SECTION 1 – IDENTIFICATION

Product Name: AMS 280 Easy-Groove **Product No.:** A280
Classification: Covered Electrode for Cutting and Chamfering
Supplier's Name: Applied Maintenance Specialties **Emergency Phone:** 1-800-721-2448
Address: P.O. Box 209, Buna, TX 77612

SECTION 2 – COMPOSITION/INFORMATION ON INGREDIENTS

Important: This section covers the materials from which these products are manufactured. The fumes and gases produced during normal use of these products are covered in Section 5. The term "Hazardous" in Hazardous Ingredients" would not be interpreted as a term required and defined in OSHA Hazard Communication Standard (29 CFR Part 1910.1200). The chemicals/compounds subject to reporting under Title III, in Section 313, of the Superfund Amendments and Reauthorization Act (SARA) are marked by the symbol #.
Warning: This product contains or produces a chemical known to the State of California to cause birth defects (or other reproductive harm) and cancer. (California Health & Safety Code 25249-5 et seq.)

INGREDIENTS	CAS NUMBER	EXPOSURE LIMIT (MG/M^3)		% INGREDIENTS BY WEIGHT
		OSHA PEL	ACGIH-TLV	
Iron	7439-89-6	10 (as FE)	5 (as FE)	30 – 60
Cellulose	9004-34-6	5	10	7 – 13
Magnesite	546-93-0	5	10	5 – 10
Silicon Dioxide	14808-60-7	**	0.05	1 – 5
Graphite	7782-42-5	15 mppcf*	2	1 – 5
Potassium Silicate	1312-76-1	Not listed	Not listed	1 – 5
Sodium Silicate	1344-09-8	Not listed	Not listed	1 – 5
Maganese #	7439-96-5	0.2	0.2	0.1 - 1

** 10 Mg/m^3 / (% SiO_2 + 2)
* mppcf = millions of particles per cubic foot of air

SECTION 3 – HAZARD IDENTIFICATION

Threshold Limit Value: The ACGIH recommended general limit for welding fume NOS (not otherwise specified) is 5 mg/m^3. The ACGIH 1999 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 the TLV.
Effects of overexposure: Electric arc welding may create one or more of the following health hazards:

Fumes and gases can be dangerous to your health.
Primary routes of entry are the respiratory system. Other possible routes are eyes, ingestion, and/or skin contact.
Pre-existing respiratory or allergic conditions may be aggravated in some individuals (i.e., asthma, emphysema).

Short term (acute) overexposure: Welding fumes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat, or eyes. **Primary route of entry:** is the respiratory system. **Iron, iron oxide, manganese**: remove from overexposure and apply artificial respiration if needed. **Chromium:** Inhalation of chromium can cause irritation of nasal membranes and skin. **Nickel, nickel oxide:** May cause metallic taste, nausea, tightness in chest, fever, and allergic reactions.
Long term (chronic) overexposure: May lead to siderosis (iron deposits in lungs) and is believed by some investigators to affect pulmonary functions. **Primary routes of entry** are the respiratory system. Other possible routes are eyes, ingestion, and/or skin contact. **Primary route of entry**: is the respiratory system. **Iron, iron oxide:** long term overexposure to iron fumes can cause deposits of iron in the lungs (siderosis). Lungs will clear in time when exposure to iron and its compounds crease. **Manganese**: Long term exposure may lead to "Manganism." Central nervous system is affected and symptoms include muscular weakness, impaired speech, impaired movement, and tremors. Exposed workers should get quarterly medical examinations for manganism. Bronchitis and some lung fibrosis have been reported. **Nickel, nickel oxide:** long term overexposure to nickel products may cause lung fibrosis or pneumoconiosis. Long term overexposure to **hexavalent chromium (CRVI)** is reported to cause lung cancer in humans.
Arc rays can injure eyes and burn skin. Skin cancer has been reported.
Electric shock can kill! **In case of electrical shock:** turn off power and follow recommended treatment. Call a physician.

SECTION 4 – FIRST-AID MEAUSRES

Call for medical aid. Employ first aid techniques recommended by The American Red Cross.
Inhalation: Remove to fresh air. If breathing is difficult, administer oxygen. If not breathing, begin artificial respiration. If no detectable pulse, begin cardiopulmonary resuscitation (CPR). Call for medical aid.
Skin: Wash affected area with soap and water. If rash develops, see a physician.
Eyes: Flush with a large amount of fresh water for at least 15 minutes. Get medical attention.
Ingestion: Seek medical attention.
Carcinogenicity:

Silicon Dioxide: is listed as being carcinogenic to humans on IARC and NTP lists, and is listed by NIOSH as being a potential occupational carcinogen (with no further categorization).
Welding Fumes: (not otherwise specified) are considered to be carcinogenic defined with no further categorization by NIOSH and IARC. An if used on chromium and nickel containing base alloys (i.e., stainless steel).

Chromium: Chromium VI is listed as being carcinogenic to humans on IARC and NTP lists, and is listed by NIOSH as being a potential occupational carcinogen (with no further categorization).

