

Safety Data Sheet: TUL-HEET ELECTRODE

Supersedes Date 12/03/2009

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1. PRODUCT AND COMPANY IDENTIFICATION

Product Name TUL-HEET ELECTRODE
Recommended use ARC welding
Information on Manufacturer
X-ERGON by Partsmaster, Div of NCH Corp.
P.O. Box 655326
Dallas, TX 75265-5326

Product Code 11240000
Chemical nature Inorganic solid blend
Emergency Telephone Number
CHEMTREC® 800-424-9300

2. HAZARD IDENTIFICATION

Color gray

Physical State Solid

Odor Odorless

GHS

Classification

Physical Hazards

None

Health Hazard

Acute Oral Toxicity

Carcinogenicity

Other hazards

None

Category 4

Category 1A

Labeling

Signal Word

DANGER



Hazard Statements

H302 - Harmful if swallowed

H350 - May cause cancer

Precautionary Statements

P201 - Obtain special instructions before use

P202 - Do not handle until all safety precautions have been read and understood

P260 - Do not breathe dust or fume

P264 - Wash face, hands and any exposed skin thoroughly after handling.

P270 - Do not eat, drink or smoke when using this product

P281 - Use personal protective equipment as required

P301+ P312 - IF SWALLOWED: Call a physician if unwell

P330 - Rinse mouth

P308 + P313 - IF exposed or concerned: Get medical attention/advice

P405 - Store locked up

P273 - Avoid release to the environment

P501 - Dispose of contents and container to an approved waste disposal plant.

21 % of the mixture consists of ingredient(s) of unknown toxicity

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS-No	Weight %
Iron	7439-89-6	60-100
Titanium dioxide	13463-67-7	7-13
Chromium	7440-47-3	5-10
Calcium carbonate	1317-65-3	1-5
Tungsten	7440-33-7	5-10
Silicon	7440-21-3	1-5
Vanadium pentoxide	1314-62-1	.5-1
Quartz	14808-60-7	.5-5
Manganese	7439-96-5	.5-1.5
Carbon black	1333-86-4	.1-1
Potassium titanate	12030-97-6	.1-1

4. FIRST AID MEASURES

General advice Do not breathe dust or fume. Show this safety data sheet to the doctor in attendance. If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician.

Skin Contact In case of contact, immediately flush skin with soap and plenty of water. If skin irritation persists, call a physician.

Inhalation Remove person to fresh air. If signs/symptoms continue, get medical attention.

Ingestion If swallowed, do not induce vomiting - seek medical advice. Rinse mouth.

Notes to physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flash Point Not applicable **Method** Not applicable

Upper No data available **Lower** No data available

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Specific hazards arising from the chemical
Arcs and sparks can ignite combustibles and flammable products. See American National Standard Z49.1; Safety in Welding and Cutting published by The American Welding Society .

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA **Health 2** **Flammability 0** **Instability 0**

HMIS **Health 2** **Flammability 0** **Instability 0**

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Wear appropriate protective clothing. Avoid creating dusty conditions. Transfer solid into a properly labeled container for re-use or disposal. If necessary, wash area with water and pick up wash water for disposal.

Environmental Precautions Prevent product from contaminating soil or from entering sewage, drainage systems, and bodies of water .

Methods for Containment Pick up and arrange disposal without creating dust.

Methods for Cleaning Up Shovel or vacuum any spilled material into a suitable container. Alloy wastes are normally collected to recover metal value .

Neutralizing Agent Not applicable.

7. HANDLING AND STORAGE

Handling Avoid contact with skin, eyes and clothing. Do not eat, drink or smoke when using this product. Ensure adequate ventilation.

Storage Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children.

Storage Temperature **Minimum** No information available **Maximum** No information available

