



Material Safety Data Sheet

542200

Part Number: 200

Date: June 15, 2001

The Esab Group requests users of this product to study the Material Safety Data Sheet and become aware of product hazards and safety information. To promote safe use of this product a user should (1) notify its employees, agents and contractors of the information on this M.S.D.S. and any product hazards and safety information, (2) furnish this same information to each of the its customers for the product, and (3) request such customers to notify their employees and customers of the same hazards and safety information for the product.

1. Product Information

Manufacturer/ Supplier: Manufactured for Praxair Products Inc. by:
 ESAB Welding & Cutting Products
 6010 Tomken Road
 Mississauga, Ontario L5T 1X9
 Telephone (905) 670-0220

Product Identifier: **Welding Electrodes**

Application & Use: **Arc Welding Consumable**

WHMIS Classification: **D2A**

Trade Name & Synonyms: Prostar 6011, Prostar 6013, Prostar 7014, Prostar 7024, Prostar 7018, Prostar 7018AC

2. Regulated Components

The following components are defined in accordance with sub-paragraph 13(e) (i) to (iv) or paragraph 14(a) of the Hazardous Products Act:

Weight % Less Than (X indicates material is present):

Product	(AWS Class)	Fe	Mn	Mineral			Carbonate			Silicate			CaCO3	aF:
				Silicates	SiO2	Compnds	TiO2	K2O-TiO2	Cellulose	Binder	Al2O3	Si		
Prostar 6011	(E6011)	X	1-2	X	-	X	X	X	X	X	-	-	-	-
Prostar 6013	(E6013)	X	1-3	X	X	X	X	-	X	X	-	-	-	-
Prostar 7014	(E7014)	X	2	X	X	X	X	-	X	X	X	-	-	-
Prostar 7024	(E7024)	X	3-5	X	X	X	X	-	X	X	X	X	-	-
Prostar 7018	(E7018-1)	X	1-2	X	X	-	X	-	-	X	-	X	X	X
Prostar 7018AC	(E7018)	X	2-3	X	X	-	X	-	-	X	-	X	X	X

C (carbon), Si (silicon), Mn (manganese), Cu (copper), Cr (chromium), Ni (nickel), Sn (tin), Zn (zinc), Mo (molybdenum), Ti (titanium), Zr (zirconium), Al (aluminum), Fe (iron)

3. Typical Physical & Chemical Properties

Characteristics: Non-volatile, odourless, solid

Appearance: Flux coated mild steel core wire/rod containing alloys and minerals

4. Health Hazard Information

Nature of hazard: INHALATION EYE CONTACT SKIN CONTACT ELECTRIC SHOCK CAN KILL

Acute Exposure: Overexposure to the gases, fumes and dusts may include irritation of the eyes, lungs, nose and throat. Some toxic gases associated with welding may cause pulmonary edema, asphyxiation, and death. Acute overexposure may include signs and symptoms such as watery eyes, nose and throat irritation, headache, dizziness, difficulty in breathing, frequent coughing or chest pain. The presence of chromium/chromate in fume can cause irritation of nasal membranes and skin. The presence of nickel compounds in fume can cause metallic taste, nausea, tightness of chest, fever, and allergic reaction.

Chronic Exposure: Over-exposure to air contaminants may lead to their accumulation in the lungs, a condition which may be seen as dense areas on chest X-rays. The severity of the change is proportional to the length of the exposure. The changes seen are not necessarily associated with symptoms or signs of reduced lung function or disease. In addition, the changes on X-rays may be caused by non-work factors such as smoking, etc. Nickel and chromium are considered carcinogenic. Long term overexposure to nickel fumes may also cause pulmonary fibrosis and edema. Overexposure to manganese compounds may affect the central nervous system, symptoms of which are languor, sleepiness, muscular weakness, emotional disturbances and apastic gait.

Occupational Exposure Limits:

Material (CAS number)	ACGIH TLV (1993-94)	OSHA - PEL (1994)
	TWA (mg/m ³)	TWA (mg/m ³)
Aluminum Oxide (1344-28-1)	10 (dust)	5 (respirable)
Calcium Aluminate (12005-57-1)	10 (nuisance particulate)	5 (respirable dust)
Calcium Carbonate (1317-65-3)	10 (dust)	5 (respirable)
Cellulose (9004-34-8)	10	5 (respirable dust)
Chromium (7440-47-3)*	0.5 (CrIII, metal), 0.05 (Cr VI)	0.5 (CrIII), 0.1 (Chromate)



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Copper (7440-50-8)*

0.2 (welding fume)

0.1 (welding fume)

4. Health Hazard Information (cont'd)

	ACGIH TLV (1993-94)	OSHA - PEL (1994)
Material (CAS number)	TWA (mg/m ³)	TWA (mg/m ³)
Fluorspar (7789-75-5)	2.5 (as F)	2.5 (as F)
Iron/Iron Compounds (7439-89-8 & 1309-37-1)	5 (oxide fume)	10 (total particulate)
Magnesium & Magnesium Oxide (548-93-0, 1309-48-4)	10 (total dust)	5 (respirable)
Manganese (7439-96-5)*	0.2, 3 (STEL)	1 (welding fume)
Mica (12001-26-2)	3 (respirable fraction)	3 (respirable dust)
Mineral Silicates, use quartz formula (14808-80-7)	0.1 (respirable dust)	0.1 (respirable fraction)
Molybdenum (7439-98-7)	5 (soluble)	5 (soluble)
Nickel (7440-02-0)*	0.1 (soluble)	0.1 (soluble)
Potassium Feldspar (68476-25-5)	10 (nuisance particulate)	5 (respirable fraction)
Potassium Titanate (12030-97-6)	10 (nuisance particulate)	5 (respirable fraction)
Silica, use quartz formula (14808-80-7 & 60676-86-0)	0.1 (respirable dust)	0.1 (respirable fraction)
Silicate Binder (6634-92-0 & 10008-28-7)	10	5 (respirable)
Silicon (7440-21-3)	10 (dust)	5 (respirable)
Ti, as Titanium Oxide (13463-87-7)*	10 (dust)	5 (respirable)
Zirconium Compounds (7440-87-7)	5 (as Zr), 10 (STEL)	5 (as Zr)

NOTE: In the above table, an asterisk (*) indicates a toxic chemical subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (SARA) and 40 CFR Part 372.

