SDS NO. 7969-S
DATE REVISED: 08/05/2010

SAFETY DATA SHEET

This Safety Data Sheet complies with European Commission Directive 91/155/EEC, ISO 11014-1 and ANSI Z400.1

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: SUREWELD MILD STEEL AND LOW ALLOY COVERED ELECTRODES
Application: Arc Welding
Classification: AWS A5.1 & A5.5
Supplier: THE ESAB GROUP, INC., 801 Wilson Avenue, Hanover, PA 17331
Telephone No.: 1-717-637-8911, 1-800-933-7070
Emergency No.: 1-717-637-8911 and 1-800-424-9300 (CHEMTREC)
Web site: www.esabna.com

2. HAZARDS IDENTIFICATION

Emergency Overview: Coated metal rods in varying colors. These products are normally not considered hazardous as shipped. Gloves should be worn when handling to prevent contaminating hands with product dust.

Some of these products contain nickel, which is classified as a skin sensitizer and a suspect carcinogen. These products are however not classified as hazardous based on the limited concentration of classified substances. These products contain titanium dioxide which is possibly carcinogenic. These products contain quartz, but normally not in an inhalable fraction. Quartz can cause silicosis and may cause cancer.

Avoid eye contact or inhalation of dust from these products. Skin contact is normally no hazard but should be avoided to prevent possible allergic reactions.

Persons with a pacemaker should not go near welding or cutting operations until they have consulted their doctor and obtained information from the manufacturer of the device.

When these products are used in a welding process, the most important hazards are heat, radiation, electric shock and welding fumes.

Heat: Spatter and melting metal can cause burn injuries and start fires.

Radiation: Arc rays can severely damage eyes or skin.

Electricity: Electric shock can kill.

Fumes: Overexposure to welding fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness or irritation of the nose, throat or eyes. Chronic overexposure to welding fumes may affect pulmonary function. Prolonged inhalation of nickel and chromium compounds above safe exposure limits can cause cancer. 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.

3. COMPOSITION/INFORMATION ON INGREDIENTS

These products are preparations of core wire with extruded coating.

Ingredients	CAS#	EINECS#	Hazard classification(1)	IARC (2)	NTP (3)	OSHA List(4)
Aluminum Oxide	1344-28-1	215-691-6	No	--	--	--
Calcium Carbonate	1317-65-3	215-279-6	No	--	--	--
Calcium Fluoride	7789-75-5	232-188-7	No	--	--	--
Carbon	7440-44-0	231-153-3	No	--	--	--
Cellulose	9004-34-6	232-674-9	No	--	--	--
Chromium	7440-47-3	231-157-5	No	--	--	--
Graphite	7782-42-5	231-955-3	No	--	--	--
Iron	7439-89-6	231-096-4	No	--	--	--
Iron Carbonate	10290-71-8	233-647-4	No	--	--	--
Magnesium Carbonate	546-93-0	208-915-9	No	--	--	--
Manganese	7439-96-5	231-105-1	No	--	--	--
Mill Scale	65996-74-9	266-007-8	No	--	--	--
Iron Oxide	1309-37-1	215-168-2	No	--	--	--
Silicon Dioxide	14808-60-7	238-874-4	T; R45	1	K	--

Ingredients	CAS#	EINECS#	Hazard classification[1]	IARC [2]	NTP [3]	OSHA List[4]
Ingredients						
Mineral Silicates			All considered to be quartz			
Bentonite Clays	1302-78-9	215-108-5	No	--	--	--
Chlorite	14808-60-7	238-878-4	T; R45	1	K	--
Feldspar	14808-60-7	238-878-4	T; R45	1	K	--
Hectorite	14808-60-7	238-878-4	T; R45	1	K	--
Pyrropholite	14808-60-7	238-878-4	T; R45	1	K	--
Wollanstanite	14808-60-7	238-878-4	T; R45	1	K	--
Zircon	14808-60-7	238-878-4	T; R45	1	K	--
Molybdenum	7439-98-7	231-107-2	No	--	--	--
Nickel	7440-02-0	231-111-4	Carc. Cat. 3; R40-R43	2B	S	--
Other Silicates						
Kaolinite Clay	1332-58-7	Not found	No	--	--	--
Mica (2 possible CAS numbers)	12001-26-2	Not found	No	--	--	--
	12003-38-2	234-426-5	No	--	--	--
Talc	14807-96-6	238-877-9	No	1	K	--
Potassium Titanate	12030-97-6	234-748-6	No	--	--	--
Silicate Binder (Potassium Silicate)	1312-76-1	215-199-1	No	--	--	--
Silicate Binder (Sodium Silicate)	1344-09-8	215-687-4	No	--	--	--
Silicon	7440-21-3	231-130-8	No	--	--	--
Silicon Dioxide	14808-60-7	238-878-4	T; R45	1	K	--
Titanium Oxide	13463-67-7	236-675-5	No	##	--	--

