

		<b>Safety Data Sheet</b> <b>According (EU) 1907/2006</b> <b>Zinc Alloys for Casting</b>	<b>Pag. nº/total: 1/7</b> <b>Revision No.: 3</b> <b>Date: 2012/02/29</b> <b>Supersedes Rev. No.: 2</b>
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## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

Product name: Die casting zinc alloys  
Description: Die casting zinc alloys, ingot form  
Synonyms: ZL2, ZL3, ZL5, ZL8, Kayem 1, Cram 22  
Index- No: not listed

REACH Registration- No: Under REACH Regulation, an alloy is a mixture or preparation. Therefore an alloy is not subject to registration but its components have to be registered. The registration numbers of said components are:

Substance	REACH Registration Number	Remarks
Zinc	01-2119467174-37-0020	Registered by Asturiana de Zinc, S.A.
Aluminium	01-2119529243-45-0162	Registered by the alloy's producer. There are other registration numbers from suppliers of this metal that can be supplied to the downstream user on his demand.
Copper	Not available	Due to small annual tonnage, copper has not to be registered before 1 June 2013. Pre-registration number: 05-2114674533-44-0000
Magnesium	Not available	Due to small annual tonnage, magnesium has not to be registered before 1 June 2018. Pre-registration number: 05-2114674559-30-0000

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

#### 1.2.1. Relevant identified uses

Pressure die casting, gravity casting, sand casting.

#### 1.2.2. Uses advised against

No uses advised against have been identified

### 1.3. Details of the supplier of the safety data sheet

Asturiana de Zinc, S. A.  
33417-San Juan de Nieva, Castrillón  
ASTURIAS-ESPAÑA  
+34 985 128 100  
[fds@xstratazinc.com](mailto:fds@xstratazinc.com)

### 1.4. Emergency telephone number

Single emergency telephone number inside the EU: 112

## SECTION 2: Hazards identification

On the basis of the morphology of the product no hazardous properties are expected when it is handled and use with appropriate care. Conditions and work practices which generate dust or fumes should be avoided or controlled.

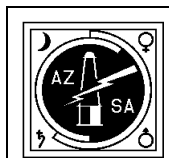
Only dry metal should be added to a molten bath. Exposure to excessive moisture may result in water infiltration into metal cavities. When added to a molten bath, this could lead to bubbling and possibility of explosion if the water is trapped within the internal cavities.

Never spray water on burning metal because of the risk of explosion which would splatter flaming particles of metal to great distances.

### 2.1. Classification of the substance or mixture

#### 2.1.1. Classification according to Regulation (EC) No 1272/2008 [CLP/GHS]

Zinc alloys in massive form are not classified as dangerous mixtures according to the criteria of Regulation (EC) No 1272/2008 [CLP/GHS]



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2.1.2. Classification according to 67/548/EEC or 1994/45/EEC

Zinc alloys in massive form are not classified as dangerous substances/ mixtures according to the criteria of Directives 67/548/EEC or 1994/45/EEC.

**2.2. Label elements**

2.2.1. Labelling according to Regulation (EC) No 1272/2008 [CLP/GHS]

No label required

2.2.2. Labelling according to 67/548/EEC or 1994/45/EEC

No label required

**SECTION 3: Composition/information on ingredients**

Name	Formula	Content % w/w	EINECS No.	CAS No.	Index No.
Zinc	Zn	89 %- 96 %	231-175-3	7440-66-6	Not listed
Aluminium	Al	3.8% - 8.8 %	231-072-3	7429-90-5	Not listed
Copper	Cu	0.003 % - 3.3 %	231-159-6	7440-50-8	Not listed
Magnesium	Mg	0.02% - 0.15 %	231-104-6	7439-95-4	Not listed

Contains no other components or impurities which will influence the classification of the mixture.

**SECTION 4: First aid measures**

**4.1. Description of first aid measures**

4.1.1. Following inhalation

Not applicable to metallic zinc alloys in massive form.

