

Safety Data Sheet

According to the Hazardous Products Regulation (February 11, 2015)

Applicant: GD Midea Air-conditioning Equipment Co., Ltd.

Address: Lingang Road, Beijiao, Shunde, Foshan, Guangdong,
People's Republic of China, 528311

Attn.: Flora Wu

Sample Description: Li-Mn B

Model No.: CR2025



TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
TÜV SÜD Group

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SECTION 1: Identification

1.1. Product identifier

Product form : Article
Trade name : Li-Mn B

1.2. Recommended use and restrictions on use

Recommended use : Power supply
Restrictions on use : No information available

1.3. Supplier

Manufacturer

DONGGUANTIANQIU ENTERPRISE CO., LTD
TianQiu Industrial Park, Xinji Industrial Zone, Machong Town, Dongguan, Guangdong, P.R.China

1.4. Emergency telephone number

Emergency number : 0757-23606794

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Classification (GHS CA)

Not classified

2.2. GHS Label elements, including precautionary statements

GHS CA labelling

No labelling applicable

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS CA)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable.



3.2. Mixtures

Name	Chemical name / Synonyms	Product identifier	%	Classification (GHS CA)
Iron	Iron, elemental / Direct reduced Iron / Iron, reduced / Elemental iron / IRON POWDER / iron	CAS-No.: 7439-89-6	57.41	Comb. Dust
Manganese oxide (MnO ₂)	manganese dioxide Manganese dioxide / Black manganese oxide / C.I. Pigment Black 14 / C.I. Pigment Brown 8 / Manganese Black / Manganese(IV) oxide / Pyrolusite Brown / MANGANESE DIOXIDE / Manganese peroxide / C.I. 77728 / Manganese dioxide (MnO ₂)	CAS-No.: 1313-13-9	29.79	STOT RE 1, H372
Perchloric acid, lithium salt	Lithium perchlorate / Perchloric acid, lithium salt (1:1) / lithium perchlorate	CAS-No.: 7791-03-9	3.92	Eye Irrit. 2, H319 STOT RE 1, H372



Name	Chemical name / Synonyms	Product identifier	%	Classification (GHS CA)
Propylene carbonate	Carbonic acid cyclic methylethylene ester / Carbonic acid, cyclic propylene ester / Carbonic acid, propylene ester / Cyclic 1,2- propylene carbonate / Cyclic methylethylene carbonate / Cyclic propylene carbonate / 1,3- Dioxolan-2-one, 4-methyl- / 4- Methyl-1,3- dioxolan-2-one / 4-Methyl-1,3- dioxolane-2-one / 4-Methyl-2-oxo- 1,3-dioxolane / 1,2-Propanediol carbonate / 1,2- Propanediol cyclic carbonate / 1,2- Propanediyl carbonate / 1,2- Propylene carbonate / Propylene glycol cyclic carbonate / 1,2- Propanediolcyclic carbonate / PROPYLENE CARBONATE / Propylene glycol carbonate / 2- Oxo-4-methyl-1,3- dioxolan / 4- Methyl-2- dioxolanone	CAS-No.: 108-32-7	2.83	Eye Irrit. 2, H319



Name	Chemical name / Synonyms	Product identifier	%	Classification (GHS CA)
Polypropylene	1-Propene, homopolymer / Polypropylene wax / POLYPROPYLENE / Polypropyl-1-ene / Polypropylene homopolymer / Polypropylene and polypropylene wax / Propylene homopolymer / Polymer of prop-1-ene / Amberlite(tm)14i inert resin	CAS-No.: 9003-07-0	2.46	Not classified
Lithium	Metallic lithium / Lithium metal / Lithium, metal / lithium	CAS-No.: 7439-93-2	1.71	Water-react. 1, H260 Skin Corr. 1, H314 Eye Dam. 1, H318 STOT SE 3, H335 Comb. Dust PHNOC 1
Ethylene glycol dimethyl ether	1,2-Dimethoxyethane / 2,5-Dioxahexane / Ethane, 1,2-dimethoxy- / Glycol dimethyl ether / Glyme / Monoethylene glycol dimethyl ether / Monoglyme / Dimethoxyethane, 1,2- / EGDME / Dimethoxy(1,2-)ethane / Dimethoxyethane	CAS-No.: 110-71-4	1.46	Not classified
Graphite	C.I. Pigment Black 10 / C.I. 77265 / graphite	CAS-No.: 7782-42-5	0.21	Carc. 1A, H350 Carc. 2, H351 STOT RE 1, H372 Comb. Dust



Name	Chemical name / Synonyms	Product identifier	%	Classification (GHS CA)
Polytetrafluoroethylene	Ethene, tetrafluoro-, homopolymer / Ethylene, tetrafluoro-, polymer / PTFE / Tetrafluoroethene polymer / Tetrafluoroethylene homopolymer / Teflon / Polymer mainly composed of tetrafluoroethylene and/or hexafluoropropylene / Polymer of 1,1,2,2-tetrafluoroethene / Fluoroplast-4 / Polytetrafluoroethylene wax / Fluoroplast 4 / SST-3 / Polytetrafluoroethylene resin / Ethene, 1,1,2,2-tetrafluoro-, homopolymer	CAS-No.: 9002-84-0	0.21	Not classified
Cadmium	Cadmium, elemental / Cadmium metal / Cadmium (non-pyrophoric) / C.I. 77180	CAS-No.: 7440-43-9	< 0.001	Acute Tox. 1 (Inhalation), H330 Muta. 2, H341 Carc. 1A, H350 Repr. 2, H361 STOT RE 1, H372 Comb. Dust
Lead	C.I. Pigment Metal 4 / Lead metal / Lead, elemental / C.I. 77575	CAS-No.: 7439-92-1	< 0.001	Carc. 2, H351 Repr. 1A, H360 STOT RE 1, H372
Mercury	Mercury, elemental / Mercury metal / Elemental mercury / Metallic mercury	CAS-No.: 7439-97-6	< 0.0001	Met. Corr. 1, H290 Repr. 1B, H360 STOT SE 1, H370 STOT RE 1, H372

Full text of hazard classes and H-statements : see section 16



SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. Not an expected route of exposure. If experiencing respiratory symptoms: Call a poison center or a doctor. If breathing is difficult, give oxygen.
First-aid measures after skin contact	: Not expected to present a significant skin hazard under anticipated conditions of normal use. Wash skin with plenty of water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing. Wash contaminated clothing before reuse.
First-aid measures after eye contact	: Not an expected route of exposure. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. In case of contact, immediately rinse eyes with plenty of water for at least 15 minutes. If eye irritation persists: Get medical advice/attention.
First-aid measures after ingestion	: Call a poison center or a doctor if you feel unwell. Do not induce vomiting. Never give anything by mouth to an unconscious person.
First-aid measures general	: Call a poison center or a doctor if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

