SDS

(Safety Data Sheet)

Cobalt Alloy Electrodes & Wires

Revised 12/01/2015

This Safety Data Sheet (SDS) is for welding consumables and related products and may be used to comply with OSHA's Hazard Communication standard, 29 CFR 1910.1200, Superfund Amendments and Reauthorization Act (SARA) of 1986 Public Law 99-499 and Canadian Workplace Hazardous Materials Information System (WHMIS) per Health Canada administrative policy. The OSHA standard must be consulted for specific requirements. This Safety Data Sheet complies with ISO 11014-1 and ANSI Z400.1

Section 1: Identification

Manufacturer/Supplier: American Filler Metals Company

Address: 6015 Murphy Street, Houston, TX 77033

Web Site: www.amfiller.com

Telephone No.: (713) 649-8785

Emergency No.: Chemtrec: (800) 424-9300

Classification:

Trade Name: 1-Coated (ECoCr-C), 6-Coated (ECoCr-A), 12-Coated (ECoCr-B), 21-Coated (ECoCr-E)

AWS A5.13 (Surfacing Electrodes for Shielded Metal Arc Welding)

1-Bare (ERCoCr-C), 6-Bare (ERCoCr-A), 12-Bare (ERCoCr-B), 21-Bare (ERCoCr-E), 1M (ERCCoCr-C), 6M (ERCCoCr-A), 12M (ERCCoCr-B), 21M (ERCCoCr-E)

AWS A5.21 (Bare Electrodes & Rods for Surfacing)

Section 2: Hazard(s) Identification

IMPORTANT - This section covers the hazardous materials from which this product is manufactured.
This data has been classified according to the criteria of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) as required and defined in OSHA Hazard Communication Standard (29 CFR Part 1910.1200). The fumes and gases produced during welding with normal use of this product are addressed in Section 8.

Hazard Classification: This product is not classified as hazardous according to applicable GHS hazard classification criteria.

Label Elements:

- Hazard Symbol – No symbol required
- Signal Word – No signal word required
- Hazard Statement – No applicable
- Precautionary Statement – Not Applicable

Hazardous Ingredient	CAS	EINCSΓ	Regulatory Hazard Classification/Designation 67/548/EECΔ	IARCE	NTPZ	OSHAH	65Θ
Calcium Carbonate	1317-65-3	215-279-6	None	-	-	-	-
Chromium	7440-47-3	231-157-5	O - R9; Carc 1Φ - R45; Muta 2 - R46; Repr 3 - R62; T+ - R26; T - R24/25, R48/23; C - R35, R42/43; N - R50, R53ΣΣΣ	1ΣΣ, 3Σ	KΣΣ	XΣΣ	XΣΣ
Cobalt	7440-48-4	231-158-0	Xn; R42/43, R53	2B	-	X	X
Fluorspar	7789-75-5	232-188-7	None	-	-	-	-
Iron	7439-89-6	231-096-4	None	-	-	-	-
Nickel	7440-02-0	231-111-4	Carc3Φ-R40;T-R43,R48/23	1	K	X	X
Potassium Oxide	12136-45-7	235-227-6	None	-	-	-	-
Silica	14808-60-7	238-878-4	Xn-R48/20, R40/20	1Ψ	K	X	X
(Amorphous Silica Fume)	69012-64-2	273-761-5	None	3	K	-	X
Sodium Oxide	1313-59-3	215-208-9	None	-	-	-	-
Titanium Dioxide	13463-67-7	236-675-5	None	2B	-	-	-
Tungsten	7440-33-7	231-143-9	None	-	-	-	-

Γ – European Inventory of Existing Chemical Substances Number Δ - European Union Directive 67/548/EEC – Annex 1 E – International Agency for Research on Cancer (1 – Human Carcinogen, 2A – Probably Carcinogenic to Humans, 2B – Possibly Carcinogenic to Humans, 3 – Unclassifiable as to Carcinogenicity in Humans, 4 Probably Not Carcinogenic to Humans) Z – US National Toxicology Program (K – Known Carcinogen, S – Suspected Carcinogen) H – OSHA Known Carcinogen List Θ – California Proposition 65 (X – On Proposition 65 list) --- Dashes indicate the ingredient is not listed with the IARC, NTP, OSHA or 65 Φ – Carcinogen, Mutagen or Reproductive Category per European Council Directive 67/548/EEC Annex I Σ – Metal and Chromium III Compounds ΣΣ – Chromium VI Compounds ΣΣΣ – Chromium (VI) Trioxide EU 67/548/EEC Classification/Designation Y – Manganese Dioxide EU 67/548/EEC Classification/ Designation X – Molybdenum Trioxide EU 67/548/EEC Classification/Designation Ψ – Silica Crystalline α-Quartz

