1 Identification

- Product name: CBN Wafering Blades
- Part number:
  60-20071 - 60-20087
  60-30000 - 60-30020
- Application of the substance / the mixture: Abrasive blade
- Details of the supplier of the safety data sheet
- Manufacturer/Supplier: Allied High Tech Products Inc.
  2376 East Pacifica Place
  USA-RANCHO DOMINGUEZ, CA 90220
  USA
  info@alliedhightech.com
- Information department: Product safety department
- Emergency telephone number:
  During normal opening times: +1 (310) 635-2466
  Chemtrec: +1 (202) 483-7616

2 Hazard(s) identification

- Classification of the substance or mixture
  GHS08 Health hazard
  Resp. Sens. 1  H334  May cause allergy or asthma symptoms or breathing difficulties if inhaled.
  Carc. 1B  H350  May cause cancer.
  Repr. 1A  H360-H362  May damage fertility or the unborn child. May cause harm to breast-fed children.
  STOT RE 1  H372  Causes damage to the gastro-intestinal tract through prolonged or repeated exposure.

  GHS09 Environment
  Aquatic Chronic 2  H411  Toxic to aquatic life with long lasting effects.

  GHS07

(Contd. on page 2)
Product name: CBN Wafering Blades

Skin Sens. 1 H317 May cause an allergic skin reaction.
Aquatic Acute 2 H401 Toxic to aquatic life.

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

GHS08 GHS09

- **Signal word** Danger

- **Hazard-determining components of labeling:**
  - cobalt
  - nickel
  - lead
  - tungsten carbide

- **Hazard statements**
  - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
  - May cause an allergic skin reaction.
  - May cause cancer.
  - May damage fertility or the unborn child. May cause harm to breast-fed children.
  - Causes damage to the gastro-intestinal tract through prolonged or repeated exposure.
  - Toxic to aquatic life.
  - Toxic to aquatic life with long lasting effects.

- **Precautionary statements**
  - Obtain special instructions before use.
  - Do not handle until all safety precautions have been read and understood.
  - Do not breathe dusts or mists.
  - Avoid contact during pregnancy/while nursing.
  - Wash thoroughly after handling.
  - Do not eat, drink or smoke when using this product.
  - Contaminated work clothing must not be allowed out of the workplace.
  - Avoid release to the environment.
  - Wear protective gloves/protective clothing/eye protection/face protection.
  - If on skin: Wash with plenty of water.
  - If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
  - IF exposed or concerned: Get medical advice/attention.
  - Specific treatment (see on this label).
  - Get medical advice/attention if you feel unwell.
  - If skin irritation or rash occurs: Get medical advice/attention.
  - If experiencing respiratory symptoms: Call a poison center/doctor.
  - Wash contaminated clothing before reuse.
  - Collect spillage.
  - Store locked up.
  - Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Classification system:**

  - **NFPA ratings (scale 0 - 4)**
  - Health = 1
  - Fire = 0
  - Reactivity = 1
**Product name:** CBN Wafering Blades

### 3 Composition/information on ingredients

- **Chemical characterization:** Mixtures
- **Description:** Mixture of the substances listed below with nonhazardous additions.

<table>
<thead>
<tr>
<th>Hazardous Components:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-50-8 copper</td>
<td>10-25%</td>
</tr>
<tr>
<td>7440-48-4 cobalt</td>
<td>2.5-10%</td>
</tr>
<tr>
<td>1314-13-2 zinc oxide</td>
<td>2.5-10%</td>
</tr>
<tr>
<td>7440-33-7 tungsten</td>
<td>2.5-10%</td>
</tr>
<tr>
<td>7440-02-0 nickel</td>
<td>2.5-10%</td>
</tr>
<tr>
<td>7440-47-3 chromium</td>
<td>2.5-10%</td>
</tr>
<tr>
<td>7440-31-5 tin</td>
<td>2.5-10%</td>
</tr>
<tr>
<td>12070-12-1 tungsten carbide</td>
<td>2.5-10%</td>
</tr>
<tr>
<td>7439-92-1 lead</td>
<td>≤2.5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Non-hazardous Components:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7439-89-6 iron</td>
<td>25-50%</td>
</tr>
<tr>
<td>10043-11-5 boron nitride</td>
<td>≤2.5%</td>
</tr>
</tbody>
</table>

### 4 First-aid measures

- **Description of first aid measures**
- **General information:**
  Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:**
  Supply fresh air and to be sure call for a doctor.
  In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:**
  Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**
  Rinse opened eye for several minutes under running water.
- **After swallowing:**
  If symptoms persist consult doctor.
- **Information for doctor:**
  **Most important symptoms and effects, both acute and delayed** No further relevant information available.
Product name: CBN Wafering Blades

