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

- **Product identifier**
- **Trade name:** Spartan Plus
- **Relevant identified uses of the substance or mixture and uses advised against**
  No further relevant information available.
- **Application of the substance / the preparation**
  Manufacture of dental prothesis
- **Details of the supplier of the safety data sheet**
  **Manufacturer/Supplier:**
  Ivoclar Vivadent Inc.
  175 Pineview Drive, Amherst, N.Y. 14228
  USA
  Tel. +1 800 533 6825
  Fax +1 716 691 2285

  Ivoclar Vivadent Inc.
  1-6600 Dixie Road
  Mississauga, Ontario
  L5T 2Y2
  Canada
  Phone: +1 905 670 8499
  Fax: +1 905 670 3102
- **Information department:** Quality Assurance / Regulatory Affairs
- **Emergency telephone number:**
  24 Hour Emergency Assistance:
  Emergency-Call USA - Infotrac: 1-800-535-5053
  Emergency-Call Canada - Canutec: 1-613-996-6666

  General MSDS Assistance:
  US: 1-800-533-6825
  Canada: 1-800-263-8182

2 Hazards identification

- **Classification of the substance or mixture**
  Ox. Sol. 2 H272 May intensify fire; oxidizer.
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**
  Oxidizing
  Contact with combustible material may cause fire.
- **Information concerning particular hazards for human and environment:**
  Avoid breathing of grinding dust and vapours. Melted material may cause burns.
- **Classification system:**
  The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.

- **Label elements**
- **GHS label elements**
  The product is classified and labelled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**

  GHS03

- **Signal word** Danger

(Contd. on page 2)
3 Composition/information on ingredients

- Chemical characterization: Mixtures
- Description: Dental alloy

- Dangerous components:

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-05-3</td>
<td>palladium</td>
</tr>
<tr>
<td>25-100%</td>
<td></td>
</tr>
<tr>
<td>7440-50-8</td>
<td>copper</td>
</tr>
<tr>
<td>10-10%</td>
<td></td>
</tr>
<tr>
<td>7440-55-3</td>
<td>gallium</td>
</tr>
<tr>
<td>1-&lt;10%</td>
<td></td>
</tr>
</tbody>
</table>

4 First aid measures

- Description of first aid measures
- General information: No special measures required.
- After inhalation:
  Grinding dust: Supply fresh air; consult doctor in case of complaints.
  In case of unconsciousness place patient stably in side position for transportation.
- After skin contact: After contact with the molten product, cool rapidly with cold water.
- After eye contact:
  Grinding dust: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
  Mechanical effects only.
Trade name: Spartan Plus

- Information for doctor:
  - Most important symptoms and effects, both acute and delayed: No further relevant information available.
  - Indication of any immediate medical attention and special treatment needed: No further relevant information available.

5 Firefighting measures

- Extinguishing media
  - Suitable extinguishing agents: The product is not flammable.
  - Special hazards arising from the substance or mixture: No further relevant information available.
  - Advice for firefighters
    - Protective equipment: Do not inhale explosion gases or combustion gases.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures: Not required.
- Environmental precautions: No special measures required.
- Methods and material for containment and cleaning up: Pick up mechanically.
- Reference to other sections
  - See Section 7 for information on safe handling.
  - See Section 8 for information on personal protection equipment.
  - See Section 13 for disposal information.

7 Handling and storage

- Handling:
  - Precautions for safe handling
    - Extractors are required on all machines used for thermal processing or splinter removal processes.
  - Information about protection against explosions and fires: No special measures required.
- Conditions for safe storage, including any incompatibilities
- Storage:
  - Requirements to be met by storerooms and receptacles: No special requirements.
  - Information about storage in one common storage facility: Not required.
  - Further information about storage conditions: None.
- Specific end use(s): No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.
- Control parameters
  - Components with limit values that require monitoring at the workplace:

<table>
<thead>
<tr>
<th>Substance</th>
<th>PEL (mg/m³)</th>
<th>REL (mg/m³)</th>
<th>TLV (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-50-8 copper</td>
<td>1 * 0.1**</td>
<td>1 * 0.1**</td>
<td>1 * 0.2**</td>
</tr>
<tr>
<td></td>
<td>as Cu *dusts and mists **fume</td>
<td>as Cu *dusts and mists **fume</td>
<td>as Cu *dusts and mists **fume</td>
</tr>
</tbody>
</table>

(Contd. on page 4) USA
35.0.51

· Additional information: The lists that were valid during the creation were used as basis.

· Exposure controls

· Personal protective equipment:

· General protective and hygienic measures: Usual hygienic measures for dental practice.

· Breathing equipment: Use respiratory protective device against the effects of fumes/dust/aerosol.

· Protection of hands:

  Protective gloves should always be worn during mechanical and thermal processing.
  After use of gloves apply skin-cleaning agents and skin cosmetics.

· Material of gloves

  Mechanical processing:
  Leather gloves
  Strong gloves

  Thermal processing:
  Heat protection gloves

· Penetration time of glove material

  The exact breakthrough time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection:

  Always wear safety goggles during mechanical processing (grinding, sawing /cutting, drilling, milling).

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9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

  Form: Solid
  Color: White

· Odor: Odorless

· Odour threshold: Not determined.

· pH-value: Not applicable.

· Change in condition

  Melting point/Melting range: 1180–1210 °C (2156–2210 °F)
  Boiling point/Boiling range: Undetermined.

· Flash point: Not applicable.

· Flammability (solid, gaseous): Not determined.

· Auto igniting: Product is not self-igniting.

· Danger of explosion: Product does not present an explosion hazard.

