

Section 1. Chemical Product and Company Identification

Product name	Classification	Classification
Blueshield:	CSA:	AWS:
EXCELARC 18;	E48018/ E4918;	E7018;
LA 7018;	E48018-1/ E4918-1-H4;	E7018-1-H4;
LA 18 LMP;	E48018-1/ E4918-1-H4;	E7018-1-H4;
LA 18 PLUS;	E48018-1/ E4918-1-H4;	E7018-1-H4;
LA 18 PLUS LMP;	E48018-1/ E4918-1-H4;	E7018-1-H4;
NUCLEARC LA 7018;	E48018-1/ E4918-1-H4;	E7018-1-H4;
LA 7028;	E48028/ E4928;	E7028;
LA 18 PLUS COMPLETE;	E48018-1/ E4918-1-H4;	E7018-1-H4R;
Description	: SMAW - Low-Hydrogen Electrodes.	Generic Code : AL-J-002-0
In case of emergency	: 1-514-878-1667	Date of issue : 01/15/2011
Supplier	: Air Liquide Canada Inc. 1250, René-Lévesque West, Suite 1700, Montreal, QC H3B 5E6	

Section 2. Hazards Identification

Physical state and Appearance	: Solid.
Emergency overview	: These hazards relate to welding fumes (electrodes in use) and not to the electrodes as sold.
	<p>WARNING!</p> <p>ELECTRIC SHOCK can kill.</p> <p>FUMES AND GASES can be dangerous to your health.</p> <p>ARC RAYS can injure eyes and burn skin.</p> <p>MAY BE HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. CANCER HAZARD - CONTAINS MATERIAL WHICH CAN CAUSE CANCER.</p> <p>Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Use only with adequate ventilation. Do not eat, drink or smoke when using this product. Avoid contact with eyes, skin and clothing. Keep container tightly closed. Use personal protective equipment as required. Wash thoroughly after handling.</p>
Routes of entry	: Dermal contact. Eye contact. Inhalation.
Potential acute health effects	
Eyes	: Very hazardous by the following route of exposure: of eye contact (irritant). Inflammation of the eye is characterized by redness, watering and itching.
Skin	: Hazardous by the following route of exposure: of skin contact (corrosive, irritant, sensitizer). Skin contact may produce burns. Skin inflammation is characterized by itching, scaling, reddening or, occasionally, blistering.
Inhalation	: Hazardous by the following route of exposure: of inhalation (lung irritant).
Ingestion	: Since the product (welding fumes) is a gas and that it is mostly probable that it will be inhaled more than ingested, please consider first to look at the preventive measures in case of inhalation.
Potential chronic health effects	: Carcinogenic effects(*) : Classified 2B by IARC [Titanium dioxide]. Classified None. by NIOSH [Titanium dioxide]. Classified A4 by ACGIH [Titanium dioxide]. Classified A4 by ACGIH, 3 by IARC [Calcium fluoride]. Classified A4 by ACGIH [Zirconium]. Classified A4 by ACGIH [Aluminum Oxide]. Classified 1 by NTP, + by NIOSH Silica crystalline quartz Classified A2 by ACGIH, 2A by IARC Silica crystalline quartz Classified + by NIOSH [Nickel]. Classified 2B by IARC, Classified 2 by NTP [Nickel]. Classified A5 by ACGIH [Nickel].
	MUTAGENIC EFFECTS : Not available.
	TERATOGENIC EFFECTS : Not available.
Medical conditions aggravated by over-exposure	: Repeated exposure to the fumes emitted while using this material may produce general deterioration of health.
	(*) See Abbreviations (section 16).

Section 3. Composition, Information on Ingredients

Name	CAS #	% by weight	UN number
Iron	7439-89-6	45 - 70	Not regulated.
Titanium dioxide	13463-67-7	0.1 - 15	Not regulated.
Calcium Carbonate	471-34-1	0.01 - 15	Not regulated.
Calcium fluoride	7789-75-5	0.01 - 10	UN1740
Zirconium	7440-67-7	0.01 - 6	UN2858
Manganese	7439-96-5	0.01 - 4	Not regulated.
Ferrosilicon	8049-17-0	0.01 - 2.5	UN1408
Aluminum Oxide	1344-28-1	0.01 - 2	Not regulated.
Silica, Crystalline - Quartz	14808-60-7	0.1 - 1	Not regulated.
Nickel	7440-02-0	0.01 - 0.5	Not regulated.

The fumes emitted by the electrodes, in use, are hazardous. This MSDS is written for workers using these electrodes.

See Section 8 for Exposure Limits of the oxides found in the welding fumes.

