Safety Data Sheet
acc. to OSHA HCS

Printing date 12/05/2018 Reviewed on 11/23/2015

1 Identification

· **Product identifier**

· **Trade name: PYROMET 718 HIGH TEMPERATURE ALLOY PYROT**
· **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:** Call CHEMTREC +1 703-741-5970 / 1-800-424-9300 CCN 842700

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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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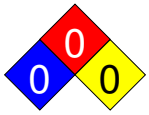
Causes damage to organs through prolonged or repeated exposure.

· **Precautionary statements**

If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.
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.
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.
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.*

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3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

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

· **Dangerous components:**		
7440-02-0	nickel	50-100%
7440-47-3	chromium	10-25%
7439-98-7	molybdenum	2.5-10%
7440-32-6	titanium	≤2.5%

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7440-48-4	cobalt	≥1-≤2.5%

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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.

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5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:** The product is not flammable.
· **Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.
· **Advice for firefighters**
· **Protective equipment:** Mouth respiratory protective device.

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6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Mount respiratory protective device.
· **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/m³
7439-89-6	iron	3.2 mg/m³
7440-47-3	chromium	1.5 mg/m³
7440-03-1	niobium	30 mg/m³
7439-98-7	molybdenum	30 mg/m³
7440-32-6	titanium	30 mg/m³
7440-48-4	cobalt	0.18 mg/m³
7439-96-5	manganese	3 mg/m³

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7440-50-8	copper	3 mg/m³
7440-44-0	carbon	6 mg/m³
7727-37-9	nitrogen	7.96E+05 ppm
7723-14-0	red phosphorus	0.27 mg/m³
7440-42-8	boron	1.9 mg/m³
7440-31-5	tin	6 mg/m³
7439-95-4	magnesium powder (pyrophoric)	18 mg/m³
7440-22-4	silver	0.3 mg/m³
7782-49-2	selenium	0.6 mg/m³
7440-69-9	bismuth	15 mg/m³

· **PAC-2:**

7440-02-0	nickel	50 mg/m³
7439-89-6	iron	35 mg/m³
7440-47-3	chromium	17 mg/m³
7440-03-1	niobium	330 mg/m³
7439-98-7	molybdenum	330 mg/m³
7440-32-6	titanium	330 mg/m³
7440-48-4	cobalt	2 mg/m³
7439-96-5	manganese	5 mg/m³
7440-50-8	copper	33 mg/m³
7440-44-0	carbon	330 mg/m³
7727-37-9	nitrogen	8.32E+05 ppm
7723-14-0	red phosphorus	3 mg/m³
7440-42-8	boron	21 mg/m³
7440-31-5	tin	67 mg/m³
7439-95-4	magnesium powder (pyrophoric)	200 mg/m³
7440-22-4	silver	170 mg/m³
7782-49-2	selenium	6.6 mg/m³
7440-69-9	bismuth	170 mg/m³

· **PAC-3:**

7440-02-0	nickel	99 mg/m³
7439-89-6	iron	150 mg/m³
7440-47-3	chromium	99 mg/m³
7440-03-1	niobium	2,000 mg/m³
7439-98-7	molybdenum	2,000 mg/m³
7440-32-6	titanium	2,000 mg/m³
7440-48-4	cobalt	20 mg/m³
7439-96-5	manganese	1,800 mg/m³
7440-50-8	copper	200 mg/m³
7440-44-0	carbon	2,000 mg/m³
7727-37-9	nitrogen	8.69E+05 ppm

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7723-14-0	red phosphorus	18 mg/m³
7440-42-8	boron	130 mg/m³
7440-31-5	tin	400 mg/m³
7439-95-4	magnesium powder (pyrophoric)	1,200 mg/m³
7440-22-4	silver	990 mg/m³
7782-49-2	selenium	40 mg/m³
7440-69-9	bismuth	990 mg/m³

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.

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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: 0.003* 0.5** mg/m³ inh. fraction, *as Cr(III),**metal
7439-98-7 molybdenum	
PEL	Long-term value: 15* mg/m³ *Total dust, as Mo

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TLV	Long-term value: 10* 3** mg/m³ as Mo; *inhalable fraction ** respirable fraction
7440-48-4 cobalt	
PEL	Long-term value: 0.1* mg/m³ as Co; *for metal dust and fume
REL	Long-term value: 0.05 mg/m³ as Co; metal dust & fume
TLV	Long-term value: (0.02) NIC-0.02* mg/m³ *inh. fraction; NIC-Skin, DSEN, RSEN, BEI

· **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.
· **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.

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· **Eye protection:**

Safety glasses

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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:	0.0 Vol %
Upper:	0.0 Vol %
· **Vapor pressure:**	Not applicable.
· **Density at 20 °C (68 °F):**	5.13843 g/cm³ (42.8802 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.
· **Solvent content:**	
VOC content:	0.00 % 0.0 g/l / 0.00 lb/gal

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· **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.

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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.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.

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· **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.
· **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):**

7440-02-0	nickel
7440-47-3	chromium
7440-48-4	cobalt
7439-96-5	manganese
7440-50-8	copper

· **TSCA (Toxic Substances Control Act):**

7440-02-0	nickel
7439-89-6	iron
7440-47-3	chromium
7440-03-1	niobium
7439-98-7	molybdenum
7440-32-6	titanium
7440-48-4	cobalt
7439-96-5	manganese
7440-50-8	copper
7440-44-0	carbon

· **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
7439-96-5	manganese	D
7440-50-8	copper	D

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

7440-02-0	nickel	A5
7440-47-3	chromium	A4
7439-98-7	molybdenum	A3

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7440-48-4	cobalt	A3

· **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**
If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.
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.
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.
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.

· **Department issuing SDS:** Environment protection department.
· **Date of preparation / last revision** 12/05/2018 / 3

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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
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1
· **** Data compared to the previous version altered.***