1. IDENTIFICATION
Product Identifier: Product name: zinc alloys Die Casting
Synonyms: zinc alloys DC ; alloy 2 ; alloy 5; kayem1; kayem2; ZA-12; ZA-27; ZA-8; zamak 2; zamak 3; zamak 5; zamak KS; zinc alloys for
diecasting - galfans; ZL1110; ZL12; ZL-27; ZL2720; ZnAl11Cu1; ZnAl27Cu2; ZnAl4; ZnAl4Cu1; ZnAl4Cu3
Manufacturer: Heckmann Building Products Inc. – 1501 N. 31st Avenue, Melrose Park, IL 60160-2911
Phone and emergency number: 708-865-2403

2. HAZARD(S) IDENTIFICATION
DSD/DPD
Not classified as dangerous according to the criteria of directive(s) 67/548/EEC and/or 1999/45/EC
Other hazards
The melting down of moist metal leads to explosion risk
Heated product causes burns
! This substance is subject to exposure limits
CLP
Not classified as dangerous according to the criteria of Regulation (EC) No 1272/2008
Other hazards
The melting down of moist metal leads to explosion risk
Heated product causes burns
Caution! This substance is subject to exposure limits

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS No. EINECS/ELINCS</th>
<th>CONC.</th>
<th>Classification according to DSD/DPD</th>
<th>Classification according to CLP</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc/solid</td>
<td>7440-66-6 231-175-3</td>
<td>69.70%≤C≤96.10%</td>
<td></td>
<td></td>
<td>(2)</td>
</tr>
<tr>
<td>Aluminum</td>
<td>7429-90-5 231-072-3</td>
<td>3.90%≤C≤2 8.00%</td>
<td>F; R11 - 15</td>
<td>Water-react. 2; Flam. Sol. 1; H228</td>
<td>(1)(2)</td>
</tr>
<tr>
<td>Copper</td>
<td>7440-50-8 231-159-6</td>
<td>0%≤C≤3.90%</td>
<td></td>
<td>Flam. Sol. 1; H228 Self-heat. 1; H251</td>
<td>(2)</td>
</tr>
<tr>
<td>magnesium</td>
<td>7439-95-4 231-104-6</td>
<td>0.02%≤C≤0.1%</td>
<td>F; R11 - 15</td>
<td></td>
<td>(1)(2)</td>
</tr>
</tbody>
</table>

(1) For R-phrases and H-statements in full: see heading 16
(2) Substance with a Community workplace exposure limit

4. FIRST-AID MEASURES
4.1 After inhalation: After inhalation of fume: Remove the victim into fresh air
Respiratory problems: consult a doctor/medical service
4.2 Skin contact: In case of burns: Wash immediately with lots of water (15 minutes)/shower
Remove clothing while washing
Do not tear off solidified product from the skin
Do not remove clothing if it sticks to the skin
Cover wounds with sterile bandage
Consult a doctor/medical service
If burned surface > 10%: take victim to hospital

4.3 Eye contact:
Rinse immediately with plenty of water for 15 minutes
Take victim to an ophthalmologist

4.4 After ingestion:
Not applicable

5. FIRE-FIGHTING MEASURES
5.1 Suitable extinguishing media:
5.2 Unsuitable extinguishing media:
If molten: no water

5.3 Special exposure hazards:
On burning formation of metallic fumes (zinc oxide)
On burning formation of metallic fumes (zinc oxide)
In molten state: violent to explosive reaction with water (moisture)

5.4 Instructions:
Dilute toxic gases with water spray
In case of metal bath fire: add metal blocks
When cooling/extinguishing: no water in the substance

5.5 Special protective equipment for fire-fighters:
Gloves
Protective clothing
Heat/fire exposure: compressed air/oxygen apparatus

6. ACCIDENTIAL RELEASE MEASURES
6.1 Personal precautions:
See heading 8.2
6.2 Environmental precautions:
See heading 13
6.3 Methods for cleaning up:
If melted: allow liquid to solidify before taking it up
Pick-up the material
Wash clothing and equipment after handling

