MATERIAL SAFETY DATA SHEET
This Material Safety Data Sheet (MSDS) is for U.S. manufactured or distributed welding consumables and related products and may be used to comply with OSHA’s Hazard Communication standard, 29 CFR 1910.1200, and Superfund Amendments and Reauthorization Act (SARA) of 1986 Public Law 99-499. The OSHA standard must be consulted for specific requirements. This Safety Data Sheet complies with European Commission Directive 89/686/EEC, 91/155/EEC, ISO 11014-1 and ANSI Z400.1.
Date 01/01/2012 MSDS No. 714

SECTION 1: IDENTIFICATION
Manufacturer/Supplier Name:Welding Material Sales, Inc.
1340 Reed Road
Geneva, IL 60134
Telephone Number:630-232-6421
Emergency Number:800-424-9300
Product Type:TUBULAR ARC WELDING ELECTRODES FOR FLUX CORED, METAL CORED AND COMPOSITES: SUBMERGED ARC WELDING
Group A: Product For:Welding Material Sales, Inc.
AWES Classification:Gas Shielded Carbon and Low Alloy Steel
Group B: Product For:Self Shielded Carbon Steel
AWS Classification:ET4T-11, ET7T-GS
Group C: Product For:Carbon and Low Alloy Steel
AWS Classification:ET1T-1, ET3T, ET7T-4, ET7T-5

SECTION 2: IDENTIFICATION OF HAZARDS
IMPORTANT: - This section covers the hazardous materials from which this product is manufactured. The fumes and gases produced during welding with normal use of this product are also addressed in Section 8. The term “hazardous” in this section should be interpreted as a term required and defined in OSHA Hazard Communication Std. (29 CFR Part 1910.1200).

HAZARDOUS INGREDIENT CAS EINECS† Regulatory Hazardous Classification/Designation 67/548/EEC‡ IARC* NTP† OSHA** 65§
ALUMINUM 7429-90-5 231-072-3 F-R10, R15, R17 ---- ---- ---- ----
ANTIMONY TRIOXIDE 1309-64-4 215-175-0 Carc 3 – R40 2B ---- ---- ---- X
BARIUM FLUORIDE 7787-32-8 232-108-0 None ---- ---- ---- ----
CALCIUM CARBONATE 1317-65-3 215-29-6 None ---- ---- ---- ----
CERIUM OXIDE 1306-38-3 215-150-4 None ---- ---- ---- ----
COBALT 7440-48-4 231-158-0 Xn, R42/43, R53 2B ---- ---- ---- X
FLUORSPAR 7789-75-5 232-188-7 None ---- ---- ---- ----
IRON 7439-89-6 231-206-4 None ---- ---- ---- ----
IRON OXIDE 1309-37-1 215-168-2 None ---- ---- ---- ----
LITHIUM CARBONATE 554-13-2 209-062-5 F – R14/15, C – R3⁴ ---- ---- ---- ----
LITHIUM FLUORIDE 7789-24-4 232-152-0 F – R14/15, C – R3⁴ ---- ---- ---- ----
LITHIUM OXIDE 12057-24-8 235-019-5 F – R14/15, C – R3⁴ ---- ---- ---- ----
MAGNESIUM 7439-95-4 231-104-6 F – R11, R15, R17 ---- ---- ---- ----
MAGNESIUM OXIDE 1309-48-4 215-171-9 None ---- ---- ---- ----
MANGANESE 7439-96-5 231-105-1 Xn-R32/27 ---- ---- ---- ----
MOLYBDENUM 7439-98-7 231-107-2 Xn-R48/20/22; Xn-R36/37 ---- ---- ---- ----
NICKEL 7440-02-0 231-111-4 Carc 3 – R40, T-R43, R48/23 1 K X X
SILICA (Amorphous Silica Fume) 14080-60-7 69012-64-2 238-878-4 Xn-R48/20, R40/20 1⁴ K X X
SILICON 7440-21-3 231-130-6 None ---- ---- ---- ----
STRONTRIUM FLUORIDE 7783-48-4 232-000-3 None ---- ---- ---- ----
TITANIUM 7440-32-6 231-142-3 None ---- ---- ---- ----
TITANIUM OXIDE 13463-67-7 236-675-5 None 2B ---- ---- ---- ----


The following symbols correspond with the EU 67/548/EEC column above are in European Union Directive 67/548/EEC Annex 1 and EC 1272/2008 Annex VI - Table 3.2:

WARNING: – Avoid breathing welding fumes and gases; they may be dangerous to your health. Always use adequate ventilation. Always use appropriate personal protective equipment.

