

## MATERIAL SAFETY DATA SHEET

For welding consumables and related products

COMPLIES WITH OSHA HAZARD COMMUNICATION STANDARD 29C.F.R. 1910-1200 AND  
 SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) OF 1986 PUBLIC LAW 99-499

### SECTION I – IDENTIFICATION

Supplier: **Midwest Alloys & Technology, Inc. (Midalloy)**

Emergency Telephone Number: (636) 349-6000 or

Address: 630 Axminister Drive, St. Louis, Missouri 63026

(800) 776-3300

PRODUCT TYPE: STAINLESS STEEL FLUX CORED WELDING WIRE - AWS/SFA 5.22

**PRODUCT TRADE NAMES:**

MASTERCOR E307T1-1/4  
 MASTERCOR E308LMoT1-1/4  
 MASTERCOR E308LT0-1/4 & E308LT1-1/4  
 MASTERCOR E308HT0-1/4  
 MASTERCOR E309LT0-1/4 & E309LT1-1/4  
 MASTERCOR E309T0-1/4  
 MASTERCOR E309LMoT0-1/4  
 MASTERCOR E310T0-4  
 MASTERCOR E316LT0-1/4 & E316LT1-1/4  
 MASTERCOR E316T0-1/4  
 MASTERCOR E317LT0-4  
 MASTERCOR E347T0-1/4  
 MASTERCOR E2209T0-1  
 MASTERCOR E2553T0-4

**PRODUCT CLASSIFICATIONS:**

E307TX-X  
 E308LMoTX-X  
 E308LTX-X  
 E308HTX-X  
 E309LTX-X  
 E309TX-X  
 E309LMoTX-X  
 E310TX-X  
 E316LTX-X  
 E316TX-X  
 E317LTX-X  
 E347TX-X  
 E2209T0-X  
 E2553T0-X

### SECTION II – HAZARDOUS INGREDIENTS

**IMPORTANT:** THIS SECTION COVERS THE MATERIALS FROM WHICH THE PRODUCT IS MANUFACTURED. THE FUMES AND GASES PRODUCED DURING WELDING WITH NORMAL USE OF THIS PRODUCT ARE COVERED IN SECTION V. THE TERM "HAZARDOUS" IN "HAZARDOUS MATERIALS" SHOULD BE INTERPRETED AS A TERM REQUIRED AND DEFINED IN OSHA HAZARD COMMUNICATION STANDARD (29 C.F.R. 1910.1200) AND IT DOES NOT NECESSARILY IMPLY THE EXISTENCE OF ANY HAZARD.

THE CHEMICALS OR COMPOUND WHICH ARE REPORTABLE BY ESCTION 313 OF SARA ARE MARKED BY THE SYMBOL#.

Ingredient	(CAS No.)	Approx. wt %	(1) TLV mg/m3	Ingredient	(CAS No.)	Approx. wt %	(1) TLV mg/m3
Iron	(7439-89-6)	50-70	(N/A)	Titanium Dioxide	(13463-67-7)	0-10	10
Manganese	(7439-96-5)	0-4	5C	Feldspar	(N/A)	0-5	(N/A)
#Chromium	(7440-47-3)	17-30	0.5	Zirconium Silicate(C)	(14940-68-2)	0-5	5
#Nickel	(7440-02-0)	7-22	1	#Aluminum Oxide(D)	(1344-28-1)	0-3	10
Molybdenum(A)	(7440-03-1)	0-4	10	Sodium Fluoride	(N/A)	0-2	2.5
Niobium(B)	(7440-03-1)	0-1	5				

(1) American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV[CR]).

(2) Not known; nuisance particulate concentration per ACGIH is 10mg/M3.

(A) Present in 309LMo, 316, 316L, 317L, AND 2209

(B) Present in 347

(C) Present in 308, 308L, 308LMo, 309L, 309LMo, 310, 316L, and 347

(\*) None of the above materials come in contact with lead or lead-containing compounds, mercury or mercury containing compounds.

### SECTION III – PHYSICAL DATA (Non applicable)

### SECTION IV – FIRE AND EXPLOSION HAZARD DATA

Non-Flammable: Welding arc and sparks can ignite combustibles. See Z-49.1 reference in Section VII

### SECTION V – REACTIVITY DATA

**HAZARDOUS DECOMPOSITION PRODUCTS:**

Welding fumes cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, procedures 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), number of welds and volume of work area, quality and amount of ventilation, position of 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 are different in percent and form the ingredients listed in Section II.

Fume and gas decomposition products, not the ingredients in the electrode, are important. Decomposition products include those originating from the volatilization, reaction, or oxidation of the materials shown in Section II plus those from base metal, coating, etc. as noted above.

These components are virtually always present as complex compounds and not as metals (Characterization of Arc Welding Fume; American Welding Society). Reasonable expected fume constituents from these products would include fluorides and complex oxides of iron, manganese, and silicon and when present, nickel, chromium, molybdenum and copper. 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 workers are exposed is to take an air sample inside the welder's helmet, if worn, or in the worker's breathing zone. ANSI/AWS F1.1, available from the American Welding Society, P.O. Box 351040, Miami, FL 33135.

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## SECTION VI – HEALTH HAZARD DATA

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**Threshold Limit Value:** The ACGIH recommended general Limit for welding fume NOC (Not Otherwise Classified) is 5 mg/m3. The ACGIH 1988-1989 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 V for specific fume constituents that may modify this TLV.

**Effects of Overexposure:** FUMES AND GASES can be dangerous to your health.

**SHORT-TERM (ACUTE) EXPOSURE** to welding fumes may result in discomfort such as dizziness, nausea, or dryness or irritation of nose, throat, or eyes.

**LONG-TERM (CHRONIC) OVEREXPOSURE** may lead to siderosis (iron deposits in the lung) and is believed by some investigators to affect pulmonary function.

ARC RAYS can injure eyes and burn skin.

ELECTRIC SHOCK can kill. See Section VII.

Emergency & First Aid Procedures: 1) Call for medical aid. Employ first aid techniques recommended by the American Red Cross.

**WARNING:** This product contains or produces a chemical known to the state of California to cause cancer. (California Health & Safety Code 25249.5 et seq.)

Carcinogenicity	NTP?	IARC Monograph?	OSHA Regulated?
When present	Ni, Cr	Ni, Cr	Cr Only

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## SECTION VII – PRECAUTIONS FOR SAFE HANDLING AND USE/APPLICABLE CONTROL MEASURES

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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 Society, P.O. Box 351040, Miami, FL 33135 and OSHA Publication 2206 (29 C.F.R. 1910), U.S. Government Printing Office, Washington, DC 20402 for more detail on many of the following:

**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 top 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 held 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 Cleanup 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.

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