7. HANDLING AND STORAGE
7.1 Handling:
Avoid raising dust  Observe strict hygiene
Keep away from naked flames/heat
On (re)melting down: dry and preheat installation before use
Add only dry material to the metal bath

7.2 Storage:
Safe storage requirements:
Store in a dry area  Keep at temperature above dew point
Meet the legal requirements
Keep away from: (strong) acids

7.3 Specific use(s):
See information supplied by the manufacturer for the identified use(s)

8. EXPOSURE CONTROLS/PERSONAL PROTECTION
8.1 Exposure limit values:
8.1.1 Occupational exposure:
If limit values are applicable and available these will be listed below.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Short time value</th>
<th>Time-weighted average exposure limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium, - Metal</td>
<td>mg/m³</td>
<td>Time-weighted average exposure limit</td>
</tr>
<tr>
<td>Copper fume, dust &amp; mists, as Cu</td>
<td>(Cu) mg/m³</td>
<td>Time-weighted average exposure limit</td>
</tr>
<tr>
<td>Zinc oxide</td>
<td>mg/m³</td>
<td>Time-weighted average exposure limit</td>
</tr>
</tbody>
</table>

8.1.2 Sampling methods:

<table>
<thead>
<tr>
<th>Product name</th>
<th>Test</th>
<th>Number</th>
<th>Sampling method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium</td>
<td>NIOSH</td>
<td>7013</td>
<td>filter</td>
</tr>
<tr>
<td>Aluminium</td>
<td>OSHA</td>
<td>ID121</td>
<td></td>
</tr>
<tr>
<td>Aluminum (Al)</td>
<td>NIOSH</td>
<td>8310</td>
<td></td>
</tr>
<tr>
<td>Aluminum (as Al), Metal (Respirable Fraction)</td>
<td>OSHA</td>
<td>CSI</td>
<td></td>
</tr>
<tr>
<td>Aluminum (as Al), Metal (Total Dust)</td>
<td>OSHA</td>
<td>CSI</td>
<td></td>
</tr>
<tr>
<td>Aluminum (as Al), Soluble Salts</td>
<td>OSHA</td>
<td>CSI</td>
<td></td>
</tr>
<tr>
<td>Aluminum (Elements)</td>
<td>NIOSH</td>
<td>7300</td>
<td>filter</td>
</tr>
<tr>
<td>Aluminum (Elements, aqua regia ashing)</td>
<td>NIOSH</td>
<td>7301</td>
<td>Filter</td>
</tr>
<tr>
<td>Aluminum (Elements, hot block/HCl/HNO3 digestion)</td>
<td>NIOSH</td>
<td>7303</td>
<td>filter</td>
</tr>
<tr>
<td>Copper</td>
<td>OSHA</td>
<td>ID 121</td>
<td>filter</td>
</tr>
<tr>
<td>Copper (CR)</td>
<td>OSHA</td>
<td>ID 125G</td>
<td>filter</td>
</tr>
<tr>
<td>Copper (Cu)</td>
<td>NIOSH</td>
<td>8310</td>
<td></td>
</tr>
<tr>
<td>Copper (Elements on wipes)</td>
<td>NIOSH</td>
<td>8005</td>
<td>filter</td>
</tr>
<tr>
<td>Copper (Elements)</td>
<td>NIOSH</td>
<td>9102</td>
<td>filter</td>
</tr>
<tr>
<td>Copper (Elements, aqua regia ashing)</td>
<td>NIOSH</td>
<td>7300</td>
<td>filter</td>
</tr>
<tr>
<td>Copper (Elements, hot block/HCl/HNO3 digestion)</td>
<td>NIOSH</td>
<td>7303</td>
<td>filter</td>
</tr>
<tr>
<td>Copper Dust and fume</td>
<td>NIOSH</td>
<td>7029</td>
<td></td>
</tr>
<tr>
<td>Copper Dusts &amp; Mists (as Cu)</td>
<td>OSHA</td>
<td>CSI</td>
<td></td>
</tr>
<tr>
<td>Copper Fume (as Cu)</td>