(1) Hazard Classification according to European Council Directive 67/548/EEC, for R-phrases, see Section 16.
(2) Evaluation according to the International Agency for Research on Cancer.
1 – Human Carcinogen 2B – Possibly carcinogenic to humans
(3) Classification according to the 11th Report on Carcinogens, published by the US National Toxicology Program.
K – Known Carcinogen S – Suspect Carcinogen
(4) Carcinogen listing according to OSHA, Occupational Safety & Health Administration (USA).
Presently designated to become 2B with publication of monograph.

APPROXIMATE COMPOSITION (Wt. %)

Product Trade Name: Sureweld	**10P**	**10P-Plus**	**SW-14**	**SW-612**	**SW-15**	**6013**	**6013-LV**	**710P**
Aluminum Oxide	--	--	--	--	--	--	0.1-1	--
Calcium Carbonate	<0.5	1-2.5	<0.5	1-2.5	<0.5	1-2.5	1-2.5	<0.5
Calcium Fluoride	--	--	--	--	--	--	--	--
Carbon	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Cellulose	2-6	2-6	2-6	0.5-2.5	0.5-2.5	0.5-2.5	0.5-2.5	2-6
Chromium & Cmpds	--	--	--	--	--	--	--	--
Graphite	<0.3	<0.3	--	--	--	--	--	--
Iron Carbonate	--	--	--	--	--	--	--	--
Magnesium Carbonate	0.3-1.5	--	0.3-1.5	--	0.3-1.5	--	--	0.3-1.5
Manganese	1-2	1-2	1-2	1-2	1-2	1.5-2.5	2-3	1-2
Mill Scale	0.05-1	0.05-1	0.05-1	0.05-1	0.05-1	0.05-1	0.05-1	0.05-1
Mineral Silicates	0.5-2.5	0-1.5	--	0.5-2.5	2.5-4	1-2.5	1-2.5	0.2-1
Molybdenum	--	--	--	--	--	--	--	<0.5
Nickel	--	--	--	--	--	--	--	<0.5
Other Silicates								
Kaolinite Clay	--	--	--	0.3-2	--	0.3-2	0.3-2	0.3-2
Mica	--	--	--	0.3-2	0.3-2	--	0.3-2	--
Talc	--	--	--	--	--	--	--	--
Potassium Titanate	--	--	2-3	--	--	--	--	--
Silicate Binder (cured)	1-4.5	1-4.5	1-4.5	1-4.5	1-4.5	1-4.5	1-4.5	1-4.5
Silicon	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Silicon Dioxide	0.05-1	0.05-1	0.05-1	0.05-1	0.05-1	0.05-1	0.05-1	0.05-1
Titanium Oxide	1-3	1-3	1-3	6-10	4-7	8-12	8-12	1-3
Iron	Bal >80	Bal >80	Bal >80	Bal >75	Bal >75	Bal >75	Bal >70	Bal >80
AWS Classification	A5.1 E6010	A5.1 E6010	A5.1 E6011	A5.1 E6012	A5.1 E6013	A5.1 E6013	A5.1 E6013	A5.5 E7010-P1

