do not leave the victim unattended.

If inhaled : If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.

In case of skin contact : Wash off with soap and water.

In case of eye contact : Remove contact lenses.
Protect unharmed eye.
If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.

Most important symptoms and effects, both acute and delayed : None known.

Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing

Notes to physician : Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media : High volume water jet

Specific hazards during fire fighting : No information available.

Hazardous combustion products : No hazardous combustion products are known

Further information	:	Standard procedure for chemical fires. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Special protective equipment for fire-fighters	:	Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Refer to protective measures listed in sections 7 and 8.
Environmental precautions	:	If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Wipe up with absorbent material (e.g. cloth, fleece). Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Advice on safe handling	:	For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area.
Conditions for safe storage	:	Protect from heat and light Electrical installations / working materials must comply with the technological safety standards.
Materials to avoid	:	No materials to be especially mentioned.
Storage temperature	:	Protect from heat and light
Further information on storage stability	:	No decomposition if stored and applied as directed.
Packaging material	:	Suitable material: Ampoules, Prefilled syringes, Vials, Stainless steel, glass

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible	Basis

			concentration	
.alpha.-D-Glucopyranoside, .beta.-D-fructofuranosyl	57-50-1	TWA	10 mg/m3	ACGIH
		TWA (Respirable)	5 mg/m3	NIOSH REL
		TWA (total)	10 mg/m3	NIOSH REL
		TWA (total dust)	15 mg/m3	OSHA Z-1
		TWA (respirable fraction)	5 mg/m3	OSHA Z-1
		TWA (Total dust)	15 mg/m3	OSHA P0
		TWA (respirable dust fraction)	5 mg/m3	OSHA P0
Mosunetuzumab	1905409-39-3	IOEL	0.004 mg/m3	Roche Industrial Hygiene Committee (RIHC)

Personal protective equipment

Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection

In case of contact through splashing:

Material : Nitrile rubber
Break through time : > 30 min
Glove thickness : > 0.11 mm

In case of full contact:

Material : butyl-rubber
Break through time : > 480 min
Glove thickness : > 0.4 mm

Remarks : Wear appropriate protective gloves to prevent skin contact. Replace torn or punctured gloves promptly.

Eye protection : Safety glasses

Skin and body protection : Protective suit

Hygiene measures : General industrial hygiene practice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Clear liquid
Color	:	colorless
Odor	:	No data available
Odor Threshold	:	No data available
pH	:	5.8
Melting point/ range	:	No data available
Boiling point/boiling range	:	No data available
Flash point	:	No data available
Evaporation rate	:	No data available
Self-ignition	:	Not applicable
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	No data available
Relative vapor density	:	No data available
Relative density	:	No data available
Density	:	No data available
Solubility(ies)		
Water solubility	:	No data available
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available

Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available
Particle characteristics		
Particle Size Distribution	:	Not applicable

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Proteins are temperature-sensitive; the thermal denaturation has an impact on quality but does not affect Plant and Process Safety; during decomposition no flammable gas, no organic peroxide and no oxidising substances are created Stable under normal conditions.
Possibility of hazardous reactions	:	No data available Stable under recommended storage conditions. No hazards to be specially mentioned.
Conditions to avoid	:	No data available No data available
Incompatible materials	:	No data available Not applicable
Hazardous decomposition products	:	No decomposition if stored and applied as directed. No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Not classified due to lack of data.

Components:

Mosunetuzumab:

Acute oral toxicity	:	Remarks: Not bioavailable by oral administration
Acute toxicity (other routes of administration)	:	HNSTD (Highest Non-Severely Toxic Dose) (cynomolgus monkey): > 1 mg/kg Application Route: i.v. GLP: yes

.alpha.-D-Glucopyranoside, .beta.-D-fructofuranosyl:

Acute oral toxicity	:	LD50 Oral (Rat): 29,700 mg/kg

L-Histidine:

Acute oral toxicity	:	LD50 Oral (Rat): > 15,000 mg/kg LD50 Oral (Mouse): > 15,000 mg/kg

L-Methionine:

Acute oral toxicity	:	Acute toxicity estimate (Rat): > 5,000 mg/kg Method: Expert judgment Acute toxicity estimate (Mouse): > 5,000 mg/kg Method: Expert judgment
Acute inhalation toxicity	:	Acute toxicity estimate: > 30 mg/l Test atmosphere: dust/mist Method: Expert judgment
Acute dermal toxicity	:	Acute toxicity estimate: > 5,000 mg/kg Method: Expert judgment

Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs.:

Acute oral toxicity	:	LD50 Oral (Rat): 38,900 mg/kg

Acetic acid:

Acute oral toxicity	:	LD50 Oral (Rat, male and female): 3,310 mg/kg GLP: no
Acute inhalation toxicity	:	LC50 (Rat, male and female): 11.4 mg/l Exposure time: 4 h Test atmosphere: vapor GLP: no Assessment: The substance or mixture has no acute inhalation toxicity

Skin corrosion/irritation

Not classified due to lack of data.

Components:

L-Histidine:

Species	:	reconstructed human epidermis (RhE)
Method	:	OECD Test Guideline 439
Result	:	No skin irritation
GLP	:	yes

L-Methionine:

Remarks	:	This information is not available.

Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs.:

Species	:	Rabbit
Result	:	No skin irritation

Acetic acid:

Species	:	Rabbit
Exposure time	:	4 h
Method	:	OECD Test Guideline 404
Result	:	Causes severe burns.
GLP	:	No information available.

Serious eye damage/eye irritation

Not classified due to lack of data.

Components:

L-Histidine:

Species	:	Bovine cornea
Result	:	No eye irritation
Method	:	OECD Test Guideline 437

L-Methionine:

Remarks	:	This information is not available.

Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs.:

Species	:	Rabbit
Result	:	No eye irritation

Acetic acid:

Species	:	Rabbit
Result	:	Risk of serious damage to eyes.
Exposure time	:	4 h
Method	:	OECD Test Guideline 405
GLP	:	No information available.

Respiratory or skin sensitization

Skin sensitization

Not classified due to lack of data.

Respiratory sensitization

Not classified due to lack of data.

Components:

Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs.:

Species	:	Guinea pig
Result	:	Not a skin sensitizer.

Germ cell mutagenicity

Not classified due to lack of data.

Components:

.alpha.-D-Glucopyranoside, .beta.-D-fructofuranosyl:

Genotoxicity in vitro	:	Test Type: In vitro mammalian cell gene mutation test Result: negative

Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs.:

Genotoxicity in vitro	:	Test Type: Micronucleus test Test system: Escherichia coli Result: negative
Germ cell mutagenicity - Assessment	:	Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Acetic acid:

Genotoxicity in vitro	:	Test Type: Microbial mutagenesis assay (Ames test)

Test system: Salmonella typhimurium
Metabolic activation: Metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: No information available.
Remarks: In vitro tests did not show mutagenic effects

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
GLP: no
Remarks: In vitro tests did not show mutagenic effects

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Rat (male and female)
Application Route: Inhalation
Exposure time: 13 weeks
Dose: 0, 1, 5, 20 ppm
Method: Mutagenicity (micronucleus test)
Result: negative
GLP: yes

Carcinogenicity

Not classified due to lack of data.

Components:

.alpha.-D-Glucopyranoside, .beta.-D-fructofuranosyl:

Remarks : No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

L-Histidine:

Remarks : No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs.:

Remarks : No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Acetic acid:

Species	:	Mouse, female
Application Route	:	Dermal
Exposure time	:	32 weeks
Result	:	negative
GLP	:	no
Remarks	:	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Not classified due to lack of data.

Components:

Mosunetuzumab:

Effects on fertility	:	Species: cynomolgus monkey Result: No adverse effects.

Acetic acid:

Effects on fetal development	:	Species: Mouse, female Application Route: Oral Dose: 10 ml/kg body weight Duration of Single Treatment: 6 - 15 d Developmental Toxicity: NOAEL: 345 mg/kg body weight Method: Regulation (EC) No. 440/2008, Annex, B.31 GLP: No information available.

STOT-single exposure

Not classified due to lack of data.

Components:

.alpha.-D-Glucopyranoside, .beta.-D-fructofuranosyl:

Assessment	:	The substance or mixture is not classified as specific target organ toxicant, single exposure.

