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UTP WELDING MATERIALS, INC.
MATERIAL SAFETY DATA SHEET

May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200 standard must be consulted for specific requirements.

SECTION I IDENTITY

Product UTP 6824 AWS or other spec E309-16
Manufacturer/Distributor Name UTP WELDING MATERIALS, INC.
Address 10535 S. WILCREST DRIVE SUITE 130 HOUSTON, TEXAS 77099
Telephone Number (713) 530-1555 1-800-888-UTP1 1-800-527-0791
Date Prepared REVISED 04/88 Prepared by: M.ISENHART

SECTION II HAZARDOUS INGREDIENTS/COMPONENTS

Chemical Identity	CAS	OSHA PEL(mg/m ³)	ACGIH TLV(mg/m ³)	PERCENT
CORE WIRE:				
CHROMIUM	7440-47-3	1	TWA - 0.5	19 - 21 %
NICKEL	7440-02-0	1	TWA - 1	9 - 11 %
MANGANESE	7439-96-5	5 CEILING	TWA - 5	1 - 2 %
MOLYBDENUM	7439-98-7	15	TWA - 10	<1%
ELECTRODE COATING:				
ALKALINE EARTH				
CARBONATES	471-34-1	N/R	10	6 - 10 %
ALKALINE EARTH				
FLUORIDES	N/R	TWA - 2.5	TWA - 2.5	3 - 5 %
ALKALI SILICATES & ALKALI	N/R	N/R	N/R	TWA - 5
ALUMINUM SILICATES	N/R	N/R	TWA - .1 RESPIRABLE DUST	20 - 30 %

SEE ATTACHED PAGE

***IMPORTANT!** This section covers the material from which this product is manufactured. The fumes and gases produced during welding with this product are covered by SECTION VI. The term "hazardous" in "Hazardous Materials" should be interpreted as a term required and defined in OSHA 2265 and does not necessarily imply the existence of any hazard.

SECTION III PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point N/A Specific Gravity(H₂O=1) N/A
Vapor Pressure(mmHg.) N/A Melting Point N/A
Vapor Density (AIR-1) N/A Evaporation Rate N/A
Solubility in Water INSOLUBLE
Appearance and Odor: ROD ELECTRODE WITH LT GREY COVERING, SOLID, NO SPECIFIC ODOR

SECTION IV FIRE AND EXPLOSION HAZARD DATA

Flash Point(Method Used) N/A Flammable Limits N/A LEL-N/A UEL-N/A
Extinguishing Media N/A
Special Fire Fighting Procedures N/A

Unusual Fire and Explosion Hazards N/A

IMPORTANT! (Non Flammable) Welding arc and sparks can ignite combustibles. Refer to American National Standard Z49.1 for fire prevention and protection information during the use of welding and allied procedures.

WARNING: Welding with these products produces chemicals which are known to the State of California to cause cancer and birth defects.

SECTION V REACTIVITY DATA

Stability	Unstable	N/A	Conditions to avoid	N/A
	Stable	N/A		
Incompatibility (Materials to avoid)	N/A			
Hazardous Decomposition or Byproducts	See below and addendum(s)			
Hazardous Polymerization	May occur	N/A	Conditions to avoid	N/A
	Will not occur	N/A		

HAZARDOUS DECOMPOSITION PRODUCTS

Welding fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, and electrodes 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 welded (such as paint, plating, or galvanizing), the number of welders and the volume of the work area, the quality and amount of ventilation, the position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities).

When the electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in SECTION II. Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidation of the materials shown in SECTION II, plus those from the base metal and coating, etc..., as noted above.

Reasonably expect fume constituents of this product could include: (see examples below)

Example for Carbon dioxide shielded flux-cored electrode (AWS 5.20 E70-T-1): Reasonably expected fume constituents of this product could include: primarily oxides of Iron; secondarily complex oxides of Manganese, Silicon, Titanium and Sodium.

Example for Stainless Steel covered electrodes (AWS 5.4): Reasonably expected fume constituents of this product would include: primarily fluorides and complex oxides of Iron and Silicon, secondarily complex oxides of Manganese.

The present OSHA TLV for hexavalent Chromium (Cr VI) is 0.05 mg/m^3 which will result in a significant reduction from the 5 mg/m^3 general welding fume (NOC) level.

Gaseous reaction products many include Carbon monoxide and Carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc.

One recommended way to determine the composition and quantity of fumes and gases to which works are exposed is to take an air sample from inside the welder's helmet if worn or in the worker's breathing zone. See ANSI/AWS F1.1-78, available from the American Welding Society, 2501 N.W. 7th Street, Miami, FL 33125.

SECTION VI HEALTH HAZARD DATA

Route(s) of entry: Inhalation? ** Skin? UNLIKELY Ingestion? UNLIKELY

Health Hazards (Acute and Chronic) See Sec VI Threshold Limit Value See below

WELDING FUMES CAN DAMAGE LUNGS IF NOT EXHAUSTED. LIQUID WELDING SPATTERS CAN BURN SKIN. WEAR APPROPRIATE PROTECTIVE CLOTHING.

Carcinogenicity: See Addendum, Page 5, for products containing Nickel or Chromium

Signs and Symptoms of Exposure N/A

**** Gases and fumes generated while welding may be dangerous to your health.**

ACUTE: Short-term exposure may result in discomfort such as dryness or irritation in the nose or throat, irritation of eyes, dizziness or nausea.

CHRONIC: Long-term exposure can lead to siderosis (Iron deposits in the lungs) and may effect pulmonary functions.

Medical Conditions Generally Aggravated by Exposure: LOCAL EFFECTS: FUMES CAN

IRRITATE EYES, LUNGS & MUCOUS MEMBRANES. LIQUID WELDING SPATTERS CAN CAUSE SKIN

BURNS. OVEREXPOSURE: PROLONGED EXPOSURE TO FUMES CAN CAUSE LUNG DAMAGE.