Section 4. First Aid Measures

- Eye contact** : Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 20 minutes. Get medical attention immediately.
- Skin contact** : Wash with soap and water. Get medical attention if irritation develops.
- Inhalation** : If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
- Ingestion** : Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If potentially dangerous quantities of this material have been swallowed, call a physician immediately.

Section 5. Fire Fighting Measures

- Flammability of the product** : Non-flammable. Emits toxic fumes when heated.
- Explosibility** : Non-explosive in the presence of the following materials or conditions: open flames, sparks and static discharge, heat and shocks and mechanical impacts.
- Fire-fighting media and instructions** : Use extinguishing media suitable for surrounding materials.

Section 6. Accidental Release Measures

- Small/Large Spill and Leak** : Use appropriate tools to transfer the spilled solid to a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Section 7. Handling and Storage

- Handling** : Avoid breathing dusts, vapors or fumes from burning materials. Use only with adequate ventilation. Avoid contact with eyes, skin and clothing. Do not ingest. Keep container closed. Wash thoroughly after handling.
- Storage** : All filler metals in their original, unopened containers should be kept in a relatively dry storage area at temperatures between 15°C (60°F) and 30°C (80°F) and 50% maximum relative humidity.

Section 8. Exposure Controls, Personal Protection

- Engineering controls** : Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. If user operations generate dust, fumes or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal protection

- Eyes** : Safety glasses with side shields. Face shield with radiation shielding.
- Body** : Full suit. (Fire resistant.)
- Respiratory** : Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear a canister breathing apparatus (respirator) or a supplied-air respirator, when required, to weld in a confined space or when room exhaust or ventilation does not keep exposure below the acceptable values.
- Hands** : Gloves. (Fire resistant.)
- Feet** : Metal cap, safety boots.

Occupational exposure limits		TWA (8 hours)			STEL (15 mins)			Ceiling			
Ingredient	List name	ppm	mg/m ³	Other	ppm	mg/m ³	Other	ppm	mg/m ³	Other	Notations
Titanium dioxide	US ACGIH 2/2010	-	10	-	-	-	-	-	-	-	
	AB 4/2009	-	10	-	-	-	-	-	-	-	[3]
	BC 10/2009	-	3	-	-	-	-	-	-	-	[a]
	ON 7/2010	-	10	-	-	-	-	-	-	-	[b]
	QC 6/2008	-	10	-	-	-	-	-	-	-	[c]
	US ACGIH	-	10	-	-	-	-	-	-	-	[d]
aluminium oxide	AB 4/2009	-	10	-	-	-	-	-	-	-	[e]
	QC 6/2008	-	10	-	-	-	-	-	-	-	[d]
aluminium oxide, as Al Manganese, as Mn	US ACGIH 2/2010	-	0.2	-	-	-	-	-	-	-	[A]
	AB 4/2009	-	0.2	-	-	-	-	-	-	-	[A]
	BC 10/2009	-	0.2	-	-	-	-	-	-	-	[A]
	ON 7/2010	-	0.2	-	-	-	-	-	-	-	[A]
	QC 6/2008	-	1	-	-	3	-	-	-	-	[f][A]
Zirconium, as Zr	US ACGIH 2/2010	-	5	-	-	10	-	-	-	-	[B]
	AB 4/2009	-	5	-	-	10	-	-	-	-	[B]
	BC 10/2009	-	5	-	-	10	-	-	-	-	[B]
	ON 7/2010	-	5	-	-	10	-	-	-	-	[B]
	QC 6/2008	-	5	-	-	10	-	-	-	-	[B]
	US ACGIH 2/2010	-	2.5	-	-	-	-	-	-	-	[C]
calcium fluoride, as F	AB 4/2009	-	2.5	-	-	-	-	-	-	-	[C]
	BC 10/2009	-	2.5	-	-	-	-	-	-	-	[C]
	ON 7/2010	-	2.5	-	-	-	-	-	-	-	[D]
	QC 6/2008	-	2.5	-	-	-	-	-	-	-	[C]
	US ACGIH 2/2010	-	0.025	-	-	-	-	-	-	-	[g]
Quartz (SiO ₂)	AB 4/2009	-	0.025	-	-	-	-	-	-	-	[h]
	BC 10/2009	-	0.025	-	-	-	-	-	-	-	[i]
	ON 7/2010	-	0.1	-	-	-	-	-	-	-	[j]
	QC 6/2008	-	0.1	-	-	-	-	-	-	-	[k]
	US ACGIH 2/2010	-	1.5	-	-	-	-	-	-	-	[l]
	Nickel										

