

Safety Data Sheet
acc. to OSHA HCS

Printing date 02/05/2018

Reviewed on 02/05/2018

1 Identification

- **Product identifier**
- **Trade name:** WASPALLOY LOW HARDENER RING QUALITY
- **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.
- STOT RE 1 H372 Causes damage to organs through prolonged or repeated exposure.



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

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Causes damage to organs through prolonged or repeated exposure.

· **Precautionary statements**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Do not breathe dust/fume/gas/mist/vapors/spray.

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.

Wear protective gloves/protective clothing/eye protection/face protection.

[In case of inadequate ventilation] wear respiratory 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.

Get medical advice/attention if you feel unwell.

Specific treatment (see on this label).

If skin irritation or rash occurs: Get medical advice/attention.

If experiencing respiratory symptoms: Call a poison center/doctor.

Wash contaminated clothing before reuse.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 0

Fire = 0

Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = *0

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

· **Dangerous components:**

CAS: 7440-02-0 Reg.nr.: 01-2119438727-29-0059	nickel	50-100%
CAS: 7440-47-3 Reg.nr.: 01-2119485652-31-0069	chromium	10-25%
CAS: 7440-48-4 Reg.nr.: 05-2116477512-43-0000	cobalt	10-25%

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CAS: 7439-98-7 Reg.nr.: 05-2116477510-47-0000	molybdenum	2.5-10%
CAS: 7440-32-6 Reg.nr.: 05-2116477515-37-0000	titanium	2.5-10%

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.
- **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.
- **Protective Action Criteria for Chemicals**

- **PAC-1:**

7440-02-0	nickel	4.5 mg/m ³
7440-47-3	chromium	1.5 mg/m ³
7440-48-4	cobalt	0.18 mg/m ³
7439-98-7	molybdenum	30 mg/m ³
7440-32-6	titanium	30 mg/m ³
7439-89-6	iron	3.2 mg/m ³

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7440-03-1	niobium	30 mg/m ³
7440-21-3	silicon	45 mg/m ³
7440-50-8	copper	3 mg/m ³
7440-44-0	carbon	6 mg/m ³
7727-37-9	nitrogen	7.96E+05 ppm
7440-42-8	boron	1.9 mg/m ³
7440-31-5	tin	6 mg/m ³
7440-38-2	arsenic	1.5 mg/m ³
7440-22-4	silver	0.3 mg/m ³
7439-92-1	lead	0.15 mg/m ³
7440-28-0	thallium	0.06 mg/m ³
13494-80-9	tellurium	1.8 mg/m ³

PAC-2:

7440-02-0	nickel	50 mg/m ³
7440-47-3	chromium	17 mg/m ³
7440-48-4	cobalt	2 mg/m ³
7439-98-7	molybdenum	330 mg/m ³
7440-32-6	titanium	330 mg/m ³
7439-89-6	iron	35 mg/m ³
7440-03-1	niobium	330 mg/m ³
7440-21-3	silicon	100 mg/m ³
7440-50-8	copper	33 mg/m ³
7440-44-0	carbon	330 mg/m ³
7727-37-9	nitrogen	8.32E+05 ppm
7440-42-8	boron	21 mg/m ³
7440-31-5	tin	67 mg/m ³
7440-38-2	arsenic	17 mg/m ³
7440-22-4	silver	170 mg/m ³
7439-92-1	lead	120 mg/m ³
7440-28-0	thallium	3.3 mg/m ³
13494-80-9	tellurium	20 mg/m ³

PAC-3:

7440-02-0	nickel	99 mg/m ³
7440-47-3	chromium	99 mg/m ³
7440-48-4	cobalt	20 mg/m ³
7439-98-7	molybdenum	2,000 mg/m ³
7440-32-6	titanium	2,000 mg/m ³
7439-89-6	iron	150 mg/m ³
7440-03-1	niobium	2,000 mg/m ³
7440-21-3	silicon	630 mg/m ³
7440-50-8	copper	200 mg/m ³

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7440-44-0	carbon	2,000 mg/m ³
7727-37-9	nitrogen	8.69E+05 ppm
7440-42-8	boron	130 mg/m ³
7440-31-5	tin	400 mg/m ³
7440-38-2	arsenic	100 mg/m ³
7440-22-4	silver	990 mg/m ³
7439-92-1	lead	700 mg/m ³
7440-28-0	thallium	20 mg/m ³
13494-80-9	tellurium	110 mg/m ³

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:** 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:**
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.
At this time, the remaining constituent has no known exposure limits.

