Material Safety Data Sheet
for NOVAZIR
Date: 2014/09/04
As of: September 2014

1. Product and company identification

Trade name: NOVAZIR HT / NOVAZIR ST / NOVAZIR ST pre coloured
Utilization: Zirconia blank for the manufacture of crown and bridge frameworks

Manufacturer: NOVADENT Dentaltechnik- Handelsgesellschaft mbH
Straßenbahnrинг 3, D-20251 Hamburg
Telephone: +49 40 532 81 800
Telefax: +49 40 531 13 32
Information: info@novadent.de
Emergency No: +49 40 532 81 800
(weekday between 8 a.m. and 6 p.m.)

2. Composition / information on ingredients

<table>
<thead>
<tr>
<th>Synonyms</th>
<th>CAS-No.</th>
<th>EINECS-No.</th>
<th>Concentration</th>
<th>Molecular formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zirconium oxide &amp; Hafnium oxide</td>
<td>1314-23-4</td>
<td>215-227-2</td>
<td>94-95%</td>
<td>ZrO$_2$</td>
</tr>
<tr>
<td>Aluminum oxide</td>
<td>1344-28-1</td>
<td>215-691-6</td>
<td>&lt; 0.5%</td>
<td>Al$_2$O$_3$</td>
</tr>
<tr>
<td>Yttrium oxide</td>
<td>1314-36-9</td>
<td>215-233-5</td>
<td>4.5-5.5%</td>
<td>Y$_2$O$_3$</td>
</tr>
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<tr>
<td>Hafnium oxide</td>
<td>12055-23-1</td>
<td>235-013-2</td>
<td></td>
<td>HfO$_2$</td>
</tr>
<tr>
<td>Yttrium oxide</td>
<td>1314-36-9</td>
<td>215-233-5</td>
<td>4.5-5.5%</td>
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<td>&lt; 0.5%</td>
<td>Al$_2$O$_3$</td>
</tr>
<tr>
<td>Iron(III) oxide</td>
<td>1309-37-1</td>
<td>215-168-2</td>
<td>&lt; 0.27%</td>
<td>Fe$_2$O$_3$</td>
</tr>
<tr>
<td>Praseodymium(III) oxide</td>
<td>12036-32-7</td>
<td>234-845-3</td>
<td>&lt; 0.04%</td>
<td>Pr$_2$O$_3$</td>
</tr>
<tr>
<td>Erbium(III) oxide</td>
<td>12061-16-4</td>
<td>235-045-7</td>
<td>&lt; 1%</td>
<td>Er$_2$O$_3$</td>
</tr>
</tbody>
</table>

3. Hazards identification

Hazard Denomination:
No hazardous according to 99/45/ECC

Special Hazard Identification:
None
For men and environment:
None
4. First-aid measures

General information:
No special measures required

After Swallowing:
Do not induce vomiting, rinse mouth thoroughly with water if person is conscious

Skin contact:
Wash thoroughly with warm water, if irritations occur or persist, consult physician

Eye contact:
Wash eyes with large quantities of clean water for at least 15 minutes. In case after effects occur call a physician

Inhalation:
Move person into fresh air, if irritations occur or persist, consult physician

5. Fire-fighting measures

Flammability of the product:
Not applicable, no special fire fighting measures required

Suitable extinguishing agent:
Fire extinguishing measures suited to environment. The product itself does not burn.

Unsuitable extinguishing agent:
Unkown

Special risks:
Unkown

Special protective equipment for fire fighting:
Wear respiratory protective equipment independent of ambient air in case of fire

Additional instructions:
Prevent extinguishing water from penetration surface water or the ground water system

6. Accidental release measures

Individual Protection:
Use protective dust mask and object dust suction

Environmental protection measures:
Avoid discharge into drains or surface water

Cleaning measures:
Clean up mechanically, fill into labelled, cosable containers

Additional Indications:
No hazardous substances are released
7. Handling and storage

Handling:
Only adequately trained personnel should handle this product. Keep out of reach of children

Industrial Hygiene:
Usual hygienic measures are necessary. When using, do not eat or drink or smoke

Storage:
No special requirements for place of storage and containers. Not further indications necessary for storage, no restrictions for storage with other products

Fire and Explosion Protection:
Not required

Indications for Safe Handling:
Provide adequate local ventilation or suction unit, especially in case of dust exposure

8. Exposure control / Personal protection

Exposition Threshold / Common:  
Alveolar fraction 3mg/cm³  
Dust threshold see TRGS 900  
Inhaled fraction 10mg/cm³  
Zirkoniumdioxid (ZrO₂)  
CAS-Nr. 1314-23-4  
EINECS-No. 215-222-7  
TRGS 900  
Zirkon compounds  
Inhaled fraction 5mg/cm³  
Peak threshold 4mg/cm³

Technical measures:  
Provide adequate local ventilation or suction unit

Personal safety measures:  
Use respirator if no adequate local suction is available

If dust occurs:  
Wear protective goggles with side protection and light protective clothing, clean skin after exposure and attend to skin with skincare

Personal attitude:  
Avoid contact with skin, mouth, eyes and clothing  
Wear protective goggles with side protection and light protective clothing  
Clean skin after exposure and attend to skin with skincare  
Do not eat, drink or smoke while working  
Keep away from foods or drinks
9. Physical and chemical properties

9.1. General information:
Appearance: Industrially-manufactured solid
Colour: White
Odour: Odourless

9.2 Important information regarding health and environmental protection and safety:
PH value: no data available

Dust explosion hazard: no data available
Explosion limits: no data available
Lower explosion limit: no data available
Density: appr. 3g/cm²
Solubility: Water insoluble

10. Stability and reactivity

Avoidable terms: None known
Avoidable substances: None known
Hazardous corrosion products: None known

11. Toxicological information

There are no toxic reactions known at intended use. Inhaling dust can cause irritations, dust contact with the skin can cause

12. Ecological information

No environmental hazard at intended use and properly disposal
13. Disposal considerations

Take to an approved landfill or waste incineration plant, under conditions approved by the local authorities. Take empty and contaminated containers to an approved landfill or waste incineration plant, under conditions approved by the local authorities.

14. Transport information

**Land transportation ADR/RID:**
Not hazardous substance

**Air transportation ICAO-TI/IATA-DGR:**
Not hazardous substance

**Sea transportation**
Not hazardous substance

15. Regulatory information

15.1. Labelling in accordance with EC directives

**Directive 1999/45/EC:**
not subject to mandatory labelling

15.2. National regulations

**Hazardous Incident Ordinance:**
- 12. BUMSCHV
  - Annex 1
    - Number: not subject to Hazardous Incident Ordinance
- 96/82/EC
  - Annex 1
    - Number: not subject to Seveso II Directive

**German Clean Air Act:**
- Number 5.2.1
  - Total dust, including fine dust

16. Other information

**Safety data issuing dept:**
NOVADENT Dentaltechnik GmbH, Tel. +49 40-532 81800

This information is based on our current knowledge and is intended to describe the product for the purpose of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.