1 Identification

- **Product identifier**
  - **Trade name:** 4all
- **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
- **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 Hazard(s) identification

- **Classification of the substance or mixture**
  - Carc. 2 H351 Suspected of causing cancer.
  - STOT RE 1 H372 Causes damage to organs through prolonged or repeated exposure.
  - Skin Sens. 1 H317 May cause an allergic skin reaction.
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**
  - Toxic
    Toxic: danger of serious damage to health by prolonged exposure through inhalation.
  - Harmful
    Limited evidence of a carcinogenic effect.
  - Irritant
    May cause sensitisation by skin contact.
- **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.
38.0.20

- Label elements
- GHS label elements
  The product is classified and labeled according to the Globally Harmonized System (GHS).
- Hazard pictograms
  
  GHS07  GHS08

- Signal word  Danger
- Hazard-determining components of labeling:
  nickel
- Hazard statements
  May cause an allergic skin reaction.
  Suspected of causing cancer.
  Causes damage to organs through prolonged or repeated exposure.
- Precautionary statements
  Obtain special instructions before use.
  Avoid breathing dust/fume/gas/mist/vapours/spray.
  Wear protective gloves/protective clothing/eye protection/face protection.
  Do not breathe dust/fume/gas/mist/vapours/spray.
  Store locked up.
  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 = 3  
  Fire = 0  
  Reactivity = 0
- HMIS-ratings (scale 0 - 4)
  Health = *3  
  Fire = 0  
  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:
  7440-02-0  nickel  50-100%
Trade name: 4all

<table>
<thead>
<tr>
<th>Trade name: 4all</th>
</tr>
</thead>
<tbody>
<tr>
<td>4all</td>
</tr>
</tbody>
</table>

7440-47-3 chromium 25-50%
7439-98-7 molybdenum 10-<25%
7440-21-3 silicon 1-<2.5%

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.
  - 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 Fire-fighting 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

- 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.
### Exposition controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

- **Control parameters**

<table>
<thead>
<tr>
<th>Component</th>
<th>PEL Long-term value: 1 mg/m³</th>
<th>REL Long-term value: 0.015 mg/m³ as Ni; See Pocket Guide App. A</th>
<th>TLV Long-term value: 1.5* mg/m³ elemental, *inhalable fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-02-0 nickel</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>PEL Long-term value: 1* 0.5** mg/m³ **metal;**inorganic compds. as Cr</th>
<th>REL Long-term value: 0.5* mg/m³ **metal+inorg.compds.as Cr;See Pocket Guide App. C</th>
<th>TLV Long-term value: 0.5 mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-47-3 chromium</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>PEL Long-term value: 5* 15** mg/m³ as Mo;*soluble compds.,**insol.compds.:total dust</th>
<th>TLV Long-term value: 10* 3** mg/m³ as Mo; *inhalable fraction ** respirable fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>7439-98-7 molybdenum</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>PEL Long-term value: 15* 5** mg/m³ **total dust **respirable fraction</th>
<th>REL Long-term value: 10* 5** mg/m³ **total dust **respirable fraction</th>
<th>TLV TLV withdrawn</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-21-3 silicon</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **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 break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
### 9 Physical and chemical properties

- **Information on basic physical and chemical properties**
  - **General Information**
    - **Form:** Solid
    - **Color:** White
    - **Odor:** Odorless
    - **Odour threshold:** Not determined.
  - **pH-value:** Not applicable.
  - **Change in condition**
    - **Melting point/Melting range:** 1260–1350 °C (2300–2462 °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 at 20 °C (68 °F):** 8.4 g/cm³ (70.098 lbs/gal)
  - **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.
  - **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.
Trade name: 4all

- **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:** Sensitization possible through skin contact.
  - **Additional toxicological information:**
    Fumes or dusts generated from cutting or grinding operations may cause respiratory irritation.

- **Carcinogenic categories**
  - **IARC (International Agency for Research on Cancer)**
    - 7440-02-0 nickel 1
    - 7440-47-3 chromium 3
  - **NTP (National Toxicology Program)**
    - 7440-02-0 nickel R

### 12 Ecological information

- **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.
  - **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**
- **DOT, ADR, ADN, IMDG, IATA** Void
## Safety Data Sheet

**acc. to OSHA HCS**

**Printing date 04/25/2014**

**Reviewed on 04/02/2014**

**Version number 4**

### Trade name: 4all

<p>| <strong>UN proper shipping name</strong> | Void |
| <strong>DOT, ADR, ADN, IMDG, IATA</strong> |
| <strong>Transport hazard class(es)</strong> |
| <strong>DOT, ADR, ADN, IMDG, IATA</strong> | Void |
| <strong>Class</strong> |
| <strong>Packing group</strong> |
| <strong>DOT, ADR, IMDG, IATA</strong> | Void |
| <strong>Environmental hazards:</strong> |
| <strong>Marine pollutant:</strong> | No |
| <strong>Special precautions for user</strong> | Not applicable. |
| <strong>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</strong> | Not applicable. |
| <strong>Transport/Additional information:</strong> |
| <strong>Product is not classified as a dangerous good for transport (ADR, IMDG, IATA).</strong> |</p>
<table>
<thead>
<tr>
<th><strong>UN “Model Regulation”:</strong></th>
</tr>
</thead>
</table>

### 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):**
      - 7440-02-0 nickel
      - 7440-47-3 chromium
      - 7439-96-5 manganese
      - 7429-90-5 aluminium powder (pyrophoric)
    - **TSCA (Toxic Substances Control Act):**
      - All ingredients are listed.
- **Proposition 65**
  - **Chemicals known to cause cancer:**
    - 7440-02-0 nickel
  - **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)**
    - 7440-47-3 chromium

(Contd. on page 8)
Safety Data Sheet
acc. to OSHA HCS

Printing date 04/25/2014  Reviewed on 04/02/2014
Version number 4

Trade name: 4all

<table>
<thead>
<tr>
<th>Number</th>
<th>Chemical Name</th>
<th>TLV (Threshold Limit Value established by ACGIH)</th>
<th>NIOSH-Ca (National Institute for Occupational Safety and Health)</th>
<th>OSHA-Ca (Occupational Safety &amp; Health Administration)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7439-96-5</td>
<td>manganese</td>
<td>D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7440-02-0</td>
<td>nickel</td>
<td>A5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7440-47-3</td>
<td>chromium</td>
<td>A4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7439-98-7</td>
<td>molybdenum</td>
<td>A3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7429-90-3</td>
<td>aluminium powder (pyrophoric)</td>
<td>A4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **TLV (Threshold Limit Value established by ACGIH)**
- **NIOSH-Ca (National Institute for Occupational Safety and Health)**
- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

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

- **Hazard pictograms**

GHS07  GHS08

- **Signal word** Danger

- **Hazard-determining components of labeling:**
  - nickel

- **Hazard statements**
  - May cause an allergic skin reaction.
  - Suspected of causing cancer.
  - Causes damage to organs through prolonged or repeated exposure.

- **Precautionary statements**
  - Obtain special instructions before use.
  - Avoid breathing dust/fume/gas/mist/vapours/spray.
  - Wear protective gloves/protective clothing/eye protection/face protection.
  - Do not breathe dust/fume/gas/mist/vapours/spray.
  - Store locked up.
  - 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** 04/25/2014 / 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

(Contd. on page 9)
Trade name: 4all

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)
Skin Sens. 1: Sensitisation - Skin, Hazard Category 1
Carc. 2: Carcinogenicity, Hazard Category 2
STOT RE 1: Specific target organ toxicity - Repeated exposure, Hazard Category 1