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: No special measures required.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures: Not required.
- Environmental precautions:
  Do not allow product to reach sewage system or any water course.
  Do not allow to enter sewers/surface or ground water.
  Inform respective authorities in case of seepage into water course or sewage system.
- Methods and material for containment and cleaning up:
  Dispose contaminated material as waste according to item 13.
  Ensure adequate ventilation.
- 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.
- Protective Action Criteria for Chemicals

<table>
<thead>
<tr>
<th>PAC-1:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron</td>
<td>3.2 mg/m³</td>
</tr>
<tr>
<td>Copper</td>
<td>3 mg/m³</td>
</tr>
<tr>
<td>Cobalt</td>
<td>0.18 mg/m³</td>
</tr>
<tr>
<td>Zinc Oxide</td>
<td>10 mg/m³</td>
</tr>
<tr>
<td>Tungsten</td>
<td>10 mg/m³</td>
</tr>
<tr>
<td>Nickel</td>
<td>4.5 mg/m³</td>
</tr>
<tr>
<td>Chromium</td>
<td>1.5 mg/m³</td>
</tr>
<tr>
<td>Tin</td>
<td>6 mg/m³</td>
</tr>
<tr>
<td>Tungsten Carbide</td>
<td>11 mg/m³</td>
</tr>
<tr>
<td>Lead</td>
<td>0.15 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PAC-2:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron</td>
<td>35 mg/m³</td>
</tr>
<tr>
<td>Copper</td>
<td>33 mg/m³</td>
</tr>
<tr>
<td>Cobalt</td>
<td>2 mg/m³</td>
</tr>
<tr>
<td>Zinc Oxide</td>
<td>15 mg/m³</td>
</tr>
<tr>
<td>Tungsten</td>
<td>330 mg/m³</td>
</tr>
<tr>
<td>Nickel</td>
<td>50 mg/m³</td>
</tr>
<tr>
<td>Chromium</td>
<td>17 mg/m³</td>
</tr>
<tr>
<td>Tin</td>
<td>67 mg/m³</td>
</tr>
<tr>
<td>Tungsten Carbide</td>
<td>120 mg/m³</td>
</tr>
</tbody>
</table>
Product name: CBN Wafering Blades

<table>
<thead>
<tr>
<th>Compound</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>7439-92-1 lead</td>
<td>120 mg/m³</td>
</tr>
<tr>
<td>PAC-3:</td>
<td></td>
</tr>
<tr>
<td>7439-89-6 iron</td>
<td>150 mg/m³</td>
</tr>
<tr>
<td>7440-50-8 copper</td>
<td>200 mg/m³</td>
</tr>
<tr>
<td>7440-48-4 cobalt</td>
<td>20 mg/m³</td>
</tr>
<tr>
<td>1314-13-2 zinc oxide</td>
<td>2,500 mg/m³</td>
</tr>
<tr>
<td>7440-33-7 tungsten</td>
<td>2,000 mg/m³</td>
</tr>
<tr>
<td>7440-02-0 nickel</td>
<td>99 mg/m³</td>
</tr>
<tr>
<td>7440-47-3 chromium</td>
<td>99 mg/m³</td>
</tr>
<tr>
<td>7440-31-5 tin</td>
<td>400 mg/m³</td>
</tr>
<tr>
<td>12070-12-1 tungsten carbide</td>
<td>730 mg/m³</td>
</tr>
<tr>
<td>7439-92-1 lead</td>
<td>700 mg/m³</td>
</tr>
</tbody>
</table>

7 Handling and storage

- Handling:
- Precautions for safe handling: No special precautions are necessary if used correctly.
- 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: Store in a cool location.
  - Information about storage in one common storage facility: Not required.
  - Further information about storage conditions: Store receptacle in a well ventilated area.
- 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

<table>
<thead>
<tr>
<th>Component</th>
<th>Limit Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-50-8 copper</td>
<td></td>
</tr>
<tr>
<td>PEL</td>
<td>Long-term value: 1* 0.1** mg/m³</td>
</tr>
<tr>
<td></td>
<td>as Cu *dusts and mists **fume</td>
</tr>
<tr>
<td>REL</td>
<td>Long-term value: 1* 0.1** mg/m³</td>
</tr>
<tr>
<td></td>
<td>as Cu *dusts and mists **fume</td>
</tr>
<tr>
<td>TLV</td>
<td>Long-term value: 1* 0.2** mg/m³</td>
</tr>
<tr>
<td></td>
<td>*dusts and mists; **fume; as Cu</td>
</tr>
<tr>
<td>7440-48-4 cobalt</td>
<td></td>
</tr>
<tr>
<td>PEL</td>
<td>Long-term value: 0.1* mg/m³</td>
</tr>
<tr>
<td></td>
<td>as Co; *for metal dust and fume</td>
</tr>
<tr>
<td>REL</td>
<td>Long-term value: 0.05 mg/m³</td>
</tr>
<tr>
<td></td>
<td>as Co; metal dust &amp; fume</td>
</tr>
<tr>
<td>TLV</td>
<td>Long-term value: (0.02) NIC-0.02* mg/m³</td>
</tr>
<tr>
<td></td>
<td>*inh. fraction; NIC-Skin, DSEN, RSEN, BEI</td>
</tr>
</tbody>
</table>