No additional information available

4.3. Immediate medical attention and special treatment, if necessary

Other medical advice or treatment	: Treat symptomatically.
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SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

Suitable extinguishing media	: Water spray. Dry powder. Foam.
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5.2. Unsuitable extinguishing media

No additional information available

5.3. Specific hazards arising from the hazardous product

Hazardous decomposition products in case of fire	: Toxic fumes may be released.
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5.4. Special protective equipment and precautions for fire-fighters

Firefighting instructions	: Cool down the containers exposed to heat with a water spray. Do not allow run-off from fire fighting to enter drains or water courses. Eliminate every possible source of ignition. Approach from upwind. Ensure adequate ventilation, especially in confined areas. Evacuate personnel to a safe area. Avoid contact with skin and eyes.
Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.



SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- Personal Precautions, Protective Equipment and Emergency Procedures : Avoid contact with eyes, skin and clothing. Do not eat, drink or smoke during work. Ensure adequate ventilation. Evacuate personnel to a safe area. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Only qualified personnel equipped with suitable protective equipment may intervene. Remove all sources of ignition. Stop leak if safe to do so. Take precautionary measures against static discharge. Wear personal protective equipment.
- Prevention Measures for Secondary Accidents : Eliminate all ignition sources if safe to do so. Do not discharge into drains or rivers. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Stop leak if safe to do so. Take action to prevent static discharges.

6.2. Methods and materials for containment and cleaning up

- For containment : Collect spillage.
- Methods for cleaning up : Mechanically recover the product. Absorb spillage to prevent material damage. Place in an appropriate container and dispose of the contaminated material at a licensed site. Absorb and/or contain spill with inert material (sand, vermiculite or other appropriate material), then place in suitable container. Collect all waste in suitable and labelled containers and dispose according to local legislation.
- Other information : Dispose of materials or solid residues at an authorized site.

6.3. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection"

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment. Do not open, destroy, or incinerate batteries because the battery may explode, break, or vent during these processes. Do not short-circuit the battery, overcharge, forced discharge or thrown into the fire. Do not squeeze the battery or immerse the battery in the solution. Avoid contact with eyes, skin and clothing. Do not breathe gas/fumes/vapour/spray. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Protect from heat and direct sunlight.
- Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Avoid high temperatures. Keep away from heat and direct sunlight. Store in a dry, cool and well-ventilated place. Protect from moisture. Avoid shorting.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters



Ethylene glycol dimethyl ether (110-71-4)	
Canada (Ontario) - Occupational Exposure Limits	
OEL TWA	18 mg/m ³
OEL TWA [ppm]	5 ppm
Graphite (7782-42-5)	
Canada (Alberta) - Occupational Exposure Limits	
OEL TWA	2 mg/m ³ (all forms except Graphite fibres-respirable)
Canada (Quebec) - Occupational Exposure Limits	
VEMP (OEL TWA)	2 mg/m ³ (containing no Asbestos and <1% Crystalline silica, except Graphite fibres-respirable dust)
Canada (British Columbia) - Occupational Exposure Limits	
OEL TWA	2 mg/m ³ (all forms except Graphite fibres-respirable)
Canada (Manitoba) - Occupational Exposure Limits	
OEL TWA	2 mg/m ³ (all forms except Graphite fibers-respirable particulate matter)
Canada (New Brunswick) - Occupational Exposure Limits	
OEL TWA	2 mg/m ³ (all forms except graphite fibres)
Canada (Newfoundland and Labrador) - Occupational Exposure Limits	
OEL TWA	2 mg/m ³ (all forms except Graphite fibers-respirable particulate matter)
Canada (Nova Scotia) - Occupational Exposure Limits	
OEL TWA	2 mg/m ³ (all forms except Graphite fibers-respirable particulate matter)
Canada (Nunavut) - Occupational Exposure Limits	
OEL TWA	2 mg/m ³ (natural, all forms, except Graphite fibres-respirable fraction)
OEL STEL	4 mg/m ³ (natural, all forms, except Graphite fibres-respirable fraction)
Canada (Northwest Territories) - Occupational Exposure Limits	
OEL TWA	2 mg/m ³ (natural, all forms, except Graphite fibres-respirable fraction)
OEL STEL	4 mg/m ³ (natural, all forms, except Graphite fibres-respirable fraction)
Canada (Ontario) - Occupational Exposure Limits	
OEL TWA	2 mg/m ³ (except Graphite fibres-respirable particulate matter)
Canada (Prince Edward Island) - Occupational Exposure Limits	
OEL TWA	2 mg/m ³ (all forms except Graphite fibers-respirable particulate matter)
Canada (Saskatchewan) - Occupational Exposure Limits	
OEL TWA	2 mg/m ³ (natural, except Graphite fibres-respirable fraction)
OEL STEL	4 mg/m ³ (natural, except Graphite fibres-respirable fraction)
Canada (Yukon) - Occupational Exposure Limits	
OEL TWA	20 mppcf 30 mppcf (synthetic) 10 mg/m ³ (synthetic)



Graphite (7782-42-5)	
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA	2 mg/m ³ (all forms except graphite fibers-respirable particulate matter)
USA - OSHA - Occupational Exposure Limits	
OSHA PEL TWA [1]	15 mg/m ³ (synthetic-total dust) 5 mg/m ³ (synthetic-respirable fraction)
Mercury (7439-97-6)	
Canada (Alberta) - Occupational Exposure Limits	
OEL TWA	0.025 mg/m ³
Canada (Quebec) - Occupational Exposure Limits	
VEMP (OEL TWA)	0.025 mg/m ³ (vapour)
Canada (British Columbia) - Occupational Exposure Limits	
OEL TWA	0.025 mg/m ³ (elemental)
Canada (Manitoba) - Occupational Exposure Limits	
OEL TWA	0.025 mg/m ³
Canada (New Brunswick) - Occupational Exposure Limits	
OEL TWA	0.025 mg/m ³
Canada (Newfoundland and Labrador) - Occupational Exposure Limits	
OEL TWA	0.025 mg/m ³
Canada (Nova Scotia) - Occupational Exposure Limits	
OEL TWA	0.025 mg/m ³
Canada (Nunavut) - Occupational Exposure Limits	
OEL TWA	0.025 mg/m ³ (metallic)
OEL STEL	0.075 mg/m ³ (metallic)
Canada (Northwest Territories) - Occupational Exposure Limits	
OEL TWA	0.025 mg/m ³ (metallic)
OEL STEL	0.075 mg/m ³ (metallic)
Canada (Ontario) - Occupational Exposure Limits	
OEL TWA	0.025 mg/m ³ (designated substances regulation) 0.025 mg/m ³ (applies to workplaces to which the designated substances regulation does not apply)
Canada (Prince Edward Island) - Occupational Exposure Limits	
OEL TWA	0.025 mg/m ³
Canada (Saskatchewan) - Occupational Exposure Limits	
OEL TWA	0.025 mg/m ³
OEL STEL	0.075 mg/m ³



