

SAFETY DATA SHEET

Zinc Alloys for Die-Casting

1. Identification of the substance/preparation and of the company/undertaking

Identification of the substance or preparation

Product name : Zinc Alloys for Die-Casting
Common / Trade name : Alloy 2 ; AC 43A ; ZnAl4Cu3 ; Zamak 2 . Alloy 3 ; AG 40A ; ZnAl4 ; Zamak 3 . Alloy 5 ; AC 41A ; ZnAl4Cu1 ; Zamak 5 ; ZA-8 ; Zamak KS
Use of the substance/preparation : Metal industry: Pressure Die Casting. ; Centrifugal Die Casting ; Gravity Die Casting.

Company/undertaking identification

Supplier or representative of supplier : Nyrstar Belgium
Zinkstraat 1
2490 Balen
BE Belgium
Phone : +32 14819211

Emergency telephone number : Emergency telephone number Nyrstar : +32 14819211

2. Composition/information on ingredients

Substance/preparation : Preparation

Ingredient name	CAS number	%	EC number	Classification
Zinc	7440-66-6	88.2 - 96.1	231-175-3	Not classified.
Aluminum	7429-90-5	3.9 - 8.8	231-072-3	Not classified.
Copper.	7440-50-8	0 - 3.5	231-159-6	Not classified.

See section 16 for the full text of the R-phrases declared above

Occupational exposure limits, if available, are listed in section 8.

3. Hazards identification

The preparation is not classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification : Not classified.

See section 11 for more detailed information on health effects and symptoms.

4. First aid measures

Symptoms

Inhalation : No known significant effects or critical hazards.
Ingestion : No known significant effects or critical hazards.
Skin contact : No known significant effects or critical hazards.
Eye contact : No known significant effects or critical hazards.

First aid measures

Inhalation : If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.

4. First aid measures

- Ingestion** : Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If potentially dangerous quantities of this material have been swallowed, call a physician immediately.
- Skin contact** : In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if irritation occurs.
- Eye contact** : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

See section 11 for more detailed information on health effects and symptoms.

5. Fire-fighting measures

- Extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Special exposure hazards** : No specific hazard.
- See section 11 for more detailed information on health effects and symptoms.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

- Personal precautions** : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment.
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
- Methods for cleaning up** : If emergency personnel are unavailable, vacuum or carefully scoop up spilled material and place in an appropriate container for disposal by incineration. Avoid creating dusty conditions and prevent wind dispersal.

Note: see section 8 for personal protective equipment and section 13 for waste disposal.

7. Handling and storage

- Handling** : Avoid exposure. Use suitable protective equipment (section 8). Avoid generation of dust.
- Storage** : This material is delivered without packaging as solid material. No packaging requirements applicable. Store in such way that no condensation of humidity on the product is possible. Avoid contact with any source of humidity.
- Additional information** : Do not introduce zinc with traces of humidity into a bath of liquid zinc.
- Packaging materials**
- Recommended** : No packaging requirements applicable.

8. Exposure controls/personal protection

Ingredient name

Zinc

Aluminum

Copper.

Occupational exposure limits

ACGIH TLV (United States, 1/2005).

TWA: 10 mg/m³ 8 hour/hours. Form: Particulates (Insoluble) Not Otherwise Specified (PNOS)

ACGIH TLV (United States, 2003). Notes:

TWA: 5 mg/m³ 8 hour/hours.

TWA: 10 mg/m³ 8 hour/hours. Form: Dust

TWA: 5 mg/m³ 8 hour/hours. Form: Fume

ACGIH TLV (United States, 1/2006). Notes: Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124) :36338-33351, June 30, 1993, for

8. Exposure controls/personal protection

revised OSHA PEL. Adopted Values enclosed are those for which changes are proposed. Consult the Notice of Intended Changes for current proposal. See Notice of Intended changes.

TWA: 0,2 mg/m³ 8 hour/hours. Form: Fume

ACGIH TLV (United States, 1/2006). Notes: Adopted Values enclosed are those for which changes are proposed. Consult the Notice of Intended Changes for current proposal. See Notice of Intended changes.

TWA: 1 mg/m³ 8 hour/hours. Form: All forms

Exposure controls

Occupational exposure controls

: Use process enclosures, local exhaust ventilation or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fumes or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Respiratory protection

: Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Skin protection / Hand protection

: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Eye protection

: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.

Hygiene measures

General information

:

9. Physical and chemical properties

General information

Appearance

Physical state : Solid. (ingots)

Color : Gray.

Odor : Odorless.

Important health, safety and environmental information

pH : Not applicable.

Boiling point : 900 to 910°C (1652 to 1670°F)

Melting point : 379 to 390°C (714.2 to 734°F)

Flash point : Not applicable.

Explosive properties : Non-explosive in the presence of the following materials or conditions: open flames, sparks and static discharge, heat, shocks and mechanical impacts, oxidizing materials, reducing materials, combustible materials, organic materials, metals, acids, alkalis and moisture.

