

Safety Data Sheet

acc. to OSHA HCS (29 CFR 1910.1200) and WHMIS 2015 regulations

Printing date: 04/20/2016

Revision: 04/20/2016

1 Identification

- **Product identifier**
- **Trade name:** Drill Rod and Precision Ground Flat Stock
- **Recommended use and restriction on use**
- **Recommended use:** Manufactured Article.
- **Restrictions on use:** Contact manufacturer
- **Details of the supplier of the Safety Data Sheet**
- **Manufacturer/Supplier:**
The L.S. Starrett Company
121 Crescent St.
Athol, MA 01331
(978) 249-3551
- **Emergency telephone number:**
ChemTel Inc.
+1 (800)255-3924, +1 (813)248-0585

2 Hazard(s) identification

- **Classification of the substance or mixture**
The product is not classified as hazardous according to the Globally Harmonized System (GHS).
- **Label elements**
- **GHS label elements:** Not regulated.
- **Hazard pictograms:** Not regulated.
- **Signal word:** Not regulated.
- **Hazard statements:** Not regulated.
- **Classification system**
- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**

HEALTH	0	Health = *0
FIRE	0	Fire = 0
REACTIVITY	0	Reactivity = 0

3 Composition/information on ingredients

- **Chemical characterization:** Mixtures
- **Components:**
None in reportable quantities.

7439-89-6	iron		60-80%
7440-47-3	chromium		10-20%
7440-44-0	carbon	⚠ Eye Irrit. 2A, H319; STOT SE 3, H335	1-2.5%

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7439-96-5	manganese	 Flam. Sol. 1, H228	1-2.5%
7439-98-7	molybdenum		1-2.5%
7440-50-8	copper		0.1-1%
7723-14-0	phosphorus	 Flam. Liq. 2, H225; Flam. Sol. 1, H228	0.1-1%
7440-21-3	silicon	 Flam. Sol. 2, H228	0.1-1%
7440-33-7	tungsten		0.1-1%
7440-02-0	nickel	 Carc. 2, H351; STOT RE 1, H372  Skin Sens. 1, H317	0.1-<1%
7440-48-4	cobalt	 Resp. Sens. 1, H334; Carc. 2, H351  Skin Sens. 1, H317	0.1-<1%

· **Additional information:** For the wording of the listed Hazard Statements refer to section 16.

4 First-aid measures

- **Description of first aid measures**
- **General information:** No special measures required.
- **After inhalation:**
Respiration of particulates is unlikely during normal usage.
Supply fresh air; consult doctor in case of complaints.
- **After skin contact:**
Generally the product does not irritate the skin.
Clean with water and soap.
If skin irritation continues, consult a doctor.
- **After eye contact:**
Remove contact lenses if worn.
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:**
Unlikely route of exposure.
Do not induce vomiting; immediately call for medical help.
- **Most important symptoms and effects, both acute and delayed:** No relevant information available.
- **Danger:** No relevant information available.
- **Indication of any immediate medical attention and special treatment needed:**
If necessary oxygen respiration treatment.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **For safety reasons unsuitable extinguishing agents:** None.
- **Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
- **Advice for firefighters**
- **Protective equipment:**
Wear self-contained respiratory protective device.

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Wear fully protective suit.

- **Additional information:** No relevant information available.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures:**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow product to reach sewage system or any water course.
- **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

- **Handling**
- **Precautions for safe handling:** No special measures required.
- **Information about protection against explosions and fires:**
No special measures required.
The product is not flammable.
- **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:** Do not store together with acids.
- **Further information about storage conditions:** Protect from humidity and water.
- **Specific end use(s):** No relevant information available.

8 Exposure controls/personal protection

- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

7439-89-6 iron

EV (Canada)	Long-term value: 1* 5** mg/m ³ as iron;*salts, water-soluble;**welding fume
LMPE (Mexico)	Long-term value: 1 mg/m ³

7440-47-3 chromium

PEL (USA)	Long-term value: 1* 0.5** mg/m ³ *metal;**inorganic compds., as Cr
REL (USA)	Long-term value: 0.5* mg/m ³ *metal+inorg.compds.as Cr;See Pocket Guide App. C

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TLV (USA)	Long-term value: 0.5 mg/m ³
EL (Canada)	Long-term value: 0.5 mg/m ³ as metal
EV (Canada)	Long-term value: 0.05 mg/m ³
LMPE (Mexico)	Long-term value: 0.5 mg/m ³ A4

7439-96-5 manganese

PEL (USA)	Ceiling limit value: 5 mg/m ³ as Mn
REL (USA)	Short-term value: 3 mg/m ³ Long-term value: 1 mg/m ³ fume, as Mn
TLV (USA)	Long-term value: 0.02* 0.1* mg/m ³ as Mn; *respirable **inhalable fraction
EL (Canada)	Long-term value: 0.2 mg/m ³ as Mn; R
EV (Canada)	Long-term value: 0.2 mg/m ³ as manganese
LMPE (Mexico)	Long-term value: 0.2 mg/m ³ como Mn