Mercury (7439-97-6)	
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA	0.025 mg/m ³
ACGIH chemical category	Not Classifiable as a Human Carcinogen, Skin - potential significant contribution to overall exposure by the cutaneous route
USA - ACGIH - Biological Exposure Indices	
BEI	20 µg/g creatinine Parameter: Mercury - Medium: urine - Sampling time: prior to shift
USA - OSHA - Occupational Exposure Limits	
OSHA PEL C	0.1 mg/m ³
Cadmium (7440-43-9)	
Canada (Alberta) - Occupational Exposure Limits	
OEL TWA	0.01 mg/m ³
Canada (Quebec) - Occupational Exposure Limits	
VEMP (OEL TWA)	0.025 mg/m ³
Canada (British Columbia) - Occupational Exposure Limits	
OEL TWA	0.01 mg/m ³ 0.002 mg/m ³ (respirable)
Canada (Manitoba) - Occupational Exposure Limits	
OEL TWA	0.01 mg/m ³ 0.002 mg/m ³ (respirable particulate matter)
Canada (New Brunswick) - Occupational Exposure Limits	
OEL TWA	0.01 mg/m ³ (inhalable fraction) 0.002 mg/m ³ (respirable fraction)
Canada (Newfoundland and Labrador) - Occupational Exposure Limits	
OEL TWA	0.01 mg/m ³ 0.002 mg/m ³ (respirable particulate matter)
Canada (Nova Scotia) - Occupational Exposure Limits	
OEL TWA	0.01 mg/m ³ 0.002 mg/m ³ (respirable particulate matter)
Canada (Nunavut) - Occupational Exposure Limits	
OEL TWA	0.01 mg/m ³ (total fraction) 0.002 mg/m ³ (respirable fraction)
OEL STEL	0.03 mg/m ³ (total fraction) 0.006 mg/m ³ (respirable fraction)
Canada (Northwest Territories) - Occupational Exposure Limits	
OEL TWA	0.01 mg/m ³ (total fraction) 0.002 mg/m ³ (respirable fraction)
OEL STEL	0.03 mg/m ³ (total fraction) 0.006 mg/m ³ (respirable fraction)



Cadmium (7440-43-9)	
Canada (Ontario) - Occupational Exposure Limits	
OEL TWA	0.01 mg/m ³ 0.002 mg/m ³ (respirable particulate matter)
Canada (Prince Edward Island) - Occupational Exposure Limits	
OEL TWA	0.01 mg/m ³ 0.002 mg/m ³ (respirable particulate matter)
Canada (Saskatchewan) - Occupational Exposure Limits	
OEL TWA	0.01 mg/m ³ (total) 0.002 mg/m ³ (respirable fraction)
OEL STEL	0.03 mg/m ³ (total) 0.006 mg/m ³ (respirable fraction)
Canada (Yukon) - Occupational Exposure Limits	
OEL TWA	0.05 mg/m ³ (dust)
OEL STEL	0.15 mg/m ³ (dust)
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA	0.01 mg/m ³ 0.002 mg/m ³ (respirable particulate matter)
ACGIH chemical category	Suspected Human Carcinogen
USA - ACGIH - Biological Exposure Indices	
BEI	5 µg/g creatinine Parameter: Cadmium - Medium: urine - Sampling time: not critical (background) 5 µg/l Parameter: Cadmium - Medium: blood - Sampling time: not critical (background)
USA - OSHA - Occupational Exposure Limits	
OSHA PEL TWA [1]	5 µg/m ³
OSHA PEL C	0.3 mg/m ³ (applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect-fume) 0.6 mg/m ³ (applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect-dust)
Lead (7439-92-1)	
Canada (Alberta) - Occupational Exposure Limits	
OEL TWA	0.05 mg/m ³
Canada (Quebec) - Occupational Exposure Limits	
VEMP (OEL TWA)	0.05 mg/m ³
Canada (British Columbia) - Occupational Exposure Limits	
OEL TWA	0.05 mg/m ³
Canada (Manitoba) - Occupational Exposure Limits	
OEL TWA	0.05 mg/m ³



Lead (7439-92-1)	
Canada (New Brunswick) - Occupational Exposure Limits	
OEL TWA	0.05 mg/m ³
Canada (Newfoundland and Labrador) - Occupational Exposure Limits	
OEL TWA	0.05 mg/m ³
Canada (Nova Scotia) - Occupational Exposure Limits	
OEL TWA	0.05 mg/m ³
Canada (Nunavut) - Occupational Exposure Limits	
OEL TWA	0.05 mg/m ³
OEL STEL	0.15 mg/m ³
Canada (Northwest Territories) - Occupational Exposure Limits	
OEL TWA	0.05 mg/m ³
OEL STEL	0.15 mg/m ³
Canada (Ontario) - Occupational Exposure Limits	
OEL TWA	0.05 mg/m ³ (designated substances regulation) 0.05 mg/m ³ (applies to workplaces to which the designated substances regulation does not apply)
Canada (Prince Edward Island) - Occupational Exposure Limits	
OEL TWA	0.05 mg/m ³
Canada (Saskatchewan) - Occupational Exposure Limits	
OEL TWA	0.05 mg/m ³
OEL STEL	0.15 mg/m ³
Canada (Yukon) - Occupational Exposure Limits	
OEL TWA	0.15 mg/m ³ (dust and fume)
OEL STEL	0.45 mg/m ³ (dust and fume)
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA	0.05 mg/m ³
ACGIH chemical category	Confirmed Animal Carcinogen with Unknown Relevance to Humans
USA - ACGIH - Biological Exposure Indices	
BEI	200 µg/l Parameter: Lead - Medium: blood - Sampling time: not critical (Note: Persons applying this BEI are encouraged to counsel female workers of child-bearing age about the risk of delivering a child with a PbB (lead in blood level) over the current CDC reference value.)
USA - OSHA - Occupational Exposure Limits	
OSHA PEL TWA [1]	50 µg/m ³

8.2. Appropriate engineering controls

Appropriate engineering controls	: Ensure good ventilation of the work station.
Environmental exposure controls	: Avoid release to the environment.



