Safety Data Sheet
acc. to OSHA GHS (29 CFR 1910.1200)

Printing date: 02/08/2016 Revision: 02/08/2016

1 Identification

· **Product identifier**

· **Trade name: Nickel Silver Alloy 17, 170 Flux Coated**

· **Other means of identification:**
· **SDS Number:** 0123

· **Recommended use and restriction on use**
· **Recommended use:** Metal Brazing
· **Restrictions on use:** No relevant information available.

· **Manufacturer/Importer/Supplier/Distributor information**
· **Manufacturer/Supplier:**
Harris Products Group
4501 Quality Place
Mason, Ohio 45040 US
513-754-2000

· **Safety Data Sheet Questions:** salesinfo@jwharris.com
· **Arc Welding Safety Information:** www.lincolnelectric.com/safety

· **24-Hour Emergency Response Telephone Numbers:**
USA/Canada/Mexico: +1 (888) 609-1762
Americas/Europe: +1 (216) 383-8962
Asia Pacific: +1 (216) 383-8966
Middle East/Africa: +1 (216) 383-8969

· **3E Company Access Code:** 333988

2 Hazard(s) identification

Classified according to the criteria of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS), OSHA Hazard Communication Standard (29 CFR 1910.1200) and the Canadian Controlled Products Regulations.

· **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**
The product is not classified as hazardous according to OSHA GHS regulations within the United States.
· **Hazard pictograms:** Not regulated.
· **Signal word:** Not regulated.

· **Hazard-determining components of labeling:** None.
· **Hazard statements:** Not regulated.
· **Precautionary statements:** Not regulated.

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· **Additional information:**
· **Other hazards which do not result in GHS classification:**
Heat rays (infrared radiation) from flame or hot metal can injure eyes. Overexposure to brazing fumes and gases can be hazardous. Read and understand the manufacturer's instructions, Safety Data Sheets and the precautionary labels before using this product.

· **Other hazards** There are no other hazards not otherwise classified that have been identified.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Components:**

7440-50-8	copper	25-50%
7440-66-6	zinc metal	20-40%
1303-96-4	disodium tetraborate, decahydrate	20-30%
7440-02-0	nickel	5-15%
10043-35-3	boric acid	<10%

· **Additional information:**
For the listed ingredient(s), the identity and exact percentage(s) are being withheld as a trade secret.

4 First-aid measures

· **Description of first aid measures**
· **After inhalation:**
Move to fresh air if breathing is difficult. If breathing has stopped, perform artificial respiration and obtain medical assistance at once.
· **After skin contact:**
Remove contaminated clothing and wash the skin thoroughly with soap and water. For reddened or blistered skin, or thermal burns, obtain medical assistance at once.
· **After eye contact:**
Dust or fume from this product should be flushed from the eyes with copious amounts of clean, tepid water until transported to an emergency medical facility. Do not allow victim to rub or keep eyes tightly closed. Obtain medical assistance at once.
· **After swallowing:**
Unlikely due to form of product, except for granular materials. Avoid hand, clothing, food, and drink contact with metal fume or powder which can cause ingestion of particulate during hand to mouth activities such as drinking, eating, smoking, etc. If ingested, do not induce vomiting. Contact a poison control center. Unless the poison control center advises otherwise, wash out mouth thoroughly with water. If symptoms develop, seek medical attention at once.
· **Most important symptoms and effects, both acute and delayed:** No relevant information available.
· **Danger:**
Brazing hazards are complex and may include physical and health hazards such as but not limited to infrared radiation from flame or hot metal, physical strains, thermal burns due to hot metal or spatter and potential health effects of overexposure to brazing fume or dust. Refer to Section 11 for more information.

