

Safety Data Sheet

29 Mix metal standard solution

Version : V2.0.0.1

Report No. : BWB2690-2016-MSDS-US

Creation Date : 2025/11/07

Revision Date : -



*Prepared according to American OSHA HCS-2024 (29 CFR 1910.1200)

1 Identification

Product identifier

Product Name	29 Mix metal standard solution
Cat No.	BWB2690-2016
CAS No.	Not applicable
EC No.	Not applicable
Molecular Formula	Not applicable

Recommended use of the product and restrictions on use

Relevant identified uses	Please consult manufacturer.
Uses advised against	Please consult manufacturer.

Details of the supplier of the Safety Data Sheet

Name of the company	Weiyel Inc
Address of the company	Hedian Light Industrial Park, Chengguan Town, Shangcheng County, Xinyang City, Henan Province, China
Post code	465350
Telephone number	010-58103678
Fax number	010-84840368
E-mail address	info@weiyel.com

Emergency phone number

Emergency phone number	010-58103678
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2 Hazard(s) identification

Hazard classification according to 29 CFR 1910.1200

According to OSHA HCS-2024, not classified as a hazardous chemical.

Label elements

Hazard pictograms	Not applicable
Signal word	Not applicable

Hazard statements

Hazard statements	Not applicable
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Precautionary statements

- ◆ Prevention

Prevention	Not applicable
◆ Response	
Response	Not applicable
◆ Storage	
Storage	Not applicable
◆ Disposal	
Disposal	Not applicable
Other hazards	
	Not applicable.

Hazard description

◆ Physical and chemical hazards	
	No information available
◆ Health hazards	
Inhaled	Inhalation of the product may produce adverse health effects or irritation of the respiratory tract following discomfort.
Ingestion	Accidental ingestion of the product may be harmful to the health of the individual.
Skin Contact	Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.
Eye	This product may cause temporary discomfort following direct contact with the eye.
◆ Environmental hazards	
	Please refer to 12th chapter of SDS.

3 Composition/information on ingredients

Substance/mixture

	Mixture
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Component	CAS No.	EC No.	Concentration (wt, %)
Aluminium	7429-90-5	231-072-3	0.01
Arsenic	7440-38-2	231-148-6	0.01
Boron	7440-42-8	231-151-2	0.01
Barium	7440-39-3	231-149-1	0.01
Calcium	7440-70-2	231-179-5	0.01
Cadmium	7440-43-9	231-152-8	0.01
Chromium	7440-47-3	231-157-5	0.01
Cobalt	7440-48-4	231-158-0	0.01
Copper	7440-50-8	231-159-6	0.01
Iron	7439-89-6	231-096-4	0.01
Potassium	7440-09-7	231-119-8	0.01
Manganese	7439-96-5	231-105-1	0.01

Magnesium	7439-95-4	231-104-6	0.01
Molybdenum	7439-98-7	231-107-2	0.01
Sodium	7440-23-5	231-132-9	0.01
Nickel	7440-02-0	231-111-4	0.01
Phosphorus	7723-14-0	231-768-7	0.01
Lead	7439-92-1	231-100-4	0.01
Sulfur	7704-34-9	231-722-6	0.01
Selenium	7782-49-2	231-957-4	0.01
Strontium	7440-24-6	231-133-4	0.01
Tin	7440-31-5	231-141-8	0.01
Titanium	7440-32-6	231-142-3	0.01
Vanadium	7440-62-2	231-171-1	0.01
Zinc	7440-66-6	231-175-3	0.01
Antimony	7440-36-0	231-146-5	0.01
Lithium	7439-93-2	231-102-5	0.01
Rubidium	7440-17-7	231-126-6	0.01
Thallium	7440-28-0	231-138-1	0.01
Water	7732-18-5	231-791-2	99.71

4 First-aid measures

Description of first aid measures

General advice	Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.
Skin contact	Take off contaminated clothing and shoes immediately. Wash off with plenty of soap and water for at least 15 minutes and consult a physician if feel uncomfortable.
Ingestion	Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.
Inhalation	Move victim into fresh air. If breathing is difficult, give oxygen. Do not use mouth to mouth resuscitation if victim ingested or inhaled the substance. If not breathing, give artificial respiration and consult a physician immediately.
Protecting of first-aiders	Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

Most important symptoms/effects, acute and delayed

1	Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.
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Indication of any immediate medical attention and special treatment needed

1	Treat symptomatically.
2	Symptoms may be delayed.

5 Fire-fighting measures

Extinguishing media

Suitable extinguishing media	Use extinguishing media suitable for surrounding area.
Unsuitable extinguishing media	There is no restriction on the type of extinguisher which may be used.