8.3. Individual protection measures/Personal protective equipment

Hand protection:

Not necessary under the recommended storage and handling conditions. When handling leaking cells, wear protective gloves

Eye protection:

Not necessary under the recommended storage and handling conditions. When handling leaking cells, safety glasses

Skin and body protection:

Not necessary under the recommended storage and handling conditions. When handling leaking cells, Wear suitable protective clothing

Respiratory protection:

Not necessary under the recommended storage and handling conditions. In case of insufficient ventilation, wear suitable respiratory equipment

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Flat and circular
Colour	: No data available
Odour	: Odourless
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Relative evaporation rate (ether=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Non flammable.
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Solubility	: No data available
Partition coefficient n-octanol/water (Log Pow)	: No data available
Viscosity, kinematic	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available



SECTION 10: Stability and reactivity

Reactivity	: The product is non-reactive under normal conditions of use, storage and transport.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: No dangerous reactions known under normal conditions of use.
Conditions to avoid	: None under recommended storage and handling conditions (see section 7).
Incompatible materials	: No additional information available
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hardening time:	: No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

Manganese oxide (MnO₂) (1313-13-9)

LD50 oral rat	9000 mg/kg
LC50 Inhalation - Rat	> 1500 mg/m ³ (Exposure time: 4 h)
LC50 Inhalation - Rat (Dust/Mist)	> 5 mg/l Source: OSHRI GLP toxicity test

Propylene carbonate (108-32-7)

LD50 oral rat	> 5000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity)
LD50 dermal rabbit	> 3000 mg/kg

Ethylene glycol dimethyl ether (110-71-4)

LD50 oral rat	> 4000 mg/kg
LD50 dermal rabbit	1000 – 2000 mg/kg
LC50 Inhalation - Rat	20 – 63 mg/l (Exposure time: 6 h)

Iron (7439-89-6)

LD50 oral rat	30 g/kg
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Graphite (7782-42-5)

LC50 Inhalation - Rat	> 2000 mg/m ³ (Exposure time: 4 h)
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Mercury (7439-97-6)

LC50 Inhalation - Rat	< 27 mg/m ³ (Exposure time: 2 h)
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Cadmium (7440-43-9)

LD50 oral rat	1140 mg/kg
LC50 Inhalation - Rat	25 mg/m ³ (Exposure time: 30 min)

Skin corrosion/irritation	: Not classified
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Propylene carbonate (108-32-7)

pH 8.8

Serious eye damage/irritation : Not classified

Propylene carbonate (108-32-7)

pH 8.8

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Polypropylene (9003-07-0)

IARC group 3 - Not classifiable

Polytetrafluoroethylene (9002-84-0)

IARC group 3 - Not classifiable

Mercury (7439-97-6)

IARC group 3 - Not classifiable

Cadmium (7440-43-9)

IARC group 1 - Carcinogenic to humans

National Toxicity Program (NTP) Status Known Human Carcinogens

Lead (7439-92-1)

IARC group 2A - Probably carcinogenic to humans

National Toxicity Program (NTP) Status Reasonably anticipated to be Human Carcinogen

Reproductive toxicity : Not classified

STOT-single exposure : Not classified

Lithium (7439-93-2)

STOT-single exposure May cause respiratory irritation.

Mercury (7439-97-6)

STOT-single exposure Causes damage to organs.

STOT-repeated exposure : Not classified

Manganese oxide (MnO₂) (1313-13-9)

STOT-repeated exposure Causes damage to organs through prolonged or repeated exposure.

Perchloric acid, lithium salt (7791-03-9)

STOT-repeated exposure Causes damage to organs through prolonged or repeated exposure.

Propylene carbonate (108-32-7)

NOAEL (oral, rat, 90 days) > 5000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)



Graphite (7782-42-5)	
NOAEC (inhalation, rat, dust/mist/fume, 90 days)	0.000279 mg/l air Animal: rat, Guideline: OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day Study)
STOT-repeated exposure	Causes damage to organs through prolonged or repeated exposure.
Mercury (7439-97-6)	
STOT-repeated exposure	Causes damage to organs through prolonged or repeated exposure.
Cadmium (7440-43-9)	
STOT-repeated exposure	Causes damage to organs through prolonged or repeated exposure.
Lead (7439-92-1)	
STOT-repeated exposure	Causes damage to organs through prolonged or repeated exposure.
Aspiration hazard	: Not classified

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
Hazardous to the aquatic environment, short-term (acute)	: Not classified
Hazardous to the aquatic environment, long-term (chronic)	: Not classified

Manganese oxide (MnO₂) (1313-13-9)	
LC50 - Fish [1]	> 100 mg/l Source: Existing Chemical Safety Test Summary of MOE
EC50 - Crustacea [1]	> 100 mg/l Source: Existing Chemical Safety Test Summary of MOE
Propylene carbonate (108-32-7)	
LC50 - Fish [1]	> 1000 mg/l Test organisms (species): Cyprinus carpio
EC50 - Crustacea [1]	> 1000 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	> 929 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
EC50 96h - Algae [1]	> 929 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
Graphite (7782-42-5)	
LC50 - Fish [1]	> 100 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 - Crustacea [1]	> 100 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	19 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
EC50 72h - Algae [2]	7.2 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)



Graphite (7782-42-5)	
NOEC (chronic)	47 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
Cadmium (7440-43-9)	
LC50 - Fish [1]	0.003 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])
LC50 - Fish [2]	0.006 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])
EC50 - Crustacea [1]	0.0244 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
Lead (7439-92-1)	
LC50 - Fish [1]	0.44 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [semi-static])
LC50 - Fish [2]	1.17 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])
EC50 - Crustacea [1]	600 µg/l (Exposure time: 48 h - Species: water flea)

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Manganese oxide (MnO₂) (1313-13-9)	
BCF - Fish [1]	(no bioaccumulation expected)
Partition coefficient n-octanol/water (Log Pow)	< 0 (at 20 °C)
Propylene carbonate (108-32-7)	
Partition coefficient n-octanol/water (Log Pow)	0.48 (at 25 °C)
Ethylene glycol dimethyl ether (110-71-4)	
Partition coefficient n-octanol/water (Log Pow)	-0.21 (at 25 °C)

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone : Not classified

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

The product can be shipped in two ways. When it is shipped alone, the UN number is 3090. When it is shipped in equipment, the UN number is 3091.