7439-98-7 molybdenum

PEL (USA)	Long-term value: 15* mg/m ³ *Total dust
TLV (USA)	Long-term value: 10* 3** mg/m ³ as Mo; *inhalable fraction ** respirable fraction
EL (Canada)	Long-term value: 3* 10** mg/m ³ as Mo; *respirable **inhalable
EV (Canada)	Long-term value: 10* 3** 0.5*** mg/m ³ metal,insol.compd.:*inh,**resp;sol.compd.:***resp
LMPE (Mexico)	Long-term value: 10* 3** mg/m ³ *fracción inhalable **respirable; como Mo

7440-50-8 copper

PEL (USA)	Long-term value: 1* 0.1** mg/m ³ as Cu *dusts and mists **fume
REL (USA)	Long-term value: 1* 0.1** mg/m ³ as Cu *dusts and mists **fume
TLV (USA)	Long-term value: 1* 0.2** mg/m ³ *dusts and mists; **fume; as Cu
EL (Canada)	Long-term value: 1* 0.2** mg/m ³ *dusts and mists; **fume, as Cu
EV (Canada)	Long-term value: 0.2* 1** mg/m ³ as copper, *fume;**dust and mists

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LMPE (Mexico)	Long-term value: 0.2* 1** mg/m ³ *humo (como Cu);**polvo y niebla (como Cu)
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7723-14-0 phosphorus

REL (USA)	Long-term value: 0.1 mg/m ³
LMPE (Mexico)	Short-term value: 0.3 mg/m ³ Long-term value: 0.1 mg/m ³

7440-21-3 silicon

PEL (USA)	Long-term value: 15* 5** mg/m ³ *total dust **respirable fraction
REL (USA)	Long-term value: 10* 5** mg/m ³ *total dust **respirable fraction
TLV (USA)	TLV withdrawn
EL (Canada)	Long-term value: 10* 3** mg/m ³ *total dust;**respirable fraction
EV (Canada)	Long-term value: 10 mg/m ³ total dust
LMPE (Mexico)	Short-term value: 20 mg/m ³ Long-term value: 10 mg/m ³ (e)

7440-33-7 tungsten

PEL (USA)	and insoluble compounds, as We
REL (USA)	Short-term value: 10 mg/m ³ Long-term value: 5 mg/m ³ as W
TLV (USA)	Short-term value: 10 mg/m ³ Long-term value: 5 mg/m ³ as W
EL (Canada)	Short-term value: 10 mg/m ³ Long-term value: 5 mg/m ³ as W
EV (Canada)	Short-term value: 10* 3** mg/m ³ Long-term value: 5* 1** mg/m ³ (as tungsten; compds.:*water-insol.;**water-sol.)
LMPE (Mexico)	Short-term value: 10 mg/m ³ Long-term value: 5 mg/m ³ como W

7440-02-0 nickel

PEL (USA)	Long-term value: 1 mg/m ³
REL (USA)	Long-term value: 0.015 mg/m ³ as Ni; See Pocket Guide App. A
TLV (USA)	Long-term value: 1.5* mg/m ³ elemental, *inhalable fraction

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EL (Canada)	Long-term value: 0.05 mg/m ³ ACGIH A1, IARC 2B
EV (Canada)	Long-term value: 1 mg/m ³ Inhalable fraction
LMPE (Mexico)	Long-term value: 1.5* mg/m ³ *elemental:A5, fracción inhalable

7440-48-4 cobalt

PEL (USA)	Long-term value: 0.1* mg/m ³ as Co; *for metal dust and fume
REL (USA)	Long-term value: 0.05 mg/m ³ as Co; metal dust & fume
TLV (USA)	Long-term value: 0.02 mg/m ³ BEI
EL (Canada)	Long-term value: 0.02 mg/m ³ as Co; IARC 2B
EV (Canada)	Long-term value: 0.1 mg/m ³
LMPE (Mexico)	Long-term value: 0.02 mg/m ³ A3, IBE

· Ingredients with biological limit values:

7440-48-4 cobalt

BEI (USA)	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)

· Exposure controls

· **Engineering measures** Provide adequate ventilation.

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Do not inhale dust / smoke / mist.

· **Engineering controls:** Provide adequate ventilation.

· **Breathing equipment:** Use respiratory protection when grinding or cutting material.

