

# Material Safety Data Sheet

**SULZER**

E-Fill 2701, E-Fill 2701P, E-Fill 2705, E-Fill 2721

Sulzer Metco

## 1. Product and company identification

- Common name** : E-Fill 2701, E-Fill 2701P, E-Fill 2705, E-Fill 2721
- Material uses** : Metal industry: Filler for conductive or shielding application
- Supplier** : Sulzer Metco (Canada) Inc.  
10108 - 114 Street  
Fort Saskatchewan  
Alberta  
T8L 4R1  
Canada
- Telephone no.** : +1 780-992-5100 (7:30 AM - 4:00 PM)
- Emergency Phone** : CHEMTREC 800-424-9300
- Calls Outside the United States** : +1 202-483-7616 (USA) 24 hour Chemtrec International Emergency Response Service

## 2. Hazards identification

- OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

### Emergency overview

- Physical state** : Solid.
- Color** : Gray.
- Odor** : Odorless.
- Health hazards** : WARNING!  
CANCER HAZARD - CONTAINS MATERIAL WHICH CAN CAUSE CANCER.  
CAUSES RESPIRATORY TRACT AND SKIN IRRITATION.  
MAY CAUSE ALLERGIC RESPIRATORY AND SKIN REACTION.  
CONTAINS MATERIAL WHICH MAY CAUSE DAMAGE TO THE FOLLOWING  
ORGANS: LUNGS, CARDIOVASCULAR SYSTEM, RESPIRATORY TRACT, SKIN,  
NOSE, SINUSES.

### Potential acute health effects

- Routes of entry** : Inhalation, Ingestion, Skin contact, Eye contact
- Eyes** : Moderately irritating to eyes.
- Skin** : Exposure to high concentrations may result in health complaints. Prolonged or repeated exposure may be irritating (redness, pain). May cause sensitization by skin contact (sweating, fever, pain). In oversensitive people even exposure to very small amounts causes allergic reactions.
- Inhalation** : Exposure to high concentrations may result in health complaints. Irritating to respiratory system. Exposure may result in depressed respiration, coughing, nausea and sore throat. Prolonged or repeated exposure to large amounts may cause damage to lungs (lung edema). May cause sensitization by inhalation (fever, pain). In oversensitive people even exposure to very small amounts causes allergic reactions.
- Ingestion** : Prolonged or repeated exposure may be irritating to mouth, throat and esophagus (sore throat, nausea).
- Medical conditions aggravated by over-exposure** : Repeated skin exposure can produce local skin destruction or dermatitis. Repeated or prolonged exposure to the substance can produce lung damage. Repeated or prolonged exposure to the substance can produce target organs damage.
- Environmental effects** : No known significant effects or critical hazards.

**Date of issue**  
4/16/2008

**MSDS#**  
50-1291

**Prepared by**  
Sulzer Metco

**Page:** 1/10

### 3 . Composition/information on ingredients

<u>Ingredient name</u>	<u>CAS number</u>	<u>% by weight</u>
Nickel	7440-02-0	59 - 66
Graphite	7782-42-5	34 - 41
Cobalt	7440-48-4	0.1 - 0.5

### 4 . First aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
- Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

### 5 . Fire-fighting measures

- Auto-ignition temperature** : Not available.
- Flash point** : Not available.
- Flammable limits** : Not available.

#### Extinguishing media

- Suitable** : Use approved Class D extinguisher or smother with dry sand, dry clay or dry ground limestone.
- Not suitable** : Do not use water. Do not use dry chemical, CO<sub>2</sub> or halon.
- Special exposure hazards** : Fine dust clouds may form explosive mixtures with air.
- Hazardous thermal decomposition products** : Some metallic oxides.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
- Fire hazards in the presence of various substances** : Slightly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and shocks and mechanical impacts
- Explosion hazards in the presence of various substances** : Non-explosive in the presence of the following materials or conditions: open flames, sparks and static discharge and shocks and mechanical impacts

### 6 . Accidental release measures

- Personal precautions** : Immediately contact emergency personnel. Eliminate all ignition sources. Keep unnecessary personnel away. Use suitable protective equipment. Do not touch or walk through spilled material.
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

**Methods for cleaning up** : If emergency personnel are unavailable, contain spilled material. Pick up material with non-sparking shovel or explosion proof vacuum cleaner. Place spilled material in an appropriate container for disposal. Avoid creating dusty conditions and prevent wind dispersal. Recycle, if possible.