PART I (shipped alone)

In accordance with TDG / DOT / IMDG / IATA

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Guangzhou 510656, P.R. China

Tel.: (86) 20 38320668
Fax: (86) 20 38320478



14.1. UN number

UN-No. (TDG)	: UN3090
DOT NA No	: UN3090
UN-No. (IMDG)	: 3090
UN-No. (IATA)	: 3090

14.2. UN proper shipping name

Proper Shipping Name (TDG)	: LITHIUM METAL BATTERIES
Proper Shipping Name (DOT)	: Lithium metal batteries
Proper Shipping Name (IMDG)	: LITHIUM METAL BATTERIES
Proper Shipping Name (IATA)	: Lithium metal batteries

14.3. Transport hazard class(es)

TDG

Transport hazard class(es) (TDG)	: 9
Hazard labels (TDG)	: 9A
	:



DOT

Transport hazard class(es) (DOT)	: 9
Hazard labels (DOT)	: 9A
	:



IMDG

Transport hazard class(es) (IMDG)	: 9
Danger labels (IMDG)	: 9A
	:



IATA

Transport hazard class(es) (IATA)	: 9
Danger labels (IATA)	: 9A
	:



14.4. Packing group

Packing group (TDG)	: Not applicable.
Packing group (DOT)	: Not applicable.
Packing group (IMDG)	: Not applicable.



Packing group (IATA) : Not applicable.

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Special precautions for user

TDG

UN-No. (TDG) : UN3090





TDG Special Provisions

- : 34 - (1) These Regulations, except for Part 1 (Coming into Force, Repeal, Interpretation, General Provisions and Special Cases) and Part 2 (Classification), do not apply to the handling, offering for transport or transporting of lithium cells and batteries on a road vehicle, a railway vehicle or a vessel on a domestic voyage if
- (a) for a lithium metal or lithium alloy cell, the lithium content is not more than 1 g, and, for a lithium-ion cell, the watt-hour rating is not more than 20 Wh;
 - (b) for a lithium metal or lithium alloy battery, the aggregate lithium content is not more than 2 g, and for a lithium-ion battery, the watt-hour rating is not more than 100 Wh;
 - (c) lithium ion batteries are marked with the watt-hour rating on the outside case, except for those manufactured before January 1, 2009;
 - (d) each cell and battery type passes each of the tests set out in paragraph 2.43.1(2)(a) of Part 2 (Classification);
 - (e) the cells and batteries are afforded protection against short circuit, including protection against contact with conductive materials within the same packaging that could lead to a short circuit;
 - (f) the cells and batteries are packed in a means of containment that completely encloses the cells and batteries;
 - (g) the gross mass of the cells and batteries does not exceed 30 kg, except when the cells and batteries are installed in or packed with equipment; and
 - (h) the cells and batteries are packed in a means of containment capable of withstanding a 1.2 m drop test in any orientation without damage to the cells or batteries contained inside the means of containment, without the contents shifting so as to allow battery-to-battery or cell-to-cell, contact, and without release of contents.
- (2) Cells and batteries referred to in subsection (1) that are installed in equipment must, unless they are afforded equivalent protection by the equipment in which they are contained,
- (a) be afforded protection against damage and short circuit, including protection against contact with conductive materials within the same packaging that could lead to a short circuit;
 - (b) subject to subsection (3), be fitted to prevent accidental activation; and
 - (c) be packed in a means of containment designed, constructed, filled, closed, secured and maintained so that under normal conditions of transport, including handling, there will be no release of the dangerous goods that could endanger public safety.
- (3) Paragraph (2)(b) does not apply to cells and batteries installed in devices that are intentionally active during transport such as radio frequency identification transmitters, watches and sensors, and that are not capable of generating a dangerous evolution of heat.
- (4) Except for means of containment containing button cell batteries installed in equipment, including circuit boards, or no more than four cells installed in equipment or no more than two batteries installed in equipment, each means of containment must be marked with the appropriate lithium battery mark in accordance with section 4.24.
- (5) Despite subsection (4), except for means of containment containing button cell batteries installed in equipment, including circuit boards, or no more than four cells installed in equipment or no more than two batteries installed in equipment, each means of containment may, until December 31, 2018, be marked with the following:
- (a) "lithium metal", "lithium métal", "lithium ion" or "lithium ionique", as appropriate;
 - (b) an indication that the means of containment must be handled with care and that a flammability hazard exists if the means of containment is damaged;
 - (c) an indication that special procedures must be followed in the event the means of containment is damaged, including inspection and repacking, if necessary; and
 - (d) a telephone number to call for additional information, 123 - (1) The testing requirements in subsection 38.3 of Part III of the Manual of Tests and Criteria do not apply to production runs consisting of not more than 100 cells and batteries or to pre-production prototypes of cells and batteries that are transported on a road vehicle, a railway vehicle or a vessel on a domestic voyage if
 - (a) the cells or batteries are imported, offered for transport, handled or transported in accordance with Packing Instruction P910 of the UN Recommendations; and



Explosive Limit and Limited Quantity Index : 0
 Excepted quantities (TDG) : E0
 Passenger Carrying Road Vehicle or Passenger : 5 kg
 Carrying Railway Vehicle Index
 Emergency Response Guide (ERG) Number : 138

DOT

UN-No.(DOT) : UN3090
 DOT Special Provisions (49 CFR 172.102) : 388 - a. Lithium batteries containing both primary lithium metal cells and rechargeable lithium ion cells that are not designed to be externally charged, must meet the following conditions: i. The rechargeable lithium ion cells can only be charged from the primary lithium metal cells; ii. Overcharge of the rechargeable lithium ion cells is precluded by design; iii. The battery has been tested as a primary lithium battery; and iv. Component cells of the battery must be of a type proved to meet the respective testing requirements of the Manual of Tests and Criteria, part III, subsection 38.3 (IBR, see 171.7 of this subchapter). b. Lithium batteries conforming to paragraph a. of this special provision must be assigned to UN Nos. 3090 or 3091, as appropriate. When such batteries are transported in accordance with 173.185(c), the total lithium content of all lithium metal cells contained in the battery must not exceed 1.5 g and the total capacity of all lithium ion cells contained in the battery must not exceed 10 Wh.
 422 - When labelling is required, the label to be used must be the label shown in §172.447. Labels conforming to requirements in place on December 31, 2016 may continue to be used until December 31, 2018. When a placard is displayed, the placard must be the placard shown in §172.560.
 A54 - Lithium batteries or lithium batteries contained or packed with equipment that exceed the maximum gross weight allowed by Column (9B) of the 172.101 Table may only be transported on cargo aircraft if approved by the Associate Administrator.
 DOT Packaging Exceptions (49 CFR 173.xxx) : 185
 DOT Packaging Non Bulk (49 CFR 173.xxx) : 185
 DOT Packaging Bulk (49 CFR 173.xxx) : 185
 DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : Forbidden
 DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 35 kg
 DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

