670 weldings — Findley Welding — K38682

NSDS 2
039

ALLOY RODS CORPORATION
MATERIAL SAFETY DATA SHEET (MSDS)
For Welding Consumables and Related Products
Complies with OSHA Hazard Communication Standard 29 C.F.R. 1910.1200

DISTRIBUTION: FINDLEY WELDING SUPPLY

SECTION I - IDENTIFICATION

Identity: AIOH ARC COVERED LOW HYDROGEN ELECTRODES

Manufacturer's Name: ALLOY RODS CORPORATION	Emergency Telephone No. - 717/637-5911
Address: P. O. Box 917, Wilson Avenue, Hanover, PA 17331	Telephone No. for Information - 717/637-5911

Product Trade Name(s):

AIOH ARC 7018, 7018-1, 7018LC, 7018-M, 7018 ALPHA
7018M, 8018, 8018-C1, 8018-CM,
8018-B2L, 8018W, 8018MM,
9018, 9018CM, 10018
10018MM, 12018, 1, 8018W, 9018-B3L
10018M1, 12018-M2
4130LH, 4130, 4140, 4340

Product Classification(s):

AWS A5.1, E7018; E7018-1; E7018; E7018; E7018
AWS A5.5, E7018-A1; E8018-C1; E8018-C1; E9018-M2;
E8018-B2L; E8018-C2; E8018-W;
E9018M; E9018-B3; E10018-M
E10018-D2, E12018-M, E11018-M, E8018-W, E9018-B3L
MIL-E-0022200/10A, MIL 10018-M1, MIL 12018-M2
NOT CLASSIFIED (4130LH, 4130, 4140, 4340)

SECTION II - HAZARDOUS INGREDIENTS

IMPORTANT: THIS SECTION COVERS THE MATERIALS FROM WHICH THE PRODUCT IS MANUFACTURED. THE FUMES AND GASES PRODUCED DURING WELDING WITH NORMAL USE OF THIS PRODUCT ARE COVERED IN SECTION V.

THE TERM "HAZARDOUS" IN "HAZARDOUS MATERIALS" SHOULD BE INTERPRETED AS A TERM DEFINED BY OSHA HAZARD COMMUNICATION STANDARD (29 C.F.R. 1910.1200) AND IT DOES NOT NECESSARILY IMPLY THE EXISTENCE OF ANY HAZARD.

Ingredient	(CAS No.)	Exposure Limit mg/m³	Source
Iron	(7439-89-6)	5	(2)
Chromium (X) (Cr)	(7440-47-3)	0.5	(2)
Silicon (D)	(7440-21-3)	10	(2)
Copper	(7440-50-8)	1 (Dust)	(1)
Sodium Silicate	(6834-92-0)	(N/A)	(3)
Calcium Carbonate	(1317-65-3)	10	(2)
Titanium Dioxide	(13463-67-7)	10	(2)

Ingredient	(CAS No.)	Exposure Limit mg/m³	Source
Manganese (B)	(7439-96-5)	5 ct	(1)
Nickel (M) (E)	(7440-02-0)	1	(2)
Molybdenum	(7439-98-7)	5	(2)
Potassium Silicate	(1312-76-1)	(N/A)	(3)
Calcium Fluoride	(7789-75-5)	2.5	(2)
Potassium Feldspar (L)	(N/A)	(N/A)	(3)
Zirconium Silicate	(7440-67-7)	5	(2)

1. Occupational Safety and Health Administration, 29 C.F.R. 1910.1000 Permissible Exposure Limit (PEL).
2. American Conference of Governmental Industrial Hygenists (ACGIH) Threshold Limit Value (TLV(R)).
3. Not known; nuisance particulate concentration per ACGIH is 10 mg/M³.

(X) In 8018CM, 9018CM, 12018, "1", 8018W, 9018-B3L, 8018-B2L, 4130LH, 4130, 4140, 4340.
(B) In 8018, 8018C1, 8018M, 10018MM, 9018, 12018, "1", 8018W, 10018-M1, 12018-M2, 4130LH, 4130, 4340.
(E) In 7018M, 8018CM, 8018MM, 9018, 9018CM, 10018MM, 12018, "1", 9018-B3L, 9018-B2L, 10018-M1, 12018-M2, 4130LH, 4130, 4140, 4340.
(D) In 8018W.
(L) Not in 7018-G.

SECTION III - PHYSICAL AND CHEMICAL DATA

These products as shipped are nonhazardous, nonflammable, nonexplosive, and nonreactive.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Non-Flammable: Welding arc and sparks can ignite combustibles. See 1-49.1 referenced in Section VII.

SECTION V - REACTIVITY DATA

HAZARDOUS DECOMPOSITION PRODUCTS:

Welding fumes cannot be classified simply. The composition and quantity of both are dependent upon t
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). The primary route of entry of welding fumes and gases is by inhalation.

When the electrode is consumed, the fume and gas decomposition products are different in percent and form
from the ingredients listed in Section II. Fume and gas decomposition products, not the ingredients in the
electrode, are important. Decomposition products include those originating from the volatilization, reac-
tion, or oxidation of the materials shown in Section II 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 the Welding Fumes American Welding Society).

Reasonably expected fume constituents from these products would include fluorides and complex oxides of
iron, manganese, silicon, and, when present, nickel, chromium, molybdenum, and copper. Gaseous reaction
products may include carbon monoxide and carbon dioxide. 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.

SECTION VI - HEALTH HAZARD DATA

Threshold Limit Value: The ACGIH recommended general limit for welding fume NOC (Not Otherwise Classified)
is 5 mg/M3. The ACGIH 1992-93 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 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 lead to siderosis (iron deposits in the lungs) and
believed by some investigators to affect pulmonary function. ARC RAYS can injure eyes and burn skin.
ELECTRIC SHOCK can kill. See Section VII.

Emergency & First Aid Procedures: Call for medical aid. Employ first aid techniques recommended by the
American Red Cross.

CARCINOGENICITY	NTP?	IARC Monographs?	OSHA Regulated?
When present	Cr, III	Cr, III	Cr

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE/APPLICABLE CONTROL MEASURES

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 Societ
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 detail on many of the following:

Ventilation: Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases bel
the TLV's in the worker's breathing zone and the general area. Train the welder to keep his head out o
the fumes.

Respiratory Protection: Use respirable fume respirator or air supplied respirator when welding in confi
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 sha
which is too dark to see the weld zone. Then go to the next lighter shade which gives sufficient view
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 radia
and electrical shock. See ANSI Z-49.1. At a minimum, this includes welder's gloves and a protec
shield and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial
ing. Train the welder not to touch live electrical parts and to insulate himself from work and ground.

Procedure for Cleanup of Spills or Leak: NOT APPLICABLE

Waste Disposal Method: Prevent waste from contaminating surrounding environment. Dis
container or liner in an environmentally acceptable manner, in full compliance wi