### 1. Identification of the substance/mixture and of the company/undertaking

#### 1.1 Product identifier:

**Identification of the substance or preparation:**
Use for ceramic injection moulding

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

**Relevant identified uses**
Use for ceramic injection moulding

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

<table>
<thead>
<tr>
<th>Company/undertaking identification</th>
<th>INMATEC Technologies GmbH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company Name:</td>
<td>Heerstrassenbenden 11</td>
</tr>
<tr>
<td>Street:</td>
<td>D-53359 Rheinbach</td>
</tr>
<tr>
<td>Place:</td>
<td>+49-2226-9087-0</td>
</tr>
<tr>
<td>Phone</td>
<td>+49-2226/9087-30 + 53</td>
</tr>
<tr>
<td>Responsible Department</td>
<td><a href="mailto:info@inmatec-gmbh.com">info@inmatec-gmbh.com</a></td>
</tr>
</tbody>
</table>

#### 1.4 EMERGENCY TELEPHONE NUMBER:

**Emergency number:** +49-2226-9087-0 (08:00 - 17:00h)

### 2. Hazards identification

#### 2.1 Classification of the substance or mixture:

*Classification in accordance with Regulation (EC) No 1272/2008 (CLP)*
Aquatic Chronic 2; H411

*Classification in accordance with Directive 67/548/EEC or 1999/45/EC N; R51/53*
The preparation is not dangerous in the sense of Directive 1999/45/EC.

#### 2.2 Label elements

*Labelling according to Regulation (EC) No 1272/2008 (CLP Regulation)*

**Hazard pictograms**

GHS09

**Hazard statements**
H411 Toxic to aquatic life with long lasting effects.

**Hazard statements (EU)**
EUH208 Contains cobalt oxide. May produce an allergic reaction.
Precautionary statements

P273  Avoid release to the environment.
P391  Collect spillage.
P501  Dispose of contents/Container in accordance with local and national regulations.

2.3 Other hazards
The usual precautions when handling chemicals should be taken.

3. Zusammensetzung / Angaben zu Bestandteilen

3.1 Substances
not applicable

3.2 Mixtures

Description of the mixture:
Ceramic Feedstock on the basis of zirconium oxide

<table>
<thead>
<tr>
<th>EC No.</th>
<th>CAS No.</th>
<th>Substance name</th>
<th>Concentration</th>
<th>Classification according Regulation (EC) No 1272 (CLP)</th>
<th>REACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>215-227-2</td>
<td>1314-23-4</td>
<td>ZIRCONIUM OXIDE</td>
<td>80 - 85 %</td>
<td></td>
<td>01-2119486976-14</td>
</tr>
<tr>
<td>215-233-5</td>
<td>1314-36-9</td>
<td>YTTRIUM OXIDE</td>
<td>5 - 7 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>235-013-2</td>
<td>12055-23-1</td>
<td>HAFNIUM DIOXID</td>
<td>1 - 2 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>215-691-6</td>
<td>1344-28-1</td>
<td>ALUMINIUM OXIDE</td>
<td>0 - 1 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>215-154-6</td>
<td>1307-96-6</td>
<td>COBALT OXIDE</td>
<td>0 - 1 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>215-222-5</td>
<td>1314-13-2</td>
<td>ZINC OXIDE</td>
<td>0 - 1 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>215-168-2</td>
<td>1309-37-1</td>
<td>DIIRON TRIOXIDE</td>
<td>1 - 2 %</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*For more detailed chemical composition, refer to the certificate of analysis of the powder

4. First aid measures

4.1 Description of first aid measures

General informations
In case of accident or if you feel unwell, seek medical advice immediately (show safety data sheet if possible.

Following inhalation:
Provide fresh air. In case of irritation of the respiratory tract seek medical advice. In case of allergic symptoms especially in the breathing area, seek medical advice immediately.

