



## MATERIAL SAFETY DATA SHEET

### SECTION 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: BUEHLER CONDUCTIVE FILLER  
 IDENTIFICATION NUMBER: 20-8500  
 PRODUCT USE/CLASS: Metal Flake

SUPPLIER:  
 BUEHLER, a division of Illinois Tool Works Inc.  
 41 WAUKEGAN ROAD  
 LAKE BLUFF, IL 60044

EMERGENCY: 800-424-9300  
 INFORMATION: 847-295-6500  
 PREPARER: Technical Department, 847-295-6500  
 PREPARE DATE: 03/23/09, 23 March 2009

### SECTION 2 – COMPOSITION/INFORMATION ON INGREDIENTS

ITEM	CHEMICAL NAME	CAS NUMBER	WT/WT%			
01	Nickel (Ni)*	7440-02-0	90.0-100.0			
ITEM	ACGIH TLV-TWA	ACGIH TLV-STEL	OSHA PEL-TWA	OSHA PEL – CEILING	COMPANY TLV-TWA	SKIN
01	1.5** mg/m <sup>3</sup>	N.E.	1.5** mg/m <sup>3</sup>	N.E.	N.E.	NO
** As inhalable fraction						

(SEE SECTION 16 FOR ABBREVIATION LEGEND)

### SECTION 3 – HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW:** Irritating to skin. Potential skin sensitizer. Repeated and prolonged inhalation may be harmful (see Chronic Effects). May form flammable dust/air mixtures. Under special conditions nickel can react with carbon monoxide in reducing atmosphere to form nickel carbonyl, Ni(CO)<sub>4</sub>, a toxic gas.

**ACUTE EFFECTS – EYE CONTACT:** Mechanical irritant. Contact may cause tearing and redness.

**ACUTE EFFECTS - SKIN CONTACT:** Prolonged and repeated contact with metallic nickel may cause irritation to the skin and nickel sensitivity which may result in allergic skin rashes. One case has been reported of asthma induced by external exposure to a nickel-containing skin clip and by skin contact with nickel.

**ACUTE EFFECTS – INHALATION:** Repeated and prolonged inhalation may be harmful. Causes respiratory tract irritation. Repeated inhalation of nickel, particularly when mixed with other metal fumes, may cause an asthmatic response in rare cases.

**ACUTE EFFECTS - INGESTION:** The U.S. National Institute for Occupational Safety and Health (NIOSH) concluded there is no evidence that nickel and its inorganic compounds are carcinogenic when ingested. The U.S. Food and Drug Administration has affirmed that nickel is generally recognized as safe (GRAS) as a direct human food ingredient.

**CHRONIC OVEREXPOSURE EFFECTS:** The National Toxicology Program has listed nickel as reasonably anticipated to be a carcinogen based on the production of injection-site tumors. The International Agency for Research on Cancer (IARC) found there was inadequate evidence that metallic nickel is carcinogenic to humans but since there was sufficient evidence that it is carcinogenic to animals, IARC concluded that metallic nickel is possibly carcinogenic to humans. Epidemiological studies of workers exposed to nickel powder and to dust and fume generated in the production of nickel alloys and of stainless steel have not indicated the presence of a significant respiratory cancer hazard. The inhalation of nickel powder has not resulted in an increased incidence of malignant lung tumors in rodents. Repeated intratracheal instillation of nickel powder produced an increased incidence of malignant lung tumors in rats. Repeated intratracheal instillation of nickel powder did not produce an increased incidence of malignant lung tumors in hamsters when administered at the maximum tolerated dose. Single intratracheal instillations of nickel powder in hamsters at doses near the LD50 produced an increased incidence of fibrosarcomas, mesotheliomas and rhabdomyosarcomas. In 1997, the ACGIH categorized elemental nickel as: A5 "Not Suspected as a Human Carcinogen." Nickel metal powder has caused tumors at the site of injection in rodents. However, studies do not suggest a significant risk for humans from nickel-containing prostheses.

**OTHER INFORMATION:**

**PRIMARY ROUTE(S) OF ENTRY:**

### SECTION 4 – FIRST AID MEASURES

**EYE CONTACT:** Immediately flush gently with large amounts of water. Seek medical attention.

**SKIN CONTACT:** For skin rashes, seek medical attention. Remove contaminated clothing. Wash contaminated skin with soap and water. Cleanse wounds thoroughly to remove any particles.

