SECTION 1 IDENTIFICATION

Product Name:	Titanium Carbide Coated Electrode
Product Family/Synonyms:	TiCap™, Huys TiCap™
Recommended Use:	Generally used as resistance welding electrodes and components. May also serve as other electromechanical components, electrical connectors, or other applications where high temperature performance and hardness are required.
Manufacturer/Canadian Supplier Identifier:	Huys Industries Ltd. 175 Toryork Dr. #35 North York, Ontario M9L 1X9 Canada
General Contact Information:	T: 416-747-1611 F: 416-747-7171 Email: sales@huysindustries.com
Emergency:	1-(800)-461-9936

SECTION 2 HAZARD(S) INDENTIFICATION

Hazard classification: In the form in which this product is sold, it is not regulated as a Hazardous Product in the U.S.A or Canada. During machining or grinding, dusts or fumes may be dispersed which may be hazardous if the exposure limits outlined in Section 3 are exceeded.

Label elements

Symbols:	None required	**Signal Word:**	None required
Hazard Statements:	None required	**Precautionary Statements:**	None required

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Material	% by weight	CAS #	EINECS #	OSHA-PEL	ACGIH-TLV
Copper	99+	7440-50-8	231-159-6	0.1 mg/m^3	.02 mg/m^3
Chromium	0.4-0.7	7440-47-3	231-157-5	1 mg/m^3	0.5 mg/m^3
Zirconium	0.1	7440-67-7	231-176-9	5 mg/m^3	5 mg/m^3
Titanium Carbide	0.01	12070-08-5	235-120-4	5 mg/m^3	-
Nickel	0.001	7440-02-0	231-111-4	1 mg/m^3	1.5 mg/m^3
Molybdenum	0.001	7439-98-7	231-107-2	15 mg/m^3	10 mg/m^3

SECTION 4 FIRST-AID MEASURES	
Those administering First-Aid or medical treatment must consult this SDS.	
Inhalation:	Inhalation of particulate requires immediate removal to fresh air. Certain pulmonary conditions may be aggravated by exposure. If symptoms develop, remove from exposure and seek medical attention. If breathing has stopped, perform artificial respiration and seek medical attention.
Skin:	Cuts or abrasions should be treated promptly by thoroughly cleansing the affected area. Seek medical attention for wounds that cannot be properly cleansed. Certain skin conditions may be aggravated by exposure. If irritation or rash occurs, wash the skin using soap and water and isolate the area from exposure. Get medical attention if irritation or rash persists.
Eyes:	Eye injuries from solid particles should receive immediate medical attention. Dust may be flushed from the eyes immediately with large amounts of water for at least 15 minutes using an eye wash station, blinking occasionally. Seek medical attention immediately.
Ingestion:	If the product or dust is swallowed, seek immediate medical attention or advice. Induce vomiting immediately as directed by medical personnel.

SECTION 5 FIRE-FIGHTING MEASURES	
General fire hazards:	In its solid form this product does not pose a fire or explosion hazard. Fine powders that may occur from processing (e.g. grinding, machining, etc.) may ignite or explode. Processes that involve intense heat can result in molten metal (e.g. weld spatter), which does pose a fire hazard to nearby materials, sufficient to cause combustion.
Suitable extinguishing media:	This solid material is noncombustible under normal conditions. Use appropriate fire extinguishing media for the surrounding fire. For metal fires, do not use water. Use powdered extinguishing agents (Class D), dry sand or dry powders. Do not use water or liquid extinguisher near molten metal or metallic powder fire.
Unusual fire and explosion hazard:	Solid masses of this product are not combustible under normal conditions. Dust and fine powders that are present from unusual processing present moderate fire and explosion hazards when exposed to heat, flame, sparks, or heat-generating chemical reactions. Accumulations of metallic dust and powders should be eliminated. Avoid the generation of ignition sources, sparks and flames in the area of dust and fine powder. A fire or explosions hazard is highly unlikely but is possible if dusts generated by grinding are present in certain combinations of particle size, dispersion, concentration, and strong ignition sources.

