

MATERIAL SAFETY DATA SHEET  
 FILLER METALS AND WELDING ROD  
 "Essentially Similar" to  
 U.S. Department of Labor  
 Form OSHA 20.

MAGNA WELDING ALLOYS  
 MAGNA INDUSTRIAL CO. LIMITED  
 1801, GUARDIAN HOUSE, HONG KONG.  
 TEL: (852) 2577 5187  
 FAX: (852) 2577 3190

IDENTITY (As Used on Label and List) Magna 405	LAST ASSESSED: 18/08/2009
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**SECTION I - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION**

Hazardous Ingredients	CAS NO.	TLV	Hazard
Iron	7439-89-6	5mg/m <sup>3</sup> (as Fe <sub>2</sub> O <sub>3</sub> )	Fume
Manganese	7439-96-5	1mg/m <sup>3</sup>	Fume
Chromium	7440-47-3	0.5mg/m <sup>3</sup> (Metal)	Fume
Molybdenum	7439-98-7	10mg/m <sup>3</sup> (Metal)	Fume
Titanium dioxide	13463-67-7	10mg/m <sup>3</sup>	Dust
Silicate binder 12627-14-4 & 10006-28-7	6834-92-0 &	10mg/m <sup>3</sup>	-
Calcium fluoride	7789-75-5	2.5mg/m <sup>3</sup> (as F)	-
Silicon dioxide	14808-60-7	0.1mg/m <sup>3</sup>	Dust
Calcium carbonate	1317-65-3	10mg/m <sup>3</sup>	Dust
Graphite	7782-42-5	2mg/m <sup>3</sup>	Dust

**SECTION II - PHYSICAL DATA**

N.A.

**SECTION III - FIRE AND EXPLOSION HAZARD DATA**

Welding arc and sparks can ignite combustibles and flammables. Refer to American National Standard Z49.1 for fire prevention during the use of welding and allied procedures.

**SECTION IV - 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 from the ingredients listed in Section I. 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 I 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).

Reasonably expected decomposition products from normal use of this product includes fluorides and a complex of the oxides of the materials listed in Section I. The present OSHA permissible exposure limits for hexavalent chromium is 0.05mg/m<sup>3</sup>, which will result in a significant reduction from the 5mg/m<sup>3</sup> general fume level. Gaseous reaction products may include carbon monoxide and carbondioxide. 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 welders 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 V - HEALTH HAZARD DATA**

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##### **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 IV for specific fume constituents which may modify this TLV.

##### **Effects of Overexposure:**

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. LONG TERM (CHRONIC) OVEREXPOSURE may cause lung fibrosis or pneumoconiosis and is believed by some investigators to affect pulmonary function. ARC RAYS can injure eyes and burn skin. ELECTRIC SHOCK can kill. See Section VI.

##### **Emergency & First Aid Procedures:**

Call for medical aid. Employ first aid techniques recommended by the American Red Cross.

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##### **Carcinogenicity**

OSHA regulated: Chromium.

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#### **SECTION VI - 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 Welding Society, P.O. Box 351040, Miami, FL 33135 and OSHA Publication 2206 (29 C.F.R. 1910), U.S. Government Printing Office, Washington, D.C. 20402 for more details 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 which is too dark to see the weld zone. Then go to the next lighter shade which 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 which 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 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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