

MATERIAL SAFETY DATA SHEET

Version Date 1st December 2008

Section 1: Product Identification

Trade Name : Welichi 2% Thoriated Tungsten Electrode
Product Classification : Types EWP and EWTh
Colour Marking : Red
Product Application : Tungsten Electrode for Gas Tungsten Arc Welding (GTAW)

Section 2: Composition/information on ingredients

These tungsten electrodes consist of solid tungsten or tungsten

Ingredients

Substance	CAS Number	Concentration
Aluminium and Potassium Fluoride	60304-36-1	> 99.00%

Section 3: Hazard Classifications

This product consists of white odourless powder. Inhalation of contact with it may cause irritation. Users should wear suitable protective clothing, welding goggles, respiratory equipment and welding gloves when perform brazing operations.

- No dangerous goods according to current regulations.
- The principal health hazard posed by these substances is that a toxic effect if ingested.
- Contact with eyes or similar sensitive areas will cause rapid inflammation.
- In case of decomposition, they release hydrogen fluoride. Inhalation of the fumes produced when flux decompose during the brazing operation will cause light general irritation of the respiratory system and may be harmful.
- To avoid irritant effects to hands and skin, suitable protective measures must be adopted prior to handling these fluxes. If contact is likely to be minimal a barrier cream should be sufficient; for continuous handling surgical or plastic gloves should be used; industrial goggles must be worn to prevent accidental contact with eyes.
- Powdered fluxes should be handled carefully to avoid dusting.
- Welding sparks may cause fires or explosion. Never conduct welding at areas adjacent to highly inflammable materials. It is important to remove all flammable materials away from the welding area so that the spatters cannot ignite them. Cover all inflammable materials with non inflammable materials if combustibles cannot be removed.
- Do not perform any welding operation where the atmosphere may contain flammable duct, gas, or liquid vapours (such as gasoline).
- If involved in a fire, the components of this product may decompose to release toxic gases. Fire fighters must wear proper personal protective equipment.

Section 4: First Aid Measures

Victim(s) should be provided first aid until the medical personnel arrive; first aid will be administered in the premise or, in the event of a complete evacuation, at a safety area outside. Take copy of the label and MSDS to health professional with victim(s).

General information:

- Remove contaminated or saturated clothing immediately.

Following inhalation:

- Possible discomfort: irritation of mucous lining (nose, throat, and eyes), cough, sneezing, flow of tears.
- Take affected persons out into the fresh air.
- Seek medical attention.

Following contact with skin:

- On skin contact, remove contaminated clothing and immediately rinse thoroughly for at least 5 minutes using plenty of water or if necessary, eye rinsing solution. Consult an ophthalmologist.
- If burns occur, it may be flushed with large amount of cold water. Apply Calcium gluconate gel to affected skin and cover with a sterile bandage to prevent infection. Seek medical attention immediately.

Following contact with eye:

- If the product has got into eyes, immediately wash victim's eyes under gently running water for at least 15 minutes.
- Use sufficient force whilst lifting eyelids to flush irrigate eyes.
- Victim must seek medical attention immediately.

If substance has been swallowed:

- Do not force patient to vomit.
- Have patient rinse out mouth with water.
- Dissolve effervescent calcium table, if available, in water and have patient swallow it in sips (insoluble calcium fluoride forms in the gastrointestinal tract)
- Careful gastric lavage after administration of 10 vials of calcium gluconate (to be repeated as frequently as needed.)
- In case of hypocalcemia, I.V. perfusion of 20 ml of a 10% calcium. Gluconate solution diluted in 1 litre of physiological serum.
- Have patient drink immediately plenty of water in small sips (for dilution).
- Consult doctor immediately.

Instruction for the doctor:

- Prophylaxis of a toxically lung oedema with inhalative steroids (Dexamethasone aerosol dosing spray, for example auxilosone).
- Alleviation of throat irritation with antitussive cough mixture (hydrocodon hydrogen tartrate, e.g. Dicodid)
- If substance has been swallowed:
 - Early endoscopy in order to assess mucosa lesions in the oesophagus and stomach which may appear.
 - If necessary, suck away leftover substance.
 - Administration of calcium gluconate solution (formation of insoluble calcium fluoride in the gastrointestinal tract).
 - Monitoring of electrolyte metabolism.

Section 5: Fire-Fighting Measures

This product is not flammable, however welding arcs and sparks can ignite combustible and flammable materials. Only the packaging for this product will burn.

