

**Filler Metals and Welding Rods**

Product Trade Name/Product Classification(s): **Fusion Flow FLUX-CORED STAINLESS STEEL WIRES**  
For Welding Consumables and Related Products, Conforms to OSHA Hazard Communication Standard 29 CFR 1910.1200  
Standard Must Be Consulted for Specific Requirements

**SECTION 1: Identification**  
SUPPLIER: Inweld Corporation Phone: 1-800-346-5368 Revised: May 2009  
Address: 3962 Portland St., Coplay, PA 18037

Product Trade Name: **FLUX-CORED STAINLESS STEEL WIRES**

**PRODUCT TRADE NAMES: PRODUCT CLASSIFICATION(S):**

308T-1/4	308LT-1/4	309T-1/4	
309LT-1	309LmoT-1/4	316T-1	
316LT-1/4	317LT-1/4	347T-1/4	AWS A5.22
410T-1/4	410NiMo-1/4	310T	
308LT-3	309LT-3	316LT-3	

**SECTION 5: Reactivity Data**  
**HAZARDOUS DECOMPOSITION PRODUCTS:**  
Welding gases cannot be classified simply. Their composition and quantities are dependent upon the metal being welded, the process, the procedures, and electrodes used. Workers should be aware that the composition and quantity of fumes and gases to which they may be exposed, are influenced by: coatings which may be present on the metal being welded (such as paint, plating, or galvanizing), the number of welders in operation 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 procedure). When the electrode is consumed, the fumes and gas decomposition products generated are different in percent and form from the ingredients listed in Section II. The composition of these fumes and gases are the concerning matter and not the composition of the electrode itself. Decomposition products include those originating from the volatilization, reaction, or oxidation of the ingredients shown in Section II, plus those from the base metal, coating and other factors noted above.

Reasonable expected fume constituents of this product would include: Complex oxides of iron, manganese, silicon, titanium, chromium, nickel and Molybdenum (316T-1, 316LT-1 AND 317LT-1 only). Fume limit for Cr (VI) (0.05mg/m<sup>3</sup>) may be reached before limit of 5mg/m<sup>3</sup> for general welding fume is reached. Watch CR (VI) level.

Flux or Other Ingredients	CAS #	Exposure Limit (mg/m <sup>3</sup> )	
		OSHA PEL	ACGIH TLV
Iron Oxide	1309-38-2	5	10 (as Fe <sub>2</sub> O <sub>3</sub> )
Nickel Oxide	1313-99-1	Nothing found	1 (as Ni)
Molybdenum	7439-98-7	15 (Mo)	10 (Mo) 20**
Manganese	7439-96-5	5*	1* (Fume)
Chromium Oxide	1308-38-9	0.5 (as Cr)	0.5 (Ox)
Chromic Acid	1333-82-0	0.1*	0.05 (as Cr)
Silicon Oxide	7631-86-9	5	3
Titanium Oxide	13463-67-7	15	10, 20**
Nickel (Soluble)	-	1 (as Ni)	0.1 (as Ni)

\*Ceiling Limit \*\*Short Term Exposure Limit  
Gaseous reaction products may 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 worker's are exposed is to take an air sample inside the welder's helmet, if worn, or in the worker's breathing zone. See ANSI/AWS F1.1, available from the American Welding Society, P.O. Box 351040, Miami, FL 33135.

**SECTION 7: Precautions For Safe Handling And Use/Applicable Control Measures**  
READ AND UNDERSTAND THE MANUFACTURER'S INSTRUCTIONS AND THE PRECAUTIONARY LABEL ON THIS PRODUCT. SEE AMERICAN NATIONAL STANDARD Z-49.1, SAFETY IN WELDING AND CUTTING, PUBLISHED BY THE AMERICAN WELDING SOCIETY, P.O. BOX 354140, MIAMI, FL 33135 AND OSHA PUBLICATION 2206 (29 C.R.F. 1910), U.S. GOVERNMENT PRINTING OFFICE, WASHINGTON, D.C. 20402 FOR MORE DETAIL.

**VENTILATION:** Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below the 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 fume respirator or air supplies 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. As a rule of thumb, start with a shade that is too dark to see the weld zone. Then go to the next lighter shade that gives sufficient view of the weld zone. Provide protective screens and flash goggles, if necessary, to shield others.

**PROTECTIVE CLOTHING:** Wear head, hand, and body protection that help to prevent injury from radiation, sparks and electrical shock. See ANSI Z-49.1. At a minimum, this includes welder's gloves and a protective face shield and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Train the welder not to touch live electrical parts and to insulate himself from work and ground.

**PROCEDURE FOR CLEANING OF SPILLS OR LEAKS:** Not applicable.

**WASTE DISPOSAL METHOD:** Prevent waste from contaminating surrounding environment. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with Federal, State, and Local regulations.

**SECTION 2: Hazardous Materials\***  
IMPORTANT: THIS SECTION COVERS THE MATERIALS FROM WHICH THE PRODUCT IS MANUFACTURED. THE FUMES AND GASES PRODUCED DURING WELDING WITH THE NORMAL USE OF THIS PRODUCT ARE COVERED UNDER SECTION V.

