
1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Aluminum Dross – DURALCAN

PRODUCT NUMBER: 000157 (P6265)

SUPPLIER: Rio Tinto Alcan (RTA)
 Primary Metal
 Dubuc Works
 2040, Chemin de la Réserve
 Chicoutimi, Québec
 Canada G7H 5B3
 * Please call collect for outside calls of North America.

Emergency phone : 1-800-567-7455*
 Phone : 418-699-6305
 Fax : 418-699-6357

SYNONYMS: Dross (remelt aluminum) from plasma process.

APPEARANCE AND ODOUR: Metallic-grey solid with an ammonia odour.

USES: Process by-product to be recycled. Hot top on steel product

2. COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS #	LD ₅₀	LC ₅₀	CONC.
Aluminum oxide	1344-28-1	Unknown	Unknown	10 - 50%
Silicon carbide	409-21-2	Unknown	Unknown	1 - 30%
Aluminum	7429-90-5	Unknown	Unknown	10 - 90%
Aluminum carbide	1299-86-1	Unknown	Unknown	< 5%
Aluminum nitride	24304-00-5	Unknown	Unknown	2 - 10%
Magnesium oxide	1309-48-4	Unknown	Unknown	< 5%
Petroleum oil	-----	None	None	< 5%
Beryllium	7440-41-7	Unknown	Unknown	< 0.001%
<u>Possible alloying metals</u>				
Copper	7440-50-8	Unknown	Unknown	< 5%
Magnesium	7439-95-4	Unknown	Unknown	< 5%
Zinc	7440-66-6	Unknown	Unknown	< 10%
Iron	7439-89-6	30 g/kg(oral-rat)	Unknown	< 2%
Manganese	7439-96-5	9000 mg/kg (oral-rat)	Unknown	< 2%
Silicon	7440-21-3	3160 mg/kg (oral-rat)	Unknown	< 15%
Chromium	7440-47-3	Unknown	Unknown	< 0.5%
Nickel	7440-02-0	Unknown	Unknown	< 2%

3. HAZARDS IDENTIFICATION

On contact with water, basic or acidic solutions, releases toxic and flammable gases which may cause explosion. If a spill occurs, there is a surface water contamination hazard. Beryllium may induce sensitization and cause a serious chronic lung disease.

4. FIRST AID MEASURES

In case of dust exposure:

INHALATION: If overcome by vapours or dust, remove to a ventilated area.

SKIN CONTACT: Wash skin thoroughly with soap and water.

EYE CONTACT: Flush eyes thoroughly with water for at least 15 minutes, keeping the eyelids opened to assure a complete rinsing.

INGESTION: Give one or two glasses of water or milk. Do not induce vomiting. Call a physician.

5. FIRE-FIGHTING MEASURES

Combustible.

EXTINGUISHING MEDIA: Never use water. The reaction with water will emit toxic ammonia and explosive gases. Use extinguishing media of a class D fire (sand, graphite, salt). Spread the product outside and cover with sand. Wear a self-contained breathing apparatus if necessary.

HAZARDOUS COMBUSTION PRODUCTS: Not applicable

6. ACCIDENTAL RELEASE MEASURES

Contain and collect, using methods which do not result in environmental contamination. **Small spills :** Keep the material dry. Store in closed, unsealed containers. **Large spills :** Recycle uncontaminated portion and place the remaining dry material in covered ventilated containers, away from water and humidity. If wet, do not store in airtight containers.

7. HANDLING AND STORAGE

HANDLING PRECAUTIONS: Keep the material dry. Avoid eye and skin contact.

STORAGE CONDITIONS: Store in a dry, well-ventilated area, and sheltered from precipitation at any time (storage, handling, transportation). Put in dry containers, non-airtight, away from acids, bases and oxidising agents. Due to the reactivity of the product, it is important to ensure sufficient circulation of air at all times. This will maintain gas concentrations well below the lower explosive limit (LEL).