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: 1.5* mg/m³
elemental, *inhalable fraction

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: (0.5) 0.5* mg/m³
*inhalable fraction, as Cr(0)

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7440-48-4 cobalt

PEL	Long-term value: 0.1 * mg/m ³ as Co; *for metal dust and fume
REL	Long-term value: 0.05 mg/m ³ as Co; metal dust & fume
TLV	Long-term value: (0.02) NIC-0.02* mg/m ³ *inh. fraction; NIC-Skin, DSEN, RSEN (BEI)

7439-98-7 molybdenum

PEL	Long-term value: 15* mg/m ³ *Total dust, as Mo
TLV	Long-term value: 10* 3** mg/m ³ as Mo; *inhalable fraction ** respirable fraction

· **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)

· **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

· **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.

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· **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.

· **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.
Not determined.

· **Explosion limits:**

· Lower:	Not determined.
· Upper:	Not determined.

· **Vapor pressure:** Not applicable.

· **Density at 20 °C (68 °F):** 5.75749 g/cm³ (48.04625 lbs/gal)

· **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.

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- **Solvent content:**
- VOC content:** 0.00 %
0.0 g/l / 0.00 lb/gl
- **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 6,170 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:
Harmful
Irritant

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

7440-02-0	nickel	2B
7440-47-3	chromium	3
7440-48-4	cobalt	2B

- **NTP (National Toxicology Program)**

7440-02-0	nickel	R
7440-48-4	cobalt	R

- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

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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 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.
- **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. |

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· 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):

7440-02-0 nickel

7440-47-3 chromium

7440-48-4 cobalt

7429-90-5 aluminium

7440-50-8 copper

· TSCA (Toxic Substances Control Act):

7440-02-0 nickel

7440-47-3 chromium

7440-48-4 cobalt

7439-98-7 molybdenum

7440-32-6 titanium

7439-89-6 iron

7440-03-1 niobium

7440-21-3 silicon

7440-50-8 copper

· TSCA new (21st Century Act) (Substances not listed)

· Proposition 65

· Chemicals known to cause cancer:

7440-02-0 nickel

7440-48-4 cobalt

· 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

D

7440-50-8 copper

D

· TLV (Threshold Limit Value established by ACGIH)

7440-02-0 nickel

A5

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7440-47-3	chromium	A4
7440-48-4	cobalt	A3
7439-98-7	molybdenum	A3
7429-90-5	aluminium	A4
7440-67-7	zirconium	A4

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

7440-02-0 nickel

- **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:**

nickel
cobalt

· **Hazard statements**

May cause allergy or asthma symptoms or breathing difficulties if inhaled.
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.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust/fume/gas/mist/vapors/spray.
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.
Wear protective gloves/protective clothing/eye protection/face protection.
[In case of inadequate ventilation] wear respiratory 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.
Get medical advice/attention if you feel unwell.
Specific treatment (see on this label).
If skin irritation or rash occurs: Get medical advice/attention.
If experiencing respiratory symptoms: Call a poison center/doctor.
Wash contaminated clothing before reuse.
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.

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.

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- **Department issuing SDS:** Environment protection department.
- **Date of preparation / last revision** 02/05/2018 / 5
- **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
 - BEL: Biological Exposure Limit
 - Resp. Sens. 1: Respiratory sensitisation – Category 1
 - Skin Sens. 1: Skin sensitisation – Category 1
 - Carc. 2: Carcinogenicity – Category 2
 - STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1
- *** Data compared to the previous version altered.**

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