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## 1. PRODUCT AND COMPANY IDENTIFICATION

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**PRODUCT NAME:** Aluminum fluoride.

**PRODUCT NUMBER:** 000069 (A0020)

**SUPPLIER:** Rio Tinto Alcan (RTA)  
Primary Metal  
1188 Sherbrooke West  
Montréal, Québec H3A 3G2  
Canada

**Emergency phone :** 1-800-567-7455 \*  
**Phone :** 514 848-8000  
**Fax :** 514 848-8115/8116

\* Please call collect for outside calls of North America.

<http://www.msds.riotintoalcan.com/>

**SYNONYMS:** Aluminum trifluoride.

**APPEARANCE AND ODOUR:** Off-white granules.

**USES:** Electrolytes for the reduction of alumina to aluminum. Flux for metal refining and remelting. Manufacturing of glass and abrasives.

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## 2. COMPOSITION / INFORMATION ON INGREDIENTS

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NAME	CAS #	LD <sub>50</sub>	LC <sub>50</sub>	CONC.
Aluminum fluoride	7784-18-1	1800 mg/kg	Unknown	91 - 92%
Aluminum oxyde	1344-28-1	Unknown	Unknown	6 - 7 %
Total sodium (as Na <sub>2</sub> O)	7440-23-5	Unknown	Unknown	0.15 – 0.50%
Total Sulfur (as SO <sub>4</sub> )	-----	Unknown	Unknown	0.3 - 0.6%
Silicates (as SiO <sub>2</sub> )	-----	Unknown	Unknown	0.2% - 0.4 %

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## 3. HAZARDS IDENTIFICATION

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May emit toxic and corrosive gases at high temperatures. If a spill occurs, there is a surface water contamination hazard.

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## 4. FIRST AID MEASURES

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**INHALATION:** If overcome by high dust concentrations, remove to a ventilated area. If discomfort persists, consult a physician.

**SKIN CONTACT:** Wash skin thoroughly with soap and water.

**EYE CONTACT:** Flush eyes thoroughly with water, taking care to rinse under eyelids. If irritation persists, continue flushing for 15 minutes, rinsing from time to time under eyelids. If discomfort continues, consult a physician.

**INGESTION:** Induce vomiting if conscious. Ingest soluble calcium in any form: milk, calcium gluconate solution or calcium lactate solution or tablets of calcium carbonate.

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## 5. FIRE-FIGHTING MEASURES

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	Non combustible.
<b>EXTINGUISHING MEDIA:</b>	In case of fire do not spray water directly on product.
<b>HAZARDOUS COMBUSTION PRODUCTS:</b>	Not applicable

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## 6. ACCIDENTAL RELEASE MEASURES

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Clean up with vacuum equipment or by wet sweeping in order to avoid spreading dust. In case of contact with acids, maintain high pH by mixing with slaked lime.

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## 7. HANDLING AND STORAGE

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<b>HANDLING PRECAUTIONS:</b>	Avoid generating dust during handling. Promote personal hygiene among workers handling this material. Do not smoke, drink or eat in the working area.
<b>STORAGE CONDITIONS:</b>	Store away from strong acids and intense heat.

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## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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Provide general and local ventilation to maintain concentrations of air contaminants below recommended standards. Eye protection (goggles) and respiratory protection (mask or full-face respirator against the concerned hazard) should be provided if excessive dust concentrations occur.

### Exposure limits:

	ACGIH (TLV)		OSHA (PEL)	
	TWA	STEL	TWA	CEILING
Fluorides (as F)	2.5 mg/m <sup>3</sup>	None	2.5 mg/m <sup>3</sup>	None
Aluminum oxide (total dust)	10 mg/m <sup>3</sup>	None	15 mg/m <sup>3</sup>	None
- Respirable dust	None	None	5 mg/m <sup>3</sup>	None

(ACGIH = American Conference of Governmental Industrial Hygienists; TLV = Threshold Limit Value; OSHA = Occupational Safety and Health Administration [USA]; PEL = Permissible Exposure Limit; TWA = Time-Weighted Average; STEL = Short Term Exposure Limit; Ceiling = Ceiling value)

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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<b>PH:</b>	Not applicable	<b>FLASHPOINT:</b>	Not applicable
<b>BOILING POINT:</b>	Not applicable	<b>AUTOIGNITION TEMPERATURE:</b>	Not applicable
<b>MELTING POINT:</b>	1040°C	<b>LOWER FLAMMABLE LIMIT:</b>	Not applicable
<b>VAPOUR PRESSURE:</b>	Not applicable	<b>HIGHER FLAMMABLE LIMIT:</b>	Not applicable
<b>VAPOUR DENSITY (AIR = 1):</b>	Not applicable	<b>EXPLOSIVE PROPERTIES:</b>	Not applicable
<b>EVAPORATION RATE:</b>	Not applicable	<b>NFPA FIRE CODE:</b>	0
<b>RELATIVE DENSITY (WATER = 1):</b>	3.1	<b>OXIDIZING PROPERTIES:</b>	Not applicable
<b>WATER SOLUBILITY:</b>	Insoluble	<b>PARTITION COEFFICIENT (N-OCTANOL/WATER):</b>	Not determined
<b>ODOUR THRESHOLD:</b>	Not determined		
<b>ODOUR THRESHOLD:</b>	Not determined		

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## 10. STABILITY AND REACTIVITY

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**STABLE (YES/NO):** Yes

**CONDITIONS AND MATERIAL TO AVOID:** Avoid contact with strong acids and intense heat.

**HAZARDOUS DECOMPOSITION PRODUCTS:** May emit fluoride fumes and hydrogen fluoride, a toxic and corrosive gas, on contact with strong acids or if heated to decomposition. May emit toxic fluorides if strongly heated in the presence of water.

