

Iron Rich Material

IRM

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SAFETY DATA SHEET

SECTION 1. IDENTIFICATION

Product identifier used on the label

: **Iron Rich Material**

Product Code(s) : IRM

Recommended use of the chemical and restrictions on use

: Aggregate; Water filtration; Cement making.
Restriction on use for anti-skid purposes (RCRA).

Chemical family : High Temperature Metal Recovery (HTMR) product. Contains inorganic substances in granular form.

Name, address, and telephone number of the manufacturer:

Name, address, and telephone number of the supplier:

American Zinc Recycling

Refer to manufacturer

4955 Steubenville Pike, Suite 405
Pittsburgh, PA, USA
15205

Manufacturer's Telephone # : (724) 773-2223

24 Hr. Emergency Tel # : Chemtrec 1-800-424-9300 (Within Continental U.S.); Chemtrec 703-527-3887 (Outside U.S.).

SECTION 2. HAZARDS IDENTIFICATION

Classification of the chemical

Black solid (slag-like granules). Odorless.

Most important hazards:

Continuous long-term exposure above the permissible exposure limits are suspected to cause nervous system damage with neurological effects. Occupational exposure to the substance or mixture may cause adverse effects. For further information, please refer to section 11 of the SDS.

This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Classification:

Specific target organ toxicity, repeated exposure - Category 1

Label elements

Hazard pictogram(s)



Signal Word
DANGER!

Hazard statement(s)

Causes damage to organs through prolonged or repeated exposure.

Precautionary statement(s)

Do not breathe dust or fume. Wash exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product.

Get medical advice/attention if you feel unwell.

Dispose of contents/container in accordance with local regulation.

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Other hazards

Other hazards which do not result in classification:

Mild respiratory irritant. May cause gastrointestinal irritation. Iron particles in the eye may leave a "rust ring" or brownish stain on the cornea.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

High Temperature Metal Recovery (HTMR) product. Contains inorganic substances in granular form.

<u>Chemical name</u>	<u>Common name and synonyms</u>	<u>CAS #</u>	<u>Concentration (% by weight)</u>
Wüstite	Ferrous oxide Iron (II) oxide	1345-25-1	38.0 - 48.0
Magnetite	Ferrous-ferric oxide Iron (II, III) oxide	1317-61-9	20.0 - 30.0
Forsterite	Magnesium silicate	15118-03-3	5.0 - 20.0
Akermanite	Dicalcium magnesium disilicate	14567-90-9	5.0 - 20.0
Iron	Metallic iron	7439-89-6	4.0 - 8.0
Gehlenite	Calcium aluminum silicate	1302-56-3	2.0 - 7.5
Manganese oxide	Manganese compounds	1344-43-0	4.0 - 6.0
Franklinite	Zinc ferrite	12063-19-3	0.3 - 2.5

The % concentrations for the above listed chemicals will vary from batch to batch. Concentrations listed represent the actual concentration range for each chemical.

SECTION 4. FIRST-AID MEASURES

Description of first aid measures

- Ingestion* : Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.
- Inhalation* : If inhaled, move to fresh air. If breathing is difficult, give oxygen by qualified medical personnel only. If breathing stops, provide artificial respiration. Get medical advice/attention if you feel unwell.
- Skin contact* : For skin contact, wash with soap and water while removing contaminated clothing. Get medical advice/attention if you feel unwell. Launder clothing before reuse.
- Eye contact* : Rinse immediately with plenty of water, also under the eyelids. Get medical advice/attention if you feel unwell.

Most important symptoms and effects, both acute and delayed

- : Causes damage to organs through prolonged or repeated exposure. This product contains Manganese compounds. Manganese can attack the central nervous system, causing symptom's similar to Parkinson's Disease. Chronic manganese exposures can lead to neurological problems such as apathy, drowsiness, weakness, spastic gait, paralysis, and other neurological problems resembling Parkinsonism. These symptoms can become progressive and permanent if not treated.
- Mild respiratory irritant. May cause coughing and breathing difficulties. Inhalation of fumes may result in metal fume fever, a flu-like illness. Symptoms of metal fume fever may include fever, fatigue, vomiting, muscle aches and shortness of breath.
- Dust contact with the eyes can lead to mechanical irritation. Symptoms may include stinging and tearing.
- Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.
- Iron particles in the eye may leave a "rust ring" or brownish stain on the cornea.