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· **Indication of any immediate medical attention and special treatment needed:** Treat symptomatically.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
As shipped, the product will not burn. In case of fire in the surroundings: use appropriate extinguishing agent.
For metal fires: Use specific agents only.
· **For safety reasons unsuitable extinguishing agents:** For metal fires: Use specific agents only.
· **Special hazards arising from the substance or mixture**
Infrared radiation from flame or hot metal can ignite combustibles and flammable products.
· **Advice for firefighters**
· **Special fire fighting procedures:**
Use standard firefighting procedures and consider the hazards of other involved materials.
· **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.
· **Additional information:**
Read and understand American National Standard Z49.1, "Safety In Welding, Cutting and Allied Processes" and National Fire Protection Association NFPA 51B, "Standard for Fire Prevention During Welding, Cutting and Other Hot Work" before using this product.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures:**
If airborne dust and/or fume is present, use adequate engineering controls and, if needed, personal protection to prevent overexposure. Refer to recommendations in Section 8.
· **Environmental precautions:**
Avoid release to the environment.
Prevent further leakage or spillage if safe to do so.
· **Methods and material for containment and cleaning up:**
Clean up spills immediately, observing precautions in the personal protective equipment in Section 8.
Avoid generating dust. Prevent product from entering any drains, sewers or water sources.
Pick up mechanically.
Send for recovery or disposal in suitable receptacles.
Dispose contaminated material as waste according to item 13.
· **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:**
Prevent formation of dust.

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Ensure good ventilation/exhaustion at the workplace.
Any deposit of dust which cannot be avoided must be regularly removed.
Prevent formation of dust. Ensure good ventilation/exhaustion at the workplace. Any deposit of dust which cannot be avoided must be regularly removed. Read and understand the manufacturer's instruction and the precautionary label on the product. Refer to Lincoln Safety Publications at www.lincolnelectric.com/ safety. See American National Standard Z49.1, "Safety In Welding, Cutting and Allied Processes" published by the American Welding Society, http:// pubs.aws.org and OSHA Publication 2206 (29CFR1910), U.S. Government Printing Office, www.gpo.gov.

· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage**
· **Requirements to be met by storerooms and receptacles:**
Store in closed original container in a dry place. Store away from incompatible materials. Store in accordance with local/regional/national regulations.
· **Information about storage in one common storage facility:** No special requirements.
· **Further information about storage conditions:** No special requirements.
· **Specific end use(s):** No relevant information available.

8 Exposure controls/personal protection

· **Control parameters**
· **Exposure Guidelines:**
Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs) are values published by the American Conference of Government Industrial Hygienists (ACGIH). ACGIH Statement of Positions Regarding the TLVs® and BEIs® states that the TLV-TWA should be used as a guide in the control of health hazards and should not be used to indicate a fine line between safe and dangerous exposures. See Sections 2, 3, 8, 10, and 11 for information on potential fume constituents of health interest. Threshold Limit Values are figures published by the American Conference of Government Industrial Hygienists.
· **Components with limit values that require monitoring at the workplace:**
These components may be present

7440-50-8 copper	
PEL (USA)	Long-term value: 1* 0.1** mg/m³ as Cu *dusts and mists **fume
REL (USA)	Long-term value: 1* 0.1** mg/m³ as Cu *dusts and mists **fume
TLV (USA)	Long-term value: 1* 0.2** mg/m³ *dusts and mists; **fume; as Cu
EL (Canada)	Long-term value: 1* 0.2** mg/m³ *dusts and mists; **fume, as Cu
EV (Canada)	Long-term value: 0.2* 1** mg/m³ as copper, *fume;**dust and mists
LMPE (Mexico)	Long-term value: 0.2* 1** mg/m³ *humo (como Cu);**polvo y niebla (como Cu)

