

Material Safety Data Sheet

WHMIS 	Protective Clothing 	TDG Road/Rail 
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Section I. Product Identification and Uses

Common/Trade name **Direct Reduced Iron (D.R.I.)**

Synonyms

Chemical name Not applicable.

Chemical formula Not applicable.

Chemical family Not available.

Supplier

Material uses Can be used to produce steel.

CI# Not available.

DSL CEPA DSL: No products were found.

CAS# Not applicable.

Code 10307 A

Molecular weight Not applicable.

Manufacturer

Section IA. First Aid Measures

Eye contact IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open. Get medical attention if irritation persists. IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open.

Skin contact Wash exposed area with soap and water. Get medical advice if irritation develops. Wash contaminated skin with soap and water.

Hazardous skin contact No additional information.

Slight inhalation Allow the victim to rest in a well-ventilated area. Seek immediate medical attention.

Hazardous inhalation Promptly move the victim to a safe area. If breathing is difficult, give oxygen. Immediately call for a physician.

Slight ingestion Not applicable.

Hazardous ingestion No additional information.

Section II. Hazardous Ingredients

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Name	CAS #	% by Weight	Exposure Limits	
			TLV/PEL	LC ₅₀ /LD ₅₀
Aluminium oxide	1344-28-1	0.5	10 mg/m3	
Calcium oxide	1305-78-8	0.7	2 mg/m3	
Carbon	7440-44-0	2 to 2.5		
Magnesium oxide	1309-48-4	0.5	10 mg/m3	
Manganese	7439-98-5	0.02	5 mg/m3	
Metallic iron	7439-89-6	84 to 85		
Phosphorus	7723-14-0	0.015	0.1 mg/m3	
Silicon dioxide	7631-86-9	2.4		
Sulphur	7704-34-9	0.006		
Titanium dioxide	13463-87-7	0.13	10 mg/m3	

Section III. Physical Data

Physical state and appearance	Solid spheres or fine gravel.	Color	Light grey.
pH (1% soln/water)	Not available.	Odor	Odorless.
Odor threshold	Not applicable.	Taste	Not available.
Volatility	Not applicable.		
Melting point	> 1500 °C		
Boiling point	2750 °C		
Specific gravity	1.85 to 1.96 metric ton/cubic meter.		
Vapor density	Not applicable.		
Vapor pressure	Not applicable.		
Evaporation rate	Not applicable.		
Viscosity	Not available.		
Water/oil dist. coeff.	Not available.		
Ionicity (surface active agent)	Not available.		
Critical temperature	Not available.		
Instability temperature	Not available.		
Conditions of instability	No additional remark.		
Dispersion properties	Not available.		
Solubility	Insoluble in cold or hot water.		

Section IV. Fire and Explosion Data

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The product is:	Moderate fire hazard in form of dust when exposed to heat or flame.
Auto-ignition temperature	> 315 °C
Fire degradation products	Some iron oxide fumes can be generated at high temperature melting.
Flash points	Not applicable.
Flammable limits	Not applicable.
Fire extinguishing procedures	Do not use water or carbon dioxide on a large pile. The only way to handle an ignited pile is to discharge the burning mass, divide it into small piles and flood them with water.
Flammability	Can react with water to liberate flammable hydrogen gas.
Risks of explosion	Moderate explosion hazard in form of dust when exposed to heat, flame or as a result of reoxidation in poorly ventilated space.

Section V. Reactivity Data

Stability	Stable under normal temperatures and pressures. Ultrafine (5 microns) powder forms are very unstable and can ignite spontaneously in air.
Hazardous decomp. products	None known.
Degradability	None known.
Products of degradation	May produce toxic iron oxide fumes when heated to decomposition. Not available.
Corrosivity	No specific information is available in our database regarding the corrosivity of this product in presence of various materials.
Reactivity	No specific information is available in our database regarding the reactivity of this material in presence of various other materials.

Section VI. Toxicological Properties

Routes of entry	Eye contact. Skin contact. Inhalation.
TLV	Iron oxide dust and fume (Fe ₂ O ₃) as Fe : 5 mg/m ³
Toxicity for animals	LD50: Not available. LC50: Not available.
Chronic effects on humans	Long term inhalation exposure to iron has resulted in mottling of the lungs, a condition referred to as siderosis. This is considered a benign pneumoconiosis and does not ordinarily cause significant physiological impairment. Persons with impaired respiratory function may more susceptible to the effects of the substance.
Acute effects on humans	There was no reports of adverse health effects from occupational oral exposure to elemental iron in the literature. Skin absorption and sensitisation of iron and iron oxide does not appear to be an issue from reviewing the toxicological literature. However, it will be able to be mechanical irritant on repeated exposure.

Section VII. Preventive Measures

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Waste disposal

Storage Pellets should be loaded, stored and transported under dry conditions. Use good housekeeping to minimize particulate accumulation.

Precautions Good general ventilation should be sufficient to control airborne levels.

Small spill and leak Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large spill and leak Contain spill, sweep up, collect and place in a disposal container.

Protective Clothing Wear appropriate respirator when ventilation is inadequate.

Section VIII. Classification

TDG road / rail Not controlled under TDG (Canada).



Not applicable.

WHMIS Not controlled under WHMIS (Canada).



Section IX. Protective Measures

Protective clothing Safety glasses. In work area, a dust respirator or if the exposure limit is exceeded, a full facepiece respirator with dust filter may be worn. Gloves and clothing sufficient to protect skin from dust.



Engineering controls A system of local and/or general exhaust is recommended to keep employee exposures below the airborne exposure limits. Good general ventilation should be sufficient to control airborne levels.

Section X. Other Information

References Répertoire toxicologique de la CSST.
Manufacturer's Material Safety Data Sheet.

No additional remark.

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