In case of generation of fumes or vapors, metal fume fever may develop 3-10 hours after exposure to zinc oxide fumes. If symptoms develop (flu-like symptoms) obtain medical attention.

4.1.2. Following skin contact

Not applicable to metallic zinc alloys in massive form. No health effects expected.

In case of contact with molten metal: flush contact area to solidify and cool but do not attempt to remove encrusted material or clothing. Cover burns and seek medical attention immediately.

4.1.3. Following eye contact

Not applicable to metallic zinc alloys in massive form

In case of presence of particles or dust: Do not rub eyes. Do not attempt to manually remove anything stuck to the eye. Immediately flush eyes with plenty of water for at least 15 minutes while holding the eyelids open. Obtain medical attention.

4.1.4. Following ingestion

Not applicable to metallic zinc alloys in massive form.

Large doses of soluble salts may cause irritation of the gastrointestinal tract.

**4.2. Most important symptoms and effects, both acute and delayed**

Symptoms of metal fume fever (in case of generation of fumes and inhalation of excessive quantities of zinc oxide): immediate dryness and irritation of the throat, tightness of the chest and coughing, followed by flu-like symptoms of fever, malaise, perspiration, frontal headache, muscle cramps, low back pain, occasionally blurred vision, nausea, and vomiting. There are no recognized

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complications, after affects, or chronic affects that result from this condition. In rare instances an acute incident may be followed by complaints such as bronchitis or pneumonia.

## **SECTION 5: Fire-fighting measures**

### **5.1. Extinguishing media**

#### 5.1.1. Suitable extinguishing media

Apply dry chemical, dry sand or special powder extinguishing media. Use extinguishing media adapted to the immediate environment.

#### 5.1.2. Unsuitable extinguishing media

Never use water, carbon dioxide or foam on molten metal because of the risk of explosion, which would splatter flaming particles of metal to great distances.

### **5.2. Special hazards arising from the substance or mixture**

Zinc alloys in massive form are not considered a fire or explosion hazard. However, finely-divided metallic dust may form flammable or explosive dust clouds when dispersed in the air at high concentrations and exposed to heat, flame, or other ignition sources. Bulk dust in a damp state may heat spontaneously and ignite on exposure to air. Contact with acids and alkali hydroxides results in evolution of hydrogen gas which is potentially explosive. Mixtures with potassium chlorate or fused ammonium nitrate may explode on impact.

Zinc oxide may evolve in fires.

### **5.3. Advice for fire-fighters**

Fire-fighters must use special fire-fighting protective equipment. The public must be kept at a distance.

## **SECTION 6: Accidental release measures**

### **6.1. Personal precautions, protective equipment and emergency procedures**

Use safety glasses, work gloves and boots. When molten metal is involved wear heat-resistant gloves and suitable clothing for protection from hot-metal splash. When dust or fumes are involved wear an approved self-contained breathing apparatus.

### **6.2. Environmental precautions**

Place material in suitable labelled containers for later recovery or disposal. Solid metal is recyclable.

### **6.3. Methods and material for containment and cleaning up**

Suitable methods for cleaning-up: Use appropriate tools to pile up ingots in a secure way. Use appropriate tools to put the spilled shot in a convenient recycling container. Solid metal is recyclable. Molten metal should be allowed to cool and harden before clean up. Powder should be cleaned up using methods that will minimize dust generation.

### **6.4. Reference to other sections**

Please refer to section 8 and 13 for more information.

## **SECTION 7: Handling and storage**

### **7.1. Precautions for safe handling**

Only dry metal should be added to a molten bath. Zinc alloys ingots suspected of containing moisture should be thoroughly dried before being added to a molten bath.

Safe procedure to follow when melting ingots of 1 ton or higher: add very slowly the first third part of the ingot in the melting bath. Follow carefully and watch for the presence of bubbling, sign of wetness. At 5 minute time intervals, repeat the same procedure for each of the last two third remaining ingot. Wear the appropriate safety equipment and stand behind a protective device.