Special protective equipment and precautions for fire-fighters:	For a dust fire confined to a small area, use a respirator approved for toxic dust and fumes. Wear fire resistant clothing.
SECTION 6	**ACCIDENTAL RELEASE MEASURES**
Not normally applicable to materials in solid form supplied for intended application.	
Personal precautions, protective equipment and emergency procedures:	Protective clothing, gloves, safety goggles, and a respirator should be used when grinding, machining or welding. Steel-toed safety shoes may be necessary for protection from falling metal rods and bars. Do not use high-pressure air spray to avoid the dispersal of metallic powders.
Methods and materials for containment and cleaning up:	In outdoor areas, copper alloys should be collected and covered promptly to prevent exposure to storm water. Avoid and prevent discharge into drains or onto the ground. Heavy metals may leach from exposed alloys and contribute to water pollution. Product in solid form may be picked up by hand or other means to be placed into a container. Copper, copper alloy byproducts, and used components should be recycled whenever possible.
SECTION 7	**HANDLING AND STORAGE**
Precautions for safe handling:	This product does not require special safety precautions for handling prior to use. Grinding, cutting, extreme heat or other forms of metalworking can cause exposure to dusts or fumes. Avoid breathing dust or fumes by ensuring adequate ventilation and/or wearing personal protective equipment such as gloves and safety glasses. Metal dust and fume exposure should be minimized when alloys are subject to grinding, cutting, extreme heat or other forms of metalworking. Avoid breathing dust or fumes by ensuring adequate ventilation and/or wearing personal protective equipment when necessary.
Conditions for safe storage:	Good housekeeping must be practiced during storage, transfer, handling and use to avoid excessive dust accumulation. Do not store near strong acids, bases, or oxidizing agents, or incompatible materials as described in Section 10 below. Prevent exposure to rain water, as described in Section 6 above.
SECTION 8	**EXPOSURE CONTROLS/PERSONAL PROTECTION**
Control parameters, including occupational exposure guidelines or biological exposure limits and the source of those values:	

Occupational Exposure Limits			
US – OSHA regulated substances (29CfR 1910.1001-1050)			
Components	**Type**	**Value**	**Form**
Copper (CAS 7440-50-8)	PEL	1 mg/m^3	Dust and Mist
Copper (CAS 7440-50-8)	PEL	0.1 mg/m^3	Fume
Chromiuim (CAS 7440-47-3)	PEL	1 mg/m^3	
Nickel (CAS 7440-02-0)	PEL	1 mg/m^3	
Titanium Carbide (CAS	PEL	5 mg/m^3	Titanium dust
Molybdenum (CAS 7439-98-7)	PEL	10 mg/m^3	Inhalable fraction
Molybdenum (CAS 7439-98-7)	PEL	3 mg/m^3	Respirable fraction
US – ACGIH Threshold Limit Values			
Components	**Type**	**Value**	**Form**
Chromium (CAS7410-47-3)	TWA	0.5 mg/m^3	
Molybdenum (CAS 7439-98-7)	TLV	10 mg/m^3	Inhalable fraction
Molybdenum (CAS 7439-98-7)	TLV	3 mg/m^3	Respirable fraction
US – NIOSH: Pocket Guide to Chemical Hazards			
Copper (CAS 7440-50-8)	TWA	1 mg/m^3	Dust and Mist
Chromium (7410-47-3)	TWA	0.5 mg/m^3	
Nickel (7440-02-0)	TWA	0.015 mg/m^3	

Appropriate Engineering Controls

Worker exposure to hazardous conditions and airborne contaminants must be evaluated, brought into compliance through the use of engineering and administrative controls. Personal protective equipment may be used as a redundant measure or utilized when engineering measures are not feasible. Use process enclosures, local or general ventilation to maintain airborne dusts and fumes below harmful limits. If ventilation is used to remove dust and fumes generated by grinding, cutting or other operations, special ventilation procedures may be necessary to avoid explosion hazards in the ducts by maintaining dust concentrations below explosive limits.

Individual Protection Measures

Respiratory Protection:	Engineering or administrative controls should be used to reduce exposures below the harmful limits. If exposure exceeds these limits, approved respirator protective equipment for the specific contaminant (dust/fume/mist). An industrial hygienist, safety engineer, or other qualified personnel should be consulted. Approved breathing equipment may be required for non-routine and emergency use.

Ventilation:	Local exhaust ventilation is required when dust, fumes, or mists are generated. Local and general exhaust ventilation should be used to keep airborne concentrations of dust, fumes, or mists below harmful limits.
Protective Gloves:	Gloves approved for specific application are required when melting, pouring, grinding, welding and handling of sharp or hot exposed metal. Gloves should be worn to prevent cuts and abrasions to skin.
Eye Protection:	Approved safety glasses, goggles, face shield and/or welder's helmet should be worn when risk of eye injury is present, especially during operates that generate particulate or splatter such as melting, casting, machining, grinding, or welding. Safety eyewash stations should be provided near work areas.
Other Protective Clothing or Equipment:	Use both primary and secondary personal protective equipment and special heat and molten metal resistant clothing for metal splash and spilling. Full protective clothing is required as appropriate for chips, dust, powder, and high heat. Steel-toed safety work shoes with metatarsal protection may be necessary to avoid injury from falling solid metals.
Work/Hygiene Practices:	No eating, drinking or use of tobacco products in work areas. Wash hands and face after skin contact and before eating, drinking or use of tobacco products, or rest room use. Work clothing should be laundered frequently and separately from other household laundry. Avoid inhalation and ingestion. Train employees in good work and hygiene practices. Do not use air hose to clean personnel or machines.