Specific hazards arising from the substance or mixture

1	Development of hazardous combustion gases or vapor possible in the event of fire.
2	May expand or decompose explosively when heated or involved in fire.

Special protective equipment and precautions for fire-fighters

1	As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective gear.
2	Fight fire from a safe distance, with adequate cover.
3	Prevent fire extinguishing water from contaminating surface water or the ground water system.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

1	Use personal protective equipment, do not breathe gas/mist/vapour/spray.
2	Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.
3	Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Environmental precautions

1	Prevent further leakage or spillage if safe to do so.
2	Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up

1	Cut off the source of the leak as much as possible.
2	Keep leaks in a ventilated place.
3	Absorb spilled material in dry sand or inert absorbent. In case of large amount of spillage, contain a spill by bunding.
4	Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.
5	Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container.

7 Handling and storage

Precautions for safe handling

1	Handling is performed in a well ventilated place.
2	Wear suitable protective equipment.
3	Avoid contact with skin and eyes.
4	Keep away from heat/sparks/open flames/ hot surfaces.

Conditions for safe storage, including any incompatibilities

1	Keep containers tightly closed.
2	Keep containers in a dry, cool and well-ventilated place.

3	Keep away from heat/sparks/open flames/hot surfaces.
4	Store away from incompatible materials and foodstuff containers.

8 Exposure controls/personal protection

Control parameters

◆ Occupational exposure limit values

Component	Country/Region	Limit value - Eight hours		Limit value - Short term	
		ppm	mg/m ³	ppm	mg/m ³
Aluminium	Japan - JSOH(2024–2025)	-	0.5(respirable dust)	-	-
	Japan - JSOH(2024–2025)	-	2(total dust)	-	-
	Permissible exposure standards for workers in the workplace	-	5(respirable dust)	-	10(respirable dust)
	Australia	-	5(powder, pyrophoric)	-	-
	Canada - Ontario	1	-	-	-
	New Zealand	-	5(pyrophoric powder)	-	-
Arsenic	Japan - JSOH(2024–2025)	-	0.003(individual excess lifetime risk of cancer 10 ⁻³)	-	-
	Permissible exposure standards for workers in the workplace	-	0.01(as As)	-	0.03(as As)
	Australia	-	0.05	-	-
	Canada - Ontario	-	0.01	-	0.05
	New Zealand	-	0.001	-	-
	USA - ACGIH	-	0.01	-	-
Boron	Germany (DFG)	-	0.75	-	0.75
Barium	Permissible exposure standards for workers in the workplace	-	0.5	-	1.5
	Australia	-	0.5	-	-
	Canada - Ontario	-	0.5	-	-
	European Union	-	0.5	-	-
	New Zealand	-	0.5	-	-
	USA - ACGIH	-	0.5	-	-
Cadmium	Japan - JSOH(2024–2025)	-	0.05	-	-

	5)				
	Permissible exposure standards for workers in the workplace	-	0.05(as Cd)	-	0.15(as Cd)
	Australia	-	0.01	-	-
	Canada - Ontario	-	0.01(inhalable fraction)	-	-
	European Union	-	0.001	-	-
	New Zealand	-	0.004	-	-
Chromium	Japan - JSOH(2024-2025)	-	0.5	-	-
	Permissible exposure standards for workers in the workplace	-	1	-	2
	Australia	-	0.5	-	-
	Canada - Ontario	-	0.5	-	-
	European Union	-	2	-	-
	New Zealand	-	0.5	-	-
Cobalt	Japan - JSOH(2024-2025)	-	0.05	-	-
	Permissible exposure standards for workers in the workplace	-	0.05(dust and fume)	-	0.15(dust and fume)
	Australia	-	0.05	-	-
	Canada - Ontario	-	0.02	-	-
	New Zealand	-	0.02	-	-
	USA - ACGIH	-	0.02(inhalable fraction)	-	-
Copper	Permissible exposure standards for workers in the workplace	-	1(dust and mist)	-	2(dust and mist)
	Permissible exposure standards for workers in the workplace	-	0.2(fume)	-	0.6(fume)
	Australia	-	0.2(fume, respirable fraction)	-	-
	Canada - Ontario	-	0.2(fume, respirable fraction)	-	-
	New Zealand	-	0.01	-	-

