



**SAFETY DATA SHEET  
COBALT-NICKEL SEMI-BRIGHT**

**1. Identification**

**Product identifier**

**Product name** COBALT-NICKEL SEMI-BRIGHT

**Product number** 5720

**Recommended use of the chemical and restrictions on use**

**Application** Industrial Use

**Details of the supplier of the safety data sheet**

**Supplier** SIFCO Applied Surface Concepts  
5708 E. Schaaf Road  
Independence, Ohio 44131  
U.S.A.  
Tel.: +1 216-524-0099  
Fax: +1 216-524-6331  
E-Mail: info@sifcoasc.com

**Emergency telephone number**

**Emergency telephone** CHEMTREC (United States) (800) 424-9300; CHEMTREC (International) +1 703-527-3887

**2. Hazard(s) identification**

**Classification of the substance or mixture**

**Physical hazards** Not Classified

**Health hazards** Skin Corr. 1A - H314 Eye Dam. 1 - H318 Resp. Sens. 1 - H334 Skin Sens. 1 - H317 Muta. 2 - H341 Carc. 1A - H350 Repr. 1B - H360FD STOT RE 1 - H372

**Environmental hazards** Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410

**Label elements**

**Pictogram**



**Signal word**

Danger

**Hazard statements**

H314 Causes severe skin burns and eye damage.  
H317 May cause an allergic skin reaction.  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H341 Suspected of causing genetic defects.  
H350 May cause cancer.  
H360FD May damage fertility. May damage the unborn child.  
H372 Causes damage to organs through prolonged or repeated exposure.  
H410 Very toxic to aquatic life with long lasting effects.

## COBALT-NICKEL SEMI-BRIGHT

<b>Precautionary statements</b>	<p>P260 Do not breathe vapor/ spray.</p> <p>P264 Wash contaminated skin thoroughly after handling.</p> <p>P270 Do not eat, drink or smoke when using this product.</p> <p>P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.</p> <p>P284 [In case of inadequate ventilation] wear respiratory protection.</p> <p>P302+P352 If on skin: Wash with plenty of water.</p> <p>P304+P340 If inhaled: Remove person to fresh air and keep comfortable for breathing.</p> <p>P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P501 Dispose of contents/ container in accordance with national regulations.</p> <p>P403+P233 Store in a well-ventilated place. Keep container tightly closed.</p> <p>P301+P310 If swallowed: Immediately call a poison center/ doctor.</p>
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**Contains** NICKEL SULPHATE, COBALT SULPHATE, 2.7%, BORIC ACID

### Other hazards

This product does not contain any substances classified as PBT or vPvB.

### 3. Composition/information on ingredients

#### Mixtures

<b>NICKEL SULPHATE</b> <span style="float: right;"><b>5-10%</b></span> CAS number: 7786-81-4 M factor (Acute) = 1 <span style="margin-left: 150px;">M factor (Chronic) = 1</span>
<b>Classification</b> Acute Tox. 4 - H302 Acute Tox. 4 - H332 Skin Irrit. 2 - H315 Resp. Sens. 1 - H334 Skin Sens. 1 - H317 Muta. 2 - H341 Carc. 1A - H350i Repr. 1B - H360D STOT RE 1 - H372 Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410

**COBALT-NICKEL SEMI-BRIGHT**

<b>COBALT SULPHATE</b>		<b>5-10%</b>
CAS number: 10124-43-3		
M factor (Acute) = 10		M factor (Chronic) = 10
<b>Classification</b>		
Acute Tox. 4 - H302		
Eye Irrit. 2A - H319		
Resp. Sens. 1 - H334		
Skin Sens. 1 - H317		
Muta. 2 - H341		
Carc. 1B - H350i		
Repr. 1B - H360F		
Aquatic Acute 1 - H400		
Aquatic Chronic 1 - H410		
<b>FORMIC ACID 2.7%</b>		<b>1-5%</b>
CAS number: 64-18-6		
<b>Classification</b>		
Skin Corr. 1A - H314		
Eye Dam. 1 - H318		
<b>BORIC ACID</b>		<b>&lt;1%</b>
CAS number: 10043-35-3		
<b>Classification</b>		
Repr. 1B - H360FD		

The full text for all hazard statements is displayed in Section 16.

