**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

- **1.1 Product identifier**
  - Trade name: **Vivacap (Liquid)**

- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
  - Application of the substance / the mixture
    - Dental filling material
    - Amalgam

- **1.3 Details of the supplier of the safety data sheet**
  - Manufacturer/Supplier:
    - Ivoclar Vivadent AG
    - Bendererstrasse 2
    - FL-9494 Schaan
    - PRINCIPALITY OF LIECHTENSTEIN
  
  - Tel: +423 235 35 35
  - Fax: +423 235 33 60

- **1.4 Emergency telephone number:** +423 / 235 33 13 (Ivoclar Vivadent AG, FL-9494 Schaan, Liechtenstein)

**SECTION 2: Hazards identification**

- **2.1 Classification of the substance or mixture**
  - Classification according to Regulation (EC) No 1272/2008
    - Acute Tox. 2  H330  Fatal if inhaled.
    - Repr. 1B  H360D  May damage the unborn child.
    - STOT RE 1  H372  Causes damage to organs through prolonged or repeated exposure.
    - Aquatic Acute 1  H400  Very toxic to aquatic life.
    - Aquatic Chronic 1  H410  Very toxic to aquatic life with long lasting effects.

- **2.2 Label elements**
  - Labelling according to Regulation (EC) No 1272/2008
    - The substance is classified and labelled according to the CLP regulation.

- **Hazard pictograms**
  
  GHS06  GHS08  GHS09

- **Signal word** Danger

- **Hazard-determining components of labelling:**
  - mercury

- **Hazard statements**
  - H330  Fatal if inhaled.

(Contd. on page 2)
4.1 Description of first aid measures

- General information: Immediately remove any clothing soiled by the product.

- After inhalation:
  Supply fresh air.
  In case of unconsciousness place patient stably in side position for transportation.
  Seek medical treatment.

- After skin contact: Immediately wash with water and soap and rinse thoroughly.

- After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.

- After swallowing:
  Rinse out mouth and then drink plenty of water.
  Do not induce vomiting; call for medical help immediately.

4.2 Most important symptoms and effects, both acute and delayed: No further relevant information available.

4.3 Indication of any immediate medical attention and special treatment needed

- Antidote: DMPS
SECTION 5: Firefighting measures

· 5.1 Extinguishing media
· Suitable extinguishing agents:
The product is not flammable.
Use fire extinguishing methods suitable to surrounding conditions.
· 5.2 Special hazards arising from the substance or mixture
In case of a fire very toxic mercury fumes will generate.
Fumes are heavier than air.
· 5.3 Advice for firefighters
· Protective equipment: Wear self-contained respiratory protective device.
· Additional information Cool endangered receptacles with water spray.

SECTION 6: Accidental release measures

· 6.1 Personal precautions, protective equipment and emergency procedures
Wear protective equipment. Keep unprotected persons away.
· 6.2 Environmental precautions:
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.
· 6.3 Methods and material for containment and cleaning up:
Spillages of mercury should be removed immediately, including from places which are difficult to access. Use a plastic syringe to draw it up. Smaller quantities can be covered by sulphur powder and removed. Avoid inhalation of vapour.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· 6.4 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.

SECTION 7: Handling and storage

· 7.1 Precautions for safe handling
Only adequately trained personnel should handle this product.
Ensure good ventilation/exhaustion at the workplace.
For use in dentistry only.
· Information about fire - and explosion protection: Keep respiratory protective device available.
· 7.2 Conditions for safe storage, including any incompatibilities
· Storage:
· Requirements to be met by storerooms and receptacles: Store only in unopened original receptacles.
· Information about storage in one common storage facility: Not required.
· Further information about storage conditions:
Keep container tightly sealed.
Store receptacle in a well ventilated area.
· 7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection

· Additional information about design of technical facilities: No further data; see item 7.
8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace: Not required.

Ingredients with biological limit values:

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Limit Value</th>
<th>Medium</th>
<th>Sampling Time</th>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>7439-97-6 mercury</td>
<td>20 µmol/mol creatinine</td>
<td>urine</td>
<td>random</td>
<td>mercury</td>
</tr>
</tbody>
</table>

Additional information: The lists valid during the making were used as basis.

8.2 Exposure controls

Personal protective equipment:

General protective and hygienic measures:
Usual hygienic measures for dental practice.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Do not inhale gases / fumes / aerosols.

Respiratory protection:
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

Recommended filter device for short term use: Special gas filter Hg-P3

Protection of hands:

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
After use of gloves apply skin-cleaning agents and skin cosmetics.