Indication of any immediate medical attention and special treatment needed

- : Provide general supportive measures and treat symptomatically.

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SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media

- : Use media suitable to the surrounding fire such as water fog or fine spray, alcohol foams, carbon dioxide and dry chemical.

Unsuitable extinguishing media

- : None known.

Special hazards arising from the substance or mixture / Conditions of flammability

- : Not considered flammable.

Flammability classification (OSHA 29 CFR 1910.106)

- : Not classified as flammable.

Hazardous combustion products

- : Metal oxides

Special protective equipment and precautions for firefighters

Protective equipment for fire-fighters

- : Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode.

Special fire-fighting procedures

- : No special requirements under ordinary conditions of use and with adequate ventilation.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

- : Wear suitable protective equipment. Refer to protective measures listed in sections 7 and 8.

Environmental precautions

- : None required under normal conditions.

Methods and material for containment and cleaning up

- : Sweep up and shovel into suitable containers for disposal. Avoid dust formation. For waste disposal, see Section 13 of the SDS.

Special spill response procedures

- : None applicable.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling

- : Use with adequate ventilation. Wear suitable protective equipment during handling. Do not breathe dust or fume. Do not ingest. Avoid contact with skin, eyes and clothing. Avoid and control operations which create high vapor or dust concentrations. Wash thoroughly after handling.

Conditions for safe storage

- : None known.

Incompatible materials

- : None known.

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SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<u>Exposure Limits:</u>					
	<u>Chemical Name</u>	<u>ACGIH TLV</u>		<u>OSHA PEL</u>	
		<u>TWA</u>	<u>STEL</u>	<u>PEL</u>	<u>STEL</u>
Wüstite	5 mg/m ³ (respirable) (as Ferric oxide)	N/Av	10 mg/m ³ (fume); 15 mg/m ³ (total dust); 5 mg/m ³ (respirable) (as Ferric oxide)	N/Av	
Magnetite	5 mg/m ³ (respirable) (as Ferric oxide)	N/Av	10 mg/m ³ (iron oxide fume)	N/Av	
Forsterite	N/Av	N/Av	N/Av	N/Av	
Akermanite	N/Av	N/Av	N/Av	N/Av	
Iron	N/Av	N/Av	N/Av	N/Av	
Gehlenite	N/Av	N/Av	N/Av	N/Av	
Manganese oxide	0.02 mg/m ³ (respirable); 0.1 mg/m ³ (inhalable) (Manganese and inorganic compounds)	N/Av	5 mg/m ³ (Ceiling) (Manganese compounds)	N/Av	
Franklinite	N/Av	N/Av	N/Av	N/Av	

Exposure controls

Ventilation and engineering measures

- : Use in a well-ventilated area. Apply technical measures to comply with the occupational exposure limits. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. The local exhaust ventilation system should be high efficiency (84%). Recommended cyclone/filter (for minimizing dust emissions) efficiency:
 - 70-90% (cyclones);
 - 50-80% (dust filters);
 - 85-95% (double stage, cassette filters)
 Process enclosure should be considered, especially in potentially dusty units. In case of insufficient ventilation wear suitable respiratory equipment.

Respiratory protection

- : Wear NIOSH approved dust masks. The filter class for the respirator must be suitable for the maximum expected contaminant concentration (gas/vapor/aerosol/particulates) that may arise when handling the product. If this concentration is exceeded, self-contained breathing apparatus must be used. Recommended Filter type:
 - dust filter-half mask P1 (efficiency 75%)
 - dust filter-half mask P2 (efficiency 90%)
 - dust filter-half mask P3 (efficiency 95%)
 - dust filter-full mask P1 (efficiency 75%)
 Respirators should be selected based on the form and concentration of contaminants in air, and in accordance with OSHA (29 CFR 1910.134) or CSA Z94.4-02.