Storage Conditions **Indoor** X **Outdoor** **Heated** **Refrigerated**

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH
Iron	No data available	No data available	No data available
Titanium dioxide	TWA: 10 mg/m ³	TWA: 15 mg/m ³	IDLH: 5000 mg/m ³
Chromium	TWA: 0.5 mg/m ³	TWA: 1 mg/m ³	IDLH: 250 mg/m ³ TWA: 0.5 mg/m ³
Calcium carbonate	No data available	TWA: 15 mg/m ³ TWA: 5 mg/m ³	TWA: 10 mg/m ³ TWA: 5 mg/m ³
Tungsten	TWA: 5 mg/m ³ STEL: 10 mg/m ³	No data available	STEL 10 mg/m ³ TWA: 5 mg/m ³
Silicon	No data available	TWA: 15 mg/m ³ TWA: 5 mg/m ³	TWA: 10 mg/m ³ TWA: 5 mg/m ³
Vanadium pentoxide	TWA: 0.05 mg/m ³	No data available	IDLH: 35 mg/m ³ Ceiling: 0.05 mg/m ³
Quartz	TWA: 0.025 mg/m ³	No data available	IDLH: 50 mg/m ³ TWA: 0.05 mg/m ³
Manganese	TWA: 0.2 mg/m ³	Ceiling: 5 mg/m ³	IDLH: 500 mg/m ³

			STEL 3 mg/m ³ TWA: 1 mg/m ³
Carbon black	TWA: 3 mg/m ³	TWA: 3.5 mg/m ³	IDLH: 1750 mg/m ³ TWA: 3.5 mg/m ³ TWA: 0.1 mg/m ³
Potassium titanate	No data available	No data available	No data available

Engineering Measures Use enough ventilation, local exhaust at the arc, or both to keep the fumes and gasses below the TLV's in the workers' breathing zone and the general area. Train the worker to keep his head out of the fumes. Use MSHA/NIOSH approved or equivalent fume respirator or air supplied respirator when welding in a confined space or when local exhaust or ventilation does not keep exposure below TLV.

Personal Protective Equipment

Eye/Face Protection Wear a helmet or use face shield with filter lens of appropriate shade number (SEE ANSI/ASCZ49.1) provide protective screen and flash goggles, if necessary, to shield others. As a rule of thumb, start a shade that is too dark to see the weld zone. Then go next lighter shade which gives sufficient view of the weld zone .

Skin Protection Welder's leather gloves

Respiratory Protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Use a NIOSH/MSHA approved or equivalent fume respirator or air supplied respirator when welding in confined spaces, or where local exhaust or ventilation does not keep exposure below TLV's .

General Hygiene Considerations Avoid contact with skin, eyes and clothing. Wear head and body protection which help to prevent injury from radiation, sparks, and electrical shock. See ANSI Z49.1. At minimum, this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hat, shoulder protection as well as dark nonsynthetic clothing. Train the welder not to touch live electrical parts and to insulate himself from work and ground . Do not eat, drink or smoke when using this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid	Viscosity	Not applicable
Color	gray	Odor	Odorless
Odor Threshold	Not applicable	Appearance	Textured black paste
pH	Not applicable	Specific Gravity	No data available
Evaporation Rate	Not applicable	Percent Volatile (Volume)	No information available
VOC Content (%)	No information available	Vapor Pressure	Not applicable
Vapor Density	Not applicable	Solubility	Insoluble
n-Octanol/Water Partition	No data available	Melting Point/Range	No data available °F °C
Decomposition Temperature	No data available	Boiling Point/Range	No data available °F °C
Flammability (solid, gas)	No data available		
Flash Point	Not applicable	Method	Not applicable
Autoignition Temperature	No information available.		
Upper	No data available		
Lower	No data available		

10. STABILITY AND REACTIVITY

Chemical Stability Stable.

Conditions to Avoid Exposure to air or moisture over prolonged periods

Incompatible Products Strong oxidizing agents such as Chlorine bleach and concentrated Hydrogen Peroxide.

Hazardous Decomposition Products Fumes and gasses produced by welding, brazing and similar processes cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, the procedures and the filler metal being used. Other conditions which also influence the composition and quantity of fumes and gases to which the worker may be exposed include: coatings on the metal being welded, the number of welders and the volume of the work space, the quality and amount of ventilation used, the position of the welder's head in relation to the fume plume, as well as the presence of contaminants in the atmosphere when the filler metal is consumed. The fume and gas decomposition products generated are different in percent and form the product ingredients listed in Section III. The products formed in normal operation include those originating from the volatilization, reaction and oxidation of the filler metal, the metal being welded, the coatings, etc. as noted above. One recommended way to determine the composition and quality of fumes and gases to which workers are exposed is to take an air sample inside the welders helmet if worn or in the workers breathing zone. See ANSI/AWS F1.1 "Method For Sampling Airborne Particles Generated By Welding And Allied Processes" available from the American Welding Society, P.O. Box 35140, Miami, FL 33135

Possibility of Hazardous Reactions

Hazardous polymerization does not occur

11. TOXICOLOGICAL INFORMATION

Product Information

The following values are calculated based on chapter 3.1 of the GHS document (Rev. 3, 2009):

Oral LD50	No information available
Dermal LD50	No information available
Inhalation LC50	
Gas	No information available
Mist	No information available
Vapor	No information available

Principle Route of Exposure Inhalation

Primary Routes of Entry Inhalation

Acute Effects

Eyes Causes eye irritation. Welding arc may damage eyes .
Skin May cause skin irritation. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.

