1 Identification

· Product identifier
· Trade name: CarTech H13
· Application of the substance / the mixture: Metal working

· Details of the supplier of the safety data sheet
· Manufacturer/Supplier: Carpenter Technology Corp
  PO Box 14662, Reading, PA 19612
  101 West Bern Street
  READING, PA 19601
  USA

· Information department: Health and Safety Department
· Emergency telephone number: During normal opening times: +1 (610) 208-2134

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. 2  H351  Suspected of causing cancer.

  GHS07

  Skin Sens. 1  H317  May cause an allergic skin reaction.

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

  GHS08

· Signal word: Danger
· Hazard-determining components of labeling:
  cobalt
  nickel

· Hazard statements
  May cause allergy or asthma symptoms or breathing difficulties if inhaled.
  May cause an allergic skin reaction.
  Suspected of causing cancer.

(Contd. on page 2)
Precautionary statements

[In case of inadequate ventilation] wear respiratory protection.
Avoid breathing dust/fume/gas/mist/vapors/spray
Wear protective gloves.
Contaminated work clothing must not be allowed out of the workplace.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Specific treatment (see on this label).
If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
Wash contaminated clothing before reuse.
If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
IF exposed or concerned: Get medical advice/attention.
IF skin irritation or rash occurs: Get medical advice/attention.
IF ON SKIN: Wash with plenty of water.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

Classification system:

NFPA ratings (scale 0 - 4)

```
0 0 0
Health = 0
Fire = 0
Reactivity = 0
```

HMIS-ratings (scale 0 - 4)

```
0 0 0
Health = 0
Fire = 0
Reactivity = 0
```

Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.
vPvB: Not applicable.

Composition/information on ingredients

Chemical characterization: Mixtures

Description: Mixture of the substances listed below with nonhazardous additions.

Dangerous components:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-47-3 chromium</td>
<td>2.5-%&lt;10%</td>
</tr>
<tr>
<td>7439-98-7 molybdenum</td>
<td>0.1-%≤2.5%</td>
</tr>
<tr>
<td>7440-21-3 silicon</td>
<td>0.1-%≤2.5%</td>
</tr>
<tr>
<td>7440-48-4 cobalt</td>
<td>0.1-%≤1%</td>
</tr>
<tr>
<td>7440-02-0 nickel</td>
<td>0.1-%≤1%</td>
</tr>
</tbody>
</table>

First-aid measures

Description of first aid measures

After inhalation:
Supply fresh air and to be sure call for a doctor.
43.0.21

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.
· 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: No special measures required.

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: No special measures required.
· 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: Not applicable.
· Information about protection against explosions and fires: Not applicable.
· 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: Keep receptacle tightly sealed.
· 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:
    7440-47-3 chromium
    PEL: Long-term value: 1 mg/m³
### Ingredients with biological limit values:

<table>
<thead>
<tr>
<th>Substance</th>
<th>BEI</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-48-4 cobalt</td>
<td>15 µg/L</td>
</tr>
<tr>
<td>BEI</td>
<td>15 µg/L</td>
</tr>
<tr>
<td>Medium: urine</td>
<td></td>
</tr>
<tr>
<td>Time: end of shift at end of workweek</td>
<td></td>
</tr>
<tr>
<td>Parameter: Cobalt (background)</td>
<td></td>
</tr>
<tr>
<td>1 µg/L</td>
<td></td>
</tr>
<tr>
<td>Medium: blood</td>
<td></td>
</tr>
<tr>
<td>Time: end of shift at end of workweek</td>
<td></td>
</tr>
<tr>
<td>Parameter: Cobalt (background, semi-quantitative)</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:

- 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:
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· Protection of hands:

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation of the glove material 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.

· 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:

Safety glasses

9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:
  · Form: Solid
  · Color: According to product specification
  · Odor: Characteristic
  · Odor threshold: Not determined.

· pH-value: Not applicable.

· Change in condition
  · Melting point/Melting range: Undetermined.
  · Boiling point/Boiling range: 2672 °C (4842 °F)

· Flash point: Not applicable.

· Flammability (solid, gaseous): Not determined.

· Ignition temperature: 260 °C (500 °F)

· Decomposition temperature: Not determined.

· Auto igniting: Product is not selfigniting.

· Danger of explosion: Product does not present an explosion hazard.
### Trade name: CarTech H13

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

- **Vapor pressure:** Not applicable.

- **Density at 20 °C (68 °F):**
  - 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:**
  - Organic solvents: 0.0 %
  - VOC content: 0.0 g/l / 0.00 lb/gl

- **Solids content:** 97.8 %

- **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** No further relevant information available.

- **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:**
    - 7440-48-4 cobalt
      - Oral LD50 6170 mg/kg (rat)

- **Primary 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:**
  - The product shows the following dangers according to internally approved calculation methods for preparations:
12 Ecological information

- **Toxicity**
  - **Aquatic toxicity**: No further relevant information available.
  - **Persistence and degradability**: No further relevant information available.
  - **Behavior in environmental systems**: 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**:
      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.
      - **vPvB**: Not applicable.
    - **Other adverse effects**: No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
  - **Recommendation**:
    Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- **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, ADN, IMDG, IATA**
  - **Class**: not regulated

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

### Environmental hazards:
- **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"
- not regulated

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### 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)**:
      - 7440-47-3 chromium
      - 7440-62-2 vanadium
      - 7439-96-5 manganese
      - 7440-48-4 cobalt
      - 7440-02-0 nickel
      - 7440-50-8 copper
    - **TSCA (Toxic Substances Control Act)**: All ingredients are listed.

- **Proposition 65**
  - **Chemicals known to cause cancer**:
    - 7440-48-4 cobalt
    - 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
Trade name: CarTech H13

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>7439-96-5</td>
<td>manganese</td>
</tr>
<tr>
<td>7440-50-8</td>
<td>copper</td>
</tr>
</tbody>
</table>

**TLV (Threshold Limit Value established by ACGIH)**

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-47-3</td>
<td>chromium</td>
</tr>
<tr>
<td>7439-98-7</td>
<td>molybdenum</td>
</tr>
<tr>
<td>7440-48-4</td>
<td>cobalt</td>
</tr>
<tr>
<td>7440-02-0</td>
<td>nickel</td>
</tr>
</tbody>
</table>

**NIOSH-Ca (National Institute for Occupational Safety and Health)**

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-02-0</td>
<td>nickel</td>
</tr>
</tbody>
</table>

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

**Signal word** Danger

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

**Hazard statements**
- May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- May cause an allergic skin reaction.
- Suspected of causing cancer.

**Precautionary statements**
- [In case of inadequate ventilation] wear respiratory protection.
- Avoid breathing dust/fume/gas/mist/vapors/spray
- Wear protective gloves.
- Contaminated work clothing must not be allowed out of the workplace.
- Obtain special instructions before use.
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- Specific treatment (see on this label).
- If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
- Wash contaminated clothing before reuse.
- If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
- IF exposed or concerned: Get medical advice/attention.
- If skin irritation or rash occurs: Get medical advice/attention.
- IF ON SKIN: Wash with plenty of water.
- Store locked up.
- Dispose of contents/container in accordance with local/regional/national/international regulations.

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

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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.
**Date of preparation / last revision** 09/02/2016 / 30

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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
LD50: 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
Resp. Sens. 1: Respiratory sensitisation – Category 1
Skin Sens. 1: Skin sensitisation – Category 1
Carc. 2: Carcinogenicity – Category 2

* Data compared to the previous version altered.