

Section 1. Identification

Product Identity	Zinc Sulphate Solution
Other means of identification	Zinc Sulfate Solution, Zinc Electrolyte, Neutral Zinc Sulphate.
Product use	Used as a micronutrient in fertilizer and feed supplements. May also be used as a floatation additive in mining.
Manufacturer/Supplier Name	Teck Metals Ltd. Trail Operations Trail, British Columbia V1R 4L8
24 hour Emergency Telephone No.	+1 250-364-4214

Section 2. Hazard(s) identification

Classification of the substance or mixture under US OSHA's Hazard Communication Standard (1910.1200) revised 2024 and Canadian Hazardous Products Regulations (SOR/2015-17) (GHS revision 7)

Acute toxicity(oral), category 4;H302	Harmful if swallowed.
Serious eye damage / eye irritation, category 1;H318	Causes serious eye damage.
Aquatic toxicity (acute), category 1;H400	Very toxic to aquatic life.
Aquatic toxicity (chronic), category 1;H410	Very toxic to aquatic life with long lasting effects.

Label elements



Danger

- H302 Harmful if swallowed.
- H318 Causes serious eye damage.
- H400 Very toxic to aquatic life.
- H410 Very toxic to aquatic life with long lasting effects.

Prevention

- P264 Wash thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P273 Avoid release to the environment.
- P280 Wear protective gloves, eye protection, and face protection.

Response

P301+312 IF SWALLOWED: Call a POISON CENTER, doctor or physician if you feel unwell.

P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER, doctor or physician.

P330 Rinse mouth.

P391 Collect spillage.

Storage

No GHS storage statements

Disposal

P501 Dispose of contents or container in accordance with local and national regulations.

Other hazards

This product contains no PBT/vPvB/vPvM chemicals.

This product contains no endocrine disrupting chemicals.

Does not contain component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS) per the Organisation for Economic Co-operation and Development (OECD) list of Per- and Polyfluoroalkyl Substances (PFASs).

Emergency Overview: A clear or slightly opaque solution that does not burn or readily decompose. It consists principally of dissolved zinc sulphate. The solution is relatively non-toxic to humans and poses little immediate hazard to personnel in an emergency situation but contains a high concentration of dissolved zinc which can pose a threat to watercourses.

Potential Health Effects: Direct eye contact with the solution is likely to cause eye irritation. Dried residues may cause eye, nose & throat irritation and, when heated strongly in air, will generate zinc oxide fume. Inhalation of freshly formed zinc oxide fume can result in metal fume fever, a temporary flu-like condition (see Toxicological Information, Section 11).

Potential Environmental Effects: As this product is a solution, the contained zinc, in elevated concentrations, is directly bioavailable and is potentially toxic to aquatic and soil organisms and plants (see Ecological Information, Section 12).

Section 3. Composition/information on ingredients

This product contains the following substances that present a hazard within the meaning of US OSHA's Hazard Communication Standard (1910.1200) revised 2024 and Canadian Hazardous Products Regulations (SOR/2015-17) (GHS revision 7).

Ingredient/Chemical Designations	CAS Number	Synonyms:	Weight %
Zinc sulphate	7733-02-0	Sulfuric acid, zinc salt (1:1)	29 - 34
Magnesium sulphate	7487-88-9	Magnesium sulphate	0.4 - 1.5
Manganese sulphate	7785-87-7	Manganese(II) sulphate, Sulfuric acid, manganese(2+) salt (1:1)	0.3 - 0.5

Section 4. First aid measures

Description of first aid measures

General	In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person.
Inhalation	Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious, place in the recovery position and obtain immediate medical attention. Give nothing by mouth.
Eyes	Irrigate copiously with clean water for at least 15 minutes, holding the eyelids apart and seek medical attention.
Skin	Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser.
Ingestion	If swallowed obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.

Most important symptoms and effects, both acute and delayed

Overview	No specific symptom data available. No chronic toxicity or long term toxicity information available. Treat symptomatically. See section 2 for further details.
Eyes	Causes serious eye damage.
Ingestion	Harmful if swallowed.

Section 5. Fire-fighting measures

Extinguishing media

Use any means of extinction appropriate for surrounding fire conditions such as water spray, carbon dioxide, dry chemical, or foam.