Nickel, as Ni	AB 4/2009	-	1.5	-	-	-	-	-	-	-	[E]
Nickel	BC 10/2009	-	0.05	-	-	-	-	-	-	-	[m]
	ON 7/2010	-	1	-	-	-	-	-	-	-	[m]
	QC 6/2008	-	1	-	-	-	-	-	-	-	[m]
Iron	US ACGIH	-	10	-	-	-	-	-	-	-	[n]
Calcium carbonate	AB 4/2009	-	10	-	-	-	-	-	-	-	[3]
	QC 6/2008	-	10	-	-	-	-	-	-	-	[d]

[3]Skin sensitization

Form: [a]Respirable dust [b]Total dust [c]total dust [d]Total dust. [e]Al [f]fume [g]Respirable fraction; see Appendix C [h]Respirable particulate [i]Respirable fraction: means that size fraction of the airborne particulate deposited in the gas-exchange region of the respiratory tract and collected during air sampling with a particle size-selective device that, (a) meets the ACGIH particle size-selective sampling criteria for airborne particulate matter; and (b) has the cut point of 4 µm at 50 per cent collection efficiency. [k]Respirable dust. [l]Inhalable fraction. See Appendix C, paragraph A. Inhalable Particulate Mass TLVs (IPM-TLVs) for those materials that are hazardous when deposited anywhere in the respiratory tract. [m]Inhalable fraction: means that size fraction of the airborne particulate deposited anywhere in the respiratory tract and collected during air sampling with a particle size-selective device that, (a) meets the ACGIH particle size-selective sampling criteria for airborne particulate matter; and (b) has the cut point of 100 µm at 50 per cent collection efficiency. [n]Inhalable particle.

Notes: [A]as Mn [B]as Zr [C]as F [D]as fluoride [E]as Ni

Section 9. Physical and Chemical Properties

Physical state and Appearance	: Solid.
Color	: Reddish-brown. Grayish-white.
Odor	: Odorless.
Melting/freezing point	: 1540 to 2030°C (2804 to 3686°F)
Specific gravity	: Not available.
Solubility	: Easily soluble in the following materials: Methanol, acetone. Insoluble in the following materials: cold water, hot water.

Section 10. Stability and Reactivity

Stability and reactivity	: The product is stable.
Hazardous decomposition products	: Metallic oxides. Carbon oxides (CO, CO ₂). Arc radiation can support the production of ozone and nitrogen oxides.
Hazardous polymerization	: Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological Information

Additional Toxicity data

Product/ingredient name	Result	Species	Dose	Exposure
Calcium carbonate	LD50 Oral	Rat	6450 mg/kg	-
Manganese	LD50 Oral	Rat	9 g/kg	-
calcium fluoride	LD50 Oral	Rat	4250 mg/kg	-

Chronic effects and other toxic effects on humans : **CARCINOGENIC EFFECTS:** See Section 2.
Contains material which causes damage to the following organs: blood, kidneys, lungs, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea.
Acute exposure to welding fumes may result in discomfort such as: dizziness, nausea or dryness of nose, throat or the eyes.

Section 12. Ecological Information

Ecotoxicity data

Product/ingredient name	Result	Species	Exposure
Iron	Acute LC50 33000 to 100000 ug/L Marine water	Crustaceans - Crangon crangon	48 hours
	Acute LC50 0.56 ppm Fresh water	Fish - Cyprinus carpio - Juvenile (Fledgling, Hatchling, Weanling) - 3.5 cm	96 hours
Titanium dioxide	Acute LC50 5.5 ppm Fresh water	Daphnia - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling) - <24 hours	48 hours
		Fish - Fundulus heteroclitus	96 hours
Calcium carbonate	Acute LC50 >1000000 ug/L Marine water	Daphnia - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling) - <24 hours	48 hours
		Fish - Gambusia affinis - Adult	96 hours
Manganese	Acute EC50 40000 ug/L Fresh water	Daphnia - Daphnia magna	48 hours
		Daphnia - Daphnia magna	48 hours
Nickel	Chronic NOEC 28000 ug/L Fresh water	Daphnia - Daphnia magna - <24 hours	48 hours
		Acute EC50 1000 ug/L Marine water	Crustaceans - Americamysis bahia - Juvenile (Fledgling, Hatchling, Weanling) - <48 hours
	Acute IC50 0.31 mg/L Marine water	Fish - Heteropneustes fossilis	96 hours
	Acute LC50 47.5 ng/L Fresh water		

Products of degradation : Decomposition products may include the following materials: carbon oxides (CO, CO₂), halogenated compounds. Some metallic oxides.