GHS-US Classification

- Acute Tox. 4 (Oral) : H302
- Skin Sens. 1 : H317
- Carc. 1B : H350
- STOT RE 1 : H372
- Aquatic Acute 1 : H400
- Acute Chronic 3 : H412

Section 2: Hazard(s) Identification *(Continued)*

GHS-US Labelling

GHS07

GHS08

GHS09

Signal Word (GHS-US):	Danger
Hazard Statements (GHS-US):	H302 - Harmful if swallowed H317 - May cause an allergic skin reaction H350 - May cause cancer H372 - Causes damage to organs through prolonged or repeated exposure H400 - Very toxic to aquatic life H412 - Harmful to aquatic life with long lasting effects
Precautionary statements (GHS-US):	P201 - Obtain special instructions before use P202 - Do not handle until all safety precautions have been read and understood P260 - Do not breathe dust/fume/gas/mist/vapours/spray P261 - Avoid breathing dust/fume/gas/mist/vapours/spray P264 - Wash thoroughly after handling P270 - Do not eat, drink or smoke when using this product P272 - Contaminated work clothing should not be allowed out of the workplace P273 - Avoid release to the environment P280 - Wear protective gloves/protective clothing/eye protection/face protection P301+P312 - IF SWALLOWED: call a POISON CENTER or doctor/physician if you feel unwell P302+P352 - IF ON SKIN: Wash with plenty of soap and water P308+P313 - IF exposed or concerned: Get medical advice/attention P314 - Get medical advice and attention if you feel unwell P321 - Specific treatment (see label) P330 - If swallowed, rinse mouth P333+P313 - If skin irritation or rash occurs: Get medical advice/attention P362+P364 - Take off contaminated clothing and wash it before reuse P391 - Collect spillage P405 - Store locked up P501 - Dispose of contents/container in accordance with local/regional/national/international regulations.

Warning! - Avoid breathing welding fumes and gases, they may be dangerous to your health. Always use adequate ventilation. Always use appropriate personal protective equipment.

- **Promary Routes of Entry:** Respiratory System, Eyes and/or Skin.
- **Electrick Shock:** Arc welding and associated processes can kill. See Section 8.

Arc Rays: The welding arc can injure eyes and burn skin.
Fumes 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 and 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, beryllium, chromium, manganese and nickel. Other reasonably expected constituents of the fume would also include complex oxides of iron and silicon. 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 fume 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 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. Also, from AWS is F1.3 "Evaluating Contaminants in the Welding Environment - A Sampling Strategy Guide", which gives additional advice on sampling.

Section 3: Composition/Information on Ingredients

Content Percentage by Ingredients

Ingredient	CAS	EINECS	% Weight
Calcium Carbonate	1317-65-3	215-279-6	0 ~10
Chromium	7440-47-3	231157-5	7 ~ 35
Cobalt	7440-48-4	231-158-0	30 ~ 50
Fluorspar	7789-75-5	232-188-7	0 ~ 5
Iron	7439-89-6	231-096-4	0 ~ 5
Nickel	7440-02-0	231-111-4	0 ~ 3

Content Percentage by Ingredients

Ingredient	CAS	EINECS	% Weight
Potassium Oxide	12136-45-7	235-227-6	0 ~ 2
Slica	14808-60-7	238-878-4	0 ~ 7
(Amorphous Silica Fume)	69012-64-2	273-761-5	
Sodium Oxide	1313-59-3	215-208-9	0 ~ 2
Titanium Dioxide	13463-67-7	236-675-5	5 ~ 15
Tungsetn	7440-33-7	231-143-9	0 ~ 10

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 SDS covers the acute effects of overexposure to the various ingredients within the welding consumable. Section 8 of this SDS 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 a 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 3 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 Hygienist, the OSHA Permissible Exposure Limits 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. All exposure limits are in milligrams per cubic meter (mg/m3).