## 7. Handling and storage

**Handling** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Keep away from heat, sparks and flame. Will react with water or steam to produce heat and toxic fumes. To avoid fire, eliminate ignition sources. Avoid creating dusty conditions when handling.

**Storage** : Keep container tightly closed. Keep container in a cool, well-ventilated area.

## 8. Exposure controls/personal protection

### Product name

### Exposure limits

#### United States

Nickel

**NIOSH REL (United States, 12/2001).**

TWA: 0.015 mg/m<sup>3</sup>, (as Ni) 10 hour(s).

**ACGIH TLV (United States, 1/2007).**

TWA: 1.5 mg/m<sup>3</sup> 8 hour(s). Form: Metallic form

**OSHA PEL (United States, 11/2006).**

TWA: 1 mg/m<sup>3</sup>, (as Ni) 8 hour(s).

Graphite

**ACGIH TLV (United States, 1/2007).**

TWA: 2 mg/m<sup>3</sup> 8 hour(s). Form: Dust

**NIOSH REL (United States, 12/2001).**

TWA: 2.5 mg/m<sup>3</sup> 10 hour(s). Form: Respirable fraction

**OSHA PEL Z3 (United States, 9/2005).**

TWA: 15 mppcf 8 hour(s).

Cobalt

**ACGIH TLV (United States, 1/2007).**

TWA: 0.02 mg/m<sup>3</sup>, (as Co) 8 hour(s). Form: Inorganic

**NIOSH REL (United States, 12/2001).**

TWA: 0.05 mg/m<sup>3</sup>, (as Co) 10 hour(s). Form: Dust and fumes

**OSHA PEL (United States, 11/2006).**

TWA: 0.1 mg/m<sup>3</sup>, (as Co) 8 hour(s).

#### Canada

Nickel

**CA Quebec Provincial (Canada, 12/2006).**

TWAEV: 1 mg/m<sup>3</sup> 8 hour(s).

**CA Ontario Provincial (Canada, 3/2007).**

TWAEV: 1 mg/m<sup>3</sup> 8 hour(s). Form: The notation "inhalable" following the name of an agent in this Schedule means that size fraction of the airborne particulate deposited anywhere in the respiratory tract and collected during air sampling with a particle size-selective device that, (a) meets the American Conference of Governmental Industrial Hygienists (ACGIH) particle size-selective criteria; and (b) has the cut point of 100 microns at 50 percent collective efficiency.

**CA Alberta Provincial (Canada, 10/2006).**

8 hrs OEL: 1.5 mg/m<sup>3</sup> 8 hour(s).

**CA British Columbia Provincial (Canada, 7/2007).**

TWA: 0.05 mg/m<sup>3</sup>, (as Ni) 8 hour(s).

Graphite

**CA British Columbia Provincial (Canada, 7/2007).**

TWA: 2 mg/m<sup>3</sup> 8 hour(s). Form: Respirable

**CA Quebec Provincial (Canada, 12/2006).**

TWAEV: 2 mg/m<sup>3</sup> 8 hour(s). Form: Respirable dust.

**CA Ontario Provincial (Canada, 3/2007).**

TWAEV: 2 mg/m<sup>3</sup> 8 hour(s). Form: The notation "respirable" following the name of an agent in this Schedule means that size fraction of the airborne particulate deposited in the gas-exchange region of the respiratory tract and collected during air sampling with a particle size-

selective device that, (a) meets the American Conference of Governmental Industrial Hygienists (ACGIH) particle size-selective criteria; and (b) has the cut point of 4 microns at 50 percent collective efficiency.

**CA Alberta Provincial (Canada, 10/2006).**

8 hrs OEL: 2 mg/m<sup>3</sup> 8 hour(s).

Cobalt

**CA Quebec Provincial (Canada, 12/2006).**

TWAEV: 0.02 mg/m<sup>3</sup>, (as Co) 8 hour(s).

**CA Ontario Provincial (Canada, 3/2007).**

TWAEV: 0.02 mg/m<sup>3</sup>, (cobalt) 8 hour(s). Form: dust and fume

**CA Alberta Provincial (Canada, 10/2006).**

8 hrs OEL: 0.05 mg/m<sup>3</sup>, (as Co) 8 hour(s).