IMDG

Special provisions (IMDG) : 188, 230, 310, 376, 377, 384, 387
 Limited quantities (IMDG) : 0
 Excepted quantities (IMDG) : E0
 Packing instructions (IMDG) : P903, P908, P909, P910, P911, LP903, LP904, LP905, LP906
 EmS-No. (Fire) : F-A - FIRE SCHEDULE Alfa - GENERAL FIRE SCHEDULE
 EmS-No. (Spillage) : S-I - SPILLAGE SCHEDULE India - FLAMMABLE SOLIDS (REPACKING POSSIBLE)
 Stowage category (IMDG) : A
 Stowage and handling (IMDG) : SW19
 Properties and observations (IMDG) : Electrical batteries containing lithium encased in a rigid metallic body. Lithium batteries may also be shipped in, or packed with, equipment. Electrical lithium batteries may cause fire due to an explosive rupture of the body caused by improper construction or reaction with contaminants.

IATA

PCA Excepted quantities (IATA) : E0
 PCA Limited quantities (IATA) : Forbidden
 PCA limited quantity max net quantity (IATA) : Forbidden
 PCA packing instructions (IATA) : Forbidden



PCA max net quantity (IATA)	: Forbidden
CAO packing instructions (IATA)	: See 968
CAO max net quantity (IATA)	: See 968
Special provisions (IATA)	: A88, A99, A154, A164, A183, A201, A206, A213, A334, A802
ERG code (IATA)	: 12FZ

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

Not applicable.

PART 2(shipped in equipment)

In accordance with TDG / DOT / IMDG / IATA

14.1. UN number

UN-No. (TDG)	: UN3091
DOT NA No	: UN3091
UN-No. (IMDG)	: 3091
UN-No. (IATA)	: 3091

14.2. UN proper shipping name

Proper Shipping Name (TDG)	: LITHIUM METAL BATTERIES CONTAINED IN EQUIPMENT
Proper Shipping Name (DOT)	: Lithium metal batteries contained in equipment
Proper Shipping Name (IMDG)	: LITHIUM METAL BATTERIES CONTAINED IN EQUIPMENT
Proper Shipping Name (IATA)	: Lithium metal batteries contained in equipment

14.3. Transport hazard class(es)

TDG

Transport hazard class(es) (TDG)	: 9
Hazard labels (TDG)	: 9A
	:



DOT

Transport hazard class(es) (DOT)	: 9
Hazard labels (DOT)	: 9A
	:



IMDG

Transport hazard class(es) (IMDG)	: 9
Danger labels (IMDG)	: 9A
	:





IATA

Transport hazard class(es) (IATA)

: 9

Danger labels (IATA)

: 9A

:



14.4. Packing group

Packing group (TDG)

: Not applicable.

Packing group (DOT)

: Not applicable.

Packing group (IMDG)

: Not applicable.

Packing group (IATA)

: Not applicable.

14.5. Environmental hazards

Other information

: No supplementary information available.

14.6. Special precautions for user

TDG

UN-No. (TDG)

: UN3091





TDG Special Provisions

- : 34 - (1) These Regulations, except for Part 1 (Coming into Force, Repeal, Interpretation, General Provisions and Special Cases) and Part 2 (Classification), do not apply to the handling, offering for transport or transporting of lithium cells and batteries on a road vehicle, a railway vehicle or a vessel on a domestic voyage if
- (a) for a lithium metal or lithium alloy cell, the lithium content is not more than 1 g, and, for a lithium-ion cell, the watt-hour rating is not more than 20 Wh;
 - (b) for a lithium metal or lithium alloy battery, the aggregate lithium content is not more than 2 g, and for a lithium-ion battery, the watt-hour rating is not more than 100 Wh;
 - (c) lithium ion batteries are marked with the watt-hour rating on the outside case, except for those manufactured before January 1, 2009;
 - (d) each cell and battery type passes each of the tests set out in paragraph 2.43.1(2)(a) of Part 2 (Classification);
 - (e) the cells and batteries are afforded protection against short circuit, including protection against contact with conductive materials within the same packaging that could lead to a short circuit;
 - (f) the cells and batteries are packed in a means of containment that completely encloses the cells and batteries;
 - (g) the gross mass of the cells and batteries does not exceed 30 kg, except when the cells and batteries are installed in or packed with equipment; and
 - (h) the cells and batteries are packed in a means of containment capable of withstanding a 1.2 m drop test in any orientation without damage to the cells or batteries contained inside the means of containment, without the contents shifting so as to allow battery-to-battery or cell-to-cell, contact, and without release of contents.
- (2) Cells and batteries referred to in subsection (1) that are installed in equipment must, unless they are afforded equivalent protection by the equipment in which they are contained,
- (a) be afforded protection against damage and short circuit, including protection against contact with conductive materials within the same packaging that could lead to a short circuit;
 - (b) subject to subsection (3), be fitted to prevent accidental activation; and
 - (c) be packed in a means of containment designed, constructed, filled, closed, secured and maintained so that under normal conditions of transport, including handling, there will be no release of the dangerous goods that could endanger public safety.
- (3) Paragraph (2)(b) does not apply to cells and batteries installed in devices that are intentionally active during transport such as radio frequency identification transmitters, watches and sensors, and that are not capable of generating a dangerous evolution of heat.
- (4) Except for means of containment containing button cell batteries installed in equipment, including circuit boards, or no more than four cells installed in equipment or no more than two batteries installed in equipment, each means of containment must be marked with the appropriate lithium battery mark in accordance with section 4.24.
- (5) Despite subsection (4), except for means of containment containing button cell batteries installed in equipment, including circuit boards, or no more than four cells installed in equipment or no more than two batteries installed in equipment, each means of containment may, until December 31, 2018, be marked with the following:
- (a) "lithium metal", "lithium métal", "lithium ion" or "lithium ionique", as appropriate;
 - (b) an indication that the means of containment must be handled with care and that a flammability hazard exists if the means of containment is damaged;
 - (c) an indication that special procedures must be followed in the event the means of containment is damaged, including inspection and repacking, if necessary; and
 - (d) a telephone number to call for additional information, 123 - (1) The testing requirements in subsection 38.3 of Part III of the Manual of Tests and Criteria do not apply to production runs consisting of not more than 100 cells and batteries or to pre-production prototypes of cells and batteries that are transported on a road vehicle, a railway vehicle or a vessel on a domestic voyage if
 - (a) the cells or batteries are imported, offered for transport, handled or transported in accordance with Packing Instruction P910 of the UN Recommendations; and