Special hazards arising from the substance or mixture

Hazardous decomposition: High temperature operations such as oxy-acetylene cutting, electric arc welding or overheating of dried residues will generate zinc oxide fume which, on inhalation in sufficient quantity, can produce metal fume fever. Under such conditions, sulfur dioxide will also be generated and can cause respiratory distress.

Spilled product can pose immediate risks to aquatic and terrestrial environments. Released product should be prevented from reaching soil or entering watercourses in the vicinity of product handling areas.

Advice for fire-fighters

This product is not considered a fire or explosion hazard. As with any fire, fire fighters should be fully trained and wear full protective clothing including an approved, self-contained breathing apparatus which supplies a positive air pressure within a full face piece mask.

ERG Guide No. 171

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Impervious chemical-resistant gloves, rubber boots and coveralls or other protective clothing are recommended for persons responding to an accidental release (see also Section 8). Close-fitting safety goggles may be necessary in some circumstances to prevent eye contact with the solution.

Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

Environmental precautions

Spilled product can pose immediate risks to aquatic and terrestrial environments. Released product should be prevented from reaching soil or entering watercourses in the vicinity of product handling areas.

Do not allow spills to enter drains or waterways.

Methods and material for containment and cleaning up

Stop release if possible to do so safely. Contain spill, isolate hazard area, and deny entry. Pump back into system if possible. Otherwise absorb with any suitable absorbent such as vermiculite or clay. Place contaminated material in suitable, labeled containers for final disposal. Dispose of waste material consistent with the requirements of waste disposal authorities.

Section 7. Handling and storage

Precautions for safe handling

Handle containers carefully to prevent damage and spillage.

Avoid generating mist or aerosol and its release into the work environment. Do not perform any welding, cutting or other hot work on empty vessels, containers, or piping until all liquid and/or dried residues have been cleared. Always practice good personal hygiene. Refrain from eating, drinking or smoking in work areas. Thoroughly wash hands after handling and before eating, drinking or smoking in appropriate designated areas only.

See section 2 for further details. - [Prevention]

Conditions for safe storage, including any incompatibilities

Store in a dry, cool, well-ventilated area away from incompatible substances. Inspect storage area periodically for damage or leaks.

Incompatible materials: No data available.

See section 2 for further details. - [Storage]

Specific end use(s): No data available.

Section 8. Exposure controls / personal protection

Control parameters

Exposure Limits

CAS No.	Ingredient	Source	Value
7487-88-9	Magnesium sulphate	ACGIH	No Established Limit
		OSHA	No Established Limit
		NIOSH	No Established Limit
		British Columbia	No Established Limit

7733-02-0	Zinc sulphate	ACGIH	No Established Limit
		OSHA	No Established Limit
		NIOSH	No Established Limit
		British Columbia	No Established Limit
7785-87-7	Manganese sulphate	ACGIH	0.1 mg/m ³ TWA Manganese - Elemental & inorganic compounds, as Mn, Inhalable 0.02 mg/m ³ TWA Respirable
		OSHA	C 5 mg/m ³ (as Mn)
		NIOSH	TWA 1 mg/m ³ ST 3 mg/m ³
		British Columbia	0.1 mg/m ³ TWA Inhalable, 0.02 mg/m ³ TWA Respirable Manganese - Elemental & inorganic compounds, as Mn

Exposure controls



Respiratory

Where liquid aerosol mists are generated and cannot be controlled to within acceptable levels, use appropriate NIOSH-approved respiratory protection equipment (42 CFR 84 Class N, R or P-95 particulate filter as a minimum).

Eyes

Protective safety glasses recommended.

Skin

Impervious, chemical-resistant gloves (nitrile, butyl or neoprene rubber) are recommended when handling bulk solution. Eye protection should be worn where mist is generated and where any possibility exists that eye contact may occur. Protective gloves recommended.

Engineering Controls

Use adequate local or general ventilation to maintain the concentration of aerosol mists well below recommended occupational exposure limits.

Other Work Practices

Always practice good personal hygiene. Refrain from eating, drinking, or smoking in work areas. Thoroughly wash hands after handling and before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

See section 2 for further details.