**CA British Columbia Provincial (Canada, 7/2007).**

TWA: 0.02 mg/m<sup>3</sup>, (as Co) 8 hour(s).

Mexico

Nickel

**NOM-010-STPS (Mexico, 9/2000).**

LMPE-PPT: 1 mg/m<sup>3</sup> 8 hour(s).

Graphite

**NOM-010-STPS (Mexico, 9/2000).**

LMPE-PPT: 2 mg/m<sup>3</sup> 8 hour(s).

**Consult local authorities for acceptable exposure limits.**

**Engineering measures** : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Personal protective equipment

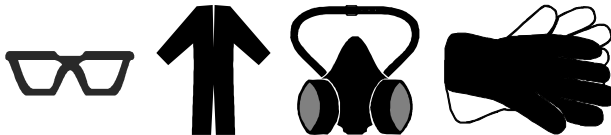
**Eyes** : Safety glasses or goggles are recommended when handling this material.

**Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

**Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

**Hands** : Rubber or other appropriate gloves should be worn to minimize contact. For hygienic reasons rubber gloves should not be worn for more than 2 hours.

**Protective Clothing (Pictograms)** :



**Personal protection in case of a large spill** : Wear suitable protective clothing, gloves and eye/face protection.

**Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

## 9 . Physical and chemical properties

<b>Physical state</b>	: Solid.
<b>Color</b>	: Gray.
<b>Odor</b>	: Odorless.
<b>Taste</b>	: Not available.
<b>Molecular weight</b>	: Not applicable.
<b>Molecular formula</b>	: Not applicable.
<b>pH</b>	: Not applicable.
<b>Boiling/condensation point</b>	: 2900°C (5252°F)
<b>Melting/freezing point</b>	: 1554.8°C (2830.6°F) This is based on data for the following ingredient: Nickel.
<b>Explosive properties</b>	: Fine dust clouds may form explosive mixtures with air.
<b>Specific gravity</b>	: Weighted average: 4.2 (Water = 1)
<b>Vapor pressure</b>	: Not applicable
<b>Volatility</b>	: Not available.
<b>Odor threshold</b>	: Not available.
<b>Evaporation rate</b>	: Not applicable.
<b>VOC</b>	: Not available.
<b>Partition coefficient</b>	: Not available.
<b>Ionicity (in water)</b>	: Not available.
<b>Dispersibility properties</b>	: Not available.
<b>Solubility</b>	: Insoluble in the following materials: cold water.
<b>Physical/chemical properties comments</b>	: Not available.
<b>Flash points</b>	: Not available.
<b>Flammable limits</b>	: Not available.
<b>Auto-ignition temperature</b>	: Not available.

## 10 . Stability and reactivity

<b>Stability and reactivity</b>	: The product is stable under normal storage conditions.
<b>Incompatibility with various substances</b>	: Not available.
<b>Hazardous decomposition products</b>	: These products are carbon oxides (CO, CO <sub>2</sub> ).
<b>Hazardous polymerization</b>	: Under normal conditions of storage and use, hazardous polymerization will not occur.
<b>Conditions to avoid</b>	: Store and use away from heat, sparks, open flame or any other ignition source.
<b>Materials to avoid</b>	: Avoid contact with combustible materials, acids, oxidizing agents, halogenated hydrocarbons.
<b>Conditions of reactivity</b>	: Slightly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and shocks and mechanical impacts. Non-explosive in the presence of the following materials or conditions: open flames, sparks and static discharge and shocks and mechanical impacts.
<b>Conditions of instability</b>	: Not available.

## 11 . Toxicological information

### Toxicity data

#### Acute toxicity

**Conclusion/Summary** : Not available.

#### Chronic toxicity

**Conclusion/Summary** : Not available.

#### Irritation/Corrosion

**Conclusion/Summary** : Not available.

#### Sensitizer

**Conclusion/Summary** : Not available.

#### Carcinogenicity

**Conclusion/Summary** : Not available.

#### Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Nickel	A5	2B	-	+	Possible	-
Graphite	-	-	-	None.	-	-
Cobalt	A3	2B	-	None.	-	-

#### Mutagenicity

**Conclusion/Summary** : Not available.

#### Teratogenicity

**Conclusion/Summary** : Not available.

#### Reproductive toxicity

**Conclusion/Summary** : Not available.

#### Specific effects

**Carcinogenic effects** : Contains material which can cause cancer. Risk of cancer depends on duration and level of exposure.

