

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Trade name	Zinc Aluminum Alloy
Product code	None
Product list	Alloy # 93 ; Casting (Alloy A, B) ; Die Cast #2, #3, #5, #6, #7 (ASTM AC 43A, AC 41A, AG 40A, AG 40B ; ZAMAK-2, ZAMAK-3, ZAMAK-5, ZAMAK-7, Special #6) Alloy #8, #12, #27 (ASTM B669 ZA-8, B669 ZA-12, B669 ZA-27)
Supplier	Xstrata Zinc, General Smelting Company of Canada, 1400 Norman Street, Lachine (Québec), Canada H8S 1A8
Information contact	Gino De Nobile, Chemist
Phone number (Business hours)	(514) 637-3591
Phone number (Emergency)	CANUTEC : (613) 996-6666
Synonym	Alliage zinc aluminium (French)
Name / Chemical formula	Not applicable
Chemical family	Metal
Utilisation	Manufacture of lighting fixtures, automotive parts, gears ; household utensils, office equipment, building hardware, padlocks, toys ; Other.

SECTION 2. HAZARDS IDENTIFICATION

WHMIS (Canada) Not controlled (Canada)

Hazard classes (categories)/Hazard statements

Aluminium (Stabilized powder) : Flammable Solid (3) H228-Flammable Solid ; Water-reactive (2) H261-In contact with water releases flammable gases.

Hazards words

Danger



Flammable substances

Precautionary statements

P210-Keep away from heat/sparks/open flames/hot surfaces. — No smoking. P223-Keep away from any possible contact with water, because of violent reaction and possible flash fire. P231+P232-Handle under inert gas. Protect from moisture. P240-Ground/bond container and receiving equipment. P241-Use explosion-proof electrical/ventilating/lighting/ equipment. P280-Wear protective gloves/protective clothing/eye protection/face protection.

Other hazards

Reactive with : Acids, oxidants, water amd moisture. Hydrogen release when in contact with water. Possibility of skin irritation (Particules).

Environmental hazards

Toxic for aquatic life.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Name	CAS No	Percentage (%)	EC No	Hazard statements
Zinc	7440-66-6	70-100	231-175-3	None
Aluminium (Stabilized powder)	7429-90-5	1-30	231-072-3	H228-H261
Copper	7440-50-8	0-5	231-159-6	None

SECTION 4. FIRST-AID MEASURES

Eye contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Consult a physician.
Skin contact	P335+P334-Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages. Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention.
Inhalation	Remove the person from exposure. Bring to fresh air. If breathing is difficult, give oxygen. Get immediate medical attention.
Ingestion	Induce vomiting. UNCONSCIOUS person : DO NOT induce vomiting or give any liquid. Consult a physician.

SECTION 5. FIRE-FIGHTING MEASURES

Flash point	Not available
Flammable limits	Not available
Autoignition temperature	Not available
Products of combustion	Metal oxides (Zinc, aluminium, copper).
Fire hazard	Dust : Flammable when exposed to heat or flames.
Explosion hazard	Not explosive (Mechanical impact ; Static discharge). Copper: Some chemical forms may explode with : Acetylene compounds, ammonium nitrate, 3-bromopropyne, ethylene oxide, lead azide.

Extinguishing media NON-FLAMMABLE. P370+P378-In case of fire: Use for extinction :
Small fire : Dry chemical
Large fire : Water spray, fog or foam. DO NOT use water jets.

Protective equipment Firefighters must wear full protective clothing and self-contained breathing apparatus (SCBA).

SECTION 6. ACCIDENTAL RELEASE MEASURES

Measures Collect spillage.
Methods Use appropriate tools to place spilled materials in suitable containers for reclamation or disposal.
Protective equipment High concentrations of fumes or dust : Use a self-contained breathing apparatus (SCBA) to avoid inhalation of material. Low concentrations : Use a NIOSH/OSHA approved full face cartridge respirator or the equivalent.