PRIMARY ROUTES OF ENTRY: Respiratory System, Eyes and/or Skin  ERC: The welding arc can injure eyes and burn skin.

ELECTRIC SHOCK: – Arc welding and associated processes can kill. See Section 8

FERMEE AND GASES: – Can be dangerous to your health.

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. Most fume ingredients are present as complex oxides and compounds and not as pure metals. When the electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section 3. Decomposition products of normal operation include those originating from the volatilization, reaction or oxidation of the materials shown in this section, plus those from the base metal coating, etc., as noted above. Monitor for the materials identified in the list within this section. Fumes from the use of this product may contain complex oxides or compounds of the following elements and molecules: amorphous silica fume, antimony trioxide, barium, calcium oxide, chromium, cobalt, copper, fluorospar or fluorides, lithium, manganese, nickel, silica, and stannum. Other reasonably expected constituents of the fume would also include complex oxides of iron, titanium, silicon, and molybdenum. Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc. 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 flame plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities). One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed by taking an air sample from inside the welder’s helmet or worn in the worker’s breathing zone. See ANSI/SAWS FL 1, available from the American Welding Society, P.O. Box 351040, Miami, FL 33135. Also, from AWS is FL 3.1 “Evaluating Contaminants in the Welding Environment-A Sampling Strategy Guide” which gives additional advice on sampling.

SECTION 3: HAZARDOUS INGREDIENTS
CONTENT PERCENTAGE BY INGREDIENTS

<table>
<thead>
<tr>
<th>INGREDIENT</th>
<th>CAS</th>
<th>EINECS</th>
<th>A</th>
<th>B</th>
<th>C</th>
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<tr>
<td>ALUMINUM</td>
<td>7429-90-5</td>
<td>231-072-3</td>
<td>&lt;2</td>
<td>&lt;5</td>
<td>&lt;3</td>
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<td>ANTIMONY TRIOXIDE</td>
<td>1309-64-4</td>
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<th>C</th>
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<tr>
<td>LITHIUM OXIDE</td>
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<td>&lt;2</td>
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<td>MAGNESIUM</td>
<td>7439-95-4</td>
<td>231-104-6</td>
<td>---</td>
<td>&lt;3</td>
<td>&lt;2</td>
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</tbody>
</table>
SECTION 4: FIRST AID MEASURES

INHALATION: If breathing is difficult provide fresh air and contact physician.

EYE/SKIN INJURIES: For radiation burns, see physician.

Section 11 of this MSDS covers the acute effects of overexposure to the various ingredients within the welding consumable. Section 8 of this MSDS lists the exposure limits and covers methods for protecting yourself and your co-workers.

SECTION 5: FIRE AND EXPLOSION HAZARD DATA

Welding consumables applicable to this sheet as shipped are nonreactive, nonflammable, nonexplosive and essentially nonhazardous until welded. Welding arcs and sparks can ignite combustibles and flammable products. Unused welding consumables may remain hot for a period of time after completion of welding process. See American National Standard (ANSI) Z49.1 for further general safety information on the use and handling of welding consumables and associated procedures.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Solid objects can be picked up and placed into a container. Wear proper personal protective equipment while handling. Do not discard as general trash.

SECTION 7: HANDLING AND STORAGE

HANDLING: No specific requirements in the form supplied. Handle with care to avoid cuts. Wear gloves when handling welding consumables. Avoid exposure to dust. Do not ingest. Some individuals can develop an allergic reaction to certain materials. Retain all warning and product labels.

STORAGE: Keep separate from acids and strong bases to prevent possible chemical reactions.