SECTION 9	**PHYSICAL AND CHEMICAL PROPERTIES**		
Appearance:	Red/brown metallic	**Upper flammable limit:**	N/A
Odour:	None	**Vapour pressure:**	0.67 hPa
Odour threshold:	N/A	**Relative density:**	0.318 lb/in^3
pH:	N/A	**Solubility:**	Insoluble
Melting point:	1083°C	**Auto-ignition temperature:**	N/A
Boiling point:	2595°C	**Decomposition temperature:**	N/A
Flash point:	N/A	**Flammability:**	N/A
Evaporation rate:	N/A	**Lower flammable limit:**	N/A

SECTION 10	**STABILITY AND REACTIVITY**
Reactivity:	Stable at room temperature and non-reactive under normal conditions of use and storage.
Chemical stability:	Material is stable under normal conditions.
Possibility of hazardous reaction:	No dangerous reaction known under conditions of normal use.

Conditions to avoid:	Contact with incompatible materials should be avoided. Incompatible materials – strong oxidizing agents.
Incompatible materials:	Copper reacts violently and is incompatible with acetylene, chlorine, chlorates, sodium azate, halogens, halogenates, peroxides, hydrogen sulfide, bromates, hydrozoic acid, iodates, chloride, potassium oxide, ammonium nitrate, phosphorous, lead azide, fluorine, ethylene oxide, hydrazic acid, acetylene compounds, 3-bromopropene, CIF hydrazine, mononitrate, oxygen difluoride, oxidizers, alkalis, alkalines, 1-bromo-2propyne. Avoid contact with acids. Copper burns spontaneously in chlorine gas. Magnesium and copper dust or mist are incompatible. Remove all moisture from metal prior to any melting operations.
Hazardous decomposition products:	No hazardous decomposition products are known.

SECTION 11 TOXICOLOGICAL INFORMATION

Exposure Routes:

Inhalation:	Harmful if inhaled. Inhalation of dust, mist or fumes may cause irritation of the nose, throat and lungs, including coughing and sneezing. Exposure to greater amounts of dust can cause difficulty breathing and chest tightness, as well as a metallic taste in the mouth and nausea. Continued and prolonged inhalation may be harmful.
Skin contact:	May cause an allergic dermal response resulting in redness, itching and pain. Prolonged skin contact may cause temporary irritation.
Eye contact:	Copper fragments in the cornea may cause cataracts, discoloration or loss of an eye. Direct contact of dust or mist with eyes may cause temporary irritation.
Ingestion:	Harmful if swallowed. Ingestion can cause irritation of the throat and stomach. Fumes of copper may cause metal fume fever with flu-like symptoms, diarrhea, and skin and hair discoloration.
Carcinogenic Assessment:	Nickel has been identified as a suspected carcinogenic by NTP, IARC, or OSHA.

Information on Toxicological Effects:

Acute toxicity in high concentrations. Vapours are anaesthetic and may cause headache, fatigue, dizziness and central nervous system effects. This product is not considered carcinogenic. It may damage fertility or unborn child.

SECTION 12 ECOLOGICAL INFORMATION

This product is relatively insoluble in water and therefore has low bioavailability and is not classified as environmentally hazardous. It is possible that large and/or frequent spills can have a damaging effect on the environment. Avoid releasing dusts and fumes into the environment. No data regarding this material's mobility in soils, degradability, or bio-accumulative potential are available. No other adverse environmental effects, such as ozone depletion or global warming potential, are expected from this material.

SECTION 13 DISPOSAL CONSIDERATIONS

This product should be recycled as scrap and may be treated as general industrial waste if permitted by applicable local, regional, national or international regulations.

SECTION 14 TRANSPORT INFORMATION

UN number:	N/A
UN proper shipping name:	N/A
Transport hazard class(es):	N/A
Packing group:	N/A
Environmental hazards:	N/A
Transport in bulk:	N/A
Special precautions:	N/A

SECTION 15 REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Product Regulations (CPR) and the SDS contains all of the information required by the CPR.

The product is not classified as a health or environmental hazard under current legislation including Regulation (EC) No 1272/2008 and the Council Directives 67/548/EEC and 1999/45/EEC. Chromium, Copper and Lead are on the list of toxic chemicals subject of the United States Environmental Protection Agency (EPA) Toxics Release Inventory (TRI) Program reporting requirements. This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Hazardous Material Identification System (HMIS)

Health Hazard:	0
Flammability Hazard:	0
Reactivity Hazard:	0
Maximum Personal Protection:	E

SECTION 16 OTHER INFORMATION

Issue date: August 11, 2016

Revision: 1

The information in this SDS was obtained from sources that are believed to be reliable. However, the information is provided without any warranty, express or implied, regarding its correctness.

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