	USA - ACGIH	-	1(dust and mist)	-	-
Manganese	Japan - JSOH(2024-2025)	-	0.02(respirable particles, as Mn)	-	-
	Japan - JSOH(2024-2025)	-	0.1(total particulate, as Mn)	-	-
	Permissible exposure standards for workers in the workplace	-	1(fume)	-	2(fume)
	Australia	-	1	-	-
	Canada - Ontario	-	0.2	-	-
	European Union	-	0.2	-	-
Molybdenum	Australia	-	10	-	-
	Canada - Ontario	-	10	-	-
	New Zealand	-	10	-	-
	USA - ACGIH	-	3(respirable fraction)	-	-
	Austria	-	15(inhalable aerosol)	-	30(inhalable aerosol)
	Canada - Québec	-	10	-	-
Nickel	Japan - JSOH(2024-2025)	-	1	-	-
	Permissible exposure standards for workers in the workplace	-	1	-	2
	Australia	-	1	-	-
	Canada - Ontario	-	1	-	-
	New Zealand	-	0.005	-	-
	USA - ACGIH	-	1.5(inhalable fraction)	-	-
Phosphorus	Japan - JSOH(2024-2025)	-	0.1	-	-
	Permissible exposure standards for workers in the workplace	-	0.1	-	0.3
	Australia	-	0.1	-	-
	New Zealand	-	0.1	-	-
	USA - NIOSH	-	0.1	-	-
	USA - OSHA	-	0.1	-	-
Lead	Japan - JSOH(2024-2025)	-	0.03(as Pb)	-	-

	Permissible exposure standards for workers in the workplace	-	0.05	-	0.15
	Australia	-	0.05	-	-
	Canada - Ontario	-	0.05	-	-
	European Union	-	0.15	-	-
	New Zealand	-	0.05	-	-
Sulfur	Latvia	-	6	-	-
	Romania	-	-	-	15
Selenium	Japan - JSOH(2024-2025)	-	0.1	-	-
	Permissible exposure standards for workers in the workplace	-	0.2(as Se)	-	0.6(as Se)
	Australia	-	0.1	-	-
	Canada - Ontario	-	0.2	-	-
	New Zealand	-	0.1	-	-
	USA - ACGIH	-	0.2	-	-
Tin	Permissible exposure standards for workers in the workplace	-	2	-	4
	Australia	-	2	-	-
	Canada - Ontario	-	2	-	-
	USA - ACGIH	-	2(inhalable fraction)	-	-
	USA - OSHA	-	0.1	-	-
	Austria	-	2(inhalable aerosol)	-	4(inhalable aerosol)
Titanium	Latvia	-	10	-	-
	Poland	-	10	-	15
	Romania	-	10	-	15
Vanadium	Australia	-	0.05	-	-
	New Zealand	-	0.05	-	-
	USA - OSHA	-	-	0.1	0.5
	Austria	-	0.5(inhalable aerosol)	-	1(inhalable aerosol)
	Germany (DFG)	-	0.005	-	0.01
	Latvia	-	1	-	-
Zinc	Germany (DFG)	-	2	-	4