SECTION 8: EXPOSURE CONTROL AND PERSONAL PROTECTION

Read and understand the instructions and the labels on the packaging. Welding fumes do not have a specific OSHA PEL or ACGIH TLV. The OSHA PEL for Particulate – Not Otherwise Classified (PNOC) is 5 mg/m³. Respirable Fraction, 15 mg/m³ – Total Dust. The ACGIH TLV for Particles – Not Otherwise Specified (PNOS) is 5 mg/m³. Respirable Particles, 10 mg/m³ – Inhalable Particles. The individual complex compounds within the fume may have a lower OSHA PEL or ACGIH TLV than the OSHA Particulate – Not Otherwise Classified (PNOC) and ACGIH Particles – Not Otherwise Specified (PNOS). An Industrial Hygiene, the OSHA Permissible Exposure Limit for Air Contaminants (29 CFR 1910.1000), and the ACGIH Threshold Limit Values should be consulted to determine the specific fume constituents present and their respective exposure limits. European Union Occupational Exposure Limits (EU OEL) are listed with the most stringent limit among the EU member nations. All exposure limits are in milligrams per cubic meter (mg/m³).

<table>
<thead>
<tr>
<th>INGREDIENT</th>
<th>CAS</th>
<th>EINECS</th>
<th>OSHA PEL</th>
<th>ACGIH TLV</th>
<th>EU OEL</th>
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<tr>
<td>ALUMINUM(III)</td>
<td>7429-90-5</td>
<td>213-07-2</td>
<td>5.0 (as Al)</td>
<td>4.5 R* (Germany)</td>
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<tr>
<td>ANTIMONY TRIODIDE</td>
<td>1309-64-4</td>
<td>215-170</td>
<td>0.5 (as Sb)</td>
<td>1.0 R* (Aerosol); 4.0*** (Aerosol) – Switzerland</td>
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<tr>
<td>BARIUM FLUORIDE#</td>
<td>7787-32-8</td>
<td>212-108-2</td>
<td>0.5 (as Ba)</td>
<td>0.5 R* (Aerosol); 4.0*** (Aerosol) – Germany</td>
<td></td>
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<tr>
<td>CALCIUM CARBONATE</td>
<td>1317-65-3</td>
<td>215-206</td>
<td>5.0 R* (as CaCO3)</td>
<td>4.1 R* – 1.5 R* – Denmark</td>
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</tr>
<tr>
<td>CERIUM OXIDE</td>
<td>7440-47-3</td>
<td>215-175-5</td>
<td>0.5 (Cr III Cpnds)</td>
<td>0.5 (as Ba) – Denmark</td>
<td></td>
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<tr>
<td>CHROMIUM#</td>
<td>7440-13-2</td>
<td>215-175-5</td>
<td>0.5 (Cr III Cpnds)</td>
<td>0.005 I* (as Ba) – Denmark</td>
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<tr>
<td>COBALT</td>
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<td>213-150-8</td>
<td>0.005 (Cr VI Cpnds)</td>
<td>0.05 (as Ba) – Denmark</td>
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<tr>
<td>FLUORSPAR</td>
<td>7440-88-4</td>
<td>213-150</td>
<td>0.02 I* (Aerosol as F); 0.16 R*** (Aerosol as F) – Denmark</td>
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<tr>
<td>IRON#</td>
<td>7439-89-6</td>
<td>213-096-4</td>
<td>2.5 (as Fe)</td>
<td>3.0 I* (FeO as A); 7.0*** (FeO as A) – Switzerland</td>
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</tr>
<tr>
<td>LITHIUM CARBONATE</td>
<td>7631-86-7</td>
<td>213-084-9</td>
<td>5.0 R*</td>
<td>3.0 I* (FeO as A); 7.0*** (FeO as A) – Denmark</td>
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<tr>
<td>LITHIUM OXIDE</td>
<td>1309-37-1</td>
<td>215-168-2</td>
<td>10 (Dust)</td>
<td>10 I* (FeO as A); 40*** (FeO as A) – Germany</td>
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<tr>
<td>MAGNESIUM#</td>
<td>7439-95-4</td>
<td>215-104-5</td>
<td>5.0 R*</td>
<td>3.0 R* (Aerosol); 3.0 R* (Aerosol) – Switzerland</td>
<td></td>
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<tr>
<td>MAGNESIUM</td>
<td>7439-95-4</td>
<td>215-117-9</td>
<td>15 (Fume, Total Part)</td>
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<tr>
<td>MOLYBDENUM</td>
<td>7439-96-5</td>
<td>215-101-5</td>
<td>5 CL*(Fe) 1.3 STEL***</td>
<td>0.2 I* (Aerosol); 0.02 R* – 0.5 (as Ba) – Denmark</td>
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<td>SILICA++</td>
<td>14808-20-7</td>
<td>238-878-4</td>
<td>0.1 R*</td>
<td>0.025 R* [A2] – 0.05 I* – Denmark</td>
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<tr>
<td>TITANIUM DIOXIDE</td>
<td>13463-67-3</td>
<td>246-675-5</td>
<td>15 (Dust)</td>
<td>0.1 I* (Dust); 5.0*** (Dust); 10 I* (Dust) – Denmark</td>
<td></td>
</tr>
</tbody>
</table>

