



SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: NITINOL #1 WIRE

SDS Number: SDS-6027

Revised Date: 26 JULY 2018

Product : INDUSTRIAL USE

MANUFACTURER:

In America:

The Indium Corporation of America®.
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In Asia:

The Indium Corporation of America
Asia-Pacific Operations-Singapore
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Singapore 628908
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2. HAZARDS IDENTIFICATION

PRIMARY ROUTES OF ENTRY:

√Eye √Inhalation √Skin √Ingestion

CARCINOGEN LISTED IN:

NTP IARC OSHA √Not Listed

GHS:



Signal word Warning

Hazard statement(s)

H317 May cause an allergic skin reaction
 H351 Suspected of causing cancer (nickel)
 H373 Causes damage to organs through prolonged or repeated exposure if inhaled
 H412 Harmful to aquatic life with long lasting effects

Precautionary statement(s)

P233 Keep container tightly closed
 P261 Avoid breathing dust/fume/gas/mist/vapors/spray
 P270 Do not eat, drink or smoke when using this product
 P273 Avoid release to the environment
 P280 Wear protective gloves/protective clothing/eye protection/face protection
 P362 +P364 Take off contaminated clothing and wash before reuse
 P301 + P314 IF SWALLOWED: Get Medical advice/attention if you feel unwell
 P302 +P352 IF ON SKIN: Wash with plenty of soap and water
 P304 + 341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
 P305 + 351 IF IN EYES: Rinse continuously with water for several minutes (15 mins)

Classification

Skin sensitization- Category 1 (dust form)
 Carcinogenicity- Category 2
 Specific target organ toxicity-repeated exposure, inhalation- Category 1
 Acute aquatic toxicity – Category 3 (H402)
 Chronic aquatic toxicity- Category 3 (H412)

POTENTIAL HEALTH EFFECTS:

Eye Contact: Contact with fume from molten metal may cause irritation. Severe eye damage may result from hot molten metal being splashed into the eyes. Wear safety glasses and face shield when working with molten metal. Dusts are irritating to eyes.

Ingestion: Ingestion of dust and fume may cause irritation. May be harmful.

Inhalation: Inhalation of fume or dust may cause local irritation to the respiratory system. Nickel may be toxic to upper respiratory tract. May be harmful.

Skin Contact: Normal handling of solid metal should not cause any adverse health effects. May cause skin irritation or sensitization.
 Hot molten metal may cause burns to the skin. Wear protective equipment when handling molten metal. Nickel may cause skin sensitivity or dermatitis.

Target Organs: Lungs. Target Organ Effect: Carcinogen

Chronic:

NICKEL: May cause a form of dermatitis known as nickel itch. Intestinal irritation, which may cause disorders, convulsions and asphyxia.



WARNING: This product can expose you to chemicals including [trace amounts of lead, nickel] which are known to the State of California to cause cancer and [trace amounts of lead] which can cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

NOTE: The Indium Corporation does not recommend, manufacturer, market or endorse any of its products for human consumption.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Components	% wt	CAS Registry/ #EINECS#	PEL mg/m ³	TLV-TWA mg/m ³	TLV-STEL mg/m ³	
NICKEL	54.5-57	7440-02-0/231-111-4				
			(US)	1	0.015	-
			(Canada)	-	1	2
			(Singapore)	1	-	-
			(Mexico)	1	-	-
TITANIUM	43-45.5	7440-32-6	N.E.	N.E.	N.E.	

N.E. = Not established

EU = European Union Occupational Exposure Limits

4. FIRST AID MEASURES

Eye Contact:	Hold eyelids apart and flush eyes with plenty of tepid water for at least 15 minutes. Seek medical attention if irritation persists.
Ingestion:	Do not induce vomiting. NEVER give anything by mouth to an unconscious person. Seek medical attention immediately.
Inhalation:	Remove to fresh air. If not breathing, give artificial respiration or oxygen by trained personnel. Seek immediate medical attention.
Skin Contact:	Remove contaminated clothing. Wash affected area with soap and water. Wash clothing before reuse. If irritation persists, obtain medical attention. If skin irritation or rash occurs- get medical advice.

5. FIRE FIGHTING MEASURES

Flash Point:	Wire non- flammable
Method:	Not established.
Auto-ignition Temperature:	Not applicable.
Flammable Limits:	Limits not established. Massive metal is not flammable; however nickel/titanium dust or powder may be flammable.
Extinguishing Media:	Use extinguishers appropriate for the surrounding fire conditions. Sand, dry powder extinguisher. Do not add water or foam. .

Special Fire Fighting Procedures: Firefighters must wear NIOSH approved self-contained breathing apparatus and full protective clothing.

Keep powder form away from sources of ignition and heat. No smoking in area. Keep area clean and free of waste materials.

6. ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures: Contain spill. If molten, cool to allow metal to solidify. If a solid metal, wear gloves, pick up and return to process. If dust, wear recommended personal protective equipment including respiratory protection. DO NOT SWEEP. Use an intrinsically safe vacuum, place in barrels and return to process if applicable. Use proper ventilation. Do not allow to enter drains, sewers or waterways. Dust may be flammable. Keep dust away from sources of ignition and flame. Otherwise, dispose of following all Federal, State and Local regulations. Metal may have reclaim value.