**INHALATION:** Remove to fresh air. Give oxygen if breathing is difficult. Seek medical attention if symptoms persist.

**INGESTION:** DO NOT induce vomiting. Contact physician or Poison Control Center immediately.

**NOTES TO PHYSICIAN:**

## SECTION 5 – FIRE FIGHTING MEASURES

FLASH POINT: No data

LOWER EXPLOSIVE LIMIT: No data

UPPER EXPLOSIVE LIMIT: No data

AUTOIGNITION TEMPERATURE:

EXTINGUISHING MEDIA: Use dry chemical extinguishers. Do not use water, foam or CO<sub>2</sub>

UNUSUAL FIRE AND EXPLOSION HAZARDS: Fine dust suspended in air may present explosion hazard. Metal flake heated with strong acids may become spontaneously combustible. POISONOUS GASES may be produced during fire.

SPECIAL FIREFIGHTING PROCEDURES: Halogenated extinguishing agents (such as Halon) should not be used. To control the spread of fire, do not use water; ring small fires with dry sand, using non-sparking shovels; avoid creating dust clouds, eliminate drafts, let fire extinguish itself. DO NOT spray with water.

## SECTION 6 – ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Reclaim clean material by sweeping with clean non-metallic brush into appropriate container. Wear appropriate protective equipment. Collect spills by sweeping compound or by vacuuming with the vacuum exhaust passing through a high efficiency particulate arresting (HEPA) filter if the exhaust is discharged into the workplace. Flush spill area with water; collect washings.

## SECTION 7 – HANDLING AND STORAGE

HANDLING: Do not inhale flake. If ventilation alone cannot control exposure, use NIOSH-approved respirators selected according to OSHA 29CFR1910.134.

STORAGE: Do not store near acids or reactive substances. (See Section 10). Store in tightly closed containers in a cool, well-ventilated area. Keep container closed when not in use.

## SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Local ventilation as needed to keep nickel levels to below recommended TLVs.

RESPIRATORY PROTECTION: If ventilation alone cannot control exposure, use NIOSH-approved respirators selected according to OSHA 29 CFR 1910.134.

SKIN PROTECTION: Wear suitable gloves and protective work clothing.

EYE PROTECTION: Safety glasses or goggles.

OTHER PROTECTIVE EQUIPMENT: eye wash

HYGIENIC PRACTICES: Wash skin thoroughly after handling. Launder clothing and gloves as needed.

## SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

BOILING RANGE:	2732°C	VAPOR DENSITY:	N.A.
ODOR:	None	ODOR THRESHOLD:	N.A.
APPEARANCE:	Gray powder	EVAPORATION RATE:	N.A.
SOLUBILITY IN H <sub>2</sub> O:	0 g/100ml		
FREEZE POINT:	N.A.	SPECIFIC GRAVITY:	1.92
VAPOR PRESSURE:	N.A.	pH @ 0.0%:	N.A.
PHYSICAL STATE:	Solid	VISCOSITY:	N.A.
COEFFICIENT OF WATER/OIL DISTRIBUTION:	N.A.		

(SEE SECTION 16 FOR ABBREVIATION LEGEND)

## SECTION 10 – STABILITY AND REACTIVITY

CONDITIONS TO AVOID: Reducing atmospheres.

INCOMPATIBILITY: Nickel in powder form is not compatible with STRONG ACIDS, (such as HYDROCHLORIC, SULFURIC and NITRIC); OXIDIZERS (such as PERCHLORATES, PEROXIDES, PERMANGANATES, CHLORATES and NITRATES); SULFUR; or COMBUSTIBLES. Nickel can react with acids to liberate hydrogen gas which can form explosive mixtures in air. Phosphorus. Selenium. Ammonium nitrate.

HAZARDOUS DECOMPOSITION PRODUCTS: Toxic fumes of nickel. Under special conditions, nickel can react with carbon monoxide in reducing atmospheres to form nickel carbonyl, an extremely toxic gas.

HAZARDOUS POLYMERIZATION: Will not occur under normal conditions.