R*: Respirable Fraction R***: Respirable Fraction-Short Term Exposure Limit 1*: Inhalation Fraction 1***: Inhalable Fraction-Short Term Exposure Limit Ceiling Limit 1***: Short Term Exposure Limit 1**: As a nuisance particulate covered under “Particulates Not Otherwise Regulated” by OSHA or “Particulates Not Otherwise Classified” by ACGIH <=Crystalloidal silica is bound within the product as it exists in the package. However, research indicates silica is present in welding fume in the amorphous (non-crystalline) form R*: Respirable material under Section 313 of SARA as dust or fume NIOSH REL TWA and STEL. AHA Ceiling Limit of 1 mg/m³ Listed under ACGIH for a period of 10 mg/m³ for Respirable Mf in 2010 by ACGIH. -Element Specific Material – Insoluble- Elemental Organic Cpdns-Confirmed Human Carcinogen per ACGIH (A2) – Suspected Human Carcinogen per ACGIH (A3)-Confirmed Animal Carcinogen with Unknown Relevance of Humans per ACGIH (A4)-Not Classifiable as a Human Carcinogen per ACGIH (A5)-Suspected as a Human Carcinogen per ACGIH (noncrystalline) form

VENTILATION: Use enough ventilation, local exhaust at the arc or both to keep the fumes and gases below PEL/LVL/OEL is in the worker’s breathing zone and the general area. Train the welder to keep his head out of the fume.

RESPIRATORY PROTECTION: Use NIOSH approved or equivalent fume respirator or air supplied respirator when welding in confined space or where local exhaust or ventilation does not keep exposure below the regulatory limits.

EYE PROTECTION: Wear helmet or use face shield with filter lens. As a rule of thumb begin with Shade Number 14. Adjust if needed by selecting the next lighter and/or darker shade number. Provide protective gogles and face shields, if necessary, to shield the welder from the arc flash. PROTECTIVE CLOTHING: Wear head, hand, and body protection which help to prevent injury from radiation, sparks and electrical shock. See ANSI Z49.1. 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 synthetic clothing. Train the welder not to touch live electrical parts and to insulate from work and ground. PROCEDURE FOR CLEANUP OF SPILLS OR LEAKS: Not applicable.

SPECIAL PRECAUTIONS (IMPORTANT): Maintain exposure below the PEL/LVL/OEL. Use industrial hygiene monitoring to ensure that your use of this material does not create exposures which exceed PEL/LVL/OEL. Always use exhaust ventilation. Refer to the following sources for important additional information: American National Standard (ANSI) Z49.1 Safety in Welding and Cutting published by the American Welding Society, P.O. Box 351040, Miami, FL 33135 and OSHA Publication 2206 (29 CFR 1910.1000) from the U.S. Government Printing Office Washington, D.C. 20402.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Welding consumables applicable to this sheet as shipped are nonreactive, nonflammable, nonexplosive and essentially nonhazardous until welded.

PHYSICAL STATE: Coated Wire

COLOR: Gray

FORM: Round Wire

Page 2 of 3
SECTION 10: STABILITY AND REACTIVITY

**GENERAL:** Welding Consumables applicable to this sheet are solid and nonvaporous as shipped. This product is only intended for use per the welding parameters it was designed for. When this product is used for welding, hazardous fumes may be created. Other factors to consider include the base metal, base metal preparation and base metal coatings. All of these factors can contribute to the fume and gases generated during welding. The amount of fume varies with the welding parameters.