#### 4. First-aid measures

##### Description of first aid measures

<b>Inhalation</b>	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Never give anything by mouth to an unconscious person. Get medical attention.
<b>Ingestion</b>	Do not induce vomiting. Never give anything by mouth to an unconscious person. NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Get medical attention immediately.
<b>Skin Contact</b>	Remove contaminated clothing immediately and wash skin with soap and water. Continue to rinse for at least 15 minutes and get medical attention.
<b>Eye contact</b>	It is recommended that suitable facilities for quick drenching or flushing of the eyes and body be provided within the work area for immediate emergency use. Remove affected person from source of contamination. Make sure to remove any contact lenses from the eyes before rinsing. Rinse immediately with plenty of water. Continue to rinse for at least 15 minutes and get medical attention.

##### Most important symptoms and effects, both acute and delayed

<b>Inhalation</b>	May cause allergy or asthma symptoms or breathing difficulties if inhaled. Coughing, chest tightness, feeling of chest pressure.
<b>Ingestion</b>	May cause chemical burns in mouth and throat. May cause stomach pain or vomiting.

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**Skin contact** May cause serious chemical burns to the skin. May cause an allergic skin reaction.

**Eye contact** Causes severe burns. May cause serious eye damage.

### Indication of immediate medical attention and special treatment needed

**Notes for the doctor** No specific recommendations.

### 5. Fire-fighting measures

#### Extinguishing media

**Suitable extinguishing media** The product is not flammable. Use fire-extinguishing media suitable for the surrounding fire.

#### Special hazards arising from the substance or mixture

**Specific hazards** Toxic and corrosive gases or vapors.

#### Advice for firefighters

**Protective actions during firefighting** Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

**Special protective equipment for firefighters** Use protective equipment appropriate for surrounding materials.

### 6. Accidental release measures

#### Personal precautions, protective equipment and emergency procedures

**Personal precautions** Follow precautions for safe handling described in this safety data sheet. Avoid inhalation of vapors. Provide adequate general and local exhaust ventilation.

#### Environmental precautions

**Environmental precautions** Do not discharge into drains or watercourses or onto the ground. Inform the relevant authorities if environmental pollution occurs (sewers, waterways, soil or air).

#### Methods and material for containment and cleaning up

**Methods for cleaning up** Wear suitable protective equipment, including gloves, goggles/face shield, respirator, boots, clothing or apron, as appropriate. Flush contaminated area with plenty of water. Avoid the spillage or runoff entering drains, sewers or watercourses. Collect and dispose of spillage as indicated in Section 13. Wash thoroughly after dealing with a spillage.

**Reference to other sections** Wear protective clothing as described in Section 8 of this safety data sheet. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.

### 7. Handling and storage

#### Precautions for safe handling

**Usage precautions** Avoid spilling. Avoid contact with skin and eyes. Avoid inhalation of vapors and spray/mists. Provide adequate general and local exhaust ventilation.

#### Conditions for safe storage, including any incompatibilities

**Storage precautions** Store in tightly-closed, original container in a dry, cool and well-ventilated place. Protect from freezing and direct sunlight.

**Storage class** Toxic storage. Corrosive storage.

#### Specific end uses(s)

**Specific end use(s)** The identified uses for this product are detailed in Section 1.

## COBALT-NICKEL SEMI-BRIGHT

### 8. Exposure Controls/personal protection

#### Control parameters

#### Occupational exposure limits

#### NICKEL SULPHATE

Long-term exposure limit (8-hour TWA): ACGIH 0.1 mg/m<sup>3</sup>

as Ni

A4

#### FORMIC ACID 2.7%

Long-term exposure limit (8-hour TWA): ACGIH 5 ppm 9.4 mg/m<sup>3</sup>

Long-term exposure limit (8-hour TWA): OSHA 5 ppm 9 mg/m<sup>3</sup>

Short-term exposure limit (15-minute): ACGIH 10 ppm 19 mg/m<sup>3</sup>

#### BORIC ACID

Long-term exposure limit (8-hour TWA): ACGIH 2 mg/m<sup>3</sup> inhalable fraction

Short-term exposure limit (15-minute): ACGIH 6 mg/m<sup>3</sup> inhalable fraction

A4

ACGIH = American Conference of Governmental Industrial Hygienists.