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- Skin protection** : Gloves are recommended. The suitability for a specific workplace should be discussed with the producers of the protective gloves. Gloves are recommended to be $\geq 90\%$ efficient. Choose body protection according to the amount and concentration of the dangerous substance at the work place.
- Eye / face protection** : Wear as appropriate: Goggles; Safety glasses with side shields
- Other protective equipment** : Ensure that eyewash stations and safety showers are close to the workstation location. Other equipment may be required depending on workplace standards.
- General hygiene considerations** : Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Do not breathe dust or fume. Do not eat, drink or smoke when using this product. Wash hands and face before breaks and immediately after handling the product.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance** : Black solid. (Ash)
- Odor** : No odor.
- Odor threshold** : None.
- pH** : N/Av
- Melting/Freezing point** : $> 1000^{\circ}\text{C}$ (1830°F)
- Initial boiling point and boiling range** : $> 1000^{\circ}\text{C}$ (1830°F)
- Flash point** : None.
- Flashpoint (Method)** : Not applicable.
- Evaporation rate (BuAe = 1)** : N/Av
- Flammability (solid, gas)** : The product is not flammable.
- Lower flammable limit (% by vol.)** : None.
- Upper flammable limit (% by vol.)** : None.
- Oxidizing properties** : None known.
- Explosive properties** : Not explosive
- Vapor pressure** : N/Av
- Vapor density** : N/Av
- Relative density / Specific gravity** : 1.44
- Solubility in water** : insoluble
- Other solubility(ies)** : N/Av
- Partition coefficient: n-octanol/water or Coefficient of water/oil distribution** : N/Av
- Auto-ignition temperature** : None.
- Decomposition temperature** : N/Av
- Viscosity** : Not applicable.
- Volatiles (% by weight)** : N/Av
- Volatile organic Compounds (VOC's)** : N/Av
- Absolute pressure of container** : N/Av
- Flame projection length** : N/Av
- Other physical/chemical comments** : No additional information.

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SECTION 10. STABILITY AND REACTIVITY

- Reactivity** : Not normally reactive.
- Chemical stability** : Stable under normal conditions.
- Possibility of hazardous reactions** : Hazardous polymerization does not occur.
- Conditions to avoid** : Do not use in unventilated areas without proper protection. Refer to protective measures listed in sections 7 and 8.
- Incompatible materials** : None known.
- Hazardous decomposition products** : None known, refer to hazardous combustion products in Section 5.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure:

- Routes of entry inhalation** : YES
- Routes of entry skin & eye** : YES
- Routes of entry ingestion** : YES
- Routes of exposure skin absorption** : NO

Potential Health Effects:

Signs and symptoms of short-term (acute) exposure

Sign and symptoms Inhalation

- : May cause irritation of the mucous membranes. Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough.

Sign and symptoms ingestion

- : Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Sign and symptoms skin

- : No adverse effects due to skin contact are expected.

Sign and symptoms eyes

- : Dust contact with the eyes can lead to mechanical irritation. Symptoms may include stinging and tearing.

Potential Chronic Health Effects

- : Pneumoconiosis, or "dusty lung" disease, may result from chronic exposure to any dust. Repeated or prolonged inhalation of fine dusts may cause an increase in mucous production.

Mutagenicity

- : No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity

- : Not classifiable as a human carcinogen. No components are listed as carcinogens by ACGIH, IARC, OSHA or NTP.

Reproductive effects & Teratogenicity

- : This product is not expected to cause reproductive or developmental effects.

Sensitization to material

- : Not expected to be a skin or respiratory sensitizer.

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Specific target organ effects : This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Classification:
Specific target organ toxicity, repeated exposure - Category 1. Causes damage to organs through prolonged or repeated exposure.
This product contains Manganese compounds. Manganese can attack the central nervous system, causing symptom's similar to Parkinson's Disease. Chronic manganese exposures can lead to neurological problems such as apathy, drowsiness, weakness, spastic gait, paralysis, and other neurological problems resembling Parkinsonism. These symptoms can become progressive and permanent if not treated.

According to the classification criteria of U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015), this product is not expected to cause target organ toxicity through single exposures.