(Contd. of page 6)
### 1314-13-2 zinc oxide

| PEL | Long-term value: 15* 5** mg/m³  
|     | *total dust **respirable fraction and fume |
| REL | Short-term value: 10** mg/m³  
|     | Long-term value: 5 mg/m³  
|     | Ceiling limit value: 15* mg/m³  
|     | *dust only **fume |
| TLV | Short-term value: 10* mg/m³  
|     | Long-term value: 2* mg/m³  
|     | *as respirable fraction |

### 7440-33-7 tungsten

| PEL | Long-term value: 1 mg/m³  
| REL | Short-term value: 0.015 mg/m³  
|     | as Ni; See Pocket Guide App. A |
| TLV | Long-term value: 1.5* mg/m³  
|     | elemental, *inhalable fraction |

### 7440-02-0 nickel

| PEL | Long-term value: 1 mg/m³  
| REL | Long-term value: 0.015 mg/m³  
|     | as Ni; See Pocket Guide App. A |
| TLV | Long-term value: 0.003* 0.5** mg/m³  
|     | inh. fraction, *as Cr(III), **metal |

### 7440-47-3 chromium

| PEL | Long-term value: 1 mg/m³  
| REL | Long-term value: 0.5* mg/m³  
|     | *metal+inorg.compds.as Cr; See Pocket Guide App. C |
| TLV | Long-term value: 0.003* 0.5** mg/m³  
|     | inh. fraction, *as Cr(III), **metal |

### 7440-31-5 tin

| PEL | Long-term value: 2 mg/m³  
| REL | Long-term value: 2 mg/m³  
| TLV | Long-term value: 2 mg/m³  

### 12070-12-1 tungsten carbide

| REL | Short-term value: 10 mg/m³  
|     | Long-term value: 5 mg/m³  
|     | as W |
| TLV | Long-term value: 3* mg/m³  
|     | as W; * respirable fraction |

### 7439-92-1 lead

| PEL | Long-term value: 0.5* mg/m³  
|     | *see 29 CFR 1910.1025 |
| REL | Long-term value: 0.3* mg/m³  
|     | *8-hr TWA ; See PocketGuide App.C |
Product name: CBN Wafering Blades

<table>
<thead>
<tr>
<th>TLV</th>
<th>Long-term value: 0.05* mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>*and inorganic compounds, as Pb; BEI</td>
</tr>
</tbody>
</table>

Ingredients with biological limit values:

7440-48-4 cobalt

BEI 15 µg/L
- Medium: urine
- Time: end of shift at end of workweek
- Parameter: Cobalt (background)

1 µg/L
- Medium: blood
- Time: end of shift at end of workweek
- Parameter: Cobalt (background, semi-quantitative)

7439-92-1 lead

BEI 30 µg/100 ml
- Medium: blood
- Time: not critical
- Parameter: Lead

10 µg/100 ml
- Medium: blood
- Time: not critical
- Parameter: Lead (women of child bearing potential)

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

Exposure controls

Personal protective equipment:

General protective and hygienic measures:
- 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.

Breathing equipment: Use suitable respiratory protective device when high concentrations are present.

Protection of hands:
- Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Protective gloves

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.
# 9 Physical and chemical properties

- **Information on basic physical and chemical properties**
  - **General Information**
  - **Appearance:**
    - **Form:** Solid
    - **Color:** According to product specification
    - **Odor:** Odorless
    - **Odor 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.

- **Decomposition temperature:** 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.
- **Vapor 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:**
  - **VOC content:** 0.00 %
    - 0.0 g/l / 0.00 lb/gl

- **Solids content:** 100.0 %
Product name: CBN Wafering Blades

Other information
No further relevant information available.