Section 9. Physical and chemical properties

Information on basic physical and chemical properties

Physical State	Liquid
Color	Clear to slightly opaque
Odor	None
Odor threshold	Not Available
Melting point / freezing point	Not Available
Initial boiling point and boiling range	Not Available
Flammability (solid, gas)	Not Applicable
Upper/lower flammability or explosive limits	Lower Explosive Limit: Not Applicable Upper Explosive Limit: Not Applicable
Flash Point	Non-flammable liquid
Auto-ignition temperature	None

Decomposition temperature	None
pH	Approximately 4.5 - 5.0
Viscosity (cSt)	Not Available
Solubility in Water	Aqueous solution
Partition coefficient n-octanol/water (Log Kow)	Not Available
Vapor pressure (Pa)	Negligible @ 20°C
Relative Density	1.25 - 1.35
Vapor Density	Not Available
Evaporation rate (Ether = 1)	Not Applicable
VOC Content	Not Applicable
Flammability	Not Applicable
Coefficient of Water/Oil Distribution:	Not Applicable
Other information	
No other relevant information.	

Section 10. Stability and reactivity

Reactivity

Hazardous Polymerization will not occur.

Chemical stability

Stable under normal circumstances.

Possibility of hazardous reactions

No data available.

Conditions to avoid

No data available.

Incompatible materials

No data available.

Hazardous decomposition products

High temperature operations such as oxy-acetylene cutting, electric arc welding or overheating of dried residues will generate zinc oxide fume which, on inhalation in sufficient quantity, can produce metal fume fever. Under such conditions, sulfur dioxide will also be generated and can cause respiratory distress.

Section 11. Toxicological information

Acute toxicity

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm
Zinc sulphate - (7733-02-0)	No data available.	No data available.	No data available.	No data available.	No data available.
Magnesium sulphate - (7487-88-9)	> 2,000.00, Rat - Category: NA	> 2,000.00, Rat - Category: NA	No data available.	No data available.	No data available.
Manganese sulphate - (7785-87-7)	>2,000.00, Rat - Category: 5	No data available.	No data available.	No data available.	No data available.
Manganese compounds (as Mn) - (7439-96-5)	> 2,000.00, Rat - Category: 4	No data available.	No data available.	> 5.14, Rat - Category: NA	No data available.

Carcinogen Data

CAS No.	Ingredient	Source	Value
7439-96-5	Manganese compounds (as Mn)	IARC	No
		ACGIH	A4
7487-88-9	Magnesium sulphate	IARC	No
		ACGIH	No Established Limit
7733-02-0	Zinc sulphate	IARC	No
		ACGIH	No Established Limit
7785-87-7	Manganese sulphate	IARC	No
		ACGIH	No Established Limit

Classification	Category	Hazard Description
Acute toxicity (oral)	4	Harmful if swallowed.
Acute toxicity (dermal)	---	Not Applicable
Acute toxicity (inhalation)	---	Not Applicable
Skin corrosion/irritation	---	Not Applicable
Serious eye damage/irritation	1	Causes serious eye damage.
Respiratory sensitization	---	Not Applicable
Skin sensitization	---	Not Applicable
Germ cell mutagenicity	---	Not Applicable
Carcinogenicity	---	Not Applicable
Reproductive toxicity	---	Not Applicable
STOT-single exposure	---	Not Applicable
STOT-repeated exposure	---	Not Applicable
Aspiration hazard	---	Not Applicable

Possible routes of entry: Inhalation, ingestion, skin contact, skin absorption.

Symptoms and effects, both acute and delayed:

No specific symptom data available.

No chronic toxicity or long term toxicity information available. Treat symptomatically.

Eyes Causes serious eye damage.

Ingestion Harmful if swallowed.

Section 12. Ecological information

Toxicity

Very toxic to aquatic life.

Very toxic to aquatic life with long lasting effects.

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/L	48 hr EC50 crustacea, mg/L	ErC50 algae, mg/L
Zinc sulphate - (7733-02-0)	No data available.	No data available.	No data available.
Magnesium sulphate - (7487-88-9)	> 63.60, Salmo gairdneri	720.00, Daphnia magna	No data available.
Manganese sulphate - (7785-87-7)	49.90, Salmo trutta	9.80, Daphnia magna	61.00, Algae
Manganese compounds (as Mn) - (7439-96-5)	> 3.60, Oncorhynchus mykiss	> 1.60, Daphnia magna	4.50, Desmodesmus subspicatus

Persistence and degradability

There is no data available on the preparation itself.

Bioaccumulative potential

Not Available

Mobility in soil

No data available.

Results of PBT and vPvB assessment

This product contains no PBT/vPvB/vPvM chemicals.

