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

- **Product identifier**
- **Trade name:** Spartan
- **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
3 Composition/information on ingredients

- Chemical characterization: Mixtures
- Description: Dental alloy

- Dangerous components:
  - 7440-05-3 palladium 25-100%
  - 7440-50-8 copper 10-10%
  - 7440-55-3 gallium 1-<10%

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.


(Contd. on page 3)
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 protective 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>
</tbody>
</table>
  * as Cu *dusts and mists **fume

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Trade name: Spartan

- 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).

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: 1115–1160 °C (2039–2120 °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):
  10.6 g/cm³ (88.457 lbs/gal)
- Relative density
  Not determined.
- Vapour density
  Not applicable.
- Evaporation rate
  Not applicable.
- Solubility in / Miscibility with Water:
  Insoluble.
### 3.5.0.51

- **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**
  - NTP (National Toxicology Program)
    - 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.
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 | NA3077 |
| · DOT | Void |
| · ADR, ADN, IMDG, IATA | Void |
| · UN proper shipping name | Void |
| · ADR, ADN, IMDG, IATA | Void |
| · Transport hazard class(es) | 9 Miscellaneous dangerous substances and articles. |
| · DOT | 9 |
| · Class | 9 |
| · Label | 9 |
| · ADR, ADN, IMDG, IATA | Void |
| · Class | Void |
| · Packing group | Void |
| · DOT | Void |
| · ADR, IMDG, IATA | Void |
| · Environmental hazards: | None |
| · 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

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7440-50-8 copper
7440-06-4 platinum
7440-74-6 indium
7439-88-5 iridium

- 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).
- Hazard 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.
· **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)