	Switzerland	-	0.1(respirable aerosol)	-	0.4(respirable aerosol)
Antimony	Japan - JSOH(2024-2025)	-	0.1	-	-
	Permissible exposure standards for workers in the workplace	-	0.5	-	1.5
	Australia	-	0.5	-	-
	Canada - Ontario	-	0.5	-	-
	New Zealand	-	0.5	-	-
	USA - ACGIH	-	0.5	-	-
Lithium	Germany (AGS)	-	0.2	-	0.2
	Germany (DFG)	-	0.2	-	0.2
	Sweden	-	-	-	0.02
	Switzerland	-	0.2	-	0.2
Thallium	Australia	-	0.1	-	-
	Canada - Ontario	-	0.02	-	-
	New Zealand	-	0.1	-	-
	USA - ACGIH	-	0.02(inhalable fraction)	-	-
	USA - NIOSH	-	0.1	-	-
	USA - OSHA	-	0.1	-	-

Engineering controls

1	Ensure adequate ventilation, especially in confined areas.
2	Ensure that eyewash stations and safety showers are close to the workstation location.
3	Use explosion-proof electrical/ventilating/lighting/equipment.
4	Set up emergency exit and necessary risk-elimination area.

Personal protection equipment

General requirement	No special requirements, please see the description below.
Eye protection	In general situation, eye protection is not needed. In the production process, when contacting with vapour or dust, tightly fitting safety goggles.
Hand protection	In general situation, hand protection is not needed.
Respiratory protection	In general situation, respiratory protection is not needed. If exposure limits are exceeded or if irritation or other symptoms are experienced, wear dust proof mask or gas defence mask.
Skin and body protection	In general situation, skin and body protection are not needed.

9 Physical and chemical properties and safety characteristics

Physical and chemical properties

Appearance (physical state, color, etc.)	clear or clear yellow liquid
Odor	No information available

Odor threshold	No information available
pH	7.00 (20°C,Water)
Melting point/freezing point(°C)	0 (Water)
Initial boiling point and boiling range(°C)	100 (Water)
Flash point(Closed cup, °C)	No information available
Evaporation rate	No information available
Flammability	No information available
Upper/lower explosive limits[%(v/v)]	Upper limit : No information available ; Lower limit : No information available
Vapor pressure	2.33kPa (20°C,Water)
Vapor density(Air = 1)	> 1 (Water)
Relative density(Water=1)	1 (3.9°C,Water)
Solubility	No information available
n-octanol/water partition coefficient	No information available
Auto-ignition temperature(°C)	No information available
Decomposition temperature(°C)	No information available
Kinematic viscosity	No information available

10 Stability and reactivity

| Stability and reactivity

Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
Chemical stability	Stable under proper operation and storage conditions.
Possibility of hazardous reactions	Ultrafine powder will self-ignite in the air at room temperature. Mixtures with metallic acetylene, when heated, cause a fire or incandescence. May burn continuously in carbon dioxide. Reacts severely with halogens, interhalogens or other strong oxidants, or causes a fire. May be oxidized quickly when exposed to air. In contact with active metals (alkali metals, Na, Ca etc.) causes a reaction and release hydrogen.
Conditions to avoid	Incompatible materials, heat, flame and spark.
Incompatible materials	Oxidants, halogen, interhalogen and mercury. Metal acetylde, halogen, interhalogen, halogen oxides, nitric acid, nitrous oxide, nitrates, nitrites, halogen oxyacid salts, chromates, permanganates, inorganic peroxides, metal oxides and peroxyformic acid. Water, carbon dioxide, oxidants, halogen, interhalogen and mercury. Halogen, interhalogen, strong oxidant, water and acids. Water, carbon dioxide, halocarbon, halogen, interhalogen, metal halide, non-metal oxides, acids, mercury and hydrazine. Alkali, sodium, calcium, and other active metal, halogen, metal oxide, nonmetal oxide, acyl halide and metal phosphide.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 Toxicological information

| Acute toxicity

Component	LD ₅₀ (oral)	LD ₅₀ (dermal)	LC ₅₀ (inhalation,4h)
Iron	30000mg/kg(Rat)	No information available	No information available
Phosphorus	3.03mg/kg(Rat)	No information available	No information available
Manganese	9000mg/kg(Rat)	No information available	No information available
Sulfur	>3000mg/kg(Rat)	No information available	No information available
Boron	650mg/kg(Rat)	No information available	No information available
Cadmium	2330mg/kg(Rat)	No information available	No information available
Arsenic	763mg/kg(Rat)	No information available	No information available
Selenium	6700mg/kg(Rat)	No information available	5.67mg/L(Rat)
Cobalt	6171mg/kg(Rat)	No information available	No information available
Antimony	7000mg/kg(Rat)	No information available	No information available