Medical conditions aggravated by overexposure

: Pre-existing skin, eye and respiratory disorders.

Synergistic materials

: None known or reported by the manufacturer.

Toxicological data

: Not classified for acute toxicity based on available data. No data is available on the product itself.

See below for individual ingredient acute toxicity data.

<u>Chemical name</u>	<u>LC₅₀ (4hr)</u> <u>inh, rat</u>	<u>LD₅₀</u>	
		<u>(Oral, rat)</u>	<u>(Rabbit, dermal)</u>
Wüstite	N/Av	> 10 000 mg/kg	N/Av
Magnetite	N/Av	> 5000 mg/kg	N/Av
Forsterite	N/Av	N/Av	N/Av
Akermanite	N/Av	N/Av	N/Av
Iron	N/Av	98 600 mg/kg	N/Av
Gehlenite	N/Av	N/Av	N/Av
Manganese oxide	> 5.35 mg/L (dust) (No mortality)	> 2000 mg/kg (No mortality)	N/Av
Franklinite	N/Av	N/Av	N/Av

Other important toxicological hazards

: None known or reported by the manufacturer.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity : No data is available on the product itself.

The following tables list individual ingredient ecotoxicity data for fish, daphnia and algae.

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Ecotoxicity data:

<u>Ingredients</u>	CAS No	Toxicity to Fish		
		LC50 / 96h	NOEC / 21 day	M Factor
Wüstite	1345-25-1	> 50 000, < 100 000 mg/L (Zebra fish) (Read-across)	N/Av	None.
Magnetite	1317-61-9	N/Av	N/Av	None.
Forsterite	15118-03-3	N/Av	N/Av	None.
Akermanite	14567-90-9	N/Av	N/Av	None.
Iron	7439-89-6	> 10 000 mg/L (Zebra fish)	N/Av	None.
Gehlenite	1302-56-3	N/Av	N/Av	None.
Manganese oxide	1344-43-0	> 100 mg/L (Rainbow trout)	N/Av	None.
Franklinite	12063-19-3	N/Av	N/Av	None.

<u>Ingredients</u>	CAS No	Toxicity to Daphnia		
		EC50 / 48h	NOEC / 21 day	M Factor
Wüstite	1345-25-1	> 100 mg/L (Daphnia magna) (Read-across)	N/Av	None.
Magnetite	1317-61-9	N/Av	N/Av	None.
Forsterite	15118-03-3	N/Av	N/Av	None.
Akermanite	14567-90-9	N/Av	N/Av	None.
Iron	7439-89-6	> 100 mg/L (Daphnia magna)	5.9 mg/L	None.
Gehlenite	1302-56-3	N/Av	N/Av	None.
Manganese oxide	1344-43-0	> 100 mg/L (Daphnia magna)	N/Av	None.
Franklinite	12063-19-3	N/Av	N/Av	None.

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Ingredients	CAS No	Toxicity to Algae		
		EC50 / 96h or 72h	NOEC / 96h or 72h	M Factor
Wüstite	1345-25-1	N/Av	N/Av	N/Av
Magnetite	1317-61-9	N/Av	N/Av	None.
Forsterite	15118-03-3	N/Av	N/Av	None.
Akermanite	14567-90-9	N/Av	N/Av	None.
Iron	7439-89-6	N/Av	N/Av	None.
Gehlenite	1302-56-3	N/Av	N/Av	None.
Manganese oxide	1344-43-0	> 100 mg/L/72hr (Green algae)	32 mg/L/72hr	None.
Franklinite	12063-19-3	N/Av	N/Av	None.

Persistence and degradability

: Biodegradation is not applicable to metals/inorganic substances.

Bioaccumulation potential

: No data is available on the product itself.

Mobility in soil

: No data is available on the product itself.

Other Adverse Environmental effects

: No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

SECTION 13. DISPOSAL CONSIDERATIONS

Handling for Disposal

: Handle in accordance with good industrial hygiene and safety practice. Refer to protective measures listed in sections 7 and 8.

Methods of Disposal

: Dispose in accordance with all applicable federal, state, provincial and local regulations.

RCRA

: This material is not hazardous for RCRA criteria, and should be managed as a solid waste if disposed.