Other adverse effects

No data available.

Section 13. Disposal considerations

Waste treatment methods

Waste should not be released to sewers. Observe all federal, state, and local regulations when disposing of this substance.

Section 14. Transport information

Not regulated for packages under 5L (1.3 gallons) or 5.0 kg (11 lbs).



Canada Transportation of Dangerous Goods Regulation (TDGR)

UN number	UN3082
UN proper shipping name	Environmentally Hazardous Substance, Liquid, n.o.s. (zinc sulphate)
Transport hazard class(es)	9
Packing group	III
ERAP Index	Not Applicable
Marine Pollutant	Yes
Inhalation Hazard	No

U.S. Department of Transportation (DOT) 49CFR

UN number	UN3082
UN proper shipping name	Environmentally Hazardous Substance, Liquid, n.o.s. (zinc sulfate)
UN proper shipping name (over 1335 kg/989 L)	RQ, Environmentally Hazardous Substance, Liquid, n.o.s. (zinc sulfate)
Transport hazard class(es)	9
Packing group	III
Marine Pollutant	Yes
Inhalation Hazard	No
Hazard Zone	Not Applicable

International Marine Organization/International Maritime Dangerous Goods Code (IMO/IMDG)

UN number	UN3082
UN proper shipping name	Environmentally Hazardous Substance, Liquid, n.o.s. (zinc sulphate)
Transport hazard class(es)	9
Packing group	III
Marine Pollutant	Yes; (zinc sulphate)
Inhalation Hazard	No

International Air Transport Association (IATA)

UN number	UN3082
UN proper shipping name	Environmentally Hazardous Substance, Liquid, n.o.s. (zinc sulphate)
Transport hazard class(es)	9
Packing group	III
Marine Pollutant	Yes
Inhalation Hazard	No

Special precautions for user Not Applicable.

Section 15. Regulatory information

Regulatory Overview The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented.

This product has been classified in accordance with US OSHA's Hazard Communication Standard (1910.1200) revised 2024 and Canadian Hazardous Products Regulations (SOR/2015-17 amended 2022-12-15) (GHS revision 7) and the SDS contains all of the information required by those regulations.

Toxic Substance Control Act (TSCA)

- Magnesium sulphate
- Manganese compounds (as Mn)
- Manganese sulphate

CERCLA SECTION 103 HAZARDOUS SUBSTANCES

- Zinc Sulphate RQ: 1,000lbs
- Manganese Compounds RQ: None Assigned

EPCRA 302 Extremely Hazardous:

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

EPCRA 313 Toxic Chemicals:

- Zinc sulphate
- Manganese Sulphate

Canadian Domestic Substance List (DSL):

- Magnesium sulphate
- Manganese compounds (as Mn)
- Manganese sulphate
- Zinc sulphate

Canadian Non-Domestic Substance List (NDSL):

- Germanium

Proposition 65 - Carcinogens (>0.0%):

Proposition 65 - Developmental Toxins (>0.0%):

- Lead

Proposition 65 - Female Repro Toxins (>0.0%):

- Lead

Proposition 65 - Male Repro Toxins (>0.0%):

- Cadmium
- Lead

Proposition 65 Label Warning:



WARNING: This product can expose you to chemicals including [Arsenic, Cadmium, Cobalt compounds (as Co), Lead, Nickel], which are known to the State of California to cause cancer, and [Cadmium, Lead], which are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Section 16. Other information

ACGIH	American Conference of Governmental Industrial Hygienists
C	Celsius, F: Fahrenheit
CAS	Chemical Abstracts Service
CEPA	Canadian Environmental Protection Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOT	Department of Transport
EHS	Extremely Hazardous Substances
EPCRA	Emergency Planning and Community Right-to-Know Act
IARC	International Agency for Research on Cancer
ICAO/IATA	International Civil Aviation Organizations/ International Air Transport Association
IMO/IMDG	International Maritime Organization/ International Maritime Dangerous Goods Code
LD50 LC50	Lethal Dose 50%, Lethal Concentration 50%
NIOSH	National Institute for Occupational Safety and Health
NTP	National Institute for Occupational Safety and Health
MSHA	Mine Safety and Health Administration
OSHA	Occupational Safety and Health Administration
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
TSCA	Toxic Substances Control Act
WHMIS	Workplace Hazardous Materials Information System
mg	milligram

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