STABILITY: This product is stable under normal storage conditions

## SECTION 11 – TOXICOLOGICAL PROPERTIES

COMPONENT TOXICOLOGICAL INFORMATION:

----- CHEMICAL NAME -----	----- LD50 -----	----- LC50 -----
Nickel	Oral/rat >9000 mg/kg	No information

## SECTION 12 – ECOLOGICAL INFORMATION

ECOLOGICAL TEST DATA: Not Available

## SECTION 13 – DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Nickel-containing waste is normally collected to recover nickel values. Should waste disposal be deemed necessary follow EPA and local regulations.

## SECTION 14 – TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME: N.A.

DOT TECHNICAL NAME: N.A.

DOT HAZARD CLASS: N.A.

DOT UN/NA CLASS: N.A.

HAZARD SUBCLASS: N.A.

PACKAGING GROUP: N.A.

RESP. GUIDE PAGE: N.A.

INTERNATIONAL SHIPPING NAME: Not regulated for transport

INTERNATIONAL ID NUMBER: N.A.

IMDG CLASS (1°, 2°): N.A.

IMDG EMS: N.A.

IMDG PAGE NUMBER: N.A.

IATA CLASS (1°, 2°): N.A.

## SECTION 15 – REGULATORY INFORMATION

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200)

CERCLA – SARA HAZARD CATEGORY: THIS PRODUCT HAS BEEN REVIEWED, AND IS CONSIDERED, UNDER APPLICABLE DEFINITIONS, TO MEET THE FOLLOWING CATEGORIES: IMMEDIATE HEALTH HAZARD CHRONIC HEALTH HAZARD

SARA SECTION 313: THIS PRODUCT CONTAINS THE FOLLOWING SUBSTANCES SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 AND 40 CFR PART 372:

----- CHEMICAL NAME -----	CAS NUMBER	WT/WT %
Nickel	7440-02-0	100

TOXIC SUBSTANCE CONTROL ACT: THE CHEMICAL SUBSTANCES IN THIS PRODUCT ARE ON THE TSCA SECTION 8 INVENTORY. THIS PRODUCT CONTAINS THE FOLLOWING CHEMICAL SUBSTANCES SUBJECT TO THE REPORTING REQUIREMENTS OF TSCA 12(B) IF EXPORTED FROM THE UNITED STATES:

NEW JERSEY RIGHT-TO-KNOW: THE FOLLOWING MATERIALS ARE NON-HAZARDOUS, BUT ARE AMONG THE TOP 5 COMPONENTS IN THIS PRODUCT: none

PENNSYLVANIA RIGHT-TO-KNOW: THE FOLLOWING NON-HAZARDOUS INGREDIENTS ARE PRESENT IN THE PRODUCT AT GREATER THAN 3%: none

CALIFORNIA PROPOSTION 65: This product contains a chemical listed as known to the State of California to cause cancer. (Nickel)

CANADIAN WHMIS: THIS MSDS HAS BEEN PREPARED IN COMPLIANCE WITH CONTROLLED PRODUCT REGULATIONS EXCEPT FOR USE OF THE 16 HEADINGS.

CANADIAN WHMIS CLASS: D2A

COMPONENT RCRA CLASSIFICATIONS: N.A.

COMPONENT RCRA CODES: N.A.

CERCLA RQ VALUE (MINIMUM): N.A.

## SECTION 16 – OTHER INFORMATION

### HMIS RATINGS

HEALTH:

FLAMMABILITY:

REACTIVITY:

PREVIOUS MSDS REVISION DATE: 03/02/05; 02 March 2005

REASON FOR REVISION: Administrative change for new format.

VOLATILE ORGANIC COMPOUNDS: 0 grams/ltr

### LEGEND:

N.A. – NO INFORMATION

N.E. – NOT ESTABLISHED

N.D. – NOT DETERMINED

ABBREVIATIONS: ACGIH = AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS; OSHA = OCCUPATIONAL HEALTH AND SAFETY ADMINISTRATION; TLV-TWA = THRESHOLD LIMIT VALUE – TIME WEIGHTED AVERAGE (8 HOURS); STEL = SHORT-TERM EXPOSURE LIMIT (15 MINUTES); C = CEILING VALUE; PEL = PERMISSIBLE EXPOSURE LIMIT

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