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

Identification of the substance or preparation:
INMAFEED K1009, K1012 Zirconia Injection Moulding Feedstock

Use of the substance/preparation:
Use for ceramic injection moulding

Company/undertaking identification
Company name: INMATEC Technologies GmbH
Street: Heerstrassenbenden 11
Place: D-53359 Rheinbach
Phone: +49-2226-9087-0
Responsible Department: Quality management, job safety
Phone: 02226/9087-30 + 53
Emergency telephone: +49-2226-9087-0 (08:00 - 17:00h)

2. Hazards identification

Classification
The preparation is not dangerous in the sense of Directive 1999/45/EC.

3. Composition/information on ingredients

Chemical characterization (Mixture)

Hazardous components

<table>
<thead>
<tr>
<th>EC-No.</th>
<th>CAS-No.</th>
<th>Chemical name</th>
<th>Quantity</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>215-227-2</td>
<td>1314-23-4</td>
<td>ZIRCONIUMDIOXID</td>
<td>80 - 85 %</td>
<td></td>
</tr>
<tr>
<td>25322-68-3</td>
<td>68441-17-8</td>
<td>Combination based on polymers</td>
<td>10 - 15 %</td>
<td></td>
</tr>
<tr>
<td>215-227-2</td>
<td>1314-36-9</td>
<td>YTTRIUMOXID</td>
<td>1 - 5 %</td>
<td></td>
</tr>
<tr>
<td>235-013-2</td>
<td>12055-23-1</td>
<td>HAFNIUMDIOXID</td>
<td>1 - 5 %</td>
<td></td>
</tr>
</tbody>
</table>

Further Information
The preparation is not dangerous in the sense of Directive 1999/45/EC.

4. First aid measures

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

After 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.

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

After contact with eyes
Rinse immediately carefully and thoroughly with eye-bath or water. In case of troubles or persistent symptoms, consult an ophthalmologist.
After ingestion
Rinse mouth thoroughly with water. Let water be swallowed in little sips (dilution effect). Do not induce vomiting.

5. Fire-fighting measures

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

Extinguishing media which must not be used for safety reasons
High power water jet.

Special exposure hazards arising from substance or preparation itself, combustion products, resulting gases
Can be released in case of fire: Carbon monoxide (CO). Carbon dioxide (CO2).

Special protective equipment for fire-fighters
Wear a self-contained breathing apparatus and chemical resistant suit.

6. Accidental release measures

Personal precautions
Provide adequate ventilation.
Avoid generation of dust. Do not breathe dust.
Wear personal protection equipment. (Refer to chapter 8).

Environmental precautions
Dumping into the environment must be prevented.

Methods for cleaning up/taking up
Collect in closed containers for disposal. Avoid generation of dust. Wash with generous amount of water.

7. Handling and storage

Handling
Advice on 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.

Storage
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
Storage class (VCI): 11

8. Exposure controls / personal protection

Exposure limit values

Additional advice on limit values
Zirconia:
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.

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: white to light greyish
Odour: faint

Important health, safety and environmental information

Changes in the physical state

10. Stability and reactivity

Conditions to avoid
Keep away from heat. Decomposition takes place from temperatures above: 150° C
Exothermic decomposition between 150 - 170°C
### Materials to avoid
Sodium nitrate, oxygen difluoride, chlorine trifluoride, ethylene, fluorine, Vinyl acetate, hydrogen halides, chlorinated hydrocarbons

### Hazardous decomposition products
Can be released in case of fire: Carbon monoxide (CO), Carbon dioxide (CO2).

### 11. Toxicological information

**Acute toxicity**
- Acute toxicity, oral rat. LD50: >15000 mg/kg
- Irritant effect on the eye: Not an irritant
- Irritant effect on the skin: Not an irritant

### 12. Ecological information

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

**Persistence and degradability**
- Product is biodegradable with difficulty.
- Method: Zahn-Wellens-Test

**Further information**
- Elimination occurs essentially by mechanical separation or ultrafiltration

### 13. Disposal considerations

**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

**Land transport (ADR/RID)**
- UN-number: Not restricted
- Warning plate
- Description of the goods
- Not restricted

**Inland waterways transport**
- UN-number: Not restricted
- Description of the goods
- Not restricted
INMAFEED K1009, K1012 Zirconia Injection Moulding Feedstock

Marine transport
  UN-number: Not restricted
  Description of the goods
  Not restricted

Air transport
  UN/ID number: Not restricted
  Description of the goods
  Not restricted

15. Regulatory information

Labelling
  S phrases
  Do not breathe dust.

National regulatory information
  Water contaminating class (D):
  1-slightly water contaminating

16. Other information

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.

Changes
  Rev.: 1.2 Revision

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

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