Following skin contact:
In case of persisting skin irritation consult a doctor. After contact with skin, wash immediately with plenty of water and soap.

Following eye contact:
In case of skin irritation consult a doctor. After contact with skin, wash immediately with water and soap.

Following ingestion:
Rinse mouth thoroughly with water. Let water be swallowed in little sips (dilution effect). Do not induce vomiting.
4.2 Most important symptoms and effects, both acute and delayed
We have no description of any toxic symptoms.

4.3 Indication of any immediate medical attention and special treatment needed
No further relevant information available.

5. Firefighting measures

5.1 Extinguishing media:
Suitable extinguishing media:
Extinguishing materials should be selected according to the surrounding area. Water fog. Carbon dioxide (CO2). Extinguishing powder. Foam.

Unsuitable extinguishing media:
High power water jet.

5.2 Special hazards arising from the substance or mixture
In case of fire may be liberated: carbon monoxide; carbon dioxide

5.3 Advice for fire-fighters
Wear self-contained breathing apparatus, wearing protective clothing. Contaminated extinguishing water must be collected separately, must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations be.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Ensure sufficient ventilation, avoid exposure, avoid formation of dust, do not inhale the dust. Wear personal protection equipment. (Refer to chapter 8).

6.2 Environmental precautions
Do not empty into drains / surface water / ground water

6.3 Methods and material for containment and cleaning up
Collect in closed containers for disposal. Avoid generation of dust. Wash with generous amount of water.

6.4 Reference to other sections
Wear personal protection equipment. (Refer to chapter 8).

7. Handhabung und Lagerung

7.1 Precautions for safe handling

Precautions for safe handling
Wear suitable protective clothing (Refer to chapter 8).

Advice on protection against fire and explosion
Please note: Usual measures für fire prevention.
Product is combustible
Under certain conditions dust explosible; Fire-class B

Further information on handling
Conditions to avoid: Avoid generation of dust.
7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels
Keep/Store only in original container. Keep container tightly closed. Do not store at temperatures over 30 °C.

Advice on storage compatibility
Do not store together with: Sodium nitrate, oxygen difluoride, chlorine trifluoride, ethylene, fluorine; vinyl acetate, hydrogen halides, chlorinated hydrocarbons

Further information on storage conditions
Protect from moisture
Storageclass (VCI): 11

7.3 Specific end uses:
For more information, please refer to our "Technical Datasheet" document.

8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits:
Zirkonium oxide: CAS-No.: 1314-23-4
1 mg/m³ in relation to the respirable fraction.
Exceeding factor: 1
Duration 15 min, average; 4 times per shift; a distance 1 h.
Category I - substances for which the local effect being relevant, or respiratory sensitisers.

8.2 Exposure controls

Occupational exposure controls
Avoid contact with skin, eye and clothing

Protective and hygiene measures
Always close containers tightly after the removal of product.

Respiratory protection
Respiratory protection required in case of:
Exceeding critical value
Suitable respiratory protective equipment:
Combination filter device (DIN EN 141). Filtertyp: B-P2/P3

Hand protection
Pull-over gloves of rubber. DIN EN 374.
Suitable material:
CR (polychloroprenes, Chloroprene rubber) - 0.5mm
NBR (Nitrile rubber) - 0.35mm
FKM (fluororubber) - 0.4mm
PVC (Polyvinyl chloride) - 0.5mm
Butyl rubber - 0.5mm

Eye protection
Suitable eye protection. Tightly sealed safety glasses. DIN EN 166.
9. Physical and chemical properties

General Information

- Physical state: granules (solid)
- Colour: brown
- Odour: faint

10. Stability and reactivity

10.1 Reactivity

See Section 10.3

10.2 Chemical stability

See Section 10.3

10.3 Possibility of hazardous reactions

No decomposition if used according to specifications.

10.4 Conditions to avoid:

Temperatures over 60 °C (to preserve the technological properties of the product).