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Guangzhou 510656, P.R. China

(2) Despite paragraph (1)(b), batteries that have a total mass of not more than 32 Wh and that have a strong, impact-resistant outer casing, or assemblies of them, may be packed in an outer means of containment or protective enclosure designed, constructed, filled, closed, secured and maintained so that under normal conditions of transport, including handling, there will be no release of the dangerous goods that could endanger public safety. The batteries or battery assemblies must be protected from short-circuit, 137 - (1) This shipping name applies to lithium ion cells or batteries, and lithium metal cells or batteries, that are damaged or defective and do

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Explosive Limit and Limited Quantity Index : 0
 Excepted quantities (TDG) : E0
 Passenger Carrying Road Vehicle or Passenger : 5 kg
 Carrying Railway Vehicle Index
 Emergency Response Guide (ERG) Number : 138

DOT

UN-No.(DOT) : UN3091
 DOT Special Provisions (49 CFR 172.102) : 181 - When a package contains a combination of lithium batteries contained in equipment and lithium batteries packed with equipment, the following requirements apply: a. The shipper must ensure that all applicable requirements of §173.185 of this subchapter are met. The total mass of lithium batteries contained in any package must not exceed the quantity limits in columns (9A) and (9B) for passenger aircraft or cargo aircraft, as applicable; b. Except as provided in §173.185(c)(3) of this subchapter, the package must be marked "UN 3091 Lithium metal batteries packed with equipment", or "UN 3481 Lithium ion batteries packed with equipment," as appropriate. If a package contains both lithium metal batteries and lithium ion batteries packed with and contained in equipment, the package must be marked as required for both battery types. However, button cell batteries installed in equipment (including circuit boards) need not be considered; and c. The shipping paper must indicate "UN 3091 Lithium metal batteries packed with equipment" or "UN 3481 Lithium ion batteries packed with equipment," as appropriate. If a package contains both lithium metal batteries and lithium ion batteries packed with and contained in equipment, then the shipping paper must indicate both "UN 3091 Lithium metal batteries packed with equipment" and "UN 3481 Lithium ion batteries packed with equipment."
 388 - a. Lithium batteries containing both primary lithium metal cells and rechargeable lithium ion cells that are not designed to be externally charged, must meet the following conditions: i. The rechargeable lithium ion cells can only be charged from the primary lithium metal cells; ii. Overcharge of the rechargeable lithium ion cells is precluded by design; iii. The battery has been tested as a primary lithium battery; and iv. Component cells of the battery must be of a type proved to meet the respective testing requirements of the Manual of Tests and Criteria, part III, subsection 38.3 (IBR, see 171.7 of this subchapter). b. Lithium batteries conforming to paragraph a. of this special provision must be assigned to UN Nos. 3090 or 3091, as appropriate. When such batteries are transported in accordance with 173.185(c), the total lithium content of all lithium metal cells contained in the battery must not exceed 1.5 g and the total capacity of all lithium ion cells contained in the battery must not exceed 10 Wh.
 422 - When labelling is required, the label to be used must be the label shown in §172.447. Labels conforming to requirements in place on December 31, 2016 may continue to be used until December 31, 2018. When a placard is displayed, the placard must be the placard shown in §172.560.
 A54 - Lithium batteries or lithium batteries contained or packed with equipment that exceed the maximum gross weight allowed by Column (9B) of the 172.101 Table may only be transported on cargo aircraft if approved by the Associate Administrator.
 A101 - A primary (non-rechargeable) lithium battery or cell packed with equipment is forbidden for transport aboard a passenger carrying aircraft unless: a. The battery or cell complies with the requirements and limitations of 173.185(b)(1), (b)(2), (b)(3), (b)(4) and (b)(6) or 173.185(c)(1), (c)(2), (c)(3) and (c)(5) of this subchapter; b. The package contains no more than the number of lithium batteries or cells necessary to power the intended piece of equipment; c. The equipment and the battery or cell are packed in a strong packaging; d. The gross weight of the package does not exceed 5 kg. Packages complying with the requirements of this special provision are excepted from all other requirements of this subchapter.
 DOT Packaging Exceptions (49 CFR 173.xxx) : 185
 DOT Packaging Non Bulk (49 CFR 173.xxx) : 185
 DOT Packaging Bulk (49 CFR 173.xxx) : 185
 DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 5 kg



DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 35 kg

DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

IMDG

Special provisions (IMDG) : 188, 230, 310, 360, 376, 377, 384, 387

Limited quantities (IMDG) : 0

Excepted quantities (IMDG) : E0

Packing instructions (IMDG) : P903, P908, P909, P910, P911, LP903, LP904, LP905, LP906

EmS-No. (Fire) : F-A - FIRE SCHEDULE Alfa - GENERAL FIRE SCHEDULE

EmS-No. (Spillage) : S-I - SPILLAGE SCHEDULE India - FLAMMABLE SOLIDS (REPACKING POSSIBLE)

Stowage category (IMDG) : A

Stowage and handling (IMDG) : SW19

Properties and observations (IMDG) : Electrical batteries containing lithium encased in a rigid metallic body. Lithium batteries may also be shipped in, or packed with, equipment. Electrical lithium batteries may cause fire due to an explosive rupture of the body caused by improper construction or reaction with contaminants.

IATA

PCA Excepted quantities (IATA) : E0

PCA Limited quantities (IATA) : Forbidden

PCA limited quantity max net quantity (IATA) : Forbidden

PCA packing instructions (IATA) : 970

PCA max net quantity (IATA) : 5kg

CAO packing instructions (IATA) : 970

CAO max net quantity (IATA) : 35kg

Special provisions (IATA) : A48, A88, A99, A154, A164, A181, A185, A206, A213, A220

ERG code (IATA) : 12FZ

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

Not applicable.