| Carcinogenicity

Component	List of carcinogens by the IARC Monographs	Report on Carcinogens by NTP	OSHA Carcinogen List
Aluminium	Not Listed	Not Listed	Not Listed
Arsenic	Category 1	Category K	Listed
Boron	Not Listed	Not Listed	Not Listed
Barium	Not Listed	Not Listed	Not Listed
Calcium	Not Listed	Not Listed	Not Listed
Cadmium	Category 1	Category K	Listed
Chromium	Category 3	Not Listed	Not Listed
Cobalt	Category 2A	Category R	Not Listed
Copper	Not Listed	Not Listed	Not Listed
Iron	Not Listed	Not Listed	Not Listed
Potassium	Not Listed	Not Listed	Not Listed
Manganese	Not Listed	Not Listed	Not Listed
Magnesium	Not Listed	Not Listed	Not Listed
Molybdenum	Not Listed	Not Listed	Not Listed
Sodium	Not Listed	Not Listed	Not Listed
Nickel	Category 2B	Category R	Not Listed
Phosphorus	Not Listed	Not Listed	Not Listed
Lead	Category 2B	Category R	Not Listed
Sulfur	Not Listed	Not Listed	Not Listed
Selenium	Category 3	Not Listed	Not Listed
Strontium	Not Listed	Not Listed	Not Listed
Tin	Not Listed	Not Listed	Not Listed
Titanium	Not Listed	Not Listed	Not Listed

Vanadium	Not Listed	Not Listed	Not Listed
Zinc	Not Listed	Not Listed	Not Listed
Antimony	Not Listed	Not Listed	Not Listed
Lithium	Not Listed	Not Listed	Not Listed
Rubidium	Not Listed	Not Listed	Not Listed
Thallium	Not Listed	Not Listed	Not Listed
Water	Not Listed	Not Listed	Not Listed

Others

29 Mix metal standard solution	
Skin corrosion/irritation	Based on available data, the classification criteria are not met
Serious eye damage/irritation	Based on available data, the classification criteria are not met
Skin sensitization	Based on available data, the classification criteria are not met
Respiratory sensitization	Based on available data, the classification criteria are not met
Reproductive toxicity	Based on available data, the classification criteria are not met
STOT-single exposure	Based on available data, the classification criteria are not met
STOT-repeated exposure	Based on available data, the classification criteria are not met
Aspiration hazard	Based on available data, the classification criteria are not met
Germ cell mutagenicity	Based on available data, the classification criteria are not met

12 Ecological information

Acute aquatic toxicity

Component	Fish	Crustaceans	Algae or other aquatic plants
Manganese	LC ₅₀ : 1800mg/L (96h)(Fish)	EC ₅₀ : 40mg/L (48h)(Crustaceans)	No information available
Magnesium	LC ₅₀ : 541mg/L (96h)(Fish)	No information available	No information available
Vanadium	LC ₅₀ : 0.693mg/L (96h)(Fish)	No information available	No information available
Cadmium	LC ₅₀ : 7.8mg/L (96h)(Fish)	EC ₅₀ : 0.58mg/L (48h)(Crustaceans)	No information available
Lithium	LC ₅₀ : 18mg/L (96h)(Fish)	No information available	No information available
Nickel	LC ₅₀ : 40mg/L (96h)(Fish)	EC ₅₀ : 1mg/L (48h)(Crustaceans)	No information available
Calcium	No information available	EC ₅₀ : 49.1mg/L (48h)(Crustaceans)	No information available
Selenium	LC ₅₀ : 2.06mg/L (96h)(Fish)	No information available	ErC ₅₀ : 96mg/L (96h)(Algae)
Aluminium	LC ₅₀ : 1.55mg/L (96h)(Fish)	No information available	No information available
Iron	LC ₅₀ : 1.29mg/L (96h)(Fish)	No information available	No information available
Chromium	LC ₅₀ : 40.5mg/L (96h)(Fish)	EC ₅₀ : 0.07mg/L (48h)(Crustaceans)	No information available
Zinc	LC ₅₀ : 2.01mg/L	EC ₅₀ : 1.33mg/L	No information available