· Explosion limits:

  Lower: Not determined.
  Upper: Not determined.

· Vapor pressure: Not applicable.

· Density at 20 °C (68 °F):

  10.7 g/cm³ (89.292 lbs/gal)

· Relative density: Not determined.

· Vapour density: Not applicable.

· Evaporation rate: Not applicable.

· Solubility in / Miscibility with

  Water: Insoluble.
Safety Data Sheet
acc. to ISO/DIS 11014

Printing date 12/19/2012  Version number 4  Reviewed on 12/19/2012

Trade name: Spartan Plus

- Partition coefficient (n-octanol/water): Not determined.
- Viscosity:
  Dynamic: Not applicable.
  Kinematic: Not applicable.
- Solvent content:
  Solids content: 100%
- Other information: No further relevant information available.

10 Stability and reactivity

- Reactivity: No further relevant information available.
- Chemical stability: Stable under normal handling and storage conditions.
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- Possibility of hazardous reactions: No dangerous reactions known.
- Conditions to avoid: No further relevant information available.
- Incompatible materials: No further relevant information available.
- Hazardous decomposition products: None under normal conditions of storage and use.

11 Toxicological information

- Information on toxicological effects
  - Acute toxicity:
  - Primary irritant effect:
    - on the skin: No irritant effect.
    - on the eye: No irritating effect.
  - Sensitization: No sensitizing effects known.
  - Additional toxicological information:
    Fumes or dusts generated from cutting or grinding operations may cause respiratory irritation.
  - Carcinogenic categories
    None of the ingredients is listed.

12 Ecological information

- Toxicity
  - Aquatic toxicity: No further relevant information available.
  - Persistence and degradability: No further relevant information available.
  - Behavior in environmental systems:
  - Bioaccumulative potential: No further relevant information available.
  - Mobility in soil: No further relevant information available.
  - Additional ecological information:
  - General notes: Generally not hazardous for water
  - Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.
  - Other adverse effects: No further relevant information available.

USA
13 Disposal considerations

- Waste treatment methods
  Recommendation: Take to an approved landfill or a waste incineration plant, under conditions approved by the local authority.

- Uncleaned packagings:
  Recommendation: Disposal must be made according to official regulations.

14 Transport information

- UN-Number
  DOT
  ADR, ADN, IMDG, IATA
  NA3077
  Void

- UN proper shipping name
  ADR, ADN, IMDG, IATA
  Void

- Transport hazard class(es)
  DOT
  Class
  Label
  9 Miscellaneous dangerous substances and articles.
  9

- ADR, ADN, IMDG, IATA
  Class
  Void

- Packing group
  DOT
  ADR, IMDG, IATA
  III
  Void

- Environmental hazards:
  Marine pollutant: No

- Special precautions for user
  Not applicable.

- Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
  Not applicable.

- UN “Model Regulation”:
  -

15 Regulatory information

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

- Sara
  Section 355 (extremely hazardous substances):
  None of the ingredients is listed.

- Section 313 (Specific toxic chemical listings):
  7440-22-4 silver
  7440-50-8 copper

- TSCA (Toxic Substances Control Act):
  7440-57-5 Gold
  7440-22-4 silver
Trade name: Spartan Plus

<table>
<thead>
<tr>
<th>7440-50-8</th>
<th>copper</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-06-4</td>
<td>platinum</td>
</tr>
<tr>
<td>7440-74-6</td>
<td>indium</td>
</tr>
<tr>
<td>7439-88-5</td>
<td>iridium</td>
</tr>
</tbody>
</table>

- **Proposition 65**
  - **Chemicals known to cause cancer:**
    None of the ingredients is listed.
  - **Chemicals known to cause reproductive toxicity for females:**
    None of the ingredients is listed.
  - **Chemicals known to cause reproductive toxicity for males:**
    None of the ingredients is listed.
  - **Chemicals known to cause developmental toxicity:**
    None of the ingredients is listed.

- **Carcinogenic categories**
  - **EPA (Environmental Protection Agency)**
    7440-22-4 silver  
    7440-50-8 copper  
  - **TLV (Threshold Limit Value established by ACGIH)**
    None of the ingredients is listed.
  - **NIOSH-Ca (National Institute for Occupational Safety and Health)**
    None of the ingredients is listed.
  - **OSHA-Ca (Occupational Safety & Health Administration)**
    None of the ingredients is listed.

- **GHS label elements**
  The product is classified and labelled according to the Globally Harmonized System (GHS).

- **GHS pictograms**
  GHS03

- **Signal word** Danger
- **Hazard statements**
  May intensify fire; oxidizer.
- **Precautionary statements**
  Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
  Take any precaution to avoid mixing with combustibles.
  Wear protective gloves/protective clothing/eye protection/face protection.
  Keep/Store away from clothing/combustible materials.
  In case of fire: Use for extinction: CO2, powder or water spray.
  Dispose of contents/container in accordance with local/regional/national/international regulations.

- **National regulations:**
  - **Other regulations, limitations and prohibitive regulations**
    The product is a medical device according to the EC-directive 93/42/EEC.
    This product is classified as a medical device under US and Canadian regulations and has been reviewed by the US Food and Drug Administration and Health Canada.
35.0.51

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 16 Other information

- **This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.**

- **Abbreviations and acronyms:**
  - ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  - IMDG: International Maritime Code for Dangerous Goods
  - DOT: US Department of Transportation
  - IATA: International Air Transport Association
  - ACGIH: American Conference of Governmental Industrial Hygienists
  - NFPA: National Fire Protection Association (USA)
  - HMIS: Hazardous Materials Identification System (USA)