**STABILITY and REACTIVITY:** Contact with acids or strong bases may cause generation of gas.

SECTION 11: TOXICOLOGICAL INFORMATION

**SHORT TERM (ACUTE) OVEREXPOSURE EFFECTS:** Welding fumes - May result in discomfort such as dizziness, nausea, or drowsiness or irritation of nose, throat or eyes. **Aluminium Oxide** - Irritation of the respiratory system. **Antimony Compounds** - Irritation of the nose, throat, eyes and skin. **Barium-Aching** eyes, rhinitis, frontal headache, wheezing, laryngeal spasms, salivation or anorexia. **Chromium Oxide** - Dust or fumes may cause irritation of the respiratory system, skin and eyes. **Cobalt**: Inhalation of fume with chromium (VI) compounds can cause irritation of the respiratory tract, lung damage and asthma-like symptoms. Swallowing of chromate fume can cause severe injury or death. Dust on skin can form blisters. Eyes may be burned by chromium (VI) compounds. **Allergic** reactions may occur in some people. **Cobalt**: Pulmonary irritation, cough, dermatitis, weight loss. **Fluorides** - Fluoride compounds evolved may cause skin and eye burns, pulmonary edema and bronchitis. **Iron, Iron Oxide** - None are known. Treat as nuisance dust or fume. **Lithium Compounds** - Overexposure may cause tremor and nausea. **Magnesium, Magnesium Oxide** - Overexposure to the oxide may cause metal fume fever characterized by metallic taste, tightness of chest and fever. Symptoms may be following overexposure. **Manganese** - Metal fume fever characterized by chills, fever, upset stomach, vomiting, irritation of the throat and aching of body. Recovery is generally complete within 48 hours of the overexposure. Mildyblenium, Cerium Oxide - Irritation of the eyes, nose and throat. **Nickel, Nickel Compounds** - Metallic taste, nausea, tightness in chest, metal fume fever, allergic reaction. **Silica (Amorphous)** - Dust and fumes may cause irritation of the respiratory system, skin and eyes. **Strontium Compounds** - Strontium salts are generally non-toxic and are normally present in the human body. In large oral doses, they may cause gastrointestinal disorders, vomiting and diarrhea. **Titanium Dioxide** - Irritation of respiratory system.

**LONG TERM (CHRONIC) EFFECTS:** Welding fumes - Excess levels may cause bronchial asthma, lung fibrosis, pneumoconiosis or “silicosis.” **Aluminium Oxide** - Pulmonary fibrosis and emphysema. **Barium** - Metal fume fever, dermatitis, keratitis, conjunctivitis and ulceration and perforation of the nasal septum. Avoid conditions in which fresh hydrogen will react with antimony to form substances which are extremely toxic. **Barium** - Long-term overexposure to soluble barium compounds may cause nervous disorders and my have deleterious effects on the heart, circulatory system and musculature. **Chromium Oxide** - Overexposure may cause ulceration of the skin and perforation of the nasal septum, dermatitis and pneumonia. Chromium - Ulceration and perforation of nasal septum. Respiratory irritation may occur with symptoms similar to bronchial asthma. Studies have shown the loss of lung function. **Chromium** (VI) compounds are more readily absorbed through the skin than chromium (III) compounds. Good practice requires the reduction of employee exposure to chromium (II) and (VI) compounds. **Cobalt**: Repeated overexposures to cobalt compounds can produce reduced pulmonary function, diffuse nodular fibrosis of lungs and respiratory hypersensitivity. **Fluorides** - Serious bone erosion (Osteoporosis) and mottling of teeth. **Iron, Iron Oxide Fumes** - Can cause siderosis (deposits of iron in lungs) which some researchers believe may affect pulmonary function. Lungs will clear in time when exposure to iron and its compounds ceases. **Iron and Magnetcite (Fe3O4) are not regarded as fibrogenic materials. Lithium Compounds** - May be considered as potentially teratogenic. **Magnesium, Magnesium Oxide** - No adverse long term health effects have been reported in the literature. **Manganese** - Long-term overexposure to manganese compounds may affect the central nervous system. Symptoms may be similar to Parkinson’s disease and can include slowness, changes in handwriting, gait, loss of coordination, muscle spasms and cramps. **Nickel, Nickel Compounds** - Low level pulmonary fibrosis, and asthma-like symptoms. **Nickel** is considered to be a possible human carcinogen. **Silica (Amorphous)** - Research indicates that silica is present in welding fume in the amorphous form. Long term overexposure to manganese may cause irreversible damage to the central nervous system. **Noncrysalline forms of silica (amorphous silica)** are considered to have little to non-existent health effects. **Strontium Compounds** - Strontium at high doses is known to concentrate in bone. Major signs of chronic toxicity, which involve the skeleton, have been labeled as “strontium rickets.” **Titanium Dioxide** - Pulmonary irritation and slight throracic irritation.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Persons with pre-existing impaired lung functions (asthma-like conditions). Persons with a pacemaker should not go near welding and cutting operations until they are familiar with the specific hazards and have received protective clothing and obtained information from the manufacturer of the device. Respirators are to be worn only after being medically cleared by your company-designated physician.