Material of gloves
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
Natural rubber, NR
Nitrile rubber, NBR
Butyl rubber, BR
Fluorocarbon rubber (Viton)

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:

Tightly sealed goggles
### SECTION 9: Physical and chemical properties

- **9.1 Information on basic physical and chemical properties**
  - **General Information**
  - **Appearance:**
    - **Form:** Fluid
    - **Colour:** Silver grey
  - **Odour:** Odourless
  - **Odour threshold:** Not determined.
  - **pH-value:** Not applicable.

  - **Change in condition**
    - **Melting point/Melting range:** -38.86 °C
    - **Boiling point/Boiling range:** 356 °C

  - **Flash point:** Not applicable.
  - **Flammability (solid, gaseous):** Not determined.
  - **Self-igniting:** Product is not self-igniting.
  - **Danger of explosion:** Product does not present an explosion hazard.

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

  - **Vapour pressure at 20 °C:** 0.00163 hPa

  - **Density at 20 °C:** 13.54 g/cm³
  - **Relative density**
    - **Not determined.**
  - **Vapour density**
    - **Not applicable.**
  - **Evaporation rate**
    - **Not determined.**

  - **Solubility in / Miscibility with water:** Insoluble.

  - **Partition coefficient (n-octanol/water):** Not determined.

  - **Viscosity**
    - **Dynamic:** Not determined.
    - **Kinematic:** Not applicable.

- **9.2 Other information**
  - No further relevant information available.

### SECTION 10: Stability and reactivity

- **10.1 Reactivity**
  - No further relevant information available.

- **10.2 Chemical stability**
  - Stable under normal handling and storage conditions.

- **Thermal decomposition / conditions to be avoided**
  - No decomposition if used according to specifications.

- **10.3 Possibility of hazardous reactions**
  - No dangerous reactions known.

- **10.4 Conditions to avoid**
  - No further relevant information available.

- **10.5 Incompatible materials**
  - No further relevant information available.

- **10.6 Hazardous decomposition products**
  - None under normal conditions of storage and use.

- **Additional information**
  - Avoid contact with ammoniac, amines, metals and strong acids.

(Contd. on page 6)
SECTION 11: Toxicological information

11.1 Information on toxicological effects

- Acute toxicity: Fatal if inhaled.
- Primary irritant effect:
  - Skin corrosion/irritation: Based on available data, the classification criteria are not met.
  - Serious eye damage/irritation: Based on available data, the classification criteria are not met.
- Respiratory or skin sensitisation: Mercury may have a sensitizing effect on the skin and lungs, or act as a nephrotoxin or neurotoxin.
- Additional toxicological information:
  - Alloy powder and mercury are predosed in closed capsules, therefore the danger of exposition to mercury vapours are low.
  - Avoid exposure of mercury to pregnant person.
- CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):
  - Germ cell mutagenicity: Based on available data, the classification criteria are not met.
- Carcinogenicity: Based on available data, the classification criteria are not met.
- Reproductive toxicity: May damage the unborn child.
- STOT-single exposure: Based on available data, the classification criteria are not met.
- STOT-repeated exposure: Causes damage to organs through prolonged or repeated exposure.
- Aspiration hazard: Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1 Toxicity:

- Aquatic toxicity: No further relevant information available.
- Persistence and degradability: No further relevant information available.
- Bioaccumulative potential: No further relevant information available.
- Mobility in soil: No further relevant information available.
- Ecotoxicological effects:
  - Remark: Very toxic for fish
  - Additional ecological information:
    - General notes:
      - Water hazard class 3 (German Regulation) (Assessment by list): extremely hazardous for water
      - Do not allow product to reach ground water, water course or sewage system, even in small quantities.
      - Danger to drinking water if even extremely small quantities leak into the ground.
      - Also poisonous for fish and plankton in water bodies.
      - Very toxic for aquatic organisms
    - Results of PBT and vPvB assessment:
      - PBT: Not applicable.
      - vPvB: Not applicable.
    - Other adverse effects: No further relevant information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods:

- Recommendation:
  - Must not be disposed together with household garbage. Do not allow product to reach sewage system.
  - Take to an approved landfill or a waste incineration plant, under conditions approved by the local authority.
**SECTION 14: Transport information**

- **14.1 UN-Number**  
  - ADR,RID,ADN, IMDG, IATA  
  - UN3506

- **14.2 UN proper shipping name**  
  - ADR/RID/ADN  
    - 2809 MERCURY, ENVIRONMENTALLY HAZARDOUS  
  - IMDG  
    - MERCURY CONTAINED IN MANUFACTURED ARTICLES, MARINE POLLUTANT  
  - IATA  
    - MERCURY CONTAINED IN MANUFACTURED ARTICLES

- **14.3 Transport hazard class(es)**  
  - ADR/RID/ADN  
    - Class 8 (CT3) Corrosive substances.  
    - Label 8+6.1

- **IMDG**  
  - Class 8 Corrosive substances.  
  - Label 8/6.1

- **IATA**  
  - Class 8 Corrosive substances.  
  - Label 8 (6.1)

- **14.4 Packing group**  
  - ADR,RID,ADN, IMDG, IATA  
    - Void

- **14.5 Environmental hazards:**  
  - Marine pollutant: Yes  
  - Symbol (fish and tree)

- **Special marking (ADR/RID/ADN):**  
  - Symbol (fish and tree)

- **14.6 Special precautions for user**  
  - Warning: Corrosive substances.  
  - EMS Number: F-A-S-B

- **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**  
  - Not applicable.
**SECTION 15: Regulatory information**

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
  - Directive 2012/18/EU
  - Named dangerous substances - ANNEX I Substance is not listed.
  