Section 13. Disposal Considerations

Waste information : Waste must be disposed of in accordance with federal, state and local environmental control regulations. Recycle, if possible.
Consult your local or regional authorities.

Section 14. Transport Information

No transport class is found applicable to this product.

Section 15. Regulatory Information

HCS Classification : These hazards relate to welding fumes (electrodes in use) and not to the electrodes as sold.

Irritating material
Sensitizing material
Carcinogen
Target organ effects

U.S. Federal regulations : **TSCA 8(a) IUR**: Partial exemption
United States inventory (TSCA 8b): All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: Titanium dioxide; calcium fluoride; Zirconium; Manganese; FERROSILICON; aluminium oxide; Calcium carbonate

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Iron: Fire hazard; Titanium dioxide: Immediate (acute) health hazard; calcium fluoride: Immediate (acute) health hazard; Zirconium: Fire hazard; Manganese: reactive, Immediate (acute) health hazard, Delayed (chronic) health hazard; FERROSILICON: Fire hazard, reactive; aluminium oxide: Immediate (acute) health hazard; Calcium carbonate: Immediate (acute) health hazard

Clean Water Act (CWA) 307: Copper; Nickel

SARA 313

Form R - Reporting requirements : Manganese 0.01 - 4
aluminium oxide 0.01 - 2
Nickel 0.01 - 0.5

Supplier notification : Manganese 0.01 - 4
aluminium oxide 0.01 - 2
Nickel 0.01 - 0.5

State regulations : **Massachusetts** : The following components are listed: TITANIUM DIOXIDE; ALUMINUM OXIDE; MANGANESE; ZIRCONIUM
New York : The following components are listed: Nickel
New Jersey : The following components are listed: TITANIUM DIOXIDE; TITANIUM OXIDE (TiO₂); ALUMINUM OXIDE; alpha-ALUMINA; FERROSILICON; FERROCERIUM; MANGANESE; ZIRCONIUM; SILICA, QUARTZ; QUARTZ (SiO₂); NICKEL
Pennsylvania : The following components are listed: TITANIUM OXIDE (TiO₂); ALUMINUM OXIDE (AL₂O₃); MANGANESE; ZIRCONIUM; QUARTZ (SiO₂); NICKEL

WARNING: This product contains a chemical known to the State of California to cause cancer.

WHMIS (Canada) : These hazards relate to welding fumes (electrodes in use) and not to the electrodes as sold.

Class D-2A: Material causing other toxic effects (Very toxic).

Class D-2B: Material causing other toxic effects (Toxic).

CEPA Toxic substances: The following components are listed: Calcium fluoride

Canadian ARET: None of the components are listed.

Canadian NPRI: The following components are listed: Calcium fluoride; Manganese; Aluminum Oxide

Alberta Designated Substances: None of the components are listed.

Ontario Designated Substances: None of the components are listed.

Quebec Designated Substances: None of the components are listed.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Section 16. Other Information

Label requirements : See Section 2.

Hazardous Material Information System (U.S.A.) : Health: 2* Fire: 0 Reactivity: 0

National Fire Protection Association (U.S.A.) : Health: 2 Fire: 0 Reactivity: 0 Other: None

References : - 29CFR Part1910.1200 OSHA MSDS Requirements. - 49CFR Table List of Hazardous Materials, UN#, Proper Shipping Names, PG. - Canadian Transport of Dangerous Goods, Regulations and Schedules, Clear Language version 2005. - CRC Handbook of chemistry and physics, 67th edition. CRC Press inc., Boca Raton, Florida. - Manufacturer's Material Safety Data Sheet. ANSI Z400.1, MSDS Standard, 2004. ANSI Z49.1 Safety in Welding and Cutting, The American Welding Society, P.O. Box 351040, Miami, FL 33135. Canadian Standard Association, CSA W117.2, Code for Safety in Welding and Cutting, 2003.

Abbreviations and acronyms : **ACGIH: American Conference of Governmental Industrial Hygiene.**
ACGIH-A1-Confirmed Human Carcinogen.
ACGIH A2--Suspected Human Carcinogen.
ACGIH-A3-Animal Carcinogen.
ACGIH-A4-Not Classifiable as a Human Carcinogen.
ACGIH-A5-Not suspected as a Human Carcinogen.
IARC: International Agency for Research on Cancer.
IARC 1: Proven.
IARC 2B: Possible for human.
IARC 3: Not classifiable for human.
NIOSH: National Institute of Occupational Safety and Health.
NIOSH +: Proven.
NIOSH: None.
European Union
3: Possible for human.
NTP: National Toxicology program.
NTP 2: Reasonably Anticipated to be human carcinogens.

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