**EMERGENCY AND FIRST AID PROCEDURES:** Call for medical aid. Employ first aid techniques recommended by the American Red Cross. In case of fire or flash burns develop after exposure, consult a physician. **Carcinogenicity** - Chromium VI compounds, nickel compounds, and silica (quartz crystal) are classified as IARC Group 1 and NTP Group K carcinogens. **Titanium dioxide**, antimony trioxide and compounds, and cobalt compounds are classified as IARC Group 2B carcinogens. Chromium VI compounds, cobalt compounds, nickel compounds, silica (quartz crystal) and welding fumes must be considered as carcinogens under OSHA (29 CFR 1910.1200).

**CALIFORNIA PROPOSITION 65:** For Group C products: WARNING: This product contains or produces a chemical known to the State of California to cause cancer and birth defects or other reproductive harm. (California Health & Safety Code Sections 25249.5 et seq). For Group A and B products: WARNING: This product, when used for welding or cutting, produces fumes or gases which contain chemicals known to the State of California to cause cancer and birth defects and, in some cases, cancer. (California Health & Safety Code Section 25249.5 et seq.)

**SECTION 12: ECOLOGICAL INFORMATION**

Welding processes can release fumes directly to the environment. Welding wire can degrade if left outside and unprotected. Residues from welding consumables and processes could degrade and accumulate in the soil and groundwater.

**SECTION 13: DISPOSAL INFORMATION**

Use recycling procedures if available. Discard any product, residue, packaging, disposable container or liner in an environmentally acceptable manner, in full compliance with federal, state and local regulations.

**SECTION 14: TRANSPORT INFORMATION**

No international regulations or restrictions are applicable. No special precautions are necessary.

**SECTION 15: REGULATORY INFORMATION**

Read and understand the manufacturer’s instructions, your employer’s safety practices and the health and safety instructions on the label and the material safety data sheet. Observe all local and federal rules and regulations. Take all necessary precautions to protect yourself and others.

When using Welding Consumables, you must ensure that you are informed of all hazards associated with welding. WELDING CONSUMABLES are hazardous materials when not used properly. WELDING CONSUMABLES help produce high-quality welds, but they may cause injury if used irresponsibly. WELDING CONSUMABLES are sold in comply with the welding parameters they are designed for. When these products are used for welding, hazardous fumes may be created. Other factors to consider include the base metal, base metal preparation and base metal coatings. All of these factors can contribute to the fume and gases generated during welding. The amount of fume varies with the welding parameters.


R9 – Explosive when mixed with combustible material
R10 – Flammable
R11 – Highly Flammable
R1415 – Reacts violently with water, liberating extremely flammable gases
R15 – Contact with water liberates extremely flammable gases
R17 – Spontaneous combustion in air
R2022 – Harmful by inhalation and if swallowed
R2425 – Toxic in contact with skin and if swallowed
R26 – Very toxic by inhalation
R34 – Causes burns
R35 – Causes severe burns
R3677 – Irritating to eyes, respiratory system and skin
R40 – Limited evidence of a carcinogenic effect
R4020 – Harmful; possible risk of irreversible effects through inhalation

For additional information please refer to the following sources:

**USA:**

- Threshold Limit Values and Biological Exposure Indices, American Conference of Governmental Hygienists (ACGIH), 5220 Healthcare Drive, Columbus, OH 43239-1584.
- OSHA Publication 2208, “Welding Fumes” published by the National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169.

**UK:**

- American Welding Society (AWS), Inc. has listed these facts as safe to use, some general aspects of health and safety.
- CSA Standard CAN/CSA-W117.2-01 “Safety in Welding, Cutting and Allied Processes”
- Welding MATERIAL SALES, Inc. believes these products to be safe and accurate to reflect qualified expert opinion regarding current research. However, WELDING MATERIAL SALES, Inc. cannot make any expressed or implied warranty as to this information.

714-471-8000

Page 3 of 3