Product Trade Name: Sureweld	SW-75	SW-15 IP	70 LA-2	716P	70 LH	7024	810P
Aluminum Oxide	--	<0.3	0.3-1.5	0.3-1.5	--	0.3-1.4	--
Calcium Carbonate	--	0.5-1.5	6-9	6-9	7-11	0.5-1.5	--
Calcium Fluoride	--	--	3-6	3-6	9-13	--	--
Carbon	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Cellulose	2-4	1-3	<0.5	<0.5	<0.5	1-3	3-6
Chromium & Cmpds	--	--	--	--	--	--	0.03-0.10
Graphite	--	--	--	--	--	--	--
Iron Carbonate	--	--	--	--	--	0.5-1.5	--
Magnesium Carbonate	0.3-1.5	--	--	--	--	0.3-1.5	0.3-1.5
Manganese	1-2	1.5-2.5	1-2	1-2	1-2	3-4	1-2
Mill Scale	0.3-1.5	<0.3	<0.3	<0.3	<0.3	0.3-1.5	0.3-1.5
Mineral Silicates	--	1-2.5	0.5-2	0.5-2	2-3.5	1-2.5	0.5-2
Molybdenum	0.3-0.7	--	--	--	--	--	<0.5
Nickel	--	--	--	--	--	--	0.5-1
Other Silicates							
Kaolinite Clay	--	--	--	--	--	0.2-1.5	--
Mica	--	2-4	--	--	--	--	0.2-1.5
Talc	0.5-1.5	--	--	--	--	--	--
Potassium Titanate	--	--	--	--	--	--	--
Silicate Binder (cured)	1-4.5	1-4.5	1-4.5	1-4.5	1-4.5	1-4.5	1-4.5
Silicon	<0.2	<0.5	0.5-1.5	0.5-1.5	0.5-1.5	<0.5	<0.2
Silicon Dioxide	0.05-1	0.05-1	0.05-1	0.05-1	0.05-1	0.05-1	0.05-1
Titanium Oxide	1-3	9-13	5-8	5-8	<0.5	9-13	1-3
Iron	Bal >80	Bal >70	Bal >70	Bal >70	Bal >65	Bal >70	Bal >80
AWS Classification	A5.5 E7010-A1	A5.1 E7014	A5.1 E7016	A5.1 E7016	A5.1 E7018	A5.1 E7024	A5.5 E8010-P1

4. FIRST AID MEASURES

Inhalation: If breathing has stopped, perform artificial respiration and obtain medical assistance immediately! If breathing is difficult, provide fresh air and call physician.

Eye contact: For radiation burns due to arc flash, see physician. To remove dusts or fumes flush with water for at least fifteen minutes. If irritation persists, obtain medical assistance.

Skin contact: For skin burns from arc radiation, promptly flush with cold water. Get medical attention for burns or irritations that persist. To remove dust or particles wash with mild soap and water.

Electric shock: Disconnect and turn off the power. Use a nonconductive material to pull victim away from contact with live parts or wires. If not breathing, begin artificial respiration, preferably mouth-to-mouth. If no detectable pulse, begin Cardio Pulmonary Resuscitation (CPR). Immediately call a physician.

General: Move to fresh air and call for medical aid.

5. FIRE FIGHTING MEASURES

No specific recommendations for welding consumables. Welding arcs and sparks can ignite combustible and flammable materials. Use the extinguishing media recommended for the burning materials and fire situation. Wear self-contained breathing apparatus as fumes or vapors may be harmful.

6. ACCIDENTAL RELEASE MEASURES

Solid objects may be picked up and placed into a container. Liquids or pastes should be scooped up and placed into a container. Wear proper protective equipment while handling these materials. Do not discard as refuse.

Personal precautions: refer to Section 8.

Environmental precautions: refer to Section 13.

7. HANDLING AND STORAGE

Handling:

Handle with care to avoid stings and 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 identity labels.

Storage:

Keep separate from chemical substances like acids and strong bases, which could cause chemical reactions.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Avoid exposure to welding fumes, radiation, spatter, electric shock, heated materials and dust.

Engineering measures:

Ensure sufficient ventilation, local exhaust, or both, to keep welding fumes and gases from breathing zone and general area. Keep working place and protective clothing clean and dry. Train welders to avoid contact with live electrical parts and insulate conductive parts. Check condition of protective clothing and equipment on a regular basis.

Personal protective equipment:

Use respirator or air supplied respirator when welding or brazing in a confined space, or where local exhaust or ventilation is not sufficient to keep exposure values within safe limits. Use special care when welding painted or coated steels since hazardous substances from the coating may be emitted. Wear hand, head, eyes, ear and body protection like welders gloves, helmet or face shield with filter lens, safety boots, apron, arm and shoulder protection. Keep protective clothing clean and dry.

Use industrial hygiene monitoring equipment to ensure that exposure does not exceed applicable national exposure limits. The following limits can be used as guidance. For information about welding fume analysis refer to Section 10.