**Mutagenic effects** : No known significant effects or critical hazards.

**Reproduction toxicity** : No known significant effects or critical hazards.

**Target organs** : Contains material which may cause damage to the following organs: lungs, cardiovascular system, upper respiratory tract, skin, nose/sinuses.

#### Synergistic products

: Not available.

#### Irritancy

**Skin** : Irritating to skin.

**Eyes** : Moderately irritating to eyes.

**Inhalation** : Irritating to respiratory system.

**Ingestion** : No known significant effects or critical hazards.

## 12 . Ecological information

**Environmental effects** : No known significant effects or critical hazards.

#### Aquatic ecotoxicity

Product/ingredient name	Test	Result	Species	Exposure
Nickel	-	Acute EC50 1000 ug/L Marine water	Daphnia - Water flea - Daphnia magna	48 hours
	-	Acute LC50 40 to 47.4 mg/L Marine water	Fish - Square tail mullet - Liza vaigiensis - Juvenile (Fledgling, Hatchling,	96 hours

-	Acute LC50 47.5 ng/L Fresh water	Weanling) - 15 to 20 mm Fish - Indian catfish - <i>Heteropneustes fossilis</i>	96 hours
-	Acute LC50 2.3 ppm Fresh water	Fish - <i>Cyprinus carpio</i> - Juvenile (Fledgling, Hatchling, Weanling) - 6 cm	96 hours
-	Acute LC50 1.64 ppm Fresh water	Fish - <i>Cyprinus carpio</i> - Juvenile (Fledgling, Hatchling, Weanling) - 6 cm	96 hours
-	Acute LC50 1.54 ppm Fresh water	Fish - <i>Cyprinus carpio</i> - Juvenile (Fledgling, Hatchling, Weanling) - 3.5 cm	96 hours
-	Acute LC50 1.3 ppm Fresh water	Fish - <i>Cyprinus carpio</i> - Juvenile (Fledgling, Hatchling, Weanling) - 3.5 cm	96 hours
-	Acute LC50 55.5 to 67.2 mg/L Marine water	Fish - Square tail mullet - <i>Liza vaigiensis</i> - Juvenile (Fledgling, Hatchling, Weanling) - 15 to 20 mm	96 hours
-	Acute LC50 100000 to 330000 ug/L Marine water	Crustaceans - Common shrimp, sand shrimp - <i>Crangon crangon</i>	48 hours
-	Acute LC50 8850 ug/L Marine water	Crustaceans - Greasyback shrimp - <i>Metapenaeus ensis</i> - Post-larvae	48 hours
-	Acute LC50 9280 ug/L Marine water	Crustaceans - Greasyback shrimp - <i>Metapenaeus ensis</i>	48 hours
-	Acute LC50 8000 ug/L Fresh water	Fish - Pumpkinseed - <i>Lepomis gibbosus</i>	96 hours
-	Acute LC50 6300 ug/L Fresh water	Fish - Striped bass - <i>Morone saxatilis</i>	96 hours
-	Acute LC50 >5400 ug/L	Fish - Sheepshead	96 hours

Marine water minnow -  
Cyprinodon  
variegatus  
-  
Acute LC50 1280 Crustaceans - 48 hours  
ug/L Marine water Greasyback  
shrimp -  
Metapenaeus  
ensis


- Conclusion/Summary** : Not available.  
**Biodegradability**  
**Conclusion/Summary** : Not available.  
**Other adverse effects** : No known significant effects or critical hazards.  
**Products of degradation** : Some metallic oxides.

### 13 . Disposal considerations

- Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.
- Disposal of packaging materials** : Contaminated packaging material should be disposed of in the same manner as the product itself. Non-contaminated or clean packaging material, should be reused for the same product, treated as domestic waste, or material for recycling.

Consult your local or regional authorities.