SECTION 7. HANDLING AND STORAGE

Handling **DO NOT** ingest or inhale dust.
Conditions for storage P402+P404-Store in a dry place. Store in a closed container. Cool and well ventilated area. Away from : Incompatible substances (Acids, oxidants), moisture.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Name	CAS No	Percentage (%)	Control parameters		
			ACGIH (U.S.) 2011 TLV-TWA (mg/m ³)	OSHA (U.S.) PEL-TWA (mg/m ³)	QUEBEC (CA) TWAEV (mg/m ³)
Zinc	7440-66-6	70-100	Not established	Not established	Not established
Aluminium	7429-90-5	1-30	1 (respirable fraction)	15 (total dust Al) 5 (respirable fraction)	10 2 (soluble salts)
Copper	7440-50-8	0-5	1 (dust, mist, Cu) 0.2 (fumes)	1 (dust, mist, Cu) 0.1 (fumes)	1 (dust, mist, Cu) 0.2 (fumes Cu)

Note : **Aluminum** : ACGIH TLV-TWA : Metal, insoluble compounds ; 5 mg/m³ (Pyrophoric powder). NIOSH REL-TWA (≤10-hours) : 10 mg/m³ (Total fraction) ; 5 mg/m³ (Respirable fraction, pyrophoric powder, vapour). OSHA PEL-TWA : 2 mg/m³ (Soluble salts). QUEBEC TLV-TWAEV : 2 mg/m³ (alkyles, soluble salts) ; 5 mg/m³ (pyrophoric powder, vapour).

Copper : NIOSH REL-TWA (≤10 hours) : 1 mg/m³ (Copper, copper compounds, as Cu, except fumes) ; IDLH : 100 mg/m³ (Metal ; Dust, mists, fumes, compounds Cu).

Consult local authorities for acceptable exposure limits

Engineering controls Use process enclosures, local exhaust ventilation or other engineering controls to keep airborne levels below recommended exposure limits.

Individual protection Safety goggles. Coveralls. Work gloves and boots. Dust respirator. Be sure to use a NIOSH approved respirator or equivalent when concentrations exceed occupational exposure limits.



SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state and appearance	Solid (Ball, bar, ingot)	Odour	Odourless
Molecular weight	Not applicable	Taste	Tasteless
pH (1% soln/water)	Not applicable	Colour	Silver grey
Boiling point	Not available	Volatility	Not available
Melting point	386°C (726.8°F) to 487°C (903°F)	% Moisture	Not available
Critical temperature	Not available	Odour threshold	Not available
Specific gravity	Zinc : 7.14 (Water = 1)	Water/Oil dist. coeff.	Insoluble (Water, oil)
Vapour pressure	Not available	Ionicity (in water)	Not available
Vapour density	Not available	Dispersion	Not (Water)
Solubility	No (Water, methanol, diethyl ether, n-octanol, acetone)		

SECTION 10. STABILITY AND REACTIVITY

Stability Yes (Under normal conditions of ambient temperature)
Reactivity Reactive or incompatible with : Acids, alkalis, oxidizing agents.
Dangerous decomposition Metallic oxides
Conditions to avoid Acids
Dangerous polymerization No
Materials to avoid **Zinc** : Ammonium nitrate, barium dioxide, barium dinitrate, chlorates, chlorides, fluorides, chlorine trifluoride, chromic trioxide, hydrazine mononitrate, hydroxylamine, performic acid, potassium nitrate, dipotassium peroxide, selenium, sodium peroxide, tellurium, sulfur, sodium hydroxide, nitrobenzene, oxidants ; Dusts or very fine powder with water.

Aluminium : Iodine, carbon disulfide, methyl chloride, and halogenated hydrocarbons, acid chlorides, ammonium nitrate, ammonium persulfate, antimony, arsenic oxides, barium bromate, barium chlorate, barium iodate, metal salts. Vigorous reaction with : Sodium hydroxide, chromic anhydride.

Copper : Violent reaction with : Bromates, chlorates, hydrogen peroxide, sulfuric acid, sodium peroxide, dipotassium peroxide, hydrazoic acid, combination of hydrogen sulfur and air.
No

Corrosivity
SECTION 11. TOXICOLOGICAL INFORMATION
Routes of entry

Ingestion. Inhalation.

Carcinogenicity

Aluminium : NOT A CARCINOGEN (IARC) ; NOT CLASSIFIABLE (Human, A4, ACGIH).

Copper ; Zinc : NOT A CARCINOGEN (IARC, OSHA, NTP) ; NOT LISTED (ACGIH).