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SECTION 14. TRANSPORT INFORMATION

Regulatory Information	UN Number	UN proper shipping name	Transport hazard class(es)	Packing Group	Label
49CFR/DOT	None.	Not regulated.	Not regulated	None	
49CFR/DOT Additional information	None.				
TDG	None.	Not regulated.	Not regulated	None	
TDG Additional information	None.				
ICAO/IATA	None.	Not regulated.	Not regulated	None	
ICAO/IATA Additional information	None.				
IMDG	None.	Not regulated.	not regulated	none	
IMDG Additional information	None.				

Special precautions for user : Avoid and control operations which create dust.

Environmental hazards : This product does not meet the criteria for an environmentally hazardous mixture, according to the IMDG Code. See ECOLOGICAL INFORMATION, Section 12.

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

: This information is not available.

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SECTION 15 - REGULATORY INFORMATION

US Federal Information:

Components listed below are present on the following U.S. Federal chemical lists:

<u>Ingredients</u>	CAS #	TSCA Inventory	CERCLA Reportable Quantity(RQ) (40 CFR 117.302):	SARA TITLE III: Sec. 302, Extremely Hazardous Substance, 40 CFR 355:	SARA TITLE III: Sec. 313, 40 CFR 372, Specific Toxic Chemical	
					Toxic Chemical	de minimus Concentration
Wüstite	1345-25-1	Yes	None.	None.	No	N/Ap
Magnetite	1317-61-9	Yes	None.	None.	No	N/Ap
Forsterite	15118-03-3	Not specifically listed.	None.	None.	No	N/Ap
Akermanite	14567-90-9	Not specifically listed.	None.	None.	No	N/Ap
Iron	7439-89-6	Yes	None.	None.	No	N/Ap
Gehlenite	1302-56-3	Not specifically listed.	None.	None.	No	N/Ap
Manganese oxide	1344-43-0	Yes	None.	None.	Yes	1%
Franklinite	12063-19-3	Yes	None.	None.	No	N/Ap

SARA TITLE III: Sec. 311 and 312, SDS Requirements, 40 CFR 370 Hazard Classes:

Health hazards (Specific target organ toxicity, repeated exposure)

Under SARA Sections 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

US State Right to Know Laws:

The following chemicals are specifically listed by individual States:

<u>Ingredients</u>	CAS #	California Proposition 65		State "Right to Know" Lists					
		Listed	Type of Toxicity	CA	MA	MN	NJ	PA	RI
Wüstite	1345-25-1	No	N/Ap	No	No	No	No	No	No
Magnetite	1317-61-9	No	N/Ap	No	No	No	No	No	No
Forsterite	15118-03-3	No	N/Ap	No	No	No	No	No	No
Akermanite	14567-90-9	No	N/Ap	No	No	No	No	No	No
Iron	7439-89-6	No	N/Ap	Yes	No	No	No	No	No
Gehlenite	1302-56-3	No	N/Ap	No	No	No	No	No	No
Manganese oxide	1344-43-0	No	N/Ap	No	No	No	No	No	No
Franklinite	12063-19-3	No	N/Ap	No	No	No	No	No	No

California Proposition 65: This product can expose you to chemicals, which are known to the State of California to cause cancer. This product contains trace amounts of: Nickel (< 0.1%).

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Canadian Information:

Canadian Environmental Protection Act (CEPA) information: All ingredients listed appear on or are exempt from the Domestic Substances List (DSL).

Canadian National Pollutant Release Inventory (NPRI): This product contains the following substances listed on the NPRI:
Manganese (Part 1, Group A Substance)

WHMIS information: Refer to Section 2 for a WHMIS Classification for this product.