Ingredient	CAS	EINECS	OSHA PEL	ACGIH TLV	EU OEL
Calcium Carbonate	1317-65-3	215-279-6	5 R*, 5 (as CaO)	3 R*, 2 (as CaO)	3 R* (Aerosol) – Switzerland; 10 I* (Aerosol) – UK
Chromium#	7440-47-3	231-157-5	1 (Metal) 0.5 (Cr II Cr III Cpnds) 0.005 (Cr VI Cpnds)	0.5 (Metal) {A4} 0.5 (Cr III Cpnds) {A4} 0.05 (Cr VI Sol Cpnds) {A1} 0.01 (Cr VI Insol Cpnds) {A1}	0.1 I* (Aerosol) - Switzerland 0.005; 0.01*** - Denmark 0.005 (Total Aerosol); 0.015***(Total Aerosol) - Sweden
Cobalt	7440-48-4	231-158-0	0.1 (Dust and Fume)	0.02 {A3}	0.01 I*; 0.02*** - Denmark
Fluorspar	7789-75-5	232-188-7	2.5 (as F)	2.5 (as F) {A4}	1 I* (Aerosol as F); 4*** (Aerosol as F) - Germany
Iron+	7439-89-6	231-096-4	5 R*	5 R* (Fe_2O_3) {A4}	3 R* (Aerosol as Fe_2O_3) – Switzerland 7*** (as Fe_2O_3) - Denmark
Nickel#	7440-02-0	231-111-4	1 (Metal) 1 (Sol Cpnds) 1 (Insol Cpnds)	1.5 I* (Ele) {A5} 0.1 I* (Sol Cpnds) {A4} 0.2 I* (Insol Cpnds) {A1}	0.05; 0.1*** - Denmark
Potassium Oxide	12136-45-7	235-227-6	5 R*	3 R*	1.5 R*(Dust NOS - Aerosol) - Germany
Silica++	14808-60-7	238-878-4	0.1 R*	0.025 R* {A2}	0.1 (Fused, Respirable Dust) - Denmark 0.2*** (Fused, Respirable Dust) - Denmark
(Amorphous Silica Fume)	69012-64-2	273-761-5	0.8	3 R*	2 I*; 4 I*** - Denmark
Sodium Oxide	1313-59-3	215-208-9	5 R*	3 R*	1.5 R*(Dust NOS - Aerosol) - Germany
Titanium Dioxide	13463-67-7	236-675-5	15 (Dust)	10 {A4}	1.5 R* - Germany
Tungsten	7440-33-7	231-143-9	5 R*	5, 10 STEL*** (Insol Cpnds) 1, 3 STEL*** (Sol Cpnds)	1 I* (Aerosol); 2 I*** (Aerosol) - Austria

R* - Respirable Fraction R*** - Respirable Fraction - Short Term Exposure Limit I* - Inhalable Fraction I*** - Inhalable Fraction - Short Term Exposure Limit ** - Ceiling Limit *** - Short Term Exposure Limit + - As a nuisance particulate covered under "Particulates Not Otherwise Regulated" by OSHA or "Particulates Not Otherwise Classified" by ACGIH ++ - Crystalline silica is bound within the product as it exists in the package. However, research indicates silica is present in welding fume in the amorphous (noncrystalline) form #- Reportable material under Section 313 of SARA ### - Reportable material under Section 313 of SARA as dust or fume ■ - NIOSH REL TWA and STEL ♦ - Listed under ACGIH Notice of Intended Changes for Mn in 2010 ♦♦ - Limit of 0.02 mg/m3 is proposed for Respirable Mn in 2011 by ACGIH Ele – Element Sol – Soluble Insol – Insoluble Inorg – Inorganic Cpnds – Compounds NOS – Not Otherwise Specified {A1} - Confirmed Human Carcinogen per ACGIH {A2} - Suspected
Human Carcinogen per ACGIH {A3} - Confirmed Animal Carcinogen with Unknown Relevance to Humans per ACGIH {A4} - Not Classifiable as a Human Carcinogen per ACGIH {A5} - Not Suspected as a Human Carcinogen per ACGIH (noncrystalline) form