### 14 . Transport information

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
<b>DOT Classification</b>	UN3077	Environmentally hazardous substance, solid, n.o.s. (Nickel)	9	III		<b>Remarks</b> Only applicable to packages containing 100 pounds or more of nickel powder that is less than 100 microns in size.
<b>TDG Classification</b>	Not regulated	-	-			
<b>ADR/RID Class</b>	Not regulated	-	-			
<b>IMDG Class</b>	Not regulated	-	-			
<b>IATA-DGR Class</b>	Not regulated	-	-			

## 15 . Regulatory information

### United States

- HCS Classification** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
- U.S. Federal regulations** : TSCA 8(b) inventory: All the ingredients are on the TSCA list.  
**SARA 302/304/311/312 extremely hazardous substances:** No products were found.  
**SARA 302/304 emergency planning and notification:** No products were found.  
**SARA 302/304/311/312 hazardous chemicals:** Nickel; Graphite  
**SARA 311/312 MSDS distribution - chemical inventory - hazard identification:**  
 Nickel: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard;  
 Graphite: Immediate (acute) health hazard  
**Clean Water Act (CWA) 307:** Nickel  
**Clean Water Act (CWA) 311:** No products were found.  
**Clean Air Act (CAA) 112 accidental release prevention:** No products were found.  
**Clean Air Act (CAA) 112 regulated flammable substances:** No products were found.  
**Clean Air Act (CAA) 112 regulated toxic substances:** No products were found.

### SARA 313

- |  | <u>Ingredient name</u> | <u>CAS number</u> | <u>Concentration</u> |
|--|------------------------|-------------------|----------------------|
| <b>Form R - Reporting requirements</b> | Nickel                 | 7440-02-0         | 59 - 66              |
|  | Cobalt                 | 7440-48-4         | 0.1 - 0.5            |
| <b>Supplier notification</b>           | Nickel                 | 7440-02-0         | 59 - 66              |
|  | Cobalt                 | 7440-48-4         | 0.1 - 0.5            |
- State regulations** : **Connecticut Carcinogen Reporting:** None of the components are listed.  
**Connecticut Hazardous Material Survey:** None of the components are listed.  
**Florida substances:** None of the components are listed.  
**Illinois Chemical Safety Act:** None of the components are listed.  
**Illinois Toxic Substances Disclosure to Employee Act:** None of the components are listed.  
**Louisiana Reporting:** None of the components are listed.  
**Louisiana Spill:** None of the components are listed.  
**Massachusetts Spill:** None of the components are listed.  
**Massachusetts Substances:** The following components are listed: NICKEL; GRAPHITE  
**Michigan Critical Material:** None of the components are listed.  
**Minnesota Hazardous Substances:** None of the components are listed.  
**New Jersey Hazardous Substances:** The following components are listed: NICKEL; COBALT  
**New Jersey Spill:** None of the components are listed.  
**New Jersey Toxic Catastrophe Prevention Act:** None of the components are listed.  
**New York Acutely Hazardous Substances:** The following components are listed: Nickel  
**New York Toxic Chemical Release Reporting:** None of the components are listed.  
**Pennsylvania RTK Hazardous Substances:** The following components are listed: NICKEL; GRAPHITE; COBALT FUME  
**Rhode Island Hazardous Substances:** None of the components are listed.
- WARNING:** This product contains a chemical or chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.: Nickel; Cobalt  
**WARNING:** This product contains a chemical or chemicals known to the state of California to cause cancer.: Nickel; Cobalt

### Canada

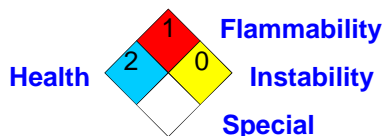
- WHMIS (Canada)** : Class D-2A: Material causing other toxic effects (Very toxic).  
 Class D-2B: Material causing other toxic effects (Toxic).  
 All the ingredients are on the DSL list.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

## 16 . Other information

**Label requirements** : WARNING!  
CANCER HAZARD - CONTAINS MATERIAL WHICH CAN CAUSE CANCER.  
CAUSES RESPIRATORY TRACT AND SKIN IRRITATION.  
MAY CAUSE ALLERGIC RESPIRATORY AND SKIN REACTION.  
CONTAINS MATERIAL WHICH MAY CAUSE DAMAGE TO THE FOLLOWING  
ORGANS: LUNGS, CARDIOVASCULAR SYSTEM, RESPIRATORY TRACT, SKIN,  
NOSE, SINUSES.

**National Fire Protection Association (U.S.A.)** :



**Date of issue** : 4/16/2008.

**Date of previous issue** : 3/17/2008.

**Version** : 1.2

### Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.