Mutagenicity

Not applicable

Teratogenicity

Not applicable

Acute toxicity

Zinc ; Aluminium : LD50 and LC50 : Not available. (RTECS).

Copper : SUBCUTENOUS acute (LoLD) : 375 mg/kg (Rabbit) ; INTRAPERITONAL acute (LD 50) : 0.7 mg/kg (Mouse). (RTECS).

Acute effects

Solid form : No health hazards. Conditions and work practices which generate dust or fumes should be avoided or controlled.

Zinc ; Copper : inhalation of vapour oxides, probably formed when heated to temperatures near or above the boiling point, extremely fine dust, may cause **metal fume fever**, a delayed, generally benign, transient, reversible flu-like condition.

Chronic effects

Non-controlled repeated or prolonged exposure : Possibility of target organ damages (Blood, kidneys, liver, lungs ; nervous and reproductive systems).

Aluminium : Low toxicity. Easily eliminated from the human body. Exposure to different forms (Powder, dust, oxides) may cause effects on the respiratory system.

Copper : Target organs for acute and chronic overexposure (NIOSH 90-117) : Respiratory system, skin, liver and kidneys.

Toxicity

Persons with the following pre-existing conditions warrant particular attention :

Copper : Wilson's disease.

*Eating, drinking and smoking must be prohibited in areas where this material is handled and processed.
Wash hands and face before eating, drinking and smoking.*

SECTION 12. ECOLOGICAL INFORMATION
Ecotoxicity

Zinc : Rainbow trout (LC50, 96h) : 1.2 ppm ; (LC50, 48 h) 4.76 ppm ; Zebra fish (LC50, 48 h) : 136 ppm.

Toxicity to animals

Copper : SUBCUTENOUS acute (LoLD) : 375 mg/kg (Rabbit) ; INTRAPERITONAL acute (LD 50) : 0.7 mg/kg (Mouse). (RTECS).

Mobility (Soil)

Not applicable

Persistence and degradability

Not applicable

Bioaccumulation

Not applicable

Biodegradation products

Not biodegradable

Biodegradation products (Toxicity)

Not applicable

Remarks on environment

Due to the product's composition, particular attention must be taken.

Run-off water may become acidic and may be harmful to flora and fauna.

Zinc : May be toxic to aquatic life. Low levels of zinc will affect taste of water.

BOD5 and COD

Not available

SECTION 13. DISPOSAL CONSIDERATIONS
Disposal methods

Recycle to process, if possible. P501-Dispose of contents/container in full compliance with Federal, Provincial and local regulations.

SECTION 14. TRANSPORT INFORMATION
TDG (Pictograms)

Not regulated (Canada)

PIN

Not applicable

Special provisions (Transport)

Not applicable

SECTION 15. REGULATORY INFORMATION
Labelling (GHS)

Regulation (EC) No 1272/2008 CLP : Listed.

Aluminium (Stabilized powder) : Index number : 013-002-00-1 ; EC Number 231-072-3

Labelling (DSD)

EU (Regulation 67/548/EEC) : Listed.
Aluminum (Stabilized powder) : F : Highly flammable
 Annex I Index number : 013-002-00-1 ; EU Consolidated Inventories : EC Number 231-072-3
 Classification : F : R15; R10
 R10, 15 ; S7/8, 43.



EU: Consolidated Inventories : Listed.
Zinc : EU Consolidated Inventories : EC Number 231-175-3
Copper : EU Consolidated Inventories : EC Number 231-159-6
 Not classified in the Annex I of Directive 67/548/EEC
 Not listed in the Annex I of Council Regulation No (EC) 304/2003
 Not listed in a priority list (as foreseen under Council Regulation (EEC) No 793/93

Risk phrases (DSD)

R10-Flammable.
 R15-Contact with water gives off highly flammable gases

Safety phrases (DSD)

S7/8- Keep container tightly closed and dry
 S43-In case of fire, use ... (See section 5 Extinguishing media). Never use water.

CEPA DSL (CANADA)

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) : on the Domestic Substances List (DSL) ; acceptable for use under the provisions of CEPA.

Regulation (U.S.A.)