OSHA = Occupational Safety and Health Administration.

A4 = Not Classifiable as a Human Carcinogen.

#### Exposure controls

##### Protective equipment



##### Appropriate engineering controls

As this product contains ingredients with exposure limits, process enclosures, local exhaust ventilation or other engineering controls should be used to keep worker exposure below any statutory or recommended limits, if use generates dust, fumes, gas, vapor or mist.

##### Eye/face protection

Tight-fitting safety glasses.

##### Hand protection

It is recommended that chemical-resistant, impervious gloves are worn. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected. It is recommended that gloves are made of the following material: Nitrile rubber.

##### Other skin and body protection

Appropriate footwear and additional protective clothing complying with an approved standard should be worn if a risk assessment indicates skin contamination is possible.

##### Hygiene measures

Do not eat, drink or smoke when using this product. Wash at the end of each work shift and before eating, smoking and using the toilet.

##### Respiratory protection

If ventilation is inadequate, suitable respiratory protection must be worn. Respiratory protection must be used if the airborne contamination exceeds the recommended occupational exposure limit.

### 9. Physical and Chemical Properties

#### Information on basic physical and chemical properties

Appearance	Liquid.
Color	Red-brown.
Odor	No characteristic odor.
pH	pH (concentrated solution): 1.4-2.0

## COBALT-NICKEL SEMI-BRIGHT

<b>Relative density</b>	1.19-1.21 @ 20°C
<b>Other information</b>	Not available.
<b>Volatile organic compound</b>	This product contains a maximum VOC content of FORMIC ACID 32 g/l.

### 10. Stability and reactivity

<b>Reactivity</b>	There are no known reactivity hazards associated with this product.
<b>Stability</b>	Stable at normal ambient temperatures. Avoid the following conditions: Mixing with any other material.
<b>Possibility of hazardous reactions</b>	Not determined.
<b>Conditions to avoid</b>	Avoid excessive heat for prolonged periods of time.
<b>Materials to avoid</b>	Strong alkalis.
<b>Hazardous decomposition products</b>	None at ambient temperatures.

### 11. Toxicological information

#### Information on toxicological effects

#### Acute toxicity - oral

**ATE oral (mg/kg)** 3,048.78

#### Acute toxicity - inhalation

**ATE inhalation (dusts/mists mg/l)** 30.24

<b>Inhalation</b>	May cause respiratory system irritation. Toxic: danger of serious damage to health by prolonged exposure through inhalation. Suspected to increase risk of cancer. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
<b>Ingestion</b>	Ingestion may cause severe irritation of the mouth, the esophagus and the gastrointestinal tract. May cause irritation. Symptoms following overexposure may include the following: Stomach pain. Nausea, vomiting. Diarrhea.
<b>Skin Contact</b>	Causes burns. May cause sensitisation by skin contact. May cause an allergic skin reaction.
<b>Eye contact</b>	Causes serious eye damage. Immediate first aid is imperative.
<b>Acute and chronic health hazards</b>	Causes severe burns. May cause cancer.
<b>Route of entry</b>	Ingestion Inhalation Skin and/or eye contact

#### Toxicological information on ingredients.

#### NICKEL SULPHATE

#### Acute toxicity - oral

**Acute toxicity oral (LD<sub>50</sub> mg/kg)** 361.9

**COBALT-NICKEL SEMI-BRIGHT**

<b>Species</b>	Rat
<b>ATE oral (mg/kg)</b>	500.0
<b><u>Acute toxicity - inhalation</u></b>	
<b>Acute toxicity inhalation (LC<sub>50</sub> dust/mist mg/l)</b>	2.48
<b>Species</b>	Rat
<b>ATE inhalation (dusts/mists mg/l)</b>	2.48

**COBALT SULPHATE**

<b><u>Acute toxicity - oral</u></b>	
<b>Acute toxicity oral (LD<sub>50</sub> mg/kg)</b>	768.0
<b>Species</b>	Rat
<b>ATE oral (mg/kg)</b>	500.0
<b><u>Acute toxicity - dermal</u></b>	
<b>Acute toxicity dermal (LD<sub>50</sub> mg/kg)</b>	2,000.0
<b>Species</b>	Rat
<b>ATE dermal (mg/kg)</b>	2,000.0
<b><u>Carcinogenicity</u></b>	
<b>NTP carcinogenicity</b>	Reasonably anticipated to be a human carcinogen.