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10043-35-3 boric acid	
TLV (USA)	Short-term value: 6* mg/m³ Long-term value: 2* mg/m³ *as inhalable fraction
EL (Canada)	Short-term value: 6 mg/m³ Long-term value: 2 mg/m³
EV (Canada)	Short-term value: 6 mg/m³ Long-term value: 2 mg/m³ inorganic, inhalable
LMPE (Mexico)	Short-term value: 6* mg/m³ Long-term value: 2* mg/m³ A4;*fracción inhalable
7440-02-0 nickel	
PEL (USA)	Long-term value: 1 mg/m³
REL (USA)	Long-term value: 0.015 mg/m³ as Ni; See Pocket Guide App. A
TLV (USA)	Long-term value: 1.5* mg/m³ elemental, *inhalable fraction
EL (Canada)	Long-term value: 0.05 mg/m³ ACGIH A1, IARC 2B
EV (Canada)	Long-term value: 1 mg/m³ Inhalable fraction
LMPE (Mexico)	Long-term value: 1.5* mg/m³ *elemental:A5, fracción inhalable
1303-96-4 disodium tetraborate, decahydrate	
REL (USA)	Long-term value: 5 mg/m³
TLV (USA)	Short-term value: 6* mg/m³ Long-term value: 2* mg/m³ *as inhalable fraction
EL (Canada)	Short-term value: 6 mg/m³ Long-term value: 2 mg/m³
EV (Canada)	Short-term value: 6 mg/m³ Long-term value: 2 mg/m³ inorganic, inhalable
LMPE (Mexico)	Short-term value: 6* mg/m³ Long-term value: 2* mg/m³ A4, *fracción inhalable

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
Determine the composition and quantity of fumes and gases to which workers are exposed by taking an air sample from inside the welder's helmet if worn or in the worker's breathing zone. Improve ventilation if exposures are not below limits. See ANSI/AWS F1.1, F1.2, F1.3 and F1.5, available from the American Welding Society, www.aws.org.

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Keep away from foodstuffs, beverages and feed.
· **Engineering controls:** No relevant information available.
· **Ventilation**
Use enough ventilation, local exhaust at the the flame or heat source, or both to keep the fumes and gases from the worker's breathing zone and the general area. Train the operator to keep his head out of the fumes. Keep exposure as low as possible.
· **Breathing equipment:**
Keep your head out of fumes. Use enough ventilation and local exhaust to keep fumes and gases from your breathing zone and the general area. An approved respirator should be used unless exposure assessments are below applicable exposure limits.
· **Protection of hands:**

Thermally-protective gloves.

Suitable gloves can be recommended by the glove supplier.
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
· **Eye protection:**

Wear glasses or face shield with appropriate shading for brazing operations.

· **Body protection:** Protective work clothing
· **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 material
Color:	According to product specification
· **Odor:**	Odorless
· **Odor threshold:**	Not determined.
· **pH-value:**	Not applicable.
· **Melting point/Melting range:**	Not determined.
· **Boiling point/Boiling range:**	Not determined.
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not determined.
· **Auto-ignition temperature:**	Not determined.
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not self-igniting.

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· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure:**	Not applicable.
· **Density:**	Not determined.
· **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.
· **Other information**	No relevant information available.

10 Stability and reactivity

· **Reactivity:** The product is non-reactive under normal conditions of use, storage and transport.
· **Chemical stability:** Stable under normal temperatures and pressures.
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
· **Possibility of hazardous reactions:**
Reacts with strong acids and alkali.
Reacts with strong oxidizing agents.
· **Conditions to avoid:** Avoid heat or contamination.
· **Incompatible materials:** No relevant information available.
· **Hazardous decomposition products:**
Brazing fumes and gases cannot be classified simply. The composition and products: quantity of both are dependent upon the metal being joined, the process, procedure and filler metals and flux used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being joined (such as paint, plating, or galvanizing), the number of operators and the volume of the worker area, the quality and amount of ventilation, the position of the operator's head with respect to the fume and fumes from chemical fluxes used in some brazing operations.
When the wire or rod is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section 3. Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidation of the materials shown in Section 3, plus those from the base metal and coating, etc., as noted above.

