

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : Titanium & alloys

PRODUCT NUMBER : P6337

SUPPLIER : 0804001
 Metal Goods Service Centers
 Div. of Alcan Aluminum Corporation
 P.O. Box 346
 St-Louis, MO, 63166

Emergency tel. : 216-523-6860
 Business tel. : 314-427-1234
 Fax : 314-427-4321 (221)

SYNONYMS : Titanium CP, titanium 6-4, etc.

APPEARANCE AND ODOUR : Grey-black odorless solid

USES : Primary metal

2. COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS #	LD ₅₀	LC ₅₀	EC DIRECTIVE Symbol	R phrases	CONC.
Titanium	7440-32-6	Unknown	Unknown	None	None	46-99 %
Alloying elements :						
Aluminum	7429-90-5	Unknown	Unknown	None	None	0-6 %
Vanadium	7440-62-2	59 mg/kg (s-cut.-rabbit)	Unknown	Unknown	None	None 0-10 %
Iron	7439-89-6	Unknown	Unknown	None	None	0-48 %
Molybdenum	7439-78-7	Unknown	Unknown	None	None	0-6 %
Tin	7440-31-5	Unknown	Unknown	None	None	0-5 %
Zirconium	7440-67-7	Unknown	Unknown	None	None	0-4 %
Manganese	7439-96-5	9000 mg/kg (oral-rat)	Unknown	None	None	0-5 %
Tantalum	7440-25-7	Unknown	Unknown	None	None	< 1 %
Titanium Alloys 6-2-2-2 + 5-2-2-4-4 + 3-8-6-4-4 :						
Chromium	7440-47-3	Unknown	Unknown	Not classified		2-6 %
Titanium Alloys 2.5 + 6-2-1-1 :						
Copper	7440-50-8	Unknown	Unknown	None	None	2-2.5 %
Titanium Alloys 0.3-0.8 :						
Nickel	7440-02-0	9000 mg/kg (oral-rat)	Unknown	Xn	40-43	0.8 %

3. HAZARDS IDENTIFICATION

Not hazardous.

4. FIRST AID MEASURES

Inhalation : In case of discomfort, remove to a ventilated area. 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 :** Not applicable.

5. FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA : This product does not burn. However, grinding or polishing this product in the absence of oxygen, such as under water, can result in a finely divided waste which is ignitable. If ignitable waste is generated, special precautions and fire-fighting procedures should be followed. Dry chemical powders, salts or inert gas. Do not use water on molten metal : explosion hazard could result.

HAZARDOUS COMBUSTION PRODUCTS : Not applicable.

6. ACCIDENTAL RELEASE MEASURES

Recycle if possible.

7. HANDLING AND STORAGE

HANDLING PRECAUTIONS : Grinding or polishing this product in the absence of oxygen, such as under water, can result in a finely divided waste which is ignitable.

STORAGE CONDITIONS : Not applicable.

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 goggles, as necessary.

EXPOSURE LIMITS :

(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)

	ACGIH (TLV)		OSHA (PEL)	
	TWA	STEL	TWA	Ceiling
Iron oxide, fume dust	5 mg/m ³ None	None None	10 mg/m ³ 10 mg/m ³	None None
Chromium metal	0.5 mg/m ³	None	1.0 mg/m ³	None
Tin metal & oxide (As Sn)	2 mg/m ³	None	2 mg/m ³	None
Aluminum (tot. dust)	10 mg/m ³	None	15 mg/m ³	None
-Fume, powder, resp. dust	5 mg/m ³	None	5 mg/m ³	None
Zirconium compounds (As Zr)	5 mg/m ³	10 mg/m ³	5 mg/m ³	None
Nickel metal	1.0 mg/m ³	None	1 mg/m ³	None
Manganese (dust)	5 mg/m ³	None	5 mg/m ³	5 mg/m ³ -ceiling
(fumes)	1 mg/m ³	3 mg/m ³	5 mg/m ³	5 mg/m ³
Molybdenum (tot.dust)	None	None	15 mg/m ³	None
- Soluble compounds	5 mg/m ³	None	5 mg/m ³	None
- Insoluble compounds	10 mg/m ³	None	None	None
Vanadium (V ₂ O ₅)- resp. dust	0.05 mg/m ³	None	0.5 mg/m ³	0.5 mg/m ³
fume (as V ₂ O ₅)	0.05 mg/m ³	None	0.1 mg/m ³	0.1 mg/m ³
Tantalum (metal & oxyde)	5 mg/m ³	None	5 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