Nickel: is listed as being carcinogenic to humans on IARC and NTP lists, and is listed by NIOSH as being a potential occupational carcinogen (with no further categorization).

SECTION 5 – STABILITY AND REACTIVITY

Welding fumes cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, procedure and the 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 point, plating or galvanizing), the number of welders and the volume of the work area, the quality and the amount of ventilation, 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, fume and gas decomposition products generated are different in percent form from the ingredients listed in Section 2. Fume and decomposition products, not the ingredients in the electrode, are important. Decomposition products include those originating from the volatilization, reaction or oxidation of material in Section 2, plus those from the base metal and coating, etc., as noted above. These components are virtually always present as complex oxides and not as metals (Characterization of Arc Welding Fume: American Welding Society). Reasonably expected fume constituents of the fume could include: complex oxides of iron, manganese and potassium. Chromium and nickel oxides may also be present when using on chromium base or nickel base material. The table below lists reasonably expected fumes that may be generated:

SUBSTANCE	NUMBER	OSHA PEL	ACGIH-TLV
Iron Oxide	1309-37-1	10 (as FE)	5 (as FE)
Nitric Oxide	10102-43-9	30	31
Chromium (VI)(if in base material)	not listed	0.005	0.05 (as CRVI)
Nickel Oxide # (if in base material)	1313-99-1	1 (as NI)	0.2 (as Ni)
Manganese fume #	7439-96-5	5	0.2 (NIC 0.03)

NIC = notice of intended change

If using this rod on stainless steel or other alloyed containing base material, chromium, nickel and other fumes may be generated. Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may also be formed by radiation from the arc. The fume limit for CrVI (5 micrograms/m^3) may be reached before the ACGIH recommended general welding fume limit of 5 mg/m^3 is reached. Monitor fume levels and CrVI level. Train workers about the hazards of CR(VI). **Read and comply with OSHA's permissible exposure limits for hexavalent Chromium (CRVI), Fed. Reg. 71-10099 *SPECIFICALLY 29 CFR 1910.1026, 29 CFR 1915.1026 AND 29CFR 1926-1126).*** For CrVI, OSHA requires: "The **employer** shall perform initial monitoring to determine the 8 hour TWA exposure for each employee on the basis of a sufficient number of personal breathing zone air monitoring Cr(VI) concentration in the workplace. OSHA Analytical Method Number ID-215 samples to accurately characterize full shift exposure on each shift, for each job classification, in each work are." Specialized equipment is required for monitoring CR(VI) concentration in the workplace. OSHA Analytical Method Number ID-215 for area and breathing zone sampling and ASHA Analytical Method Number W4001 for wipe samples are listed on the OSHA website – www.osha.gov – as methods for measuring Cr(VI). This standard is complex and the employer should contact an occupational health professional for doing the Cr(VI) monitoring and all fume monitoring.

SECTION 8 -- HANDLING AND STORAGE

Read and understand the manufacturer's instructions and precautionary label on this product. See American National Standard Z49.1, Safety in Welding and Cutting, published by the "American Welding Society," 550 N.W. LeJeune Road, Miami, Florida 33125 and OSHA Publication 2206 (29 CFR 1910), U.S. Government Printing Office, Superintendent of Documents. P.O. Box 371954, Pittsburgh, Pennsylvania 14250-79454.

Storage: Keep material sealed and dry before use. Keep remaining product sealed and dry.

SECTION 9 – EXPOSURE CONTROLS AND PERSONAL PROTECTION

Ventilation: Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below the TLV's in the workers breathing zone and the general area. Train the welder to keep his head out of the fumes. Monitor fume levels and do not exceed permissible exposure limits or values.

Respiratory Protection: Use respirable fume respirator or air supplied respirator when welding in a confined space or where local exhaust or ventilation does not keep exposure below the TLV's.

Eye Protection: Wear a helmet or face shield with a filter lens of shade 12 or darker. Provide screens and flash goggles to shield others.

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 welders' 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 (or herself) from work and ground, especially if clothing a gloves are wet.

SECTION 10 – DISPOSAL CONSIDERATIONS

Storage: Dispose of any grinding dust and waste residues in accordance with EPA or local regulations. Plastic containers and cardboard packaging can be recycled.

SECTION 11 – OTHER INFORMATION

The information for this MSDS was obtained from sources we believe are reliable. However, the information is provided without any representation or warranty, expressed or implied, regarding accuracy and correctness. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons we do not assume responsibility and expressly disclaim liability or loss, damage or expense arising from it or in any way connected with the handling, use, and storage of the product. **APPLIED MAINTENANCE SPECIALTIES** assumes no responsibility of personal injury or property damage to vendees, user or third parties caused by the material. Such vendees or users assume all risks associated with the use of the material.

SUPPLEMENTAL INFORMATION:

IARC	International Agency for the Research on Cancer
ACGIH	American Conference of Governmental Industrial Hygienists
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicology Program
PEL	Permissible Exposure Limit
OSHA	U.S. Occupational Safety and Health Administration
TLV	Threshold Limit Value
CAS	Chemical Abstracts Service Registry Number

Exposure limits are subject to change. Contact ACGIH, OSHA, NIOSH, and IARC for current values.