

Weld Mold Company
750 Rickett Road
Brighton, MI 48116
Emergency Number : (810) 229-9521

MATERIAL SAFETY DATA SHEET (WHMIS)

Identity (As Used on Label and List)

W/M Trade Name : 515, 525, 535, 540, 545, 555, & 5550, & 9325, 9335, 9340, 9345

Type: High Deposition Die Welding Electrodes

Section 1

Manufacturer's Name : Weld Mold Company
Address : 750 Rickett Road
Brighton, MI 48116

Emergency Number : (810) 229-9521
Telephone Number for Information : See Above
Date Prepared : Oct. 31, 2001 Rev. # : 2

Section 2 - Hazardous Ingredients / Identity Information

This section covers the material from which this product is manufactured. The term " Hazardous Ingredients" should be interpreted as a term required and defined in OSHA Hazard Communication Standard (29 CFR Part 1910.1200).

Exposure Limit (mg / m³)

Ingredient	CAS #	OSHA PEL	ACGIH TLV	%
Carbon	7782-42-5	55ppm	55ppm	.08-.30
Manganese	7439-96-5	5.0	1.0	1.45-3.25
Silicon	7440-21-3	5.0	3.0	.15-.60
Chromium	7440-47-3	1.0	0.5	.35-6.75
Nickel	7440-02-0	1.0	1.0	1.50-3.50
Molybdenum	7439-98-7	15.0	10.0	.20-1.70
Vanadium	1314-62-1	0.1	0.05	.10-.15
Calcium Carbonate	1317-65-3	5.0	2.0	10.0-30.0
Calcium Fluoride	14542-23-5	2.5	2.5	5.0-15.0
Feldspar	68476-25-5	1.2	1.2	2.0-10.0
Potassium Oxalate	6487-48-5	NA	5.0	1.0-6.0
Cellulose	9004-34-6	NA	NA	0-5.0
Bentonite	70131-50-9	15.0	10.0	0-5.0
Sodium Metasilicate	6834-92-0	NA	NA	0-3.0
Tetraethelene Glycol	112-60-7	NA	NA	0-3.0
Potassium Silicate	1312-76-1	NA	0.3	0-5.0
Iron	7439-89-6	5.0	NA	Balance

Notes : CL= Ceiling Limit, STEL= Short Term Exposure Limit, TLV= Threshold Limit Value, PEL= Permissible Exposure Limit, ND= Nuisance Dust

Section 3 - Physical and Chemical Characteristics

Material is a solid steel core rod with chemical and alloy covering. **NO HAZARD EXISTS UNTIL THIS PRODUCT IS USED IN WELDING.**

Section 4 - Fire and Explosion Data

Nonflammable welding arc and sparks can ignite combustible and flammable products. Refer to the Canadian Standard " Safety in Welding and Cutting, and Allied Processes" CAN /CSA- W117.2-M87 for fire prevention and protection information during the use of welding and allied procedures.

Section 5 - 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, procedures, and electrodes used . Other conditions which also influence the composition and quality of the fumes and gases to which workers may be exposed include: coating 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 2. Decomposition products of normal operation include those originating from the volatilization , reaction, or oxidation of the materials shown in Section 2, plus those from the base metal and coating, etc. , as noted above.

Reasonably expected fume constituents of this product would include : complex oxides of iron, manganese, silicon, chromium, nickel, molybdenum, calcium, magnesium, and titanium.

Section 6 - Health Hazard Data

Route of Entry : The primary routes of entry are the respiratory system, eyes, and or skin.

Effects of acute exposure to welding fumes : Short term overexposure to welding fumes may result in discomfort such as : dizziness, nausea, or dryness or irritation of nose, throat, lungs, or eyes (see section 5 and 7).

Effects of chronic exposure to product : Long term overexposure to welding fumes can result in : chronic respiratory problems, iron build-up in the lungs, bone erosion, reduced pulmonary functions and nervous disorders.

