1 Identification

- **Product identifier**
  - **Trade name:** Spartan Ceramic Solder

- **Relevant identified uses of the substance or mixture and uses advised against**
  - No further relevant information available.

- **Application of the substance / the mixture**
  - Manufacture of dental prothesis
  - Dental alloy

- **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 SDS Assistance:
    - US: 1-800-533-6825
    - Canada: 1-800-263-8182

2 Hazard(s) identification

- **Classification of the substance or mixture**
  - Ox. Sol. 2 H272 May intensify fire; oxidizer.

- **Label elements**

- **GHS label elements**
  - The product is classified and labeled 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.
  - Take any precaution to avoid mixing with combustibles.
Trade name: **Spartan Ceramic Solder**

Wear protective gloves / 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.

- **Additional information:**
  - Alloys do not require a label, providing they do not present a hazard to human health by inhalation, ingestion or contact with skin or to the aquatic environment in the form in which they are placed on the market.

- **Classification system:**
  - **NFPA ratings (scale 0 - 4)**
    - Health = 0
    - Fire = 3
    - Reactivity = 0
  - **HMIS-ratings (scale 0 - 4)**
    - Health = 0
    - Fire = 3
    - Reactivity = 0

- **Other hazards**
  - Results of PBT and vPvB assessment
    - PBT: Not applicable.
    - vPvB: Not applicable.

### 3 Composition/information on ingredients

- **Chemical characterization:** Mixtures
- **Description:** Dental alloy

**Dangerous components:**

<table>
<thead>
<tr>
<th>Hazard Substance</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-50-8 copper</td>
<td>≤25%</td>
</tr>
<tr>
<td>7440-05-3 palladium</td>
<td>10-&lt;25%</td>
</tr>
<tr>
<td>7440-66-6 zinc powder - zinc dust</td>
<td>1-&lt;2.5%</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.
    - If skin irritation continues, consult a doctor.
  - **After eye contact:**
    - Grinding dust: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
    - Mechanical effects only.
  - **After swallowing:** Seek medical treatment.
  - **Information for doctor:**
    - Most important symptoms and effects, both acute and delayed: No further relevant information available.
5 Fire-fighting measures

- Extinguishing media
  - Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- 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.
  - Do not allow to enter sewers/surface or ground water.
- 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: Store away from flammable substances.
- 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:

    |   |   |
    |---|---|
    | PEL | Long-term value: 1* 0.1** mg/m³ as Cu *dusts and mists **fume |
    | REL | Long-term value: 1* 0.1** mg/m³ as Cu *dusts and mists **fume |
    | TLV | Long-term value: 1* 0.2** mg/m³ *dusts and mists; **fume; as Cu |

- 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.
Wash hands before breaks and at the end of work.
Keep away from foodstuffs, beverages and feed.

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 break through 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: Grey
Odor: Odorless
Odour threshold: Not determined.

pH-value: Not applicable.

Change in condition
Melting point/Melting range: 1080 - 1105 °C (1976 - 2021 °F)
Boiling point/Boiling range: Undetermined.

Flash point: Not applicable.

Flammability (solid, gaseous): Not determined.

Auto igniting: Product is not selfigniting.

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

Explosion limits:
Lower: Not determined.
Upper: Not determined.

Vapor pressure: Not applicable.

Density: Not determined.
Relative density Not determined.
Vapour density Not applicable.
Evaporation rate Not applicable.
Trade name: Spartan Ceramic Solder

- Solubility in / Miscibility with Water: Insoluble.
- Partition coefficient (n-octanol/water): Not determined.
- Viscosity:
  - Dynamic: Not applicable.
  - Kinematic: Not applicable.
- 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: Mechanical effects only.
  - 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.
  - OSHA-Ca (Occupational Safety & Health Administration)
    - 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:
    - Water hazard class 1 (Self-assessment): slightly hazardous for water
    - Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
  - Results of PBT and vPvB assessment
    - PBT: Not applicable.

(Contd. on page 6)
Trade name: Spartan Ceramic Solder

- vPoB: 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
  DOT: NA3077
  ADR, ADN, IMDG, IATA: Void

- UN proper shipping name
  DOT: Environmentally hazardous substances, solid, n.o.s. (copper)
  ADR, ADN, IMDG, IATA: Void

- Transport hazard class(es)
  DOT: 9 Miscellaneous dangerous substances and articles

- ADR, ADN, IMDG, IATA
  Class: III
  Void

- Packing group
  DOT: III
  ADR, IMDG, IATA: Void

- Environmental hazards:
  Marine pollutant: Yes (DOT)

- Special precautions for user
  Not applicable.

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

- Transport/Additional information:
  Product is not classified as a dangerous good for transport (ADR, IMDG, IATA).

- DOT
  Remarks: Special marking with the symbol (fish and tree).

- UN "Model Regulation": -

(Contd. on page 7)
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
    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 D
    7440-50-8 copper D
  · 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.

· GHS label elements
  The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms

GHS03

· Signal word Danger
· Hazard statements
  May intensify fire; oxidizer.
Trade name: Spartan Ceramic Solder

· Precautionary statements
  Keep away from heat.
  Take any precaution to avoid mixing with combustibles.
  Wear protective gloves / 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 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.

· Date of preparation / last revision 06/23/2015 / 3

· 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
  EINECS: European Inventory of Existing Commercial Chemical Substances
  ELINCS: European List of Notified Chemical Substances
  CAS: Chemical Abstracts Service (division of the American Chemical Society)
  NFPA: National Fire Protection Association (USA)
  HMIS: Hazardous Materials Identification System (USA)
  Ox. Sol. 2: Oxidising Solids, Hazard Category 2