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11 Toxicological information

· **Information on toxicological effects**
· **Inhalation**
Short-term (acute) overexposure to brazing fumes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat, or eyes. May aggravate pre-existing respiratory problems (e.g. asthma, emphysema). Long-term (chronic) overexposure to brazing fumes can lead to siderosis (iron deposits in lung), central nervous system effects, bronchitis and other pulmonary effects.
· **Acute toxicity:**
· **LD/LC50 values that are relevant for classification:** None.
· **Primary irritant effect:**
· **On the skin:**
No irritant effect.
Heat rays can burn skin.
· **On the eye:**
No irritating effect.
Heat rays (infrared radiation) from flame or hot metal can injure eyes.
· **In the respiratory system:** No irritating effect.
· **Sensitization:** No sensitizing effects known.

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer):**		
7440-02-0	nickel	1

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

· **OSHA-Ca (Occupational Safety & Health Administration):**
None of the ingredients are listed.

· **Other information relevant to carcinogenicity**
Cancerous lesions have been reported in persons exposed to arc rays.
· **Probable route(s) of exposure:**
Inhalation.
Eye contact.
Skin contact.
· **Germ cell mutagenicity**
· **In vitro:** Not classified
· **In vivo** Not classified
· **Reproductive toxicity** Not classified
· **Specific target organ toxicity - single exposure** Not classified
· **Specific target organ toxicity - repeated exposure** Not classified
· **Aspiration hazard** Not classified

12 Ecological information

· **Toxicity**
· **Aquatic toxicity** No relevant information available.

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· **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:**
Negative ecological effects are, according to the current state of knowledge, not expected.
· **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:**
The generation of waste should be avoided or minimized whenever possible. When practical, recycle in an environmentally acceptable, regulatory compliant manner. Dispose of non-recyclable products in accordance with all applicable Federal, State, Provincial, and Local requirements.
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.
· **Packing group** · **DOT, ADR, IMDG, IATA**	Not regulated.
· **Environmental hazards** · **Marine pollutant:**	No
· **Special precautions for user**	Not applicable.

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· **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**

· **US Federal Regulations**

None of the ingredients are listed.

· **US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**
None present or none present in regulated quantities.

· **SARA**

· **Section 313 (TRI reporting)**

7440-50-8	copper
7440-66-6	zinc metal
7440-02-0	nickel

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

None of the ingredients are listed.

· **CERCLA Hazardous Substance List (40 CFR 302.4):**

7440-50-8	copper
7440-66-6	zinc metal
7440-02-0	nickel

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

All ingredients are listed.

· **Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)**
None present or none present in regulated quantities.

· **Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):**
None present or none present in regulated quantities.

· **Proposition 65 (California)**

· **Chemicals known to cause cancer:**

7440-02-0	nickel

· **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):**

7440-50-8	copper	D
7440-66-6	zinc metal	D, I, II

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10043-35-3	boric acid	l (oral)
1303-96-4	disodium tetraborate, decahydrate	l (oral)

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

7440-02-0	nickel	1

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

7440-02-0	nickel

· **State Right to Know Listings**

· **US. New Jersey Worker and Community Right-to-Know Act**

copper
zinc metal
boric acid
nickel
disodium tetraborate, decahydrate

· **Canada**
· **Canadian substance listings**

· **Canadian Domestic Substances List (DSL):**

All ingredients are listed.

· **Canada Non-Domestic Substances List (NDSL)**

None of the ingredients are listed.

· **Canadian Ingredient Disclosure list (limit 0.1%):**

7440-02-0	nickel

· **Canadian Ingredient Disclosure list (limit 1%):**

7440-50-8	copper
10043-35-3	boric acid
1303-96-4	disodium tetraborate, decahydrate

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

· **Date of preparation / last revision** 02/08/2016 / -

· **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)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
OSHA: Occupational Safety & Health

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· **Sources**

Website, European Chemicals Agency (echa.europa.eu)
Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)
Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)
Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: ISBN: 978-0-470-07488-6
Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.
Safety Data Sheets, Individual Manufacturers

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· **Disclaimer:**

We urge each end user and recipient of this SDS to study it carefully. If necessary consult an industrial hygienist or other expert to understand this information and safeguard the environment and protect workers from potential hazards associated with the handling or use of this product.

Harris Products Group cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for use, handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.