Exposure limits : Below are the LD50 and LC50 values available for some of the fumes and gases given off during welding :

Material	CAS #	LD50 or LC50	Route of Entry	Species
Cr VI oxide	1333-82-0	LD50=80mg/kg	oral	rat
Cobalt Oxide	1307-96-6	LD50=202mg/kg	oral	rat
Copper oxide	1317-39-1	LD50=470mg/kg	oral	rat
Iron oxide	1309-37-1	LD50=5500mg/kg	intraperitoneal	rat
Vanadium pentoxide	1314-62-1	LD50=23mg/kg	oral	rat
Molybdenum oxide	18868-43-4	LD50=125mg/kg	oral	rat
Nickel oxide	1313-99-1	LD50=50mg/kg	subcutaneous	mouse
Tungsten oxide	1314-35-8	LD50=840mg/kg	oral	rat
Ozone	10028-15-6	LC50=34.5ppm/3H	inhalation	cat
Carbon monoxide	630-08-0	LC50=2444ppm/4H	inhalation	mouse
Fluorine	7782-41-4	LC50=185ppm/1H	inhalation	rat

Note : LC50 and LD50 values are the amount of a substance given to the stated species that causes 50% of that species to die.

Irritancy of product : Aggravation of pre-existing respiratory or allergetic conditions may occur in some workers even if the concentration of the fumes is maintained below the recommended limits. Some studies have shown a higher level of lung related problems among older welders who smoke than those who did not smoke.

Sensitization to product : none known

Carcinogenicity : Nickel and Chromium must be considered possible carcinogens under OSHA (29CFR1910.1200). The International Agency for Research on Cancer (IARC) has indicated that nickel and certain nickel compounds are probably carcinogenic for humans, but that the specified compounds which may be carcinogenic cannot be specified precisely. This conclusion was based on experience in certain nickel refining operations. Chromium has also been listed by IARC because of " sufficient evidence for the carcinogenicity of chromium and certain chromium compounds ". The studies forming the basis for the conclusion were from operations different from production or welding of nickel and chromium alloys. Recent epidemiological studies of workers melting and working alloys containing nickel/chromium have found no increased risk of cancer. Nevertheless, exposure limits for these and all others must be maintained below the levels specified in sections 2 and 5.

Reproductive Toxicity : none known

Teratogenicity : none known

Mutagenicity : none known

Name of Toxicologically Synergistic Products : none known

Section 7- Precautions for Safe Handling and Use Applicable Control Measures

Read and understand the manufacturer's instructions and the precautionary label on the product. See American National Standard Z49.1 " Safety in Welding and Cutting " published by the American Welding Society. Also see Canadian National Standard CAN/CSA- W117.2-M87 " Safety in Welding, Cutting, and Allied Processes " published by the Canadian Standard Association.

Exposure Monitoring : Maintain all exposures below the limits in section 5. Monitor the air to ensure that the levels are below the above mentioned limits. See AWS F1.1 " Method for Sampling Airborne Particulates Generated by welding and Allied Processes " and AWS F1.3 " Evaluating Contaminants in the Welding Environment : A sampling Strategy guide . "

Ventilation : Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below TLV's in the workers 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 supplied respirator when welding in confined space or where local exhaust or ventilation does not keep exposure below the TLV.

Eye protection : Wear helmet or use face shield with filter lens. Select shade from CSA Standard Z94.3 .

Protective Clothing : Wear hand, head, and body protection which help to prevent injury from radiation, sparks, and electrical shock. 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 insulate himself from work and ground.

Waste Disposal Method : Prevent waste from contaminating the surrounding environment. Discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with federal, provincial, and local regulations.

Section 8- First Aid Procedures

If overcome by smoke or fumes remove the victim to fresh air and call for medical aid. Employ first aid techniques recommended by the Red Cross.

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

WELD MOLD CO. BELIEVES THIS DATA TO BE ACCURATE . BUT NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE .

4. FIRST-AID MEASURES

Victims of chemical exposure must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take a copy of label and MSDS to health professional with victim.

SKIN EXPOSURE: If fumes generated by welding operations involving these products contaminate the skin, begin decontamination with running water. If molten material contaminates the skin, immediately begin decontamination with cold, running water. Minimum flushing is for 15 minutes. Victim must seek medical attention if any adverse reaction occurs.

EYE EXPOSURE: If fumes generated by welding operations involving these products enter the eyes, open victim's eyes while under gently running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Victim must seek immediate medical attention.

INHALATION: If fumes generated by welding operations involving these products are inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions.

INGESTION: If swallowed call physician immediately! Do not induce vomiting unless directed by medical personnel. Rinse mouth with water if person is conscious. Never give fluids or induce vomiting if person is unconscious, having convulsions, or not breathing.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Skin, respiratory, pancreas, and liver disorders may be aggravated by prolonged over-exposures to the dusts or fumes generated by these products.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and eliminate overexposure.