<td>OSHA</td>
<td>CSI</td>
<td></td>
</tr>
<tr>
<td>Magnesium</td>
<td>OSHA</td>
<td>CSI</td>
<td></td>
</tr>
<tr>
<td>Magnesium (as Cu)</td>
<td>OSHA</td>
<td>ID 121</td>
<td>filter</td>
</tr>
<tr>
<td>Magnesium (Elements)</td>
<td>NIOSH</td>
<td>7300</td>
<td>filter</td>
</tr>
<tr>
<td>Magnesium (Elements, aqua regia ashing)</td>
<td>NIOSH</td>
<td>7301</td>
<td>filter</td>
</tr>
<tr>
<td>Magnesium (Elements, hot block/HCl/HNO3 digestion)</td>
<td>NIOSH</td>
<td>7303</td>
<td>filter</td>
</tr>
<tr>
<td>Magnesium (Mg)</td>
<td>NIOSH</td>
<td>8005</td>
<td></td>
</tr>
<tr>
<td>Compound</td>
<td>Agency</td>
<td>Code</td>
<td>Filter</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>----------</td>
<td>------</td>
<td>------------</td>
</tr>
<tr>
<td>vary depending upon the compound: alumina</td>
<td>NIOSH</td>
<td>8013</td>
<td>filter</td>
</tr>
<tr>
<td>Zinc</td>
<td>OSHA</td>
<td>CSI</td>
<td></td>
</tr>
<tr>
<td>Zinc</td>
<td>NIOSH</td>
<td>7030</td>
<td></td>
</tr>
<tr>
<td>Zinc</td>
<td>OSHA</td>
<td>Id 125</td>
<td></td>
</tr>
<tr>
<td>Zinc</td>
<td>OSHA</td>
<td>125G</td>
<td>Filter</td>
</tr>
<tr>
<td>Zinc</td>
<td>OSHA</td>
<td>121</td>
<td>Filter</td>
</tr>
<tr>
<td>Zinc &amp; Cpds (as Zn)</td>
<td>NIOSH</td>
<td>7030</td>
<td>Filter</td>
</tr>
<tr>
<td>Zinc (Elements on wipes)</td>
<td>NIOSH</td>
<td>9102</td>
<td>Filter</td>
</tr>
<tr>
<td>Zinc (Elements)</td>
<td>NIOSH</td>
<td>7300</td>
<td>Filter</td>
</tr>
<tr>
<td>Zinc (Elements, aqua regia ashing)</td>
<td>NIOSH</td>
<td>7301</td>
<td>filter</td>
</tr>
<tr>
<td>Zinc (Elements, hot block/HCl/HNO3 digestion)</td>
<td>NIOSH</td>
<td>7303</td>
<td>filter</td>
</tr>
<tr>
<td>Zinc (Zn)</td>
<td>NIOSH</td>
<td>8005</td>
<td></td>
</tr>
<tr>
<td>Zinc (Zn)</td>
<td>NIOSH</td>
<td>8310</td>
<td></td>
</tr>
<tr>
<td>Zinc Oxide</td>
<td>NIOSH</td>
<td>7502</td>
<td></td>
</tr>
</tbody>
</table>

### 8.2 Exposure controls:

8.2.1 Occupational exposure controls:
- Measure the concentration in the air regularly
- Carry operations in the open/under local exhaust/ventilation or with respiratory protection
- Personal protective equipment:
  - a) Respiratory protection:
    - Dust production: dust mask with filter type P2
  - b) Hand protection:
    - Gloves
    - On heating: insulated gloves
      - leather
    - c) Eye protection:
      - On (re)melting down: face shield
  - d) Skin protection:
    - Protective clothing
    - On (re)melting down: heatproof clothing
    - Protective clothing against molten metal splash (EN-ISO 9185)
    - Protective clothing for workers exposed to heat (EN-ISO 11612)
    - Safety shoes type S3

8.2.2 Environmental exposure controls:
- See headings 6.2, 6.3 and 13

### 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 General information:
- Physical form: Solid - Metal
- Physical state depending on the production process
- Odor: Odorless
- Color: Grey