9. PHYSICAL AND CHEMICAL PROPERTIES

pH : Not applicable.	flashpoint : Not applicable.
boiling point : Not applicable.	autoignition temp. : Not applicable.
melting point : > 1560°C	lower flammable limit : Not applicable.
vapour pressure : Not applicable.	higher flammable limit : Not applicable.
vapour density (air=1) : Not applicable.	explosive properties : Not applicable.
evaporation rate : Not applicable.	NFPA fire code : 0
relative density (water=1):Not determined.	oxidizing properties : Not applicable.
water solubility : Not applicable.	odour threshold : Not applicable.
partition coefficient (n-octanol/water) : Not applicable.	

10. STABILITY AND REACTIVITY

STABLE (yes/no) : Yes

CONDITIONS AND MATERIAL TO AVOID : Finely divided alloy should not stay dry. Electrostatic build-up ignite dust.

HAZARDOUS DECOMPOSITION PRODUCTS : Metallic dust or fumes may be produced during welding, burning, grinding and machining.

11. TOXICOLOGICAL INFORMATION

ROUTES OF EXPOSURE : inhalation : Yes ingestion : No
 eye contact : No skin contact : No skin absorption : No

ACUTE EFFECTS :

Inhalation : Irritation of the respiratory tract. High concentrations of freshly-formed copper oxide and fumes can produce symptoms of metal fume fever. The principal symptoms are muscular aches, fever, chills, nausea, vomiting and weakness.

Skin contact : Irritation by abrasion.

Eye contact : Irritation by abrasion.

Ingestion : Not applicable.

CHRONIC EFFECTS :

Prolonged and repeated overexposure to dust can lead to a benign pneumoconiosis. Nickel fumes may cause severe pneumonitis. Nickel fumes may cause sensitization.

Medical conditions aggravated by exposure to the product : Not determined.

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). Does not contain any other carcinogen or potential carcinogen (IARC, NTP, OSHA). (IARC=International Agency for Research on Cancer; NTP=National Toxicology Program [USA]; OSHA=Occupational Safety and Health Administration [USA])

12. ECOLOGICAL INFORMATION

No information available

13. DISPOSAL CONSIDERATIONS

Recycle if possible. Dusts must be covered with water before disposal in landfill and they must be immediately covered with sand or earth. Dispose of waste in accordance with federal, state, or local regulations.

14. TRANSPORT INFORMATION

This product is not classified as dangerous under the Transport Regulations, for road, rail, sea or air transport (no UN number).

15. REGULATORY INFORMATION

WHMIS CLASSIFICATION (Canada) : D2 Material causing other toxic effects

EEC CLASSIFICATION (Europe) : Not classified

Warning symbol : None

Warning word : None

Risk phrases : None

Safety phrases : None

USA REGULATIONS:

Section 313 Supplier Notification

This product may 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 MSDSs 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
Vanadium	7440-62-2

16. OTHER INFORMATION**Abbreviations :**

CAS #=Chemical Abstracts Service Registry Number; EC=European Community
LD₅₀=Lethal dose 50%; LC₅₀=Lethal concentration 50%; LCL₀=lowest published lethal concentration

* Although the information in this MSDS 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 Alcan Toxicology Service Tel: 418-699-3907
P.O. box 1500, Jonquiere (Quebec), Canada, G7S 4L2 Fax: 418-699-2993

Date of the previous revision : 1992/03/25

Reason for modification : Standardization according to ISO 11014 and European Directive 91/155/EEC.

Modification of certain OSHA Permissible Exposure Limits (section 8).

-> According to the U.S. Court of Appeals, the PEL for many substances has reverted to the level listed under Table Z-1, and in Table Z-2 and Table Z-3 of the amended 29 CFR 1910.1000 (58 FR 35338-351 June 30, 1993). However, OSHA continues to believe that controlling employee exposure to this limit is insufficiently protective. OSHA therefore recommends that employees' exposures be limited to the more protective level of either the NIOSH Recommended Exposure Levels (REL) or the ACGIH Threshold Limit Values (TLV).