Substance		CAS#	ACGIH TLV [(1)] mg/m^3	OSHA PEL [(2)] mg/m^3
Aluminum Oxide (as Al)		1344-28-1	1**	15*, 5**
Calcium Carbonate		1317-65-3	Withdrawn	15*, 5**
Calcium Fluoride		7789-75-5	2.5	2.5
Carbon		7440-44-0	None	None
Cellulose		9004-34-6	10	15*, 5**
Chromium Compounds		7440-47-3		
Metal (as Cr)			0.5	1
Cr (VI), inorganic, water insoluble (as Cr)			0.01*	0.005*
Cr (VI), inorganic, water soluble (as Cr)			0.05*	0.005*
Graphite		7482-42-5	2**	15*, 5**
Iron Carbonate		10290-71-8	None	None
Iron Oxide		1309-37-1	5**	10 (fume)
Magnesium Carbonate (nuisance dust)		546-93-0	10*, 3***	15*, 5**
Manganese & Manganese compounds (as Mn)		7439-96-5	0.2	5 Ceiling
Mill Scale (Ferrous metal)				
Iron Oxide		1309-37-1	5**	10 (fume)
Silicon Dioxide		14808-60-7	0.025**	10 mg/m³** %SiO_2+2
Mineral Silicates (no exposure anticipated)				
All substances with CAS of 14808-60-7 are quartz.				
Bentonite Clays		1302-78-9	None	None
Chlorite Silica-Crystalline-Quartz		14808-60-7	0.025**	10 mg/m³** %SiO_2+2
Feldspar Silica-Crystalline-Quartz		14808-60-7	0.025**	10 mg/m³** %SiO_2+2
Hectorite Silica-Crystalline-Quartz		14808-60-7	0.025**	10 mg/m³** %SiO_2+2
Pyrropholite Silica-Crystalline-Quartz		14808-60-7	0.025**	10 mg/m³** %SiO_2+2
Wollanstanite Silica-Crystalline-Quartz		14808-60-7	0.025**	10 mg/m³** %SiO_2+2
Zircon Silica-Crystalline-Quartz		14808-60-7	0.025**	10 mg/m³** %SiO_2+2
Molybdenum	Metal and Insoluble compounds	7439-98-7	3 **, 10 ***	15*
	Soluble compounds		0.5 **	5
Nickel (inhalable fraction)		7440-02-0	1.5	1
Other Silicates				
Kaolinite Clay		1332-58-7	2**	15*, 5**
Mica		12001-26-2	3**	20 mppcf quartz < 1%
Talc		14807-96-6	2**	20 mppcf quartz < 1%
Potassium Titanate (powder)		12030-97-6	None	None
Silicate Binder (sodium silicate & potassium silicate)		1344-09-8 1312-76-1	None	None
Silicon (nuisance dust)		7440-21-3	Withdrawn	15*, 5**
Silicon Dioxide (quartz)		14808-60-7	0.025**	10 mg/m³** %SiO_2+2
Titanium Oxide		13463-67-7	10	15*

(1) Threshold Limit Values according to American Conference of Governmental Hygienists, 2010

(2) Permissible Exposure Limits according to the Occupational Safety & Health Administration (USA)

Unless noted, all values are for 8 hour time weighted averages (TWA).

* Total dust, ** Respirable fraction. *** Inhalable fraction.

NOTE: Some of these products may not contain all of the materials listed. For details of composition, refer to the COMPOSITION TABLE in Section 3.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Solid, non-volatile with varying color.
Melting point:	>1300°C/>2300°F

10. STABILITY AND REACTIVITY

General: These products are only intended for normal welding purposes.

Stability: These products are stable under normal conditions.

Reactivity: Contact with chemical substances like acids or strong bases could cause generation of gas.

When these products are used in a welding process, hazardous decomposition products would include those from the volatilization, reaction or oxidation of the materials listed in Section 3 and those from the base metal and coating.

The amount of fumes generated from manual metal arc welding varies with welding parameters and dimensions but is generally no more than 5 to 15 g/kg consumable. Fumes from these products may contain compounds of the following chemical elements: Fe, O, Mn, Cr, Ni, F, Na, Si, K, Ca, Al, Mg, C, Mo, and Ti. The rest is not analyzed, according to available standards.