**FORMIC ACID 2.7%**

<b><u>Acute toxicity - oral</u></b>	
<b>Acute toxicity oral (LD<sub>50</sub> mg/kg)</b>	730.0
<b>Species</b>	Rat
<b>ATE oral (mg/kg)</b>	730.0
<b><u>Acute toxicity - inhalation</u></b>	
<b>Acute toxicity inhalation (LC<sub>50</sub> vapours mg/l)</b>	7.4
<b>Species</b>	Rat
<b>ATE inhalation (vapours mg/l)</b>	7.4

**BORIC ACID**

<b><u>Acute toxicity - oral</u></b>	
<b>Acute toxicity oral (LD<sub>50</sub> mg/kg)</b>	4,100.0

**COBALT-NICKEL SEMI-BRIGHT**

<b>Species</b>	Rat
<b><u>Reproductive toxicity</u></b>	
<b>Reproductive toxicity - fertility</b>	Suspected of damaging fertility.

**12. Ecological Information**

**Ecotoxicity** Dangerous for the environment. May cause long-term adverse effects in the aquatic environment.

**Toxicity** No data available.

**Ecological information on ingredients.****NICKEL SULPHATE****Acute aquatic toxicity**

**LE(C)<sub>50</sub>** 0.1 < L(E)C<sub>50</sub> ≤ 1

**M factor (Acute)** 1

**Chronic aquatic toxicity**

**M factor (Chronic)** 1

**COBALT SULPHATE****Acute aquatic toxicity**

**LE(C)<sub>50</sub>** 0.01 < L(E)C<sub>50</sub> ≤ 0.1

**M factor (Acute)** 10

**Acute toxicity - fish** LC<sub>50</sub>, : 1.5 ug/l, Freshwater fish

**Acute toxicity - aquatic invertebrates** LC<sub>50</sub>, : 0.61 mg/l, Freshwater invertebrates

**Acute toxicity - microorganisms** LC<sub>50</sub>, : 144 ug/l, Freshwater fish  
LC<sub>50</sub>, : 24.1 ug/l, Sea water

**Chronic aquatic toxicity**

**M factor (Chronic)** 10

**Chronic toxicity - fish early life stage** EC<sub>10</sub>, 351.4 : mg/l, Freshwater fish

**FORMIC ACID 2.7%**

**Acute toxicity - fish** LC<sub>50</sub>, 96 hours: 130 mg/l, Brachydanio rerio (Zebra Fish)

**Acute toxicity - aquatic invertebrates** EC<sub>50</sub>, 48 hours: 365 mg/l, Daphnia magna

**Acute toxicity - aquatic plants** EC<sub>50</sub>, 72 hours: 1240 mg/l, Selenastrum capricornutum

**BORIC ACID**



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**Acute toxicity - aquatic invertebrates** EC<sub>50</sub>, 48 hours: 133 mg/l, Daphnia magna

**Persistence and degradability**

**Persistence and degradability** No data available.

**Bioaccumulative potential**

**Bio-Accumulative Potential** The product does not contain any substances expected to be bioaccumulating.

**Ecological information on ingredients.****COBALT SULPHATE**

**Bio-Accumulative Potential** BCF: < 10, Freshwater fish BCF: < 10, Marinewater fish Not bioaccumulative in the aquatic environment.

**Mobility in soil**

**Mobility** The product is soluble in water.

**Ecological information on ingredients.****FORMIC ACID 2.7%**

**Surface tension** 71.5 mN/m @ 20°C/°F

**Other adverse effects**

**Other adverse effects** Not determined.

**13. Disposal considerations****Waste treatment methods**

**General information** Disposal of this product, process solutions, residues and by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any local authority requirements.