Section 8: Exposure Control and Personal Protection *(Continued)*

• **Ventilation:** Use enough ventilation, local exhaust at the arc or both to keep the fumes and gases below the PEL/TLV/OELs in the worker's breathing zone and the general area. Train the welder to keep his head out of the fumes.
• **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 Prptection:** 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 screens and flash goggles, if necessary, to shield others from the weld arc flash.
• **PROTECTIVE CLOTHING:** Wear hand, head 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 nonsynthetic 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
• **Special Precautions (IMPORTANT):** Maintain exposure below the PEL/TLV/OEL. Use industrial hygiene monitoring to ensure that your use of this material does not create exposures which exceed PEL/TLV/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), U.S. Government Printing Office, Washington, DC 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 Electrode / Solid Wire

• **Odor:** N/A

• **Color:** Metallic

• **Form:** Stick Electrode / Round Wire

Section 10: Stability and Reactivity

GENERAL: Welding consumables applicable to this sheet are solid and nonvolatile 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: This product is stable under normal conditions.

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 dryness or irritation of nose, throat or eyes.
Calcium Oxide - Dust or fumes may cause irritation of the respiratory system, skin and eyes.
Chromium - Inhalation of fume with chromium (VI) compounds can cause irritation of the respiratory tract, lung damage and asthma-like symptoms. Swallowing chromium (VI) salts can cause severe injury or death. Dust on skin can form ulcers. 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.
Nickel, Nickel Compounds - Metallic taste, nausea, tightness in chest, metal fume fever, allergic reaction.
Potassium Oxide - Dust or fumes may cause irritation of the respiratory system, skin and eyes.
Silica (Amorphous) - Dust and fumes may cause irritation of the respiratory system, skin and eyes.
Sodium Oxide - Dust or fumes may cause irritation of the respiratory system, skin and eyes.
Titanium Dioxide - Irritation of respiratory system.
Tungsten - Dust may cause irritation of the skin and eyes. Inhalation of dust may cause acute airways obstructive asthma which is reversible following overexposure. Symptoms are tightening chest and productive cough.

Long-Term (Chronic) Overexposure Effects: Welding Fumes - Excess levels may cause bronchial asthma, lung fibrosis, pneumoconiosis or “siderosis."
Calcium Oxide - Prolonged 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 resembling asthma. Studies have shown that chromate production workers exposed to hexavalent chromium compounds have an excess of lung cancers. Chromium (VI) compounds are more readily absorbed through the skin than chromium (III) compounds. Good practice requires the reduction of employee exposure to chromium (III) and (VI) compounds.
Cobalt - Repeated overexposure 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 magnetite (Fe_3O_4) are not regarded as fibrogenic materials.
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 impairment, muscle spasms and cramps and less commonly, tremor and behavioral changes. Employees who are overexposed to manganese compounds should be seen by a physician for early detection of neurologic problems. Overexposure to manganese and manganese compounds above safe exposure limits can cause irreversible damage to the central nervous system, including the brain, symptoms of which may include slurred speech, lethargy, tremor, muscular weakness, psychological disturbances and spastic gait.
Nickel, Nickel Compounds - Lung fibrosis or pneumoconiosis. Studies of nickel refinery workers indicated a higher incidence of lung and nasal cancers.
Potassium Oxide - Prolonged overexposure may cause ulceration of the skin and perforation of the nasal septum, dermatitis and pneumonia.
Silica (Amorphous) - Research indicates that silica is present in welding fume in the amorphous form. Long term overexposure may cause pneumoconiosis. Noncrystalline forms of silica (amorphous silica) are considered to have little fibrotic potential.
Sodium Oxide - Prolonged overexposure may cause ulceration of the skin and perforation of the nasal septum, dermatitis and pneumonia.
Titanium Dioxide - Pulmonary irritation and slight fibrosis.
Tungsten - Long term overexposure may cause pulmonary fibrosis characterized by a rapid onset of cough, sputum and dyspnea on exertion.

Medical Conditons 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 have consulted their doctor 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 Pprocedures: Call for medical aid. Employ first aid techniques recommended by the American Red Cross. If irritation or flash burns develop after exposure, consult a physician.