	(96h)(Fish)	(48h)(Crustaceans)	
Phosphorus	LC ₅₀ : 0.006mg/L (96h)(Fish)	EC ₅₀ : 0.14mg/L (48h)(Crustaceans)	No information available
Thallium	LC ₅₀ : 21mg/L (96h)(Fish)	No information available	ErC ₅₀ : 0.13mg/L (96h)(Algae)
Tin	LC ₅₀ : > 0.0124mg/L (96h)(Fish)	No information available	No information available
Lead	LC ₅₀ : 2.8mg/L (96h)(Fish)	No information available	No information available
Arsenic	LC ₅₀ : 12.6mg/L (96h)(Fish)	No information available	ErC ₅₀ : 25.2mg/L (72h)(Algae)
Strontium	LC ₅₀ : > 40.3mg/L (96h)(Fish)	No information available	ErC ₅₀ : > 43.3mg/L (72h)(Algae)
Molybdenum	LC ₅₀ : 609.1mg/L (96h)(Fish)	No information available	No information available
Copper	LC ₅₀ : 0.665mg/L (96h)(Fish)	EC ₅₀ : 0.02mg/L (48h)(Crustaceans)	ErC ₅₀ : 7.9mg/L (96h)(Algae)
Cobalt	LC ₅₀ : 1.5mg/L (96h)(Fish)	No information available	No information available

Chronic aquatic toxicity

Component	Fish	Crustaceans	Algae or other aquatic plants
Strontium	NOEC : ≥41.4mg/L(Fish)	No information available	No information available
Selenium	NOEC : 0.025mg/L(Fish)	No information available	No information available

Persistence and degradability

Component	Persistence (water/soil)	Persistence (air)
Nickel	Low	Low
Sulfur	Low	Low

Bioaccumulative potential

Component	Bioaccumulative potential	Comments
Nickel	Low	Log Kow=-1.38
Phosphorus	High	BCF=2310000
Sulfur	Low	Log Kow=0.229

Mobility in soil

Component	log Koc	Remark
Magnesium	1.12	20 °C
Nickel	1.155	
Sulfur	1.155	

13 Disposal considerations

Disposal considerations

Waste chemicals	Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.
Contaminated packaging	Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible.
Disposal recommendations	Refer to section waste chemicals and contaminated packaging.

14 Transport information

Label and Mark

Transporting Label	Not applicable
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IMDG-CODE

IMDG-CODE	NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS
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IATA-DGR

IATA-DGR	NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS
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UN-ADR

UN-ADR	NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS
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Transport in bulk according to IMO instruments

- ◆ Transport in bulk according to Annex II of MARPOL and the IBC code

	Not Available
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- ◆ Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

	Not Available
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- ◆ Transport in bulk in accordance with the IGC Code

	Not Available
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Others

Precautions for transport	Transport vehicles should be equipped with the appropriate variety and quantity of fire equipment and emergency equipment leakage during transport. Before transport, should be preceded by checking whether container integrity, sealing. The transport unit must be placarded and marked in accordance with relevant transporting requirements.
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15 Regulatory information

International chemical inventory

Component	A	B	C	D	E	F	G	H	I	J	K	L	M
Aluminium	√	√	√	√	√	√	√	√	√	√	√	√	√
Arsenic	√	√	√	√	√	√	√	√	√	√	√	√	√
Boron	√	√	√	√	√	√	√	√	√	√	√	√	√
Barium	√	√	√	√	√	√	√	√	√	√	√	√	√
Calcium	√	√	√	√	√	√	√	√	√	√	√	√	√
Cadmium	√	√	√	√	√	√	√	√	√	√	√	√	√
Chromium	√	√	√	√	√	√	√	√	√	√	√	√	√
Cobalt	√	√	√	√	√	√	√	√	×	√	√	√	√