- In case of fire use extinguishing media appropriate to surrounding conditions.
- When the product is involved in fire, it may evolve toxic fumes, wear appropriate self-contained breathing apparatus.

Special Fire-Fighting Instruction:

Incipient fire fighters should wear appropriate eye protection, self-contained breathing apparatus and full protective equipments.

Section 6: Accidental Release Measures

Spills or Releases are either incidental or emergency response situations. Such situations may be incidental or may be an emergency response must be determined on a case-by-case basis. However, the prime criterion is the knowledge and understanding of the hazards and proper handling procedures. Other factors that play a role in this determination are the quantity spilled or released ventilation consideration, confined space consideration, and personal protective equipment available. Essentially, one must determine what the circumstances are, then determine the capabilities of the personnel available and determine whether the spill or release is incidental or warrants emergency response. Therefore, if a spill or release requires emergency response, the federal, state, local and national authority and the approved Hazardous Waste Disposal Company should be contacted.

Incidental Spill or Release of Hazardous substances:

An incidental spill or release of the hazardous substances which does not pose a significant safety or health hazard to employees in the immediate vicinity, or to the employee cleaning it up, and it does not have the potential to become an emergency within a short time frame.

Incidental spills or releases are limited in quantity, exposure potential, or toxicity, and present minor safety or health hazards to employees, visitors or customers on the premise, or those assigned to clean them up. If the hazardous substances spilled or released is in very small quantity, and that the hazardous substances do not pose a significant safety health threat, then



the risks of having the spill or release that escalates into an emergency are minimal. In this occasion, incidental spills or releases will generally be the norm and employees will be trained to protect themselves in handling incidental releases.

Non-emergency hazardous spill/release guidelines:

- a. Determine that the personnel can safely handle the situation with the available resources.
- b. Alerts others in the area to the problem.
- c. Prevent others from coming into contact with the hazardous material, by barricading, locking doors, establishing warning signs, or having someone stand at the entrance to direct traffic.
- d. Perform the cleanup in the affected area.
- e. Record the following data:
 - Where and when the spill/release occurred.
 - Who was involved (if the involved person is a visitor or customer, take down the name and contact phone number)
 - What were the hazardous substances spilled or released.
 - The quantity spilled or released.
 - How the clean up was accomplished.

Emergency Response Situation of Hazardous substances:

A spill or release that requires an emergency response regardless of the circumstances is defined by the situation. An emergency response includes the following situations:

- The response comes from outside the immediate area of the release. (This includes personnel who are outside the immediately affected area but respond to the release).
- The release requires evacuation of employees, visitor or customers in the premise.
- The release poses, or has the potential to pose, conditions that are immediately dangerous to life and health.
- The release requires immediate attention because of imminent danger.
- One is uncertain as to whether the employee in the work area can handle the severity of the hazard, considering personal protective equipment (PPE) and other equipment provided.
- The situation is unclear or data are lacking on important factors.

In the event that a spill or release is out of control, the local and national authority and the approved Hazardous Waste Disposal Company should be contacted immediately.

Emergency Spill / Release Guidelines:

- a. If you have contaminated by the hazardous material take immediate action.
 - Most likely, this will be the use of eyewash. Rinse for a full fifteen minutes.
 - While taking action, shout for help and let others know of the danger
 - Seek medical attention.
 - If you have not been contaminated, leave the store, secure the door, and warn others to stay away.
- b. Activate the federal, state, local and national authority and approved Hazardous Waste Disposal Company.
- c. Provide the following information:
 - Location of the spill or release.
 - Identify the hazardous substances
 - Your company name, your name and phone number where you can be reached
- d. Wait for the authority to arrive and direct them to the spill location. Do not re-enter the building until it is declared safe by the authorities.

Section 7: Handling and Storage

Users should become familiar with the general characteristics of the hazardous substances to be stored. This shall include proper handling, storage and disposal procedures and any unique hazards, which might be associated with the hazardous substances.

Workplace Practise and Hygiene Practices:

As with all hazardous substances, NEVER get this product on you or in you. Wash your hands thoroughly after handling this product. Do not eat or drink while handling this product. Keep the product away from the foods, drinks and children. Use appropriate ventilation and other controls measures to minimize potential exposure or risk. Ensure adequate ventilation when performing brazing operation especially in a confined space.