Oxidizing properties : Not available.

Relative density : 6.6 to 6.8 (Water = 1)

Solubility : Insoluble in cold water.

10. Stability and reactivity

- Stability** : The product is stable.
- Materials to avoid** : Reactive or incompatible with the following materials: acids.
Do not introduce zinc with traces of humidity into a bath of liquid zinc.

11. Toxicological information

Potential acute health effects

- Inhalation** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Eye contact** : No known significant effects or critical hazards.

Acute toxicity

<u>Ingredient name</u>	<u>Test</u>	<u>Result</u>	<u>Route</u>	<u>Species</u>
Zinc	LD50	>2000 mg/kg	Oral	Rat
	LDLo	388 mg/kg	Oral	duck

- Additional information** : **Copper.**: Inhalation of fumes or very fine dust may lead to metal fever, a flu-like syndrome with symptoms of fever, chills, malaise and cough. The syndrome is benign and symptoms usually disappear after a few hours.

Potential chronic health effects

- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Reproductive toxicity** : No known significant effects or critical hazards.
- Additional information** : **Copper.**: Wilson's disease, a hereditary copper storage illness, has not been reported as a result of chronic industrial exposure to copper. Copper may act in conjunction with other chemical agents or physical predisposition, to produce in some workers an illness similar to Wilson's disease.
- Additional information** : **Copper.**: Repeated or prolonged exposure to the substance can produce kidney damage. Repeated or prolonged exposure to the substance can produce liver damage.

12. Ecological information

Ecotoxicity data

<u>Ingredient name</u>	<u>Species</u>	<u>Period</u>	<u>Result</u>
Zinc	Daphnia magna (EC50)	48 hour/hours	2.8 mg/l
	Pimephales promelas (LC50)	96 hour/hours	0.238 mg/l
	Oncorhynchus mykiss (LC50)	96 hour/hours	0.24 mg/l
	Oncorhynchus mykiss (LC50)	96 hour/hours	0.41 mg/l
	Oncorhynchus mykiss (LC50)	96 hour/hours	0.56 mg/l
	Daphnia magna (LC50)	96 hour/hours	0.57 mg/l
Aluminum	Oncorhynchus mykiss (LC50)	96 hour/hours	0.12 mg/l
	Oncorhynchus mykiss (LC50)	96 hour/hours	0.16 mg/l
	Oncorhynchus mykiss (LC50)	96 hour/hours	0.31 mg/l
	Oncorhynchus mykiss (LC50)	96 hour/hours	0.31 mg/l
Copper.	Daphnia magna (EC50)	48 hour/hours	0.0318 mg/l
	Daphnia magna (EC50)	48 hour/hours	0.036 mg/l
	Daphnia magna (EC50)	48 hour/hours	0.055 mg/l
	Pimephales promelas (LC50)	96 hour/hours	0.0094 mg/l
	Pimephales promelas (LC50)	96 hour/hours	0.0103 mg/l
	Pimephales promelas (LC50)	96 hour/hours	0.0103 mg/l
	Pimephales promelas (LC50)	96 hour/hours	0.0278 mg/l

12. Ecological information

(LC50)

Other adverse effects : No known significant effects or critical hazards.

13. Disposal considerations

Methods of disposal : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. This product is recyclable. Consideration of disposal via this route should be given.

European waste catalogue (EWC) : Not available.

Hazardous waste : Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.

14. Transport information

International transport regulations

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
ADR/RID Classification	Not regulated.	-	-	-	-	-
ADNR Classification	Not regulated.	-	-	-	-	-
IMO/MDG Classification	Not regulated.	-	-	-	-	-
IATA Class	Not regulated.	-	-	-	-	-

15. Regulatory information

EU regulations

Risk Phrases : This product is not classified according to EU legislation.

Product use : Classification and labeling have been performed according to EU Directives 67/548/EEC and 1999/45/EC (including amendments) and the intended use.
- Industrial applications.

Additional Warning Phrases : Safety Data Sheet available for professional user on request.

Conforms to EU Directive 91/155/EEC, as amended by 2001/58/EC - Europe

16. Other information

History

Date of issue : 30/11/2007

Date of previous issue : No previous validation.

Version : 1.00

Indicates information that has changed from previously issued version.

Notice to reader

16. Other information

To the best of our knowledge, the information contained in this Material Safety Data Sheet is accurate and reliable on presently available resources. However, neither the seller nor any of its subsidiaries assumes any responsibility or liability whatsoever for the accuracy or completeness of the information contained herein.

This Material Safety Data Sheet shall not constitute a guarantee for any specific product features. Final determination of suitability of this material is the sole responsibility of the user.

All materials may present unknown hazards and should be used and handled with caution and following reasonable safety procedures. Consequently the buyer assumes all risks in connection with the use and handling of this material.

Version 1.00

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