10 Stability and reactivity
- Reactivity: No further relevant information available.
- Chemical stability
  - Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
  - Possibility of hazardous reactions: No dangerous reactions known.
- Conditions to avoid
  - Keep away from heat.
  - Keep away from sources of ignition - No smoking.
  - Keep away from open flames. - No smoking.
- Incompatible materials: No further relevant information available.
- Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information
- Information on toxicological effects
  - Acute toxicity:
    - LD/LC50 values that are relevant for classification:
      - ATE (Acute Toxicity Estimate)
        | Route   | LD50/LC50       |
        |---------|-----------------|
        | Oral    | 14,201 mg/kg    |
        | Inhalative | 72.4 mg/l (rat) |
      - 7440-48-4 cobalt
        | Oral    | 6,170 mg/kg (rat) |
      - 1314-13-2 zinc oxide
        | Oral    | >5,000 mg/kg (rat) |
      - 7440-02-0 nickel
        | Dermal  | 5,010 mg/kg (rat) |
        | Inhalative | 2.55 mg/l (rat)   |
      - 7439-92-1 lead
        | Oral    | 100 mg/kg (ATE)  |
        | Inhalative | 1.5 mg/l (ATE)   |
  - Primary chemical irritant effect:
    - on the skin: No irritant effect.
    - on the eye: No irritating effect.
  - Sensitization:
    - Sensitization possible through inhalation.
    - Sensitization possible through skin contact.
  - Additional toxicological information:
    - Abrasive eye irritant
    - Abrasive skin irritant
  - Carcinogenic categories
    - IARC (International Agency for Research on Cancer)
      - 7440-48-4 cobalt 2B
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.
- **Ecotoxical effects:**
  - **Remark:** Toxic for fish
- **Additional ecological information:**
  - **General notes:**
    - Water hazard class 2 (Self-assessment): hazardous for water
    - Do not allow product to reach ground water, water course or sewage system.
    - Danger to drinking water if even small quantities leak into the ground.
    - Also poisonous for fish and plankton in water bodies.
    - Toxic for aquatic organisms
- **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:** Contact waste processors for recycling information.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **UN-Number**
- **DOT, ADN, IMDG, IATA** not regulated
- **UN proper shipping name**
- **DOT, ADN, IMDG, IATA** not regulated
### Transport hazard class(es)
- **DOT, IMDG, IATA**
  - **Class**: not regulated
  - **Label**: -
  - **ADN/R Class**: not regulated

### Packing group
- **DOT, IMDG, IATA**: not regulated

### Environmental hazards:
- **Marine pollutant**: No
  - 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.

### UN "Model Regulation"
- not regulated

### 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):**
  - 7440-50-8 copper
  - 7440-48-4 cobalt
  - 1314-13-2 zinc oxide
  - 7440-02-0 nickel
  - 7440-47-3 chromium
  - 7439-92-1 lead
- **TSCA (Toxic Substances Control Act):**
  - All ingredients are listed.
- **Proposition 65**
  - **Chemicals known to cause cancer:**
    - 7440-48-4 cobalt
    - 7440-02-0 nickel
    - 7439-92-1 lead
  - **Chemicals known to cause reproductive toxicity for females:**
    - 7439-92-1 lead
  - **Chemicals known to cause reproductive toxicity for males:**
    - 7439-92-1 lead
  - **Chemicals known to cause developmental toxicity:**
    - 7439-92-1 lead

(Contd. on page 12)
Product name: CBN Wafering Blades

- Carcinogenic categories

- EPA (Environmental Protection Agency)
  - 7440-50-8 copper D
  - 1314-13-2 zinc oxide D, I, II
  - 7440-47-3 chromium D
  - 10043-11-5 boron nitride I (oral)
  - 7439-92-1 lead B2

- TLV (Threshold Limit Value established by ACGIH)
  - 7440-48-4 cobalt A3
  - 7440-02-0 nickel A5
  - 7440-47-3 chromium A4
  - 7439-92-1 lead A3

- NIOSH-Ca (National Institute for Occupational Safety and Health)
  - 7440-02-0 nickel
  - 12070-12-1 tungsten carbide

- National regulations:
  - Additional classification according to Decree on Hazardous Materials:
    Carcinogenic hazardous material group III (dangerous).

- Information about limitation of use:
  Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases.

- 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.

- Department issuing SDS: Environment protection department.
- Contact: Kim Dermit
- Date of preparation / last revision 06/15/2018 /
- 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)
  - VOC: Volatile Organic Compounds (USA, EU)
  - LC50: Lethal concentration, 50 percent
  - LDS0: Lethal dose, 50 percent
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
  - NIOSH: National Institute for Occupational Safety
  - OSHA: Occupational Safety & Health
  - TLV: Threshold Limit Value
  - PEL: Permissible Exposure Limit
  - REL: Recommended Exposure Limit
  - BEI: Biological Exposure Limit
Product name: CBN Wafering Blades

- Acute Tox. 3: Acute toxicity – Category 3
- Acute Tox. 4: Acute toxicity – Category 4
- Resp. Sens. 1: Respiratory sensitisation – Category 1
- Skin Sens. 1: Skin sensitisation – Category 1
- Carc. 1B: Carcinogenicity – Category 1B
- Carc. 2: Carcinogenicity – Category 2
- Carc. 2: Carcinogenicity – Category 2
- Repr. 1A: Reproductive toxicity – Category 1A
- STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1
- Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
- Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1
- Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2
- Aquatic Chronic 4: Hazardous to the aquatic environment - long-term aquatic hazard – Category 4