CERCLA Section 103 Hazardous substances (40 CFR 302.4) : Listed.
Zinc (RQ) : *1 000 pounds (454 kg)
 CERCLA Section 103 Hazardous substances (40 CFR 302.4) ; SARA 110 ATSDR CERCLA Priority List : Listed ; SARA Section 313, Toxic Chemicals (40 CFR 372.65) : Listed.
Copper (RQ) : *5 000 pounds (2 270 kg)
 SARA 110 ATSDR CERCLA Priority List : Listed.
Aluminium
 TSCA (EPA, Toxic Substance Control Act) Chemical Inventory (40 CFR710) : Listed.
Zinc ; Aluminium ; Copper.

* No declaration required if the diameter of the piece of solid metal released is equal to or exceeds 100 micrometers (0.004 inches).

Classifications HCS (U.S.A.)

Not controlled

NFPA (National Fire Protection Association) (U.S.A.)

Fire Hazard 1 **Reactivity** 1 **Health** 0 **Special Hazard**

SECTION 16. OTHER INFORMATION
References

- TLVs and BEIs (2011). Based on the Documentation of the Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices. ACGIH, Cincinnati, OH – <http://www.acgih.org>
- CCOHS (2011) - Canadian Centre for Occupational Health and Safety - <http://www.ccohs.ca/>
- CSST (2011) - Commission de la Santé et de la Sécurité du Travail (Québec). Service du répertoire toxicologique <http://www.reptox.csst.qc.ca/>
- ESIS : C&L (Classification and Labelling), substances ou préparations selon la Directive 67/548/EEC (substances) et 1999/45/EC (préparations).
- ESIS : EINECS (European Inventory of Existing Commercial chemical Substances) O.J. C 146A, 15.6.1990
- ESIS : EINECS corrections publiées dans O.J. C 54/13 01.03.2002, 2002/C54/08.
- Guidance on the Application of the CLP Criteria. Guidance to Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging (CLP) of substances and mixtures. 25/08/2009. ECHA Reference : ECHA-09-G-02-EN. © European Chemicals Agency, 2009.
- ERG (2008). Emergency Response Guidebook, U.S. Department of Transportation, Transport Canada, et le Secretariat of Communications and Transportation of Mexico
- Guidance on the Application of the CLP Criteria. Guidance to Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging (CLP) of substances and mixtures. 25/08/2009. ECHA Reference : ECHA-09-G-02-EN. © European Chemicals Agency, 2009.
- HSDB (2011) - Hazardous Substances Data Bank. TOXNET® Network of databases on toxicology, hazardous chemicals, and environmental health. NLM Databases & Electronic Resources, U.S. National Library of Medicine, NHI, 8600 Rockville Pike, Bethesda, MD 20894 <http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB>
- IARC - Monographs on the Evaluation of Carcinogenic Risks to Humans (collection) - <http://www-cie.iarc.fr/>
- Merck Index (1999). Merck & CO., Inc, 12th edition
- NIOSH U.S. (2011) - Pocket Guide to Chemical Hazards - <http://www.cdc.gov/niosh/npg/>
- Patty's Industrial Hygiene and Toxicology, 3rd Revised Edition
- Règlement sur les produits contrôlés (Canada)
- REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing. Directives 67/548/EEC and

1999/45/EC, and amending Regulation (EC) No 1907/2006. (Text with EEA relevance). Official Journal of the European Union. L353 p1-1355, 1.12.2008.

- RTECS (2011). Registry of Toxic Effects of Chemical Substances, NIOSH, CDC
- Toxicologie industrielle & intoxication professionnelle, 3e édition, Lauwerys
- TSCA (2011) - U.S. EPA Toxic Substance Control Act, Chemical Inventory. System of Registries (SoR), Substance Registry Services, http://iaspub.epa.gov/sor_internet/registry/substreg/searchandretrieve/substancesearch/search.do

Glossary

CSST : Commission de la Santé et de la Sécurité du Travail (Québec).
HSDB : Hazardous Substances Data Bank.
IARC : International Agency for Research on Cancer.
NIOSH : National Institute of Occupational Safety and Health.
NTP : U.S. National Toxicology Program.
RTECS : Registry of Toxic Effects of Chemical Substances
STOT : Specific target organ toxicity

Note No specific studies have been performed on this mixture. For your protection, we suggest that you test it before using in your process.

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Request

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