Refer to applicable national exposure limits for fume compounds, including those exposure limits for fume compounds found in Section 8. A significant amount of the chromium in the fumes can be hexavalent chromium, which has a very low exposure limit in some countries. Manganese and nickel also have low exposure limits, in some countries, that may be easily exceeded.

Reasonably expected gaseous products would include carbon oxides, nitrogen oxides and ozone. Air contaminants around the welding area can be affected by the welding process and influence the composition and quantity of fumes and gases produced.

11. TOXICOLOGICAL INFORMATION

Inhalation of welding fumes and gases can be dangerous to your health. Classification of welding fumes is difficult because of varying base materials, coatings, air contamination and processes. The International Agency for Research on Cancer has classified welding fumes as possibly carcinogenic to humans (Group 2B).

Acute toxicity: Overexposure to welding fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness or irritation of the nose, throat or eyes.

Chronic toxicity: Overexposure to welding fumes may affect pulmonary function. Prolonged inhalation of nickel and chromium compounds above safe exposure limits can cause cancer. 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. Inhalable quartz is a respiratory carcinogen; however, the process of welding converts crystalline quartz to the amorphous form which is not considered to be a carcinogen.

12. ECOLOGICAL INFORMATION

Welding consumables and materials could degrade/weather into components originating from the consumables or from the materials used in the welding process. Avoid exposure to conditions that could lead to accumulation in soils or groundwater.

13. DISPOSAL CONSIDERATIONS

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

USA RCRA: Unused products or product residue containing chromium is considered hazardous waste if discarded, RCRA ID Characteristic Toxic Hazardous Waste D007.

Residues from welding consumables and processes could degrade and accumulate in soils and groundwater. Welding slag from these products typically contain mainly the following components originating from the coating of the electrode: Fe, O, Mn, Cr, Ni, F, Na, Si, K, Ca, Al, Mg, C, Mo, and Ti.

14. TRANSPORT INFORMATION

No international regulations or restrictions are applicable.

15. REGULATORY INFORMATION

Read and understand the manufacturer's instructions, your employer's safety practices and the health and safety instructions on the label. Observe any federal and local regulations. Take precautions when welding and protect yourself and others.

WARNING: Welding fumes and gases are hazardous to your health and may damage lungs and other organs. Use adequate ventilation.

ELECTRIC SHOCK can kill.

ARC RAYS and SPARKS can injure eyes and burn skin.

Wear correct hand, head, eye and body protection.

Canada: 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).

USA: Under the OSHA Hazard Communication Standard, these products are considered hazardous.

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 § 25249.5 et seq.)

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)
Product is 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 potential subject to annual SARA 313 reporting. See Section 3 for weight percent.

Ingredient name	Disclosure threshold
Chromium	1.0% de minimis concentration
Manganese	1.0% de minimis concentration
Nickel	0.1% de minimis concentration

16. OTHER INFORMATION

This Safety Data Sheet has been revised due to modifications to several paragraphs and/or new format. This SDS supersedes 7969-R.

Refer to ESAB “Welding and Cutting - Risks and Measures”, F52-529 “Precautions and Safe Practices for Electric Welding and Cutting” and F2035 “Precautions and Safe Practices for Gas Welding, Cutting and Heating” available from ESAB, and to:

USA: Contact ESAB at www.esabna.com or 1-800-ESAB-123 if you have questions about this SDS.

American National Standard Z49.1 “Safety in Welding and Cutting”, ANSI/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.

American Conference of Governmental Hygienists (ACGIH), Threshold Limit Values and Biological Exposure Indices, 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”.

Germany: Unfallverhütungsvorschrift BGV D1, “Schweißen, Schneiden und verwandte Verfahren”.

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

These products have been classified according to the hazard criteria of the CPR and the SDS contains all the information required by the CPR.

R-phrases: R40 – Limited evidence of a carcinogenic effect.

R43 – May cause sensitization by skin contact.

R45 – May cause cancer.

ESAB requests the users of these products to study this Safety Data Sheet (SDS) and become aware of product hazards and safety information. To promote safe use of these products a user should:

- notify its employees, agents and contractors of the information on this SDS and any product hazards/safety information.
- furnish this same information to each of its customers for these products.
- request such customers to notify employees and customers for the same product hazards and safety information.

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