7. HANDLING AND STORAGE

Handling Precautions: Only dry metals should be added to molten bath. If working with molten metals, or exposed to fume or dust, use appropriate personal protective equipment. Do not eat, drink or smoke.

Storage Precautions: Store product in a cool, dry area away from incompatible materials. Store away from sources of ignition and flame. Wire form not flammable. Dust form may be flammable.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Exhaust ventilation is recommended to control any air contaminants. Control concentration of all components so that their exposure levels are not exceeded. Use ventilation for safety purposes. Avoid dust generation. Avoid exposure to dust & fume.

Personal protection:

Eyes: Chemical safety glasses/goggles and face shield with molten metal.

Respirator: An authority approved or compliant marked air-purifying respirator with a fume/dust chemical cartridge is recommended under certain circumstances where airborne concentrations are expected to be elevated. Additional respiratory protection may be required based on the work performed and the area in which the work is performed. Avoid inhalation of fume and dust.

Skin: Gloves-leather or impervious (vinyl) type. Heat resistant gloves if handling hot metal. Safety type boots. Personal protective equipment is recommended when working with molten metal to avoid burns. Avoid skin contact with dust and fume.

Other: Lab coat, safety shower and eye-wash fountain in work area. Avoid the use of contact lenses in high fume/dusty areas.

Work/Hygienic Practices: Maintain good housekeeping. Clean up spills immediately. Good personal hygiene is essential. Avoid eating, smoking or drinking in the work area. Wash hands thoroughly with soap and water immediately upon leaving the work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Metallic solid wire	Boiling Point:	2730C (4946F) nickel
Odor:	Odorless	Melting Point:	1455C (2651F) nickel

Specific Gravity:	8.9 (nickel)	pH:	Not applicable
Vapor Pressure:	Not available	Solubility in Water:	Insoluble
Vapor Density:	(air=1) Not applicable.		Wire- non flammable

10. STABILITY AND REACTIVITY

General:	Stable.
Conditions to Avoid:	reactive with oxidizing agents, combustible materials, acids
Hazardous Decomposition /	Toxic oxide fumes may form at elevated temperatures
Hazardous Polymerization:	Will not occur.

11. TOXICOLOGICAL INFORMATION

Carcinogenicity:

National Toxicity Program (NTP): Reasonably anticipated to be carcinogenic (nickel)

Occupational Safety & Health Administration (OSHA):No

U.N. International Agency for Research on Cancer (IARC): Group 2B (nickel) Possibly carcinogenic to humans

RTECS QR5950000, for additional information (nickel)

Limited evidence of carcinogenicity in animal studies.

12. ECOLOGICAL INFORMATION

Product not tested.

Toxicity to fish: LC50 – Cyprinus carpio – 1.30 mg/l – 96h

Nickel is harmful to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATION

Waste Disposal Method: Scrap metal alloy usually has value. Contact a commercial reclaimer for recycling. Otherwise, dispose of in accordance with all Federal, State and Local environmental regulations. In Europe follow the Environmental Agency guidelines.

14. TRANSPORT INFORMATION

Transport in accordance with applicable international regulations and requirements. Not regulated under US DOT (United States Department of Transportation).

Solid wire - Not hazardous under shipping regulations. (ground/IATA/IMDG)

15. REGULATORY INFORMATION

The information in this Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated hereunder (29 CFR 1910.1200 ET. SEQ.).

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation (CPR).

Canadian WHMIS: Class D-2A Material causing other toxic effects (nickel - toxic)



This product has been classified in accordance with the guidelines set by the Dept of Industrial Health of the Republic of Singapore.

This product has been classified in accordance with Mexican regulations NOM-018-STPS-2015 and NOM-010-STPS-2014

Malaysia:

This product has been classified in accordance with: Malaysian – OCCUPATIONAL SAFETY AND HEALTH (CLASSIFICATION, LABELING AND SAFETY DATA SHEET OF HAZARDOUS CHEMICALS) REGULATION OCTOBER 2013 – (CLASS). (GHS)

In China:

Decree No. 591: Regulations on the Control over Safety of Hazardous Chemicals

GB 30000.2-29-2013, Rules for classification and labeling of chemicals. (GHS)

GB/T 16483-2008, GB/T 17517-2013

This product has been classified using the Chinese Occupational Limit for Hazardous Agents in the Workplace, GBZ2-2007



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SARA 313 Listing – 40 CFR 372.65: Nickel

All ingredients are listed on the EPA TSCA Inventory.

All ingredients are listed on the Canadian Domestic Substance List.

16. OTHER INFORMATION

HMIS Hazard Rating:	Health:	1
	Fire:	0
	Reactivity:	0

Revised Date: 26 JULY 2018

Prepared by: Nancy Swarts, Indium Corporation of America

Approved by: Nancy Swarts, Indium Corporation of America

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