Inhalation Welding fumes may result in discomfort such as: dizziness, nausea, or dryness or irritation of nose, throat, or eyes. Fumes can aggravate asthma, bronchial conditions, or allergies. Individuals with allergies or impaired respiratory function may have symptoms worsen by exposure to welding fumes . Excessive inhalation of iron oxides fumes or dust can lead to irritation of the respiratory tract . Inhalation may cause central nervous system effects.

Ingestion May be harmful if swallowed.

Chronic Toxicity

Prolonged exposure may cause chronic effects. Long term overexposure to iron fumes may lead to siderosis (iron deposits in the lung) and is believed by investigators to affect pulmonary function. Lungs will clear in time when exposure to iron and its components cease . Constant inhalation of chromium (VI) compounds may cause an ulceration and perforation of the nasal septum as well as liver and kidney damage. IARC has concluded that the evidence for carcinogenicity to humans and animals is inadequate for chromium metal and trivalent compounds, but sufficient for hexavalent chromium compounds. Chromium compounds are on the IARC list as posing a carcinogenic risk to humans. OSHA (29 CFR 1910.120) lists chromium as possible carcinogen. Chromium VI compounds are required by OSHA to be considered carcinogenic . Inhalation of manganese fumes may affect the central nervous system, may cause spastic gait, drowsiness, paralysis and other neurological problems with symptoms including weakness and tremors resembling Parkinson's disease. Behavioral changes and changes in handwriting may also appear .

Target Organ Effects

Eyes, Skin, Respiratory system, Central Vascular System, Blood, Kidney.

Aggravated Medical Conditions

Skin disorders, Respiratory system, Kidney disorders.

Component Information

Acute Toxicity

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation	Draize Test	Other
Iron	= 984 mg/kg (Rat)	no data available	no data available	no data available	no data available
Titanium dioxide	> 10000 mg/kg (Rat)	no data available	no data available	no data available	no data available
Chromium	no data available	no data available	no data available	no data available	no data available
Calcium carbonate	= 6450 mg/kg (Rat)	no data available	no data available	no data available	no data available
Tungsten	no data available	no data available	no data available	no data available	no data available
Silicon	= 3160 mg/kg (Rat)	no data available	no data available	no data available	no data available
Vanadium pentoxide	221.1 - 715.7 mg/kg (Rat)	> 2500 mg/kg (Rat)	= 2.21 mg/L (Rat) 4 h	no data available	no data available
Quartz	= 500 mg/kg (Rat)	no data available	no data available	no data available	no data available
Manganese	= 9 g/kg (Rat)	no data available	no data available	no data available	no data available
Carbon black	> 15400 mg/kg (Rat)	> 3 g/kg (Rabbit)	no data available	no data available	no data available
Potassium titanate	no data available	no data available	no data available	no data available	no data available

Chronic Toxicity

Component	Mutagenicity	Sensitization	Developmental Toxicity	Reproductive Toxicity	Target Organ Effects
Iron	no data available	no data available	no data available	no data available	no data available
Titanium dioxide	no data available	no data available	no data available	no data available	respiratory system
Chromium	no data available	no data available	no data available	no data available	eyes, respiratory system, skin
Calcium carbonate	no data available	no data available	no data available	no data available	eyes, respiratory system, skin
Tungsten	no data available	no data available	no data available	no data available	eyes,skin,respiratory system,blood
Silicon	no data available	no data available	no data available	no data available	eyes,respiratory system,skin
Vanadium pentoxide	no data available	no data available	no data available	no data available	eyes,respiratory system,skin
Quartz	no data available	no data available	no data available	no data available	eyes,respiratory system

Manganese	no data available	no data available	no data available	no data available	CNS,respiratory system,blood,kidneys
Carbon black	no data available	no data available	no data available	no data available	eyes,respiratory system
Potassium titanate	no data available	no data available	no data available	no data available	no data available