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Provide general and local ventilation to maintain concentrations of air contaminants below recommended standards. Use an approved respirator designed for the hazard, where concentrations exceed exposure limits. Wear appropriate protective clothing to avoid contact with wet skin. Eye protection (goggles) and respiratory protection (mask or full-face respirator against the concerned hazard) should be provided if excessive dust concentrations occur. Good housekeeping and industrial hygiene practices are recommended where employees are exposed to beryllium levels above the 0.1 µg/m³ or where the potential exists for significant skin contact with dusts containing beryllium. In this case, clean work clothing should be provided and contact with personal clothing must be avoided. Access to beryllium work area should be restricted.

EXPOSURE LIMITS:

	ACGIH (TLV)		OSHA (PEL)	
	TWA	STEL	TWA	CEILING
Aluminum oxide (total dust)	10 mg/m ³	None	15 mg/m ³	None
- Respirable dust	None	None	5 mg/m ³	None
Silicon carbide (tot. dust)	10 mg/m ³	None	15 mg/m ³	None
- Respirable dust	3 mg/m ³	None	5 mg/m ³	None
Aluminum (total dust)	10 mg/m ³	None	5 mg/m ³	None
Ammonia (NH ₃)	25 ppm	35 ppm	None	35ppm
Magnesium oxide (Total dust)	10 mg/m ³	None	15 mg/m ³	None
Copper (fume)	0.2 mg/m ³	None	0.1 mg/m ³	None
- dust	1.0 mg/m ³	None	1.0 mg/m ³	None
Zinc, oxide- (fume)	None	None	5 mg/m ³	None
- total dust	None	None	15 mg/m ³	None
- respirable dust	2 mg/m ³	10 mg/m ³	5 mg/m ³	None
Ferric oxide (fume, dust)	5 mg/m ³	None	10 mg/m ³	None
Manganese (as Mn and compounds)	0.2 mg/m ³	None	None	None
- Fume	None	None	None	5 mg/m ³
Silicon (total dust)	10 mg/m ³	None	15 mg/m ³	None
- respirable dust	None	None	5 mg/m ³	None
Chromium (metal)	0.5 mg/m ³	None	1.0 mg/m ³	None
Nickel (total dust)	1.5 mg/m ³	None	1.0 mg/m ³	None
Beryllium (Be) *	0.002 mg/m ³	0.01 mg/m ³	0.002 mg/m ³	0.005 mg/m ³

COSHH Regulation 7 (UK)

Nickel

0.5 mg/m³

(Ref: COSHH General Approved Code of Practice and HSE Guidance Note EH 40 – UK)

* DOE (Dept. of Energy, USA) has set an exposition limit value (TWA - 8 hour) of 0.0005 mg/m³ of air for workers exposure.

(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; C = Ceiling value)

9. PHYSICAL AND CHEMICAL PROPERTIES

PH:	Not applicable	FLASHPOINT:	Not applicable
BOILING POINT:	Not determined	AUTOIGNITION TEMPERATURE:	Not determined
MELTING POINT:	Not applicable	LOWER FLAMMABLE LIMIT:	Not applicable
VAPOUR PRESSURE:	Not applicable	HIGHER FLAMMABLE LIMIT:	Not applicable
VAPOUR DENSITY (AIR = 1):	Not applicable	EXPLOSIVE PROPERTIES:	Not determined
EVAPORATION RATE:	Not applicable	NFPA FIRE CODE:	1
RELATIVE DENSITY (WATER = 1):	Approx. 2.2	OXIDISING PROPERTIES:	Not determined
WATER SOLUBILITY:	Not determined	PARTITION COEFFICIENT (N-OCTANOL/WATER):	Not determined
ODOUR THRESHOLD:	0.04 - 53 ppm (ammoniac)		

10. STABILITY AND REACTIVITY**STABLE (YES/NO):** No**CONDITIONS AND MATERIAL TO AVOID:**

Avoid contact with water or humidity because wet or hot material generates flammable and toxic gases. Reacts with strong basic solutions (eg.: caustic, sodium or potassium hydroxide). Reacts with strong acidic solutions (eg.: sulfuric, hydrochloric, nitric acids).