- **National regulations:**
  - Other regulations, limitations and prohibitive regulations
    The product is a medical device according to the Directive 93/42/EEC.
    Product complies with ISO 13897 Dentistry - Amalgam capsules
    Product complies with ISO 24234 Dentistry - Dental amalgam
    Labelling according to ISO 24234

  ![CAUTION: This product contains mercury](image)

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

**SECTION 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
  - IATA: International Air Transport Association
  - GHS: Globally Harmonised System of Classification and Labelling of Chemicals
  - 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)
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
  - Acute Tox. 2: Acute toxicity, Hazard Category 2
  - Repr. 1B: Reproductive toxicity, Hazard Category 1B
  - STOT RE 1: Specific target organ toxicity - Repeated exposure, Hazard Category 1
  - Aquatic Acute 1: Hazardous to the aquatic environment - Acute Hazard, Category 1
  - Aquatic Chronic 1: Hazardous to the aquatic environment - Chronic Hazard, Category 1

- * Data compared to the previous version altered.
SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name: **Vivacap (Powder)**

1.2 Relevant identified uses of the substance or mixture and uses advised against

No further relevant information available.

Application of the substance / the mixture

Dental filling material

Amalgam

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Ivoclar Vivadent AG
Bendererstrasse 2
FL-9494 Schaan
PRINCIPALITY OF LIECHTENSTEIN

Tel: +423 235 35 35
Fax: +423 235 33 60

Further information obtainable from:

Regulatory Affairs
sds@ivoclarvivadent.com

1.4 Emergency telephone number: +423 / 235 33 13 (Ivoclar Vivadent AG, FL-9494 Schaan, Liechtenstein)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

The product is not classified according to the CLP regulation.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 Void

- Hazard pictograms Void
- Signal word Void
- Hazard statements Void
- Additional information: Safety data sheet available on request.

2.3 Other hazards

Results of PBT and vPvB assessment

- PBT: Not applicable.
- vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

3.2 Chemical characterisation: Mixtures

Description: Alloy powder and mercury in predosed capsules.

Dangerous components:

<table>
<thead>
<tr>
<th>CAS</th>
<th>EINECS:</th>
<th>Substance</th>
<th>Workplace exposure limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-22-4</td>
<td>231-131-3</td>
<td>silver substance</td>
<td>25-50%</td>
</tr>
<tr>
<td>7440-50-8</td>
<td>231-159-6</td>
<td>copper substance</td>
<td>25-50%</td>
</tr>
</tbody>
</table>

Additional information:

Non-Gamma-2, spherical 46 % silver alloy amalgam in self-activating capsule.

(Contd. on page 2)
SECTION 4: First aid measures

4.1 Description of first aid measures
- General information: No special measures required.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- After skin contact:
  - Rinse with water.
  - Generally the product does not irritate the skin.
- After eye contact:
  - Mechanical effects only.
  - Rinse opened eye for several minutes under running water. Then consult a doctor.
- After swallowing:
  - Rinse out mouth and then drink plenty of water.

4.2 Most important symptoms and effects, both acute and delayed
No further relevant information available.

4.3 Indication of any immediate medical attention and special treatment needed
No further relevant information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media
- Suitable extinguishing agents: The product is not flammable.

5.2 Special hazards arising from the substance or mixture
No further relevant information available.

5.3 Advice for firefighters
- Protective equipment: Wear self-contained respiratory protective device.
- Additional information: Cool endangered receptacles with water spray.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Not required.

6.2 Environmental precautions:
Do not allow to enter sewers/surface or ground water.

6.3 Methods and material for containment and cleaning up:
Pick up mechanically.

6.4 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.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
- Only adequately trained personnel should handle this product.
- For use in dentistry only.
- Information about fire and explosion protection: No special measures required.