### **7.2. Conditions for safe storage, including any incompatibilities**

Store in a dry covered place, separate from incompatible substances.

## **SECTION 8: Exposure controls/personal protection**

Preventive industrial medical examinations according are to be carried out.



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### 8.1. Control parameters

#### Occupational exposure limits:

In case of fume generation:

Zinc oxide [1314-13-2]:

VLA-ED<sup>®</sup> mg /m<sup>3</sup> (INSHT, 2011): 5 fume

VLA-EC<sup>®</sup> mg/m<sup>3</sup> (INSHT, 2011): 10 fume

Aluminium [7429-90-5]:

VLA-ED<sup>®</sup> mg /m<sup>3</sup> (INSHT, 2011): 5 welding fume, as aluminium

VLA-ED<sup>®</sup> mg /m<sup>3</sup> (INSHT, 2011): 5 dust

Copper [7440-50-8]:

VLA-ED<sup>®</sup> mg /m<sup>3</sup> (INSHT, 2011): 0.2 fumes

VLA-ED<sup>®</sup> mg /m<sup>3</sup> (INSHT, 2011): 1 mist and dust

Magnesium oxide [1309-48-4]:

VLA-ED<sup>®</sup> mg /m<sup>3</sup> (INSHT, 2011): 10 fume and dust

OELs for individual jurisdictions may differ. Check with local authorities for the applicable OELs in your jurisdiction.

### 8.2. Exposure controls

#### 8.2.1. Occupational exposure controls

##### a. Respiratory protection

Not necessary for zinc alloys in massive form.

In case of fume or dust generation respiratory protection needed: recommended filter type P3

##### b. Hand protection

When hot or molten metal is handled use heat resistant gloves.

##### c. Eye protection

Safety glasses. When hot or molten metal is handled use face shield.

##### d. Skin protection.

Wear suitable protective clothing including safety type boots. When hot or molten metal is handled use heat resistant clothing to protect from hot metal splash.

##### e. Hygiene measures

Do not eat, drink or smoke in work areas. Wash hands before eating, drinking or smoking in appropriate designated areas.

#### 8.2.2. Environmental exposure controls

In case of fume or dust generation use adequate local or general ventilation to maintain the concentration of dust or fumes in the working environment well below recommended occupational exposure limits. Supply sufficient replacement air to make up for air removed by the exhaust system. Where metallic particles of zinc and aluminium are being collected and transported by a ventilation system use a non sparking grounded ventilation system separate from other exhaust ventilation systems. Locate dust collectors and fans outdoors if possible and provide dust collectors with explosion vents or blow out panels.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

#### 9.1.1. Appearance

Physical state: solid

Appearance: bluish-silver lustrous metal

State: solid

Odor: odorless

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#### 9.1.2. Safety relevant basic data

pH: not applicable

Vapor pressure: negligible @ 20 °C

Melting /freezing point: depending on composition, 420 °C for zinc 99.995 %

Boiling point: depending on composition, 908 °C for zinc 99.995 %

Specific gravity: depending on composition, 7.1 for zinc 99.995 %

Water solubility: insoluble in water.

Partition coefficient: not applicable

Auto-flammability: not auto-flammable

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

Zinc metal reacts with acid and strong alkalis to generate hydrogen gas.

See 10.5 incompatible materials.

#### 10.2. Chemical stability

Massive zinc alloy is stable under normal temperatures and pressures. It slowly becomes covered with a white coating of a hydrated basic zinc carbonate, on exposure to moist air.

#### 10.3. Possibility of hazardous reactions

Contact with acids and alkalis generate highly flammable hydrogen gas. Contact with acidic solutions of arsenic and antimony compounds may evolve highly toxic arsine or stibine gas.