HAZARDOUS DECOMPOSITION PRODUCTS:

In the form of particles, aluminum reacts with water, strong basic solutions, strong acidic solutions, halogenated acids (eg.: hydrofluoric acid), producing flammable hydrogen gas. When hot or wet, may evolve flammable and toxic gases (hydrogen, methane, ammonia) and the heat of reaction can be sufficient to ignite them, if in confined space. Reacts with chlorine at temperatures above 700°C, forming carbon and silicon tetrachlorides. Reacts with metal oxides (calcium, magnesium, copper) at temperatures above 800°C, forming metal silicides.

11. TOXICOLOGICAL INFORMATION**ROUTES OF EXPOSURE:**

INHALATION:	Yes	INGESTION:	Yes		
EYE CONTACT:	Yes	SKIN CONTACT:	Yes	SKIN ABSORPTION:	No

ACUTE EFFECTS:**INHALATION:**

Dust may irritate the respiratory system, and result in difficulty of breathing. Overexposure to dust and fumes containing beryllium may cause inflammation of the lung tissues. If high concentrations of ammonia are emitted, they can cause bronchospasm, dyspnea and chest pain. High concentrations of freshly-formed fumes of copper, magnesium, manganese or zinc oxides can produce symptoms of metal fume fever. High concentrations of copper dust can cause irritation of the upper respiratory tract.

SKIN CONTACT:

Irritation may occur on contact with moist skin. Beryllium in dust may gain entrance under the skin through superficial cuts and abrasions, with the potential to induce sensitization and to cause dermatitis (Granulomas).

EYE CONTACT:

Irritation.

INGESTION:

Irritation of gastro-intestinal tract.

CHRONIC EFFECTS:**INHALATION:**

High concentrations of manganese dust can affect the central nervous system (apathy, drowsiness, weakness and other symptoms resembling to Parkinson's disease). Product which has been heated at temperatures greater than 900°C may undergo partial conversion to cristobalite, a form of crystalline silica which can cause pneumoconiosis. The amount formed depends on the temperature and length of service. High exposure to beryllium caused by dust and fumes inhalation may cause sensitization. Beryllium sensitization may result in a serious progressive chronic lung disease called Chronic Beryllium Disease (CBD) or berylliosis. This allergic condition in which the lung tissues become inflamed, may be accompanied with pulmonary fibrosis.

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

CARCINOGENICITY / MUTAGENICITY / REPRODUCTIVE TOXICITY:

Nickel, chromium and some of their compounds are listed in the current "Annual Report on Carcinogens" prepared by the "National Toxicology Program" (NTP).

IARC lists beryllium as a group 1 – Known Human Carcinogen. NTP lists beryllium as reasonably anticipated to be a human carcinogen. ACGIH lists beryllium as an A1 – Confirmed Human Carcinogen.

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

SUPPLEMENTARY INFORMATION:

Medical surveillance for beryllium is recommended for employees exposed to concentration higher than 0.1 µg/m³.

12. ECOLOGICAL INFORMATION

If a spill occurs, there is a surface water contamination hazard. The reaction with water will emit toxic ammonia and explosive gases.

13. DISPOSAL CONSIDERATIONS

Recycle if possible. Dispose of waste in accordance with federal, state, or local regulations.

UNITED KINGDOM REGULATIONS :

Dispose of waste in accordance with the Waste Management Licensing Regulations 1996 (SI 1996 No. 634) as amended in 1997 (SI 1997 No. 2203).

14. TRANSPORT INFORMATION

Put in dry and non-airtight containers. **Never transport when hot or wet.** Keep dry and sheltered from precipitation at any time (storage, handling, transportation). Due to the reactivity of the product, it is important to ensure sufficient circulation of air at all times. This will maintain gas concentrations well below the lower explosive limit (LEL).

International maritime and air transport, and Canadian land transport :

Identification number: UN3170 ALUMINUM SMELTING BY-PRODUCTS

Classification: 4.3 "Dangerous when wet" IMO: 4.3 (HMB; Hazardous Material in Bulk)

ICAO: 4.3 IATA: 4.3 Packing group: II

(IMO=International Maritime Organization; ICAO=International Civil Aviation Organization; IATA=International Air Transport Association)

NOTE: Rail transport is possible only via special permit #SP4406 - Dross in vented box car.