9.2 Important health, safety and environmental information:
- Boiling point: 900-910 °C
- Flashpoint: Not applicable
- Relative density: 4-7
- Solubility in solvents: Soluble in acids

9.3 Other information:
- Melting point: 375-485 °C
10. STABILITY AND REACTIVITY

10.1 Conditions to avoid:
Possible fire hazard
heat sources
Stability
Stable under normal conditions
Reactions
In molten state: violent to explosive reaction with water (moisture)
Oxidizes slowly in moist air

10.2 Materials to avoid:
(stong) acids

10.3 Hazardous decomposition products:
Reacts with (some) acids: release of highly flammable gases/vapours (hydrogen)
On burning formation of metallic fumes (zinc oxide)

11. TOXICOLOGICAL INFORMATION

11.1 Acute toxicity:
Magnesium LD50 oral (rat) > 2000 mg/kg

11.2 Chronic toxicity:
Caution! This substance is subject to exposure limits
The chronic toxicity (carc - mut - reprotox) of the component(s) relates only to the substance in
finely divided state and/or in molten state
Contains a substance of group C (MAK-Schwangerschaftsguppe)
Copper MK - Schwangerschaft Gruppe C
zinc, solid MK - Schwangerschaft Gruppe C
aluminium TLV - Carcinogen A4
MAK - Schwangerschaft Gruppe D

11.3 Acute effects/symptoms:
Inhalation:
AFTER INHALATION OF DUST:
Irritation of the nasal mucous membranes
Dry/sore throat
Coughing
AFTER INHALATION OF FUME:
Feeling of weakness
Metal fume fever
Vomiting
Nausea
Skin contact:
IF MELTING:
Burns
Eye contact:
IF MELTING:
Burns
Ingestion:
Not applicable

11.4 Chronic effects:

12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity:

12.2 Mobility:
Volatile organic compounds (VOC) Not applicable
Solubility in/reaction with water Literature reports: insoluble in water
12.3 Persistence and degradability:
BOD20 Not applicable
Biodegradability: not applicable

12.4 Bioaccumulative potential:
No bioaccumulation data available

12.5 Results of PBT assessment:
Not applicable, based on available data

12.6 Other adverse effects: Not dangerous for the ozone layer (1999/45/EC)

13. DISPOSAL CONSIDERATIONS

13.1 Provisions relating to waste:
Waste material code (Directive 2008/98/EC, decision 2001/118/EC)
11 01 99 : wastes not otherwise specified
Depending on branch of industry and production process, also other EURAL codes may be applicable
Can be considered as non hazardous waste according to Directive 2008/98/EC

13.2 Disposal methods:
Recycle/reuse
Remove waste in accordance with local and/or national regulations
Do not discharge into drains or the environment

13.3 Packaging/Container:
No available data

14. TRANSPORT INFORMATION

DOT Proper Shipping Name - Not regulated
DOT Hazard Classification - Not regulated
UN/NA Number - Not applicable
DOT Packing Group - Not applicable
Labeling Requirements - Not applicable
Placards - Not applicable
DOT Hazardous Substance - Not applicable

15. REGULATORY INFORMATION

15.1 EU Legislation: DSD/DPD
CLP Not classified as dangerous according to the criteria of Regulation (EC) No 1272/2008

16. OTHER INFORMATION

Revision Date: 7/15/2015
This SDS covers Heckmann anchors, but does not include chemicals that may be applied by subsequent handlers and/or distributors of this product. This could include a variety of materials including oils, paints, galvanization, etc. that are not included in this SDS. Additionally, specialty orders may require application of coating material not listed in this SDS. SDSs for any Nucor-applied specialty coating will be provided separately. During welding, precautions should be taken for airborne contaminants that may originate from components of the welding rod. Arc or spark generated when welding or burning could be a source of ignition for combustible and/or flammable materials. The information in this Safety Data Sheet (SDS) was obtained from sources which we believe are reliable; however, the information is provided without any representation or warranty, expressed or implied, regarding the accuracy or correctness. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and
expressly disclaim liability for loss, damage, or expense arising out of or in any way connected with the handling, storage, use, or disposal of this product.