Carcinogenicity: Beryllium, **c**hromium VI compounds and nickel compounds are classified as IARC Group 1 and NTP Group K carcinogens. Chromium VI compounds and welding fumes must be considered as carcinogens under OSHA (29 CFR 1910.1200).

California Proposiion 65: WARNING: These products contain or produce a chemical known to the State of California to cause cancer and birth defects (or other reproductive harm). (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 Considerations

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.

United States EPA Toxic Substance Control Act: All constituents of these products are on the TSCA inventory list or are excluded from listing.

CERCLA/SARA TITLE III: Reportable Quantities (RQs) and/or Threshold Planning Quantities (TPQs):

• Ingredient Name	**RQ (Lb)**	**TPQ (Lb)**
Products on this SDS are a solid solution in the form of a solid article.	-	-

Spills or releases resulting in the loss of any ingredient at or above its RQ require immediate notification to the National Response Center and to your Local Emergency Planning Committee.

Section 311 Hazard Class

As shipped: Immediate

In Use: Immediate Delayed

EPCRA/SARA TITLE III 313 Toxic Chemicals: The following metallic components are listed as SARA 313 "Toxic Chemicals" and potentially subject to annual SARA 312 reporting: Chromium, Cobalt and Nickel. See Section 3 for weight percentage.

CanadianN WHMIS Classification: Class D; Division 2, Subdivision A

Canadian Environmental Protection Act (CEPA): All constituents of these products are on the Domestic Substance List (DSL).

Section 16: Other Information

The following Risk and Safety Phrase Texts and Hazard Statements correspond with the columns labeled - EU 67/548/EEC within Section 2 of this safety data sheet.
Take appropriate precautions and protective measures to eliminate or limit the associated hazard.

Cadmium Statement: Cadmium is not a normal contaminant in aluminum alloys and neither it nor any of its compounds are used in the manufacture of this product

EU Directive 67/548/EEC - Risk Phrase Texts

R9	: Explosive when mixed with combustible material	R45	: May cause cancer
R24/25	: Toxic in contact with skin and if swallowed	R46	: May cause heritable genetic damage
R26	: Very toxic by inhalation	R48/20	: Harmful - danger of serious damage to health by prolonged exposure through inhalation
R35	: Causes severe burns	R48/23	: Toxic: danger of serious damage to health by prolonged exposure through inhalation
R40	: Limited evidence of a carcinogenic effect	R50	: Very toxic to aquatic organisms
R40/20	: Harmful - possible risk of irreversible effects through inhalation	R53	: May cause long-term adverse effects in the aquatic environment
R42/43	: May cause sensitization by inhalation and skin contact	R62	: Possible risk of impaired fertility
R43	: May cause sensitization by skin contact		

For additional information please refer to the following sources:

USA: **American National Standard (ANSI) Z49.1** "Safety in Welding and Cutting", **ANSI/American Welding Society (AWS) F1.5** "Methods for Sampling and Analyzing Gases from Welding and Allied Processes", **ANSI/AWS F1.1** "Method for Sampling Airborne Particles Generated by Welding and Allied Processes", **AWSF3.2M/F3.2** "Ventilation Guide for Weld Fume", American Welding Society, 550 North Le Jeune Road, Miami, Florida, 33135. Safety and Health Fact Sheets available from AWS at www.aws.org. **OSHA Publication 2206 (29 C.F.R. 1910),** U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954. **Threshold Limit Values and Biological Exposure Indices**, American Conference of Governmental Hygienists (ACGIH), 6500 Glenway Ave., Cincinnati, Ohio 45211, USA. **NFPA 51B** "Standard for Fire Prevention during Welding, Cutting and Other Hot Work" published by the National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169.

UK: **WMA Publication 236 and 237,** "Hazards from Welding Fume", "The arc welder at work, some general aspects of health and safety".

Canada: **CSA Standard CAN/CSA-W117.2-01** "Safety in Welding, Cutting and Allied Processes".

Liability-Disclaimer: American Filler Metals *does not assume liability whatsoever for the accuracy or completeness of the information contained in this SDS. The information contained is accurate to the best of our knowledge. The final suitability of any material is the responsibility of the user. Materials may present unknown hazards and are intended for use by qualified individuals experienced and trained in welding safety.*