· **Protection of hands:**

Wear gloves for the protection against mechanical hazards according to OSHA and NIOSH rules.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

· **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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· **Eye protection:**



Safety glasses

- **Body protection:** Not required.
- **Limitation and supervision of exposure into the environment** No special requirements.
- **Risk management measures** No special requirements.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **Appearance:**

Form: Solid

Color: Gray

· **Odor:** Odorless

· **Odor threshold:** Not determined.

· **pH-value:** Not applicable.

· **Melting point/Melting range:** Not determined.

· **Boiling point/Boiling range:** >2760 °C (>5000 °F) (>5000 °F)

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Not determined.

· **Auto-ignition temperature:** Not determined.

· **Decomposition temperature:** Not determined.

· **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):** 7.6 - 7.8 g/cm³ (63.422 - 65.09 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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· **Other information** No relevant information available.

10 Stability and reactivity

- **Reactivity:** No relevant information available.
- **Chemical stability:**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
- **Possibility of hazardous reactions:**
Reacts with strong acids.
Reacts with strong alkali.
- **Conditions to avoid:** No relevant information available.
- **Incompatible materials:** No relevant information available.
- **Hazardous decomposition products:** Toxic metal oxide smoke

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **LD/LC50 values that are relevant for classification:** None.
- **Primary irritant effect:**
- **On the skin:** Based on available data, the classification criteria are not met.
- **On the eye:** Based on available data, the classification criteria are not met.
- **Sensitization:** Sensitizing effect by skin contact is possible with prolonged exposure.

· **IARC (International Agency for Research on Cancer):**

7440-02-0	nickel	1
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· **NTP (National Toxicology Program):**

7440-02-0	nickel	R
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· **OSHA-Ca (Occupational Safety & Health Administration):**

None of the ingredients are listed.

- **Probable route(s) of exposure:**
Eye contact.
Skin contact.
- **Acute effects (acute toxicity, irritation and corrosivity):** From product as supplied: None.
- **Repeated dose toxicity:** From product as supplied: None.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity:** Based on available data, the classification criteria are not met.
- **Carcinogenicity:** Based on available data, the classification criteria are not met.
- **Reproductive toxicity:** Based on available data, the classification criteria are not met.
- **STOT-single exposure:** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure:** Based on available data, the classification criteria are not met.

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- **Aspiration hazard:** Based on available data, the classification criteria are not met.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity** No relevant information available.
- **Persistence and degradability**
Inorganic product, is not eliminable from water by means of biological cleaning processes.
- **Bioaccumulative potential:** No relevant information available.
- **Mobility in soil:** No relevant information available.
- **Additional ecological information**
- **General notes:**
Generally not hazardous for water
This statement was deduced from the properties of the single components.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects:** No relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Contact waste processors for recycling information.
Smaller quantities can be disposed of with household waste.
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.
- **Uncleaned packagings**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- | | |
|-------------------------------------|----------------|
| · UN-Number | |
| · DOT, ADR, IMDG, IATA | Not regulated. |
| · UN proper shipping name | |
| · DOT, ADR, IMDG, IATA | Not regulated. |
| · Transport hazard class(es) | |
| · DOT, ADR, IMDG, IATA | |
| · Class | Not regulated. |

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- | | |
|--|-----------------|
| · Packing group | |
| · DOT, ADR, 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. |

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **United States (USA)**
- **SARA**

· **Section 355 (extremely hazardous substances):**

7723-14-0 | phosphorus

· **Section 313 (Specific toxic chemical listings):**

All ingredients are listed.

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

All ingredients are listed.

· **Proposition 65 (California)**· **Chemicals known to cause cancer:**

References to chemical components listed below are based on unbound respirable particles and are not generally applicable to product as supplied.

7440-02-0 | nickel

7440-48-4 | cobalt

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients are listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

· **Carcinogenic categories**· **EPA (Environmental Protection Agency):**

7440-47-3 | chromium

D

7439-96-5 | manganese

D

7440-50-8 | copper

D

7723-14-0 | phosphorus

D

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· **IARC (International Agency for Research on Cancer):**

7440-47-3	chromium	3
7440-02-0	nickel	1
7440-48-4	cobalt	2B

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

7440-02-0	nickel
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· **Canadian Domestic Substances List (DSL):**

All ingredients are listed.

· **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** 04/20/2016 / -

· **Abbreviations and acronyms:**

ADR: 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

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

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

Flam. Liq. 2: Flammable liquids, Hazard Category 2

Flam. Sol. 1: Flammable solids, Hazard Category 1

Flam. Sol. 2: Flammable solids, Hazard Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A

Resp. Sens. 1: Sensitisation - Respirat., Hazard Category 1

Skin Sens. 1: Sensitisation - Skin, Hazard Category 1

Carc. 2: Carcinogenicity, Hazard Category 2

STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

STOT RE 1: Specific target organ toxicity - Repeated exposure, Hazard Category 1

· **Sources**

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