\*The term "HAZARDOUS MATERIALS" should be interpreted as a term required and defined in OSHA HAZARD COMMUNICATION STANDARD 29 CFR 1910.1200, however the use of this term does not necessarily imply the existence of any hazard.

INGREDIENTS	CAS #	WT %	Exposure Limit (mg/m <sup>3</sup> )	
			OSHA PEL	ACGIH TLV
Iron (Fe)	7439-89-6	60-70	5	Not reported
Manganese (Mn)	7439-96-5	Less than 3	5*	5*
Nickel (Ni)	7440-02-0	2-8	1	1
Molybdenum (Mo) A	7439-98-7	Less than 5	15 (Mo)	10 (Mo), 20**
Chromium (Cr)	7440-47-3	4-12	1	0.5
Silicon (Si)	7440-21-3	Less than 3	Nothing found	10, 20**
Titanium Oxide	13463-67-7	3-7	15	10, 20**
Zirconium (Zr)	7440-67-2	Less than 4	5	5

Occupational Safety and Health Administration 29 CFR 1910.1000 Permissible Exposure Limit (PEL). American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV[R]).  
\*Ceiling Limit  
\*\*Short-Term Exposure Limit  
(A) In 316T-1, 316LT-1 and 317LT-1

**SECTION 3: Physical Properties**  
NOT APPLICABLE

**SECTION 4: Fire and Explosion Hazard Data**  
Non-Flammable: Welding arc and sparks can ignite combustibles. See Z-49.1 referenced in Section VI.

**SECTION 6: Health Hazard Data**  
**THRESHOLD LIMIT VALUE:** The ACGIH recommended general limit for welding fume NOC (Not Otherwise Classified) is 5mg/m<sup>3</sup>. The ACGIH 1984-85 preface states: "The TLV-TWA should be used as guides in the control of health hazards and should not be used as firm lines between safe and dangerous concentrations." See Section 5 for specific fume constituents that may modify this TLV.

**Common Entry Is By Inhalation or Through The Eyes And Skin.**  
**EFFECTS OF OVEREXPOSURE:** Inhalation of welding fumes and gases can be dangerous to your health. Short-term (acute) overexposure to welding fumes may result in discomfort such as dizziness, nausea, or dryness or irritation of nose, throat, or eyes. Chromium (VI) compounds present in the fume may cause severe irritation of the bronchial tubes and lungs. Ingesting Chromium (VI) salts may cause injury or death. Chromium (VI) compounds may burn eyes. Chromium compounds may cause allergic reactions in some people. Nickel oxides present in the fumes may cause tightness around the chest, fever and allergic reactions in some people.

**MANGANESE – Manganese Dioxide (MnO<sub>2</sub>):** Short-term overexposure should be treated by removal from exposure and applying artificial respiration if needed. Wash eyes and/or skin with water to remove any dust particles. Long-term (chronic) over-exposure to welding fumes can lead to siderosis (iron deposits in lung) and is believed to affect pulmonary function. Constant inhalation of Chromium (VI) compounds may cause an ulceration and perforation of the nasal septum as well as liver and kidney damage. Repetitive overexposure to nickel oxides may lead to lung fibrosis or pneumoconiosis. Workers exposed to Chromium (VI) compounds and/or nickel oxides have a higher incidence of lung fibrosis and nasal cancers. Chromium and nickel compounds are on the IARC (International Agency for Research of Cancer) as posing a carcinogenic risk to human.

**MANGANESE – Manganese Dioxide (MnO<sub>2</sub>):** Long-term overexposure to manganese compounds may have an effect upon the central nervous system. Symptoms such as muscular weakness, body tremors and behavioral changes may appear. Employees exposed to manganese compounds should get medical examinations several times annually for early detection of manganese poisoning.  
Arc Rays can injure eyes and burn skin. Electric shock can kill. See Section VII.

**EMERGENCY AND FIRST AID PROCEDURES:** Call for medical assistance. Use first aid procedures recommended by the American Red Cross. If breathing is difficult – give oxygen. If not breathing, use CPR (Cardiopulmonary Resuscitation). Consult a physician if irritation of the eyes and skin or flash burns develops after exposure.

**CARCINOGENICITY:** OSHA (29 CFR 1910.1200) lists Nickel as a possible carcinogen.

**SECTION 8: DISCLAIMER**  
ALTHOUGH REASONABLE CARE HAS BEEN TAKEN IN THE PREPARATION OF THE INFORMATION HEREIN, INWELD EXTENDS NO WARRANTIES, EXPRESS OR IMPLIED, MAKES NO REPRESENTATIONS AND ASSUMES NO RESPONSIBILITY AS TO THE ACCURACY OR SUITABILITY OF INFORMATION FOR APPLICATION TO PURCHASER'S INTENDED PURPOSE OR FOR CONSEQUENCES OF ITS USE. JUDGMENTS AS TO THE SUITABILITY OF INFORMATION FOR PURCHASER'S PURPOSES ARE PURCHASER'S RESPONSIBILITY.