L-Methionine:

Assessment : The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT-repeated exposure

Not classified due to lack of data.

Components:

.alpha.-D-Glucopyranoside, .beta.-D-fructofuranosyl:

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

L-Methionine:

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration toxicity

Not classified due to lack of data.

Components:

.alpha.-D-Glucopyranoside, .beta.-D-fructofuranosyl:

No data available

L-Methionine:

No data available

Further information

Product:

Remarks : No data available

Components:

Mosunetuzumab:

Remarks : after parenteral application, rare cases of hypersensitivity, including anaphylactic shock, can occur

.alpha.-D-Glucopyranoside, .beta.-D-fructofuranosyl:

Remarks : Health injuries are not known or expected under normal use.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

.alpha.-D-Glucopyranoside, .beta.-D-fructofuranosyl:

Ecotoxicology Assessment

Acute aquatic toxicity	:	This product has no known ecotoxicological effects.
Chronic aquatic toxicity	:	This product has no known ecotoxicological effects.
Toxicity Data on Soil	:	Not expected to adsorb on soil.
Other organisms relevant to the environment	:	No data available

L-Histidine:

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 202 GLP: yes
Toxicity to algae/aquatic plants	:	EC50 (Desmodesmus subspicatus (green algae)): > 100 mg/l End point: Growth inhibition Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201 GLP: yes
Toxicity to microorganisms	:	EC10 (activated sludge): > 200 mg/l Exposure time: 5 d GLP: no

L-Methionine:

Toxicity to fish	:	LC50 : > 100 mg/l Exposure time: 96 h

Ecotoxicology Assessment

Acute aquatic toxicity	:	This product has no known ecotoxicological effects.
Chronic aquatic toxicity	:	This product has no known ecotoxicological effects.
Toxicity Data on Soil	:	Not expected to adsorb on soil.
Other organisms relevant to the environment	:	No data available

Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs.:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 216 mg/l Exposure time: 96 h

LC50 (Brachydanio rerio (zebrafish)): > 100 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOELR (Daphnia): 10 mg/l
Exposure time: 21 d
Method: OECD Test Guideline 211

Toxicity to microorganisms : EC0 (Pseudomonas putida): > 10,000 mg/l

EC50 (Bacteria): 774 mg/l
Exposure time: 5 h

Acetic acid:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 300.82 mg/l
End point: mortality
Exposure time: 96 h
Test Type: semi-static test
Analytical monitoring: no
Method: OECD Test Guideline 203
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 300.82 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : EC50 (Skeletonema costatum (marine diatom)): > 300.82 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: no
GLP: yes

Persistence and degradability

Components:

Mosunetuzumab:

Biodegradability : Result: Globular proteins are generally well biodegradable

Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs.:

Biodegradability : Result: Readily biodegradable.
Biodegradation: > 70 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Acetic acid:

Biodegradability : aerobic
Inoculum: activated sludge
Concentration: 3 mg/l
Result: Readily biodegradable.
Biodegradation: 96 %
Exposure time: 20 d
GLP: no

Bioaccumulative potential

Components:

Mosunetuzumab:

Partition coefficient: n-octanol/water : Remarks: No data available

.alpha.-D-Glucopyranoside, .beta.-D-fructofuranosyl:

Partition coefficient: n-octanol/water : log Pow: -3.7 (68 °F / 20 °C)

L-Histidine:

Partition coefficient: n-octanol/water : log Pow: ca. -3.32

L-Methionine:

Partition coefficient: n-octanol/water : log Pow: -1.87

Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs.:

Bioaccumulation : Remarks: No data available

Partition coefficient: n-octanol/water : Remarks: No data available

Acetic acid:

Bioaccumulation : Bioconcentration factor (BCF): 3.16

Partition coefficient: n-octanol/water : log Pow: -0.17 (77 °F / 25 °C)
pH: 7
Method: No information available.
GLP: No information available.