International Information:

Components listed below are present on the following International Inventory list:

<u>Ingredients</u>	<u>CAS #</u>	<u>European EINECs</u>	<u>Australia AICS</u>	<u>Philippines PICCS</u>	<u>Japan ENCS</u>	<u>Korea KECI/KECL</u>	<u>China IECS</u>	<u>New Zealand IOC</u>
Wüstite	1345-25-1	215-721-8	Present	Present	(1)-357	KE-21112	Present	May be used as a component in a product covered by a group standard, but is not approved for use as a chemical in its own right.
Magnetite	1317-61-9	215-277-5	Present	Present	(1)-357	KE-34314	Present	May be used as a single component chemical under an appropriate group standard.
Forsterite	15118-03-3	239-169-2	Not specifically listed.	Not specifically listed.	Not specifically listed.	KE-17251	Not specifically listed.	Not specifically listed.
Akermanite	14567-90-9	235-227-6	Not specifically listed.	Not specifically listed.	Not specifically listed.	Not specifically listed.	Not specifically listed.	Not specifically listed.
Iron	7439-89-6	231-096-4	Present	Present	Not listed	KE-21059	Present	May be used as a single component chemical under an appropriate group standard.
Gehlenite	1302-56-3	231-900-3	Not specifically listed.	Not specifically listed.	Not specifically listed.	Not specifically listed.	Not specifically listed.	Not specifically listed.
Manganese oxide	1344-43-0	215-695-8	Present	Present	(1)-475	KE-23031	Present	HSR003775
Franklinite	12063-19-3	235-052-5	Present	Present	(1)-357; (1)-561	KE-10901	Present	HSR003104

SECTION 16. OTHER INFORMATION

Legend

: ACGIH: American Conference of Governmental Industrial Hygienists
AICS: Australian Inventory of Chemical Substances
CA: California
CAS: Chemical Abstract Services
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR: Code of Federal Regulations
CSA: Canadian Standards Association

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DOT: Department of Transportation
EC50: Effective Concentration 50%
EINECS: European Inventory of Existing Commercial chemical Substances
EPA: Environmental Protection Agency
HSDB: Hazardous Substances Data Bank
IARC: International Agency for Research on Cancer
IATA: International Air Transport Association
ICAO: International Civil Aviation Organisation
IECSC: Inventory of Existing Chemical Substances
IMDG: International Maritime Dangerous Goods
Inh: Inhalation
IOC: Inventory of Chemicals
ISHL: Industrial Safety Health Law
KECI: Korean Existing Chemicals Inventory
KECL: Korean Existing Chemicals List
LC: Lethal Concentration
LD: Lethal Dose
MA: Massachusetts
MN: Minnesota
N/Ap: Not Applicable
N/Av: Not Available
NIOSH: National Institute of Occupational Safety and Health
NJ: New Jersey
NOEC: No observable effect concentration
NTP: National Toxicology Program
OECD: Organisation for Economic Co-operation and Development
OSHA: Occupational Safety and Health Administration
PA: Pennsylvania
PEL: Permissible exposure limit
PICCS: Philippine Inventory of Chemicals and Chemical Substances
PNOR: Particulates Not Otherwise Regulated
PNOS: Particles Not Otherwise Specified
PPE: Personal Protective Equipment
RCRA: Resource Conservation and Recovery Act
RI: Rhode Island
RTECS: Registry of Toxic Effects of Chemical Substances
SARA: Superfund Amendments and Reauthorization Act
SCBA: Self-Contained Breathing Apparatus
SDS: Safety Data Sheet
STEL: Short Term Exposure Limit
TDG: Canadian Transportation of Dangerous Goods Act & Regulations
TLV: Threshold Limit Values
TSCA: Toxic Substance Control Act
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Identification System

References

1. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices for 2017.
2. International Agency for Research on Cancer Monographs, searched 2018.
3. Canadian Centre for Occupational Health and Safety, CCIInfoWeb databases, 2018 (Chempendium, HSDB and RTECs).
4. Material Safety Data Sheets from manufacturer.
5. US EPA Title III List of Lists - March 2015 version.
6. California Proposition 65 List - December 29, 2017 version.
7. OECD - The Global Portal to Information on Chemical Substances - eChemPortal, 2018.

Preparation Date (mm/dd/yyyy)

: 11/30/2017

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: 16/02/2018

Revision No. : 4

Revision Information : (M)SDS sections updated: 3. COMPOSITION/INFORMATION ON INGREDIENTS

Other special considerations for handling

: Provide adequate information, instruction and training for operators.

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