SECTION 15: Regulatory information

15.1. National regulations

Manganese oxide (MnO₂) (1313-13-9)

Listed on the Canadian DSL (Domestic Substances List)

Lithium (7439-93-2)

Listed on the Canadian DSL (Domestic Substances List)

Perchloric acid, lithium salt (7791-03-9)

Listed on the Canadian DSL (Domestic Substances List)

Propylene carbonate (108-32-7)

Listed on the Canadian DSL (Domestic Substances List)



Ethylene glycol dimethyl ether (110-71-4)

Listed on the Canadian DSL (Domestic Substances List)

Iron (7439-89-6)

Listed on the Canadian DSL (Domestic Substances List)

Polypropylene (9003-07-0)

Listed on the Canadian DSL (Domestic Substances List)

Graphite (7782-42-5)

Listed on the Canadian DSL (Domestic Substances List)

Polytetrafluoroethylene (9002-84-0)

Listed on the Canadian DSL (Domestic Substances List)

Mercury (7439-97-6)

Listed on the Canadian DSL (Domestic Substances List)

Cadmium (7440-43-9)

Listed on the Canadian DSL (Domestic Substances List)

Lead (7439-92-1)

Listed on the Canadian DSL (Domestic Substances List)

15.2. International regulations

Manganese oxide (MnO₂) (1313-13-9)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Japanese ENCS (Existing New Chemical Substances) inventory
Listed on KECL/KECI (Korean Existing Chemicals Inventory)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Japanese Pollutant Release and Transfer Register Law (PRTR Law)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on INSQ (Mexican National Inventory of Chemical Substances)



Lithium (7439-93-2)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active
 Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
 Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
 Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
 Listed on the Japanese ENCS (Existing New Chemical Substances) inventory
 Listed on KECL/KECI (Korean Existing Chemicals Inventory)
 Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
 Listed on NZIoC (New Zealand Inventory of Chemicals)
 Listed on INSQ (Mexican National Inventory of Chemical Substances)

Perchloric acid, lithium salt (7791-03-9)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active
 Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
 Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
 Listed on the Japanese ENCS (Existing New Chemical Substances) inventory
 Listed on KECL/KECI (Korean Existing Chemicals Inventory)
 Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
 Listed on NZIoC (New Zealand Inventory of Chemicals)
 Listed on the Japanese ISHL (Industrial Safety and Health Law)

Propylene carbonate (108-32-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active
 Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
 Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
 Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
 Listed on the Japanese ENCS (Existing New Chemical Substances) inventory
 Listed on KECL/KECI (Korean Existing Chemicals Inventory)
 Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
 Listed on NZIoC (New Zealand Inventory of Chemicals)
 Listed on the Japanese ISHL (Industrial Safety and Health Law)
 Listed on INSQ (Mexican National Inventory of Chemical Substances)

Ethylene glycol dimethyl ether (110-71-4)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active
 Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
 Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
 Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
 Listed on the Japanese ENCS (Existing New Chemical Substances) inventory
 Listed on KECL/KECI (Korean Existing Chemicals Inventory)
 Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
 Listed on NZIoC (New Zealand Inventory of Chemicals)
 Listed on the Japanese ISHL (Industrial Safety and Health Law)
 Listed on INSQ (Mexican National Inventory of Chemical Substances)

Iron (7439-89-6)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active
 Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
 Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
 Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
 Listed on the Japanese ENCS (Existing New Chemical Substances) inventory
 Listed on KECL/KECI (Korean Existing Chemicals Inventory)
 Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
 Listed on NZIoC (New Zealand Inventory of Chemicals)
 Listed on INSQ (Mexican National Inventory of Chemical Substances)



Polypropylene (9003-07-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active
 Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
 Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
 Listed on the Japanese ENCS (Existing New Chemical Substances) inventory
 Listed on KECL/KECI (Korean Existing Chemicals Inventory)
 Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
 Listed on NZIoC (New Zealand Inventory of Chemicals)
 Listed on the Japanese ISHL (Industrial Safety and Health Law)
 Listed on INSQ (Mexican National Inventory of Chemical Substances)

Graphite (7782-42-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active
 Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
 Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
 Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
 Listed on KECL/KECI (Korean Existing Chemicals Inventory)
 Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
 Listed on NZIoC (New Zealand Inventory of Chemicals)
 Listed on INSQ (Mexican National Inventory of Chemical Substances)

Polytetrafluoroethylene (9002-84-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active
 Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
 Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
 Listed on the Japanese ENCS (Existing New Chemical Substances) inventory
 Listed on KECL/KECI (Korean Existing Chemicals Inventory)
 Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
 Listed on NZIoC (New Zealand Inventory of Chemicals)
 Listed on the Japanese ISHL (Industrial Safety and Health Law)
 Listed on INSQ (Mexican National Inventory of Chemical Substances)

Mercury (7439-97-6)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active
 Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
 Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
 Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
 Listed on the Japanese ENCS (Existing New Chemical Substances) inventory
 Listed on KECL/KECI (Korean Existing Chemicals Inventory)
 Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
 Japanese Poisonous and Deleterious Substances Control Law
 Japanese Pollutant Release and Transfer Register Law (PRTR Law)
 Listed on NZIoC (New Zealand Inventory of Chemicals)
 Listed on INSQ (Mexican National Inventory of Chemical Substances)

Toxic Substance (CEPA – Schedule I)

Yes



Cadmium (7440-43-9)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active
 Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
 Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
 Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
 Listed on the Japanese ENCS (Existing New Chemical Substances) inventory
 Listed on KECL/KECI (Korean Existing Chemicals Inventory)
 Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
 Japanese Pollutant Release and Transfer Register Law (PRTR Law)
 Listed on NZIoC (New Zealand Inventory of Chemicals)
 Listed on INSQ (Mexican National Inventory of Chemical Substances)

Lead (7439-92-1)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active
 Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
 Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
 Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
 Listed on the Japanese ENCS (Existing New Chemical Substances) inventory
 Listed on KECL/KECI (Korean Existing Chemicals Inventory)
 Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
 Japanese Pollutant Release and Transfer Register Law (PRTR Law)
 Listed on NZIoC (New Zealand Inventory of Chemicals)
 Listed on INSQ (Mexican National Inventory of Chemical Substances)

Toxic Substance (CEPA – Schedule I)

Yes

SECTION 16: Other information

Issue date : 07/08/2022

Revision date : 07/08/2022

Indication of changes:

Not applicable.

Data sources : ECHA reference. Loli.

Training advice : Normal use of this product shall imply use in accordance with the instructions on the packaging.

Other information : No information available.

Full text of H-statements:

H260	In contact with water releases flammable gases which may ignite spontaneously.
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H335	May cause respiratory irritation.
H341	Suspected of causing genetic defects.
H350	May cause cancer.



Full text of H-statements:

H351	Suspected of causing cancer.
H360	May damage fertility or the unborn child.
H361	Suspected of damaging fertility or the unborn child.
H370	Causes damage to organs.
H372	Causes damage to organs through prolonged or repeated exposure.

Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	Agreement concerning the International Carriage of Dangerous Goods by Road
EC50	Median effective concentration
LC50	Median lethal concentration
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LD50	Median lethal dose
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet

Safety Data Sheet (SDS), Canada

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.