Copper	√	√	√	√	√	√	√	√	√	√	√	√	√
Iron	√	√	√	√	√	√	√	√	√	√	√	√	√
Potassium	√	√	√	√	√	√	√	√	√	×	√	√	√
Manganese	√	√	√	√	√	√	√	√	√	√	√	√	√
Magnesium	√	√	√	√	√	√	√	√	√	√	√	√	√
Molybdenum	√	√	√	√	√	√	√	√	√	√	√	√	√
Sodium	√	√	√	√	√	√	√	√	√	×	√	√	√
Nickel	√	√	√	√	√	√	√	√	√	√	√	√	√
Phosphorus	√	√	√	√	√	√	√	√	√	√	√	√	√
Lead	√	√	√	√	√	√	√	√	√	×	√	√	√
Sulfur	√	√	√	√	√	√	√	√	√	√	√	√	√
Selenium	√	√	√	√	√	√	√	√	√	×	√	√	√
Strontium	√	√	√	√	√	√	√	√	√	√	√	√	√
Tin	√	√	√	√	√	√	√	√	√	√	√	√	√
Titanium	√	√	√	√	√	√	√	√	√	√	√	√	√
Vanadium	√	√	√	√	√	√	√	√	√	√	√	√	√
Zinc	√	√	√	√	√	√	√	√	√	×	√	√	√
Antimony	√	√	√	√	√	√	√	√	√	√	√	√	√
Lithium	√	√	√	√	√	√	√	√	√	√	√	√	√
Rubidium	√	√	√	×	√	√	√	√	√	×	×	√	√
Thallium	√	√	√	√	√	√	√	√	√	√	×	√	√
Water	√	√	√	√	√	√	√	√	√	√	√	√	√

- [A] China Inventory of Existing Chemical Substances(IECSC)
 [B] European Inventory of Existing Commercial Chemical Substances(EC inventory)
 [C] United States Toxic Substances Control Act Inventory(TSCA)
 [D] Canadian Domestic Substances List(DSL)
 [E] New Zealand Inventory of Chemicals(NZIoC)
 [F] Philippines Inventory of Chemicals and Chemical Substances(PICCS)
 [G] Korea Existing Chemicals Inventory(KECL)
 [H] Australian. Inventory of Industrial Chemical (AIICS)
 [I] Japan Inventory of Existing & New Chemical Substances(ENCS)
 [J] Thailand Existing Chemicals Inventory(TECI)
 [K] Mexico National Inventory of Chemical Substances (INSQ)
 [L] Russia Inventory of Existing Substances (DRAFT)
 [M] Inventory of Existing Chemical Substances in Taiwan, China (TCSI)

| List of Chemical Substances under International Conventions

Component	A	B	C
Aluminium	×	×	×
Arsenic	×	×	×
Boron	×	×	×
Barium	×	×	×

Calcium	x	x	x
Cadmium	x	x	x
Chromium	x	x	x
Cobalt	x	x	x
Copper	x	x	x
Iron	x	x	x
Potassium	x	x	x
Manganese	x	x	x
Magnesium	x	x	x
Molybdenum	x	x	x
Sodium	x	x	x
Nickel	x	x	x
Phosphorus	x	x	x
Lead	x	x	x
Sulfur	x	x	x
Selenium	x	x	x
Strontium	x	x	x
Tin	x	x	x
Titanium	x	x	x
Vanadium	x	x	x
Zinc	x	x	x
Antimony	x	x	x
Lithium	x	x	x
Rubidium	x	x	x
Thallium	x	x	x
Water	x	x	x

【A】 The Montreal Protocol on Substances that Deplete the Ozone Layer

【B】 Stockholm Convention on Persistent Organic Pollutants (POPs)

【C】 Rotterdam Convention on the prior informed consent procedure for certain hazardous chemicals and pesticides in international trade

US chemical inventory

Component	A	B	C	D	E	F	G	H
Aluminium	x	x	x	√	√	√	√	x
Arsenic	√	x	√	√	√	√	√	x
Boron	x	x	x	x	√	x	x	x
Barium	x	x	x	√	√	√	√	x
Calcium	x	x	x	√	√	√	√	x
Cadmium	√	x	√	√	√	√	√	x