Carcinogenic Assessment (NTP Annual Report, IARC Monographs, Other): Nickel and Chromium must be considered a possible carcinogen under OSHA (29CFR1910.1200). IARC has indicated Nickel and Chromium and certain of their compounds are probably carcinogenic for humans, but the compounds cannot be specified precisely. Their conclusions were drawn from operations different from welding. Regardless, exposure level must be kept below those levels specified above.

Some of these products may not contain all of the materials listed. For details of composition please refer to section 2.

In the above table "C" indicates "ceiling limit".

5. First Aid Measures

Inhalation: If breathing is difficult provide fresh air and call physician.

Eye Contact: See physician for radiation burns due to arc flash.

Skin Contact: For skin burns from arc radiation see physician.

General Advice: remove to fresh air and call for medical aid.

Electric Shock: Disconnect and turn off power. If not breathing, begin artificial respiration. If no pulse, begin CPR. Call physician immediately.

6. Preventive Measures

Personal Protective Equipment

Protective Clothing: Wear hand and body protection to help prevent injury from arc radiation, heat, sparks, and electrical shock. At a minimum this includes welders gloves and protective face shield and may include arm protectors, aprons, hats, and shoulder protection in addition to substantial clothing. Do not touch live electrical parts. The welder should be insulated from the work & ground.

Eye Protection: Wear an approved welding helmet or face shield with filter lens. See CSA standard W117.2-94 or the American National Standard Z49.1 - "Safety in Welding & Cutting for Lens Shade Tables".

Respiratory Protection: Use an approved fume respirator or supplied air respirator when welding in confined spaces or where adequate local ventilation is not feasible to keep fume exposure levels below threshold limit values.

Engineering Controls: (ventilation) Train the welder to keep his/her head out of the arc plume. Use sufficient ventilation/local exhaust at the arc to keep the fumes & gases below the threshold limit values.

Special Precautions: Use industrial hygiene monitoring equipment to ensure that exposure does not exceed threshold limit values.

Handling: Handle with care to avoid stings and cuts. Spooled wire can spring.

Waste Disposal: Prevent all waste from contaminating the surrounding environment. Recycle whenever possible. Discard any product/residue in compliance with applicable municipal, provincial & federal jurisdictions.

Storage Requirements: Keep separate from chemical substances like acids which could cause chemical reaction. To ensure performance of product store in a warm, dry environment.



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6. Preventive Measures (continued)

Important: Special Ventilation and/or Exhaust Required.

Fumes from the normal use of this product contain significant quantities of manganese compounds. The TLV for manganese (0.2 mg/m³) will be exceeded before reaching the 5.0 mg/m³ maximum exposure guideline for general welding fume. Manganese present in the fumes from this product may affect the central nervous system, resulting in poor coordination, difficulty in speaking, and tremor of arms or legs. This condition is considered irreversible.

Indoors, use local exhaust; Outdoors, a respirator may be required.

Storage Requirements: To ensure performance of product store in a warm, dry environment.

7. Fire & Explosive Data

Non-flammable & non-explosive material. Welding arcs & sparks can ignite other combustible materials.

Special Procedures: Do not weld/use in the vicinity of other explosive or flammable materials.

8. Reactivity Data

Chemically Stable - Avoid contact with acids & bases.

Conditions Of Reactivity/Decomposition

Hazardous decomposition products: Welding fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the material being worked, the process, procedures and consumables employed. Other conditions which influence the composition and quantity of fumes and gases to which workers may be exposed include; coatings on the material being worked (such as paint, plating or galvanizing), the number of welding operations, 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, and the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapours from cleaning or painting activities). When the materials are consumed, the fume and gas decomposition products generated are different in percent and form than those ingredients listed in section 2. Decomposition products of normal operation include those originating from the volatilization, reaction, and oxidation of the ingredients, in addition to those of the material being worked on and the coatings etc. noted above.

Reasonably expected decomposition products from normal use of these products include a complex of the oxides and fluorides of the ingredients listed in section 2, as well as carbon monoxide, carbon dioxide, ozone, and nitrogen oxides (please refer to "Characterization of Arc Welding Fume" available from the American Welding Society). The only way to determine the true identity of the decomposition product is by sampling and analysis. The composition and quantity of the fumes and gases to which a worker may be over-exposed to can be determined from a sample obtained from inside the welder's helmet or in the worker's breathing zone. See ANSI/AWS F1.1 "Method for Sampling Airborne Particles Generated by Welding and Allied Processes", available from the American Welding Society.

9. Preparation Information

Prepared by: Esab Group Canada Inc. Date: June 15, 2001 Replaces MSDS #

References & Resources:

ACGIH - TLVs "Threshold Limit Values and Biological Exposure" (1993-94)
International Compliance Centre Ltd. "WHMIS Compliance Procedure Manual"
American Welding Society - "Effects of Welding on Health"
American Welding Society - "Fumes and Gases in the Welding Environment"
CSA W117.2-94 "Safety in Welding, Cutting, and Allied Processes"
ANSI/AWS Z49.1-94 - "Safety in Welding & Cutting"
ESAB/L-TEC MSDS

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