Transport in United Kingdom :

Identification number : UN3170 ALUMINUM SMELTING BY-PRODUCTS

Classification: 4.3 "Dangerous when wet"

Trailers to be marked in accordance with Carriage of Dangerous Goods by Road and Rail (Classification, Packaging and Labelling) Regulations 1994 (SI 1994 No. 669) commonly referred to as CDG-CPL system. Vehicles should be marked with "Dangerous when wet" signs (blue diamond) and carry ADR placards front and back. Drivers of vehicles carrying dross to carry Tremcard (Transport Emergency Card) and written confirmation of training in accordance with The Road Traffic (Training of Drivers of Vehicles carrying Dangerous Goods) Regulations 1992 (SI 1992 No. 774).

Transport in USA :

Identification number: UN 3170 ALUMINUM SMELTING BY-PRODUCTS

Classification: 4.3 "Dangerous when wet"

Packaging Group: II

Maritime transportation in bulk:

- Notify the nearest Coast Guard Ship Safety office at least seven (7) days before loading.
- The material must always be handled and stored in weather-proof areas.
- During at least three days before shipping the material must be continuously stored in weather-proof areas but exposed to air. During this period, the sizing of the particles must not be changed by handling or mechanical process.
- Provide to both the Master and the Ship Safety Branch of the Coast Guard a shipper's declaration including all safety precautions to be followed during loading and carriage of the material.
- The vessels are to be provided with mechanical explosion proof fans capable of providing five (5) air changes per hour (based on the empty cargo hold space) and of preventing any escaping gases to reach living quarters or working areas. These fans must operate continuously.
- During loading, "NO SMOKING" signs are to be posted on decks and in areas adjacent to cargo compartments.

15. REGULATORY INFORMATION

WHMIS CLASSIFICATION (CANADA):

D2 Material causing other toxic effects.
F Dangerously reactive material.

Export and import of Hazardous Waste : a notice shall be given by exporter or importer, in compliance with the Canadian Environmental Protection Act.

Hazardous Waste Regulation (Quebec): This product is classified as a hazardous waste in accordance to this regulation.

EUROPEAN UNION CLASSIFICATION:**WARNING SYMBOL:**

Xi

WARNING WORD:

Irritant

RISK PHRASES:

R15/29: Contact with water liberates toxic, highly flammable gases. R18 : In use, may form flammable/explosive vapour-air mixture. R23 : Toxic by inhalation. R36/38 : Irritating to eyes and skin.

SAFETY PHRASES:

S3/9 : Keep in a cool, well ventilated place. S24/25 Avoid contact with skin and eyes. S56 : Do not discharge into drains or the environment, dispose to an authorised waste collection point.

USA REGULATIONS :

This product may contain lead. Any process resulting exposure to more than 0.5 mg/m³ of metal dust day may result in a daily dose of lead of over 0.5 µg/day, the dose above which the "California Safe Drinking Water and Toxic Enforcement Act" of 1986 requires notification. Refer to the appropriate regulation notification wording guidelines.

Section 313 Supplier Notification

This product contain the following toxic chemical(s) 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. (This information must be included in all SDSs that are copied and distributed for this material).

Chemical Name	CAS #
Manganese	7439-96-5
Chromium	7440-47-3
Nickel	7440-02-0
Copper	7440-50-8
Zinc compound	-----

Supplier notification:

This product contains trace amounts of beryllium. Any process resulting in dust exposure may result in a daily dose of beryllium of over 0.1 µg/day, the dose above which the "California Safe Drinking Water and Toxic Enforcement Act of 1986 requires notification. Refer to the appropriate regulation notification wording guidelines.

16. OTHER INFORMATION

ABBREVIATIONS:

WHMIS = Working hazardous material information system. CAS number = Chemical Abstracts Service Registry Number.
LD₅₀ = Lethal dose 50%; LC₅₀ = Lethal concentration 50%; LCL₀ = 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. ***

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Aluminum Dross - DURALCAN

DATE OF THE PREVIOUS REVISION: 2006-07-12

REASON FOR REVISION: Modification in section 1.