7.2 Conditions for safe storage, including any incompatibilities
- Storage:
  - Requirements to be met by storerooms and receptacles: Store only in unopened original receptacles.
  - Information about storage in one common storage facility: Not required.
  - Further information about storage conditions:
    - Keep container tightly sealed.
    - Store receptacle in a well ventilated area.
Trade name: Vivacap (Powder)

7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection

- Additional information about design of technical facilities: No further data; see item 7.
- 8.1 Control parameters
  - Ingredients with limit values that require monitoring at the workplace:
    | Substance   | Limit values          |
    |--------------|-----------------------|
    | 7440-22-4 silver | WEL: 0.1 mg/m³      |
    | 7440-50-8 copper | WEL: 2 mg/m³  
                        | Short-term value: 0.2 mg/m³  
                        | *fume **dusts and mists (as Cu) |

- Additional information: The lists valid during the making were used as basis.
- 8.2 Exposure controls
  - Personal protective equipment:
    - General protective and hygienic measures: Usual hygienic measures for dental practice.
    - Respiratory protection:
      In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
  - Protection of hands:
    - Protective gloves
      The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. After use of gloves apply skin-cleaning agents and skin cosmetics.
  - Material of gloves
    The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
  - 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: Not required.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties
- General Information
  - Appearance:
    - Form: Powder
    - Colour: Grey
    - Odour: Odourless
    - Odour threshold: Not determined.
  - pH-value: Not applicable.
- Change in condition
  - Melting point/Melting range: Undetermined.
Boiling point/Boiling range: Undetermined.

· Flash point: Not applicable.

· Flammability (solid, gaseous): Not determined.

· Self-igniting: Product is not self-igniting.

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

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

· Vapour pressure: Not applicable.

· Density: Not determined.

· Relative density: Not determined.

· Vapour density: Not applicable.

· Evaporation rate: Not applicable.

· Solubility in / Miscibility with water: Insoluble.

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity:
  - Dynamic: Not applicable.
  - Kinematic: Not applicable.

· 9.2 Other information: No further relevant information available.

SECTION 10: Stability and reactivity

· 10.1 Reactivity: No further relevant information available.

· 10.2 Chemical stability: Stable under normal handling and storage conditions.

· Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

· 10.3 Possibility of hazardous reactions: No dangerous reactions known.

· 10.4 Conditions to avoid: No further relevant information available.

· 10.5 Incompatible materials: No further relevant information available.

· 10.6 Hazardous decomposition products: None under normal conditions of storage and use.

SECTION 11: Toxicological information

· 11.1 Information on toxicological effects

· Acute toxicity

· Primary irritant effect:
  - Skin corrosion/irritation: Based on available data, the classification criteria are not met.
  - Serious eye damage/irritation: Based on available data, the classification criteria are not met.
  - Respiratory or skin sensitisation: Based on available data, the classification criteria are not met.

· Additional toxicological information:
  - Alloy powder and mercury are predosed in closed capsules, therefore the danger of exposition to mercury vapours are low.

· CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

· Germ cell mutagenicity: Based on available data, the classification criteria are not met.

· Carcinogenicity: Based on available data, the classification criteria are not met.

· Reproductive toxicity: Based on available data, the classification criteria are not met.

· STOT-single exposure: Based on available data, the classification criteria are not met.

· STOT-repeated exposure: Based on available data, the classification criteria are not met.
Trade name: Vivacap (Powder)

Aspiration hazard Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1 Toxicity
Aquatic toxicity: No further relevant information available.

12.2 Persistence and degradability No further relevant information available.

12.3 Bioaccumulative potential No further relevant information available.

12.4 Mobility in soil No further relevant information available.

Additional ecological information:
General notes:
Water hazard class 1 (German Regulation) (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.

12.5 Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

12.6 Other adverse effects No further relevant information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Recommendation
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
Take to an approved landfill or a waste incineration plant, under conditions approved by the local authority.

European waste catalogue
18 01 10* amalgam waste from dental care

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

SECTION 14: Transport information

14.1 UN-Number
ADR,RID,ADN, ADN, IMDG, IATA Void

14.2 UN proper shipping name
ADR,RID,ADN, ADN, IMDG, IATA Void

14.3 Transport hazard class(es)
ADR,RID,ADN, ADN, IMDG, IATA
Class Void

14.4 Packing group
ADR,RID,ADN, IMDG, IATA Void

14.5 Environmental hazards:
Marine pollutant: No

14.6 Special precautions for user
Not applicable.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable.
Trade name: Vivacap (Powder)

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

### SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
  - Directive 2012/18/EU
  - **Named dangerous substances - ANNEX I** None of the ingredients is listed.
- **National regulations:**
  - **Other regulations, limitations and prohibitive regulations**
    - The product is a medical device according to the Directive 93/42/EEC.
    - Product complies with ISO 13897 Dentistry - Amalgam capsules
    - Product complies with ISO 24234 Dentistry - Dental amalgam
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### SECTION 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
  - IATA: International Air Transport Association
  - GHS: Globally Harmonised System of Classification and Labelling of Chemicals
  - 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)
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative

* **Data compared to the previous version altered.**