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## 11. TOXICOLOGICAL INFORMATION

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**ROUTES OF EXPOSURE:**

**INHALATION:** Yes

**INGESTION:** No

**EYE CONTACT:** Yes

**SKIN CONTACT:** Yes

**SKIN ABSORPTION:** No

**ACUTE EFFECTS:**

**INHALATION:** Acute overexposure can cause respiratory tract irritation and nausea.

**SKIN CONTACT:** Prolonged or repeated contact may lead to irritation.

**EYE CONTACT:** Irritation.

**INGESTION:** Can cause diffuse abdominal pain, diarrhoea, vomiting, excessive salivation, thirst, perspiration, painful spasms of the limbs and in some cases, albuminuria. Hypocalcemia at high dose.

Lethal dose: 1 - 4 g.

**CHRONIC EFFECTS:**

Prolonged overexposure to fluorides may increase fluoride content of bones and teeth, and may result in fluorosis, with mottling of teeth (in children) and brittleness of bones. Respiratory diseases.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE TO THE PRODUCT:** Respiratory diseases.

**CARCINOGENICITY / MUTAGENICITY / REPRODUCTIVE TOXICITY:**

None of the ingredients present at concentrations equal to or greater than 0.1% are listed as a carcinogen or potential carcinogen by IARC, NTP or OSHA.

[ IARC = International Agency for Research on Cancer; NTP = National Toxicology Program (USA); OSHA = Occupational Safety and Health Administration (USA)]

**Supplementary information:** A recommended practice for persons with continual high exposure to this dust is, aside from appropriate protective clothing and use of a NIOSH-approved respiratory protective device, to undergo a periodic medical examination which includes measurement of urinary fluoride levels. (NIOSH = National Institute for Occupational Safety and Health) ACGIH (American Conference of Governmental Industrial Hygienists) recommends that pre-shift urinary fluorides levels should not exceed 3 mg/g of creatinine and post-shift should not exceed 10 mg/g of creatinine for an 8 hour shift.

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## 12. ECOLOGICAL INFORMATION

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If a spill occurs, there is a surface water contamination hazard. Avoid contaminating surface water, waterways or sewers leading to surface water.

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## 13. DISPOSAL CONSIDERATIONS

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Recycle if possible. Waste should be tested to determine their hazardous characteristics. Do not incinerate. Use disposal methods which prevent leaching. Dispose of waste in accordance with federal, state, or local regulations.

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## 14. TRANSPORT INFORMATION

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TDGR: not regulated CFR 49: not regulated IMO: not regulated ICAO: not regulated IATA: not regulated

[TDGR = Transport of Dangerous Good Regs.(Canada). CFR 49 = Code of Federal Regs.(USA). IMO = International Maritime Organization. ICAO = International Civil Aviation Organization. IATA = International Air Transport Association]

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## 15. REGULATORY INFORMATION

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**WHMIS CLASSIFICATION (CANADA):** D2B Toxic material causing other toxic effects.

**EUROPEAN UNION CLASSIFICATION:**

**WARNING SYMBOL:** None

**WARNING WORD:** None

**RISK PHRASES:** None

**SAFETY PHRASES:** None

### USA REGULATIONS :

#### Section 313 Supplier Notification

This product does not contain any chemicals in concentrations subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (Title III of SARA) and of 40 CFR 372.

#### **TSCA - DSL [USA - Canada]**

This substance or all the ingredients of this product are on the Domestic Substances List (DSL - Canadian Environmental Protection Act [Canada]) as well as on the Chemical Substances Inventory of the Toxic Substances Control Act (TSCA Inventory [USA]). The presence on these lists does not require any legal reporting.

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## 16. OTHER INFORMATION

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**National Fire Protection Agency (NFPA) codes - (Health, flammability, reactivity) :** 1, 0, 0

**Hazardous Material Information System (HMIS)- (Health, flammability, reactivity) :** 1, 0, 0

### ABBREVIATIONS:

WHMIS = Working hazardous material information system. CAS number = Chemical Abstracts Service Registry Number.  
LD<sub>50</sub> = Lethal dose 50%; LC<sub>50</sub> = Lethal concentration 50%; LCL<sub>0</sub> = Lowest published lethal concentration. EU = European Union.

**\* Although the information in this SDS was obtained from sources which we believe to be reliable, it cannot be guaranteed. In addition, this information may be used in a manner beyond our knowledge or control. The information is therefore provided for advice purposes only, without any representation or warranty express or implied. \***

Prepared by Rio Tinto Alcan Toxicology Service  
P.O. Box 1500, Jonquière (Quebec)  
Canada, G7S 4L2

Phone: 418-699-2707  
Fax: 418-699-2993  
E-mail: servicetoxico@alcan.com

**DATE OF THE PREVIOUS REVISION:** 2005-07-44

**REASON FOR REVISION:** Modification in section 1.