10.5 Incompatible materials:

None known

10.6 Hazardous decomposition products

in case of fire may be liberated:

- Carbon monoxide (CO), carbon dioxide (CO2)

11. Toxicological information

11.1 Information on toxicological effects

None toxicological results known

Acute toxicity

Not available

Irritation

Not available

Local effects

Not available

Carcinogenicity

Not available

Germ cell mutagenicity Mutagenität

Not available

Reproductive toxicity

Not available
12. Ecological information

12.1 Toxicity:
- Acute fish toxicity: LC50>10g/l
- Bacterial toxicity: EC0>1.000mg/l
- Method: OECD 209

12.2 Persistence and degradability
Product is difficult to biodegrade.
Method: Zahn-Wellens-Test

12.3 Bioaccumulative potential
Not available

12.4 Mobility in soil
Not available

12.5 Results of PBT and vPvB assessment
This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

12.6 Other adverse effects
None known

13. Disposal considerations

13.1 Waste treatment methods

Advice on disposal
Waste disposal according to official state regulations.
Consult the local waste disposal expert about waste disposal.

Waste disposal number of waste from residues / unused products
060316 WASTES FROM INORGANIC CHEMICAL PROCESSES;
Wastes from the MFSU of salts and their solutions and metallic oxides; metallic oxides other than those mentioned in 060315

Contaminated packaging
Cleaned containers may be recycled.

14. Transport information

14.1 Transport (ADR/RID/ADN)

Class 9
Classification code M7
Packing group III
Hazard identification no. 90
UN number UN3077
Technical name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Danger releasing substance cobalt oxide, zinc oxide
Tunnel restriction code E
Label 9
Environmentally hazardous substance mark Symbol “fish and tree” GHS09
INMAFEED K1015 - Zirconia / black Injection Moulding Feedstock

14.2 Transport IMDG (sea transport)

Class 9
Packing group III
UN number UN3077
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Danger releasing substance cobalt oxide
zinc oxide
EmS F-A+S-F
Label 9
Marine pollutant mark Symbol "fish and tree" GHS09

14.3 Transport ICAO-TI / IATA (air transport)

Class 9
Packing group III
UN number UN3077
Proper shipping name Environmentally hazardous substance, solid, n.o.s.
Danger releasing substance cobalt oxide
zinc oxide
Label 9
Environmentally hazardous substance mark Symbol "fish and tree" GHS09

14.4 Packing group
Not applicable

14.5 Environmental hazards
Not applicable

14.6 Special precautions for user
Not applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

15. Regulatory information

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

Labelling
S phrases Do not breathe dust.

National regulations
Council directive 96/82/EC on the control of major-accident hazards involving dangerous substances

Remarks Annex I, part 2, category 9b

15.2 Chemical Safety Assessment
For this substance a chemical safety assessment is not required.
Further information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

Full text of the R-, H- and EUH-phrases drawn up in sections 2 and 3 (provided not already drawn up in these sections)

<table>
<thead>
<tr>
<th>R-Phrase</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>R22</td>
<td>Harmful if swallowed.</td>
</tr>
<tr>
<td>R43</td>
<td>May cause sensitisation by skin contact.</td>
</tr>
<tr>
<td>R50/53</td>
<td>Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.</td>
</tr>
<tr>
<td>R51/53</td>
<td>Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.</td>
</tr>
<tr>
<td>H302</td>
<td>Harmful if swallowed.</td>
</tr>
<tr>
<td>H317</td>
<td>May cause an allergic skin reaction.</td>
</tr>
<tr>
<td>H400</td>
<td>Very toxic to aquatic life.</td>
</tr>
<tr>
<td>H410</td>
<td>Very toxic to aquatic life with long lasting effects.</td>
</tr>
</tbody>
</table>

Changes

Rev.: 1.1 - updated new TÜV Logo !

The data for the hazardous ingredients were taken each from the last version of the sub-contractor’s safety data sheet.