**14. Transport information****UN Number**

**UN No. (TDG)** 1760

**UN No. (IMDG)** 1760

**UN No. (ICAO)** 1760

**UN No. (DOT)** 1760

**UN proper shipping name**

**Proper shipping name (TDG)** CORROSIVE LIQUID, N.O.S. (FORMIC ACID, NICKEL SULPHATE)

**Proper shipping name (IMDG)** CORROSIVE LIQUID, N.O.S. (FORMIC ACID, NICKEL SULPHATE)

**Proper shipping name (ICAO)** CORROSIVE LIQUID, N.O.S. (FORMIC ACID, NICKEL SULPHATE)

**Proper shipping name (DOT)** CORROSIVE LIQUID, N.O.S. (FORMIC ACID, NICKEL SULPHATE)

**Transport hazard class(es)**

**TDG class** 8

**TDG label(s)** 8

**COBALT-NICKEL SEMI-BRIGHT**

IMDG Class 8

ICAO class/division 8

**Transport labels****Packing group**

TDG Packing Group III

IMDG packing group III

ICAO packing group III

DOT packing group III

**Environmental hazards****Environmentally Hazardous Substance****Special precautions for user**

EmS F-A, S-B

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information required.

**15. Regulatory information****US Federal Regulations****SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities**

Exempt.

**CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)**

Formic Acid  
Final CERCLA RQ: 5,000 lbs  
Nickel Sulphate  
Final CERCLA RQ: 100 lbs

**SARA Extremely Hazardous Substances EPCRA Reportable Quantities**

Exempt.

**SARA 313 Emission Reporting**

Formic Acid  
Nickel Sulphate

**CAA Accidental Release Prevention**

HAP  
Cobalt Sulphate  
Nickel Sulphate

**SARA (311/312) Hazard Categories**

Acute  
Chronic

## COBALT-NICKEL SEMI-BRIGHT

### OSHA Highly Hazardous Chemicals

Exempt.

### US State Regulations

#### California Proposition 65 Carcinogens and Reproductive Toxins

Cobalt Sulphate  
Nickel Sulphate

#### California Directors List of Hazardous Substances

Nickel Sulphate

### Inventories

#### US - TSCA

All ingredients are present.

### 16. Other information

#### Classification abbreviations and acronyms

Acute Tox. = Acute toxicity  
Carc. = Carcinogenicity  
Eye Dam. = Serious eye damage  
Eye Irrit. = Eye irritation  
Flam. Liq. = Flammable liquid  
Muta. = Germ cell mutagenicity  
Repr. = Reproductive toxicity  
Resp. Sens. = Respiratory sensitisation  
Skin Corr. = Skin corrosion  
Skin Irrit. = Skin irritation  
Skin Sens. = Skin sensitisation  
STOT RE = Specific target organ toxicity-repeated exposure  
STOT SE = Specific target organ toxicity-single exposure

#### Revision date

8/7/2017

#### Revision

3

#### Hazard statements in full

H302 Harmful if swallowed.  
H314 Causes severe skin burns and eye damage.  
H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H318 Causes serious eye damage.  
H319 Causes serious eye irritation.  
H332 Harmful if inhaled.  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H341 Suspected of causing genetic defects.  
H350 May cause cancer.  
H350i May cause cancer by inhalation.  
H360D May damage the unborn child.  
H360F May damage fertility.  
H360FD May damage fertility. May damage the unborn child.  
H372 Causes damage to organs through prolonged or repeated exposure.  
H400 Very toxic to aquatic life.  
H410 Very toxic to aquatic life with long lasting effects.

#### NFPA - instability hazard

Normally stable. (0)

#### NFPA - health hazard

Extremely hazardous, serious injury. (3)

#### NFPA - flammability hazard

Will not burn. (0)

## COBALT-NICKEL SEMI-BRIGHT

The Information in this data sheet is believed to be correct but neither we nor our employees or agents give any warranty or make any representation to the accuracy thereof and accept no liability for any loss, injury or damage which may result in it's use. The sole purpose of this data sheet is to provide guidance on the safe handling and use of the products to which it relates. It does not form part of any product specification nor part of any contract. It is not practical for the guidance and information in this data sheet to cover every conceivable application of a product and as we may not be aware of the use to which the products covered by this data sheet are to be put it remains the responsibility of the user to conduct it's own tests and to satisfy itself as to the suitability of the product.