Handling:

- Users who handle this product should be trained to handle it safely.
- Wear approved gloves and eye/face protection equipments.
- Keep the container tightly closed when not in use

Storage:

- Store this product in a cool, dry location, away from sunlight, sources of intense heat or where freezing is possible.

Section 8: Exposure Controls and personal protection

Ventilation and Engineering Control:

- Use with adequate ventilation to ensure exposure level are maintained as low as practicable.

Occupational exposure controls:

- Respiratory protection:
In case of insufficient ventilation, wear suitable respiratory equipment.
- Eye protection:
When this product is used in conjunction with brazing, wear suitable safety glasses, welding goggles or face shield with the appropriate filter lens.
- Hand protection:
When handling this product, wear protection gloves and welding gloves that protect from sparks and flame when performing brazing operation.
- Body protection:
Wear suitable protective clothing.



Section 9: Physical and Chemical Properties

Density:

- Specific Gravity
- 2.8
- Bulk density
- Temperature 20 Deg C

Solubility:

- Water
- 4.5 g/l
- Temperature 20 Deg C

PH

- 5 ~ 7
- Concentration 50g/l
- Temperature 20 Deg C
- Remark: Saturated solution

Partition coefficient P (n-Octanol/water):

- Not applicable

Decomposition temperature:

- > 700 Cel
- Negligible

Granulometry:

- 50% < 12 um

Danger of explosion:

- Negligible

Section 10: Stability and Reactivity

Stability:

- This product is considered stable under normal conditions.

Conditions to avoid:

- Strong acids.
- Strong bases.

Hazardous decomposition products:

- Hydrogen fluoride

Section 11 : Toxicological Information

Chronic exposure may entail dental or skeletal fluorosis.

Contact with skin:

- This product can be irritating to contaminated skin.

Contact with eyes:

- This product may cause redness and irritation.

If product has been swallowed:

- May cause gastro-intestinal disturbances.

Inhalation:

- Inhalation of fumes formed during brazing and or welding may be harmful.

Medical conditions aggravated by exposure:

- Skin and respiratory disorders may be aggravated by prolonged over-exposures by this product.

Section 12: Ecological Information

All work practices must be aimed to eliminating environmental contamination.

Product fate is highly depending on environmental conditions: pH temperature, oxidoreductive potential, mineral and organic content of the medium.

Acute Ecotoxicity:

- Crustaceans, Daphnia magna, EC 50, 48 h, 22.8 mg/l

Mobility:

- Air
- Water/soil
- Result: low solubility and mobility
- Soil/sediments
- Result: adsorption on mineral and organic soil constituents

Abiotic degradation:

- Water/Soil
Result: acid/base equilibrium as a function of Ph
- Degradation's products: fluoro-complexes (acid Ph) hydroxyl-aluminium (environmental Ph)/fluorhydric acid/fluoride
- Water/Soil
Result: complexation/precipitation of inorganic and organic materials
- Result: not applicable (inorganic compound)

Potential for bioaccumulation:

- Bioconcentration: log Po/w
Result: not applicable (ionisable inorganic compound)
- Bioconcentration: log
Result: accumulation into vegetable leafs (Fluorides)

Effect of chemical on aquatic life:

- This product will cause adverse effects on aquatic life.

Section 13: Disposal Considerations

Preparing wastes for disposal:

- Do not discharge the waste into drains or the environment; dispose to an authorised waste collection point.



- Waste disposal must be in accordance with the appropriate Federal, State, Local and National legislation.

Section 14: Transportation Information

This product is not classified as hazardous transportation.

Transportation of Dangerous Goods Regulations:

- This product is not considered as dangerous goods.

Hazard Class Number and Description:

- This product is not classified as hazardous supply.

UN Identification:

- Not applicable.

Risk Phrases:

- Harmful by inhalation and if swallowed
- Irritating to eyes and skin

Safety Phrases:

- Wear suitable eyes, face, body and respiratory protection.
- Use only in well ventilated areas.

Section 15: Regulatory Information

Reporting Requirements:

- The components of this product are not subject to the reporting requirements. Please clarify with the federal, state, local and national authority.

Section 16: Additional Information

The information in this MSDS was obtained from sources which we believe are reliable. The conditions or method of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expenses arising out of or in any way connected with handling, storage, use or disposal of the product. This MSDS was prepared and is use only for this product. If the product is used as a component in other products, this MSDS may not be applicable. Data / info in this MSDS and others may be changed from time to time without prior notice.