Emergency and First Aid Procedures: IN CASE OF FUME INHALATION, REMOVE TO FRESH

AIR. SKIN BURNS CAN BE TREATED WITH COMMERCIAL OINTMENTS. IN AN EMERGENCY MEDICAL

HELP IS ADVISED.

THRESHOLD LIMIT VALUE

The ACGIH-1980 (or latest data) recommended general limit for welding fume NOC- (not otherwise classified) is 5 mg/m^3 . ACGIH-1979 preface states, "The TLV-TWA should be used as guides in the control of health hazards and should not be used as fine lines between safe and dangerous concentrations. see SECTIONS V and SECTION VI for specific fume constituents which may modify this TLV.

EFFECTS OF OVER EXPOSURE:

Electric arc welding may create one or more of the following health hazards:

Fumes and gases can be dangerous to your health.

Arc Rays can injure eyes and burn skin.

Electric Shock can kill

Short term over exposure to welding fumes may result in discomfort such as: dizziness, nausea, or dryness or irritation of nose, throat, or eyes (see SECTION VI and VIII).

IMPORTANT! Please read attached Addendum for product containing Nickel, Chromium or Manganese.

SECTION VII PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be taken in case material is released or spilled N/A

Waste Disposal Method: MATERIAL SHOULD BE USED UP OR DISPOSE OF IN AN ENVIRONMENTALLY SAFE MANNER.

Precautions to be taken in handling and storing: COOL AND DRY STORAGE

Other Precautions: WHEN WELDING, BRAZING, OR SOLDERING: WELDING ARC OR TORCH FLAME MAY BE A SOURCE OF IGNITION OF COMBUSTIBLE PRODUCT.

SECTION VIII CONTROL MEASURES

Respiratory Protection (specify type) See below

Ventilation	Local Exhaust: REQUIRED IN SEMI-OPEN OR POORLY VENTILATED SPACES
	Mechanical (general) SAME

Protective Gloves See Below

Other Protective Clothing or Equipment See below

Work/Hygienic Practices See Below

SPECIAL PROTECTION INFORMATION AND PRECAUTIONS

Read and understand the manufacturer's instruction and the precautionary label on the product. See American National Standard, 2501 N.W. 7th Street, Miami, FL 33125 and OSHA Publication 2206 (29CFR1910), U. S. Government Printing office, Washington, DC 20402 for more detail on many of the following.

SECTION VIII CONTROL MEASURES

VENTILATION

Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below TLV's in the worker's breathing zone and the general area. Train the welder to keep his head out of the fumes.

RESPIRATORY PROTECTION

Use respirable fumes respirator or air supplied respirator when welding in confined space or where local exhaust or ventilation does not keep exposure below TLV.

EYE PROTECTION

Wear helmet or use face shield with filter lens shade number (10) or darker. Provide protective screens and flash goggles, if necessary, to shield others.

PROTECTIVE CLOTHING

Wear hand, head, and body protection which help to prevent injury from radiation, sparks, and electrical shock. See Z49.1. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, and well as dark substantial clothing. Train the welder not to touch live electrical parts.

Chemical Identity	CAS	OSHA PEL(mg/m ³)	ACGIH TLV(mg/m ³)	PERCENT
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ELECTRODE COATING:

TITANIC OXIDE	13463-67-7	N/R	10	20 - 30 %
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CHROMIUM	7440-47-3	1	TWA - 0.5	15 - 20 %
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NICKEL	7440-02-0	1	TWA - 1	4 - 8 %
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IRON	7439-89-6	N/R	TWA - 5	4 - 7 %
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MANGANESE	7439-96-5	5 CEILING	TWA - 5	3 - 5 %
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EFFECTS OF OVEREXPOSURE/CARCINOGENICITY

NICKEL

The International Agency for Research on Cancer indicates nickel refining and "certain nickel compounds" were cancer-causing, but could not state with certainty which forms of nickel may be carcinogenic. The National Toxicology Program lists nickel powder, nickel subsulfide, nickel oxide, nickel carbonate, nickel carbonyl and nickelocene as substances "that may reasonably anticipated to be carcinogens." Because of this, the OSHA Hazard Communication Standard requires that everyone who manufactures or imports these substances or mixtures or alloys containing these substances must warn of a cancer hazard on their MSDSs and labels. This warning is mandated by OSHA even though studies have not demonstrated cancer risks associated with the use of nickel.

Skin contact may cause allergic skin rash. Nickel is not very toxic if swallowed. Intramuscular injection and implantation of nickel powder produced localized tumors in rats and mice. Inhalation studies using animals showed no evidence of carcinogenicity.

MANGANESE

Manganese affects the central nervous system. Inhalation of high concentrations of Manganese causes an influenza-like illness (metal fume fever). Symptoms are usually insidious and may include headache, restlessness, change in personality, lack of coordination of voluntary muscles, irritability and pathologic laughter. Secondary symptoms include visual hallucinations, double vision, impaired hearing, uncontrollable impulses, mental confusion and euphoria.

CHROMIUM

The International Agency for Research on Cancer and The National Toxicology Program indicates there is sufficient evidence for carcinogenicity of chromium compounds both in humans and experimental animals. IARC notes that "the compounds responsible for the carcinogenic effect in humans cannot be specified." Studies with chromium metal and trivalent forms of chromium compounds have shown inadequate evidence for carcinogenicity in both animals and humans.

Chromium metal is relatively nontoxic. Ferrochrome alloys have caused decreased pulmonary functions in humans. Signs and symptoms include possible histologic fibrosis of the lungs, which may progress to clinically evident pneumoconiosis.