#### 10.4. Conditions to avoid

Avoid overheating of molten bath. Avoid contact with incompatible substances

#### 10.5. Incompatible materials

Acids, strong alkalis, strong oxidizers such as chlorine, fluorine, bromine, sodium potassium or barium peroxide, sodium or potassium chlorate, chromium trioxide and fused ammonium nitrate.

Note: this list is not exhaustive, please verify technical documents to determine any incompatibilities with your process

#### 10.6. Hazardous decomposition products

The material could decompose at high temperatures generating fumes. Reaction with acids and alkalis will generate hydrogen gas. Contact with acidic arsenic or antimony may evolve highly toxic arsine or stibine gas.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

Zinc alloy in massive form is not a toxic substance. No indication of carcinogenic or mutagenic activities, teratogenic properties or impairment of reproductive performance suspected.

### SECTION 12: Ecological information

In the form in which this product is sold, it has low bioavailability and does not pose any significant environmental risks. However, extended exposure in aquatic or terrestrial environments may lead to the release of compounds in more bioavailable forms.

Zinc bioaccumulates in both plants and animals in aquatic systems. Aluminium solubility and bioavailability increases with decreasing pH in the aquatic environment. Bioconcentration of aluminium in fish is a function of water quality characteristics such as pH and total organic carbon content.

The mobility of zinc in soil depends on soil characteristics, such as cation exchange capacity, pH redox potential, and chemical species present in the soil. Zinc also bioaccumulates in terrestrial plants, vertebrates and mammals, with plant uptake from soil dependent on the plant species, soil pH, and soil composition.

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Zinc alloys in massive form are neither a PBT nor a vPvB substance.

### **SECTION 13: Disposal considerations**

#### **13.1. Waste treatment methods**

##### 13.1.1. Product/packaging disposal

The material can be completely recovered and recycled.

In case of disposal act according to Local and National regulations. In the European Union, there are no homogeneous standards established for elimination of chemical waste, which is waste of a special nature, and treatment and elimination of same is subject to the domestic legislation in each country. In view of this, if material cannot be returned to process, you should contact the competent authority or those companies legally authorized for elimination of waste.

Council Directive of 18 March 1991 amending Directive 75/442/EEC on waste (91/156/EEC)

Council Decision of 23 July 2001 amending Commission Decision 2000/532/EC as regards the list of wastes

#### **13.2. Packaging**

Contaminated containers and packaging of dangerous substances or preparations must be treated in the same manner as the actual products contained in them.

European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste.

#### **13.3. Waste treatment methods**

On-site waste water treatment techniques can be applied to prevent releases of water (if applicable) i.e.: chemical precipitation, sedimentation and filtration.

### **SECTION 14: Transport information**

#### **14.1 Land transport (ADR/RID/GGVSE)**

Not applicable-not regulated

#### **14.2 Sea transport (IMDG-Code/GGVSee)**

Not applicable-not regulated

#### **14.3 Air transport (ICAO-IATA/DGR)**

Not applicable-not regulated

#### **14.4 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

This product is out of the scope of Annex II of MARPOL 73/78

### **SECTION 15: Regulatory information**

#### **15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

This substance is not listed in the Annex I of Regulation (EC) No 689/2008.

### **SECTION 16: Other information**

#### **16.1 Indication of changes**

Information added, deleted or revised: Complete revision, according to (EU) 453/2010

#### **16.2 Key literature references and sources for data**

- CHEMICAL SAFETY REPORT, zinc metal
- Límites De Exposición Profesional Para Agentes Químicos En España, 2011. (INSHT).
- Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

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- 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
- Commission Regulation (EC) No 790/2009 of 10 August 2009 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures
- Zinc Safety Data Sheet. It can be supplied to the customer on his demand.

### 16.3 Training advice

Train personnel in the safe use of chemical substances

*The information contained in this Product Safety Data Sheet is based on our current knowledge and does not represent a warranty of the properties described herein. The receiver of our product should observe, at his own responsibility, the applying rules and regulations.*