Carcinogenicity

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	ACGIH	IARC	NTP	OSHA	Other
Iron	not applicable	not applicable	not applicable	not applicable	not applicable
Titanium dioxide	A4	Group 2B	not applicable	X	not applicable
Chromium	not applicable	not applicable	not applicable	not applicable	not applicable
Calcium carbonate	not applicable	not applicable	not applicable	not applicable	not applicable
Tungsten	not applicable	not applicable	not applicable	not applicable	not applicable
Silicon	not applicable	not applicable	not applicable	not applicable	not applicable
Vanadium pentoxide	A3	Group 2B	not applicable	X	not applicable
Quartz	A2	Group 1	Known	X	not applicable
Manganese	not applicable	not applicable	not applicable	not applicable	not applicable
Carbon black	A3	Group 2B	not applicable	X	not applicable
Potassium titanate	not applicable	not applicable	not applicable	not applicable	not applicable

12. ECOLOGICAL INFORMATION

Product Information No information available.

Component Information

Component	Toxicity to Algae	Toxicity to Fish	Microtox	Water Flea	log Pow
Iron	no data available	LC50 = 13.6 mg/L Morone saxatilis 96 h LC50 = 0.56 mg/L Cyprinus carpio 96 h	no data available	no data available	N/A
Titanium dioxide	no data available	no data available	no data available	no data available	N/A
Chromium	no data available	no data available	no data available	no data available	N/A
Calcium carbonate	no data available	no data available	no data available	no data available	N/A
Tungsten	no data available	no data available	no data available	no data available	N/A
Silicon	no data available	no data available	no data available	no data available	N/A
Vanadium pentoxide	no data available	no data available	no data available	no data available	N/A
Quartz	no data available	no data available	no data available	no data available	N/A
Manganese	no data available	no data available	no data available	no data available	N/A
Carbon black	no data available	no data available	no data available	EC50> 5600 mg/L 24 h	N/A
Potassium titanate	no data available	no data available	no data available	no data available	N/A

Persistence and Degradability No information available.
 Bioaccumulation No information available.
 Mobility No information available.

13. DISPOSAL CONSIDERATIONS

Product Disposal Dispose of in accordance with local regulations.
 Container Disposal Empty containers should be taken for local recycling, recovery, or waste disposal.

14. TRANSPORT INFORMATION

DOT Not regulated
 TDG Not regulated
 ICAO Not regulated
 IATA Not regulated
 IMDG/IMO Not regulated

15. REGULATORY INFORMATION

Inventories
 TSCA Complies
 DSL Complies
 U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Component	CAS-No	Weight %	SARA 313 - Threshold Values
Chromium	7440-47-3	5-10	1.0
Vanadium pentoxide	1314-62-1	.5-1	1.0
Manganese	7439-96-5	.5-1.5	1.0

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Chronic Health Hazard	Fire Hazard	Sudden Release of Pressure Hazard	Reactive Hazard
Yes	Yes	No	No	No

CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs
Iron	Not applicable	Not applicable
Titanium dioxide	Not applicable	Not applicable
Chromium	5000 lb	Not applicable
Calcium carbonate	Not applicable	Not applicable
Tungsten	Not applicable	Not applicable
Silicon	Not applicable	Not applicable
Vanadium pentoxide	1000 lb	100 lb lower TPQ; 10000 lb upper TPQ 1000 lb
Quartz	Not applicable	Not applicable
Manganese	Not applicable	Not applicable
Carbon black	Not applicable	Not applicable
Potassium titanate	Not applicable	Not applicable

U.S. State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals

Component	CAS-No	California Prop. 65
Chromium	7440-47-3	carcinogen, initial date 2/27/87, developmental female, male 12/19/08
Carbon black	1333-86-4	carcinogen
Quartz	14808-60-7	carcinogen
Vanadium pentoxide	1314-62-1	carcinogen

16. OTHER INFORMATION

Prepared By Christopher Drogin
 Supersedes Date 12/03/2009
 Issuing Date 06/04/2013
 Reason for Revision No information available.
 Glossary No information available.
 List of References. No information available.

X-ERGON by Partsmaster, Div of NCH Corp. assumes no responsibility for personal injury or property damage caused by the use, storage, or disposal of the product in a manner not recommended on the product label. Users assume all risks associated with such unrecommended use, storage or disposal of the product. The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.