Chromium	√	×	√	√	√	√	√	×
Cobalt	√	√	×	√	√	√	√	√
Copper	×	×	√	√	√	√	√	×
Iron	×	×	×	×	×	×	×	×
Potassium	×	×	×	√	√	√	√	×
Manganese	√	×	×	√	√	√	√	×
Magnesium	×	×	×	√	√	√	√	×
Molybdenum	×	×	×	√	√	√	√	×
Sodium	×	×	√	√	√	√	√	×
Nickel	√	√	√	√	√	√	√	√
Phosphorus	√	√	√	√	√	√	√	×
Lead	√	×	√	√	√	√	√	×
Sulfur	×	×	×	√	√	√	√	×
Selenium	√	×	√	√	√	√	√	×
Strontium	×	×	×	×	√	×	√	×
Tin	×	×	×	√	√	√	√	×
Titanium	×	×	×	×	√	×	√	×
Vanadium	×	×	×	√	√	√	√	×
Zinc	×	×	√	√	√	√	√	×
Antimony	√	×	√	√	√	√	√	×
Lithium	×	×	×	√	√	√	√	×
Rubidium	×	×	×	×	√	×	√	×
Thallium	×	×	√	√	√	√	√	×
Water	×	×	×	×	×	×	×	×

[A] US Clean Air Act (CAA)- Section 112, Hazardous Air Pollutants

[B] US SARA 302- Extremely Hazardous Substance List

[C] US CERCLA- Hazardous Substances List

[D] US Massachusetts Right-to-Know Substance List

[E] US New Jersey Right to Know Hazardous Substance List

[F] US Pennsylvania Right to Know Hazardous Substance List

[G] US New York City Right-to-Know Hazardous Substance List

[H] US California Proposition 65 List

Note:

“√” Indicates that the substance included in the regulations.

“×” No data or not included in the regulations.

16 Other information

Information on revision

Creation Date	2025/11/07
Revision Date	-
Reason for revision	-

Reference

- [1] IPCS: The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>.
- [2] IARC, website: <http://www.iarc.fr/>.
- [3] OECD: The Global Portal to Information on Chemical Substances, website: <https://www.echemportal.org/echemportal/>.
- [4] CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>.
- [5] NLM: ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>.
- [6] EPA: Integrated Risk Information System, website: <http://cfpub.epa.gov/iris/>.
- [7] U.S. Department of Transportation: ERG, website: <http://www.phmsa.dot.gov/hazmat/library/erg>.
- [8] Germany GESTIS-database on hazard substance, website: <http://gestis-en.itrust.de/>.

Abbreviations and acronyms

CAS	Chemical Abstracts Service	UN	The United Nations
PC-STEL	Short term exposure limit	OECD	Organization for Economic Co-operation and Development
PC-TWA	Time Weighted Average	IMDG-CODE	International Maritime Dangerous Goods CODE
MAC	Maximum Allowable Concentration	IARC	International Agency for Research on Cancer
DNEL	Derived No Effect Level	ICAO	International Civil Aviation Organization
PNEC	Predicted No Effect Concentration	IATA	International Air Transportation Association
NOEC	No Observed Effect Concentration	ACGIH	American Conference of Governmental Industrial Hygienists
LC ₅₀	Lethal Concentration 50%	NFPA	National Fire Protection Association
LD ₅₀	Lethal Dose 50%	NTP	National Toxicology Program
EC ₅₀	Effective Concentration 50%	PBT	Persistent, Bioaccumulative, Toxic
EC _x	Effective Concentration X%	vPvB	very Persistent, very Bioaccumulative
P _{OW}	Partition coefficient Octanol: Water	CMR	Carcinogens, mutagens or substances toxic to reproduction
BCF	Bioconcentration factor	RPE	Respiratory Protective Equipment
ED	Endocrine disruptor	HCS	Hazard Communication Standard

Disclaimer

This Safety Data Sheet (SDS) was prepared according to OSHA HCS-2024. The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.