Water:

Partition coefficient: n-octanol/water : Remarks: No data available

Mobility in soil

No data available

Other adverse effects

Product:

Ozone-Depletion Potential	:	Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
Additional ecological information	:	No data available

Components:

Mosunetuzumab:

Additional ecological information	:	Monoclonal antibodies are proteins with highly specific affinity to a certain antigen; therefore, no appreciable ecotoxic potential is to be expected

L-Histidine:

Additional ecological information	:	No data available

L-Methionine:

Adsorbed organic bound halogens (AOX)	:	Remarks: Not applicable
Additional ecological information	:	No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Can be disposed as waste water, when in compliance with local regulations.
Contaminated packaging	:	Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG
Not regulated as a dangerous good

IATA-DGR
Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

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

Not applicable for product as supplied.

Domestic regulation

49 CFR

Not regulated as a dangerous good

Special precautions for user

Remarks : Not dangerous goods in the meaning of ADR/RID, ADN, IMDG-Code, ICAO/IATA-DGR

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

Listed substances in the product are at low enough levels to not be expected to exceed the RQ

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

Components	CAS-No.	Component TPQ (lbs)

SARA 311/312 Hazards : No SARA Hazards

Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

Acetic acid 64-19-7 >= 0 - < 0.1 %

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

Acetic acid 64-19-7 >= 0 - < 0.1 %

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307
This product does not contain any priority pollutants related to the U.S. Clean Water Act

US State Regulations

Massachusetts Right To Know

.alpha.-D-Glucopyranoside, .beta.-D-fructofuranosyl 57-50-1

Pennsylvania Right To Know

Water 7732-18-5
.alpha.-D-Glucopyranoside, .beta.-D-fructofuranosyl 57-50-1
Acetic acid 64-19-7

Maine Chemicals of High Concern

Vermont Chemicals of High Concern

Washington Chemicals of High Concern

California Permissible Exposure Limits for Chemical Contaminants

.alpha.-D-Glucopyranoside, .beta.-D-fructofuranosyl 57-50-1

The ingredients of this product are reported in the following inventories:

AIIC	:	Not in compliance with the inventory
DSL	:	This product contains the following components that are not on the Canadian DSL nor NDSL. Mosunetuzumab
NZIoC	:	On the inventory, or in compliance with the inventory
ENCS	:	Not in compliance with the inventory
ISHL	:	Not in compliance with the inventory
KECI	:	Not in compliance with the inventory
PICCS	:	Not in compliance with the inventory
IECSC	:	Not in compliance with the inventory
TCSI	:	Not in compliance with the inventory
TSCA	:	Product contains substance(s) not listed on TSCA inventory.
TECI	:	Not in compliance with the inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

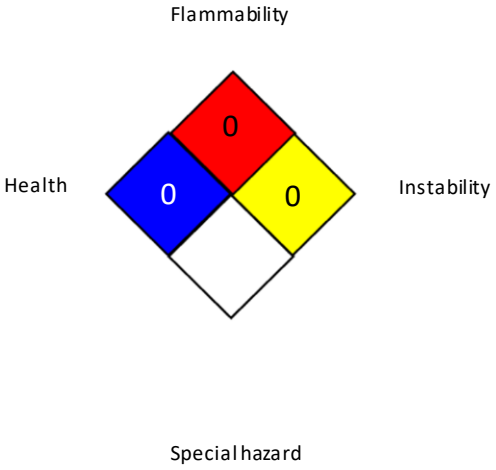
SECTION 16. OTHER INFORMATION

Further information

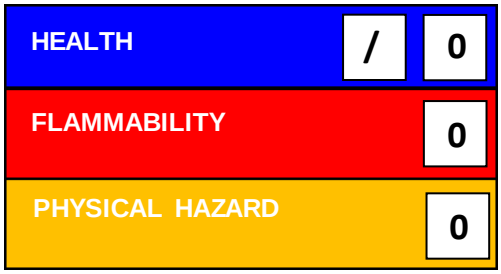
LUNSUMIO Vials 30 mg/30 ml

Version	Revision Date:	Date of last issue: -
1.0	06/10/2025	Date of first issue: 06/10/2025

NFPA 704:



HMIS® IV:



HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
OSHA P0	:	USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
ACGIH / TWA	:	8-hour, time-weighted average
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
OSHA P0 / TWA	:	8-hour time weighted average
OSHA Z-1 / TWA	:	8-hour time weighted average

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; 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; HMIS - Hazardous Materials Identification System; 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; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect

Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; 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; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

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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 given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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