TITANIUM AND ALLOYS

TITANE ET ALLIAGES

P6337

WARNING!

AVERTISSEMENT!

HAZARDS

RISQUES

HEALTH :

Titanium products in the natural state do not present an inhalation, ingestion or contact hazard. However, operations such as burning, welding, sawing, brazing and grinding may release fumes and/or dusts which may present health hazards if overexposed. The product has not been determined to be carcinogenic. However, individual components, nickel and certain chromium compounds in a dust or fume form, have been associated with carcinogenicity.

FIRE / REACTIVITY :

Titanium products in the solid state present no fire or explosion hazard. Hot product reacts violently with water to evolve hydrogen (a flammable gas). Dust may explode on contact with air.

SANTÉ :

Les produits du titane ne présentent pas de danger à l'inhalation, à l'ingestion ou au contact. Cependant, des opérations telles que chauffage, soudage, sciage, brasage et meulage peuvent dégager des fumées et/ou poussières présentant un risque à la santé en cas de surexposition. Le produit n'est pas considéré comme étant cancérigène, mais certains de ses composants tels que le nickel et certains composés du chrome, sous forme de poussières ou fumées, le sont.

FEU / RÉACTIVITÉ :

Sous forme solide, ne présente pas de risque de feu ou d'explosion. Le produit chaud réagit violemment avec l'eau pour dégager de l'hydrogène (un gaz inflammable). Les poussières peuvent exploser au contact de l'air.

EMERGENCY MEASURES

FIRST AID : (dusts/fumes exposure)

Inhalation : move to fresh air. Eye : flush thoroughly with water and wash carefully under eyelids. Skin : does not present a hazard, wash with soap and water. Ingestion : not expected source of exposure.

FIRE / REACTIVITY :

Extinguishing media : dry chemical powder (Met-L-X or G-1 graphite).

MESURES D'URGENCE

PREMIERS SOINS : (exposition fumées/poussières)

Inhalation : aller dans un endroit aéré. Yeux : rincer abondamment avec de l'eau et bien rincer sous les paupières. Peau : ne présente pas de risque, laver à l'eau et au savon. Ingestion : source d'exposition peu probable.

FEU / RÉACTIVITÉ :

Matériel extincteur : poudres chimiques sèches. (Met-L-X ou graphite G-1.)

PRECAUTIONARY MEASURES

Use local ventilation if overexposed to dust/fume. Wear dust and fume respirator if necessary. Store dust away from heat, in water or other liquid.

PRÉCAUTIONS

Utiliser une ventilation locale en cas de surexposition aux poussières/fumées. Porter un respirateur anti-particule et fumée si nécessaire. Entreposer loin de la chaleur. Entreposer dans l'eau ou autre liquide.

<u>Ingredient</u>	<u>Conc.(%)</u>	<u>CAS #</u>
Titanium	46-99	7440-32-6
Aluminum	0-6	7429-90-5
Vanadium	0-10	7440-62-2
Iron	0-48	7439-89-6
Molybdenum	0-6	7439-78-7
Tin	0-5	7440-31-5
Zirconium	0-4	7440-67-7
Manganese	0-5	7439-96-5
Tantalum	<1	7440-25-7
Chromium	2-6	7440-47-3
Copper	2-2.5	7440-50-8
Nickel	0.8	7440-02-0

WHMIS/SIMDUT



<u>Ingrédient</u>	<u>Conc.(%)</u>	<u># CAS</u>
Titane	46-99	7440-32-6
Aluminium	0-6	7429-90-5
Vanadium	0-10	7440-62-2
Fer	0-48	7439-89-6
Molybdène	0-6	7439-98-7
Étain	0-5	7440-31-5
Zirconium	0-4	7440-67-7
Manganèse	0-5	7439-96-5
Tantale	<1	7440-25-7
Chrome	2-6	7440-47-3
Cuivre	2-2.5	7440-50-8
Nickel	0.8	7440-02-0

TOXIC MATERIAL

MATIÈRE TOXIQUE

Metal Goods Service Centers
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P.O. Box 346
St-Louis, MO
63166

Centres de Service de Produits de Métaux
Div. de Alcan Aluminium Corporation
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BEFORE USING, READ SAFETY DATA SHEET (SDS)

LIRE LA FICHE SIGNALÉTIQUE AVANT D'UTILISER CE PRODUIT