

MATERIAL SAFETY DATA SHEET (MSDS)

THIS MSDS IS EFFECTIVE JANUARY 1, 2018 AND SUPERSEDES ALL PREVIOUSLY ISSUED DATA SHEETS.

SECTION I (IDENTIFICATION)

Manufacturer/ Processor/Importer:	Eagle Alloys Ltd. Emergency Tel No (780) 481 8082
Address:	10077 - 166 Street Edmonton Alberta T5P 4Y1
Product Name:	Eagle 194
Classification:	Covered Arc Welding for SMAW

SECTION II (HAZARDOUS INGREDIENTS/IDENTITY INFORMATION)

IMPORTANT: This section covers the materials of which the products are manufactured. The fumes and gases produced during normal use of this product are covered in Section V. The term "Hazardous" in "Hazardous Material" should be interpreted as a term required and defined in OSHA Hazard Communication Standard 29CFR 1910-1200 and it does not necessarily imply the existence of hazard.

INGREDIENTS	CAS NUMBER	PERCENT RANGE	OSHA PEL mg/M ³	ACGIH-TLV mg/M ³	CARCINOGENICITY
Nickel	7440-02-0	90 - 98	1	1	Yes
Calcium Carbonate	1317-65-3	1.0 - 4.0	5.0	2.0	No
Barium Carbonate	513-77-9	10 - 20	Not Listed	0.5	No
Graphite	7440-44-0	5 - 10	Not Reg	5	No
Potassium Silicate	1312-76-1	10 - 20	Not Reg	0.3	No
Sodium Silicate	1344-09-8	.50 - 5.0	Not Reg	0.3	No
Iron	7439-89-6	.5 - 2.5	5.0	Not Reg	No
Mica	12001-26-2	1 - 5	20 mppcf *	3	No
Silicon	7440-21-3	.65 - 1.0	5.0	3.0	No
Calcium Fluoride	14542-23-5	4.0 - 10	2.5	2.5	No
Carbon	7782-42-5	.75 - 1.5	55ppm	55ppm	No
Manganese	7439-96-5	.75 - 1.5	5.0	1.0	No
Barium Fluoride	7787-32-8	1.0 - 4.0		0.5	No
Strontium Carbonate	1633-05-2	4.0 - 10		5.0	No
Cellulose	9004-34-6	.50 - 3.5	Not Reg	10	No

SECTION III (PHYSICAL DATA) Not Applicable

SECTION IV (FIRE AND EXPLOSION HAZARD DATA)

Non-Flammable - Welding arc and spark can ignite combustibles. Refer to American National Standard Z49.1 for fire prevention during welding.

SECTION V (REACTIVITY DATA)

Welding fumes cannot be classified simply. The composition and quantity of both are dependent upon the 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 worker's may be exposed include; coatings on the metal being welded (such as paint, plating or galvanization), number of welds and volume of work area, quality and amount of ventilation, position of weldor'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, 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, reaction, or oxidation of the materials shown in Section II plus those from the base metal, coating, etc. as noted above. These components are virtually always present as complex compounds and not as metals (Characterization of Arc Welding Fume: American Welding Society).

SECTION V (REACTIVITY DATA) CON'T

Reasonably expected fume constituents would include complex oxides of iron, manganese, silicon, Chromium, nickel molybdenum, calcium, magnesium, and titanium. Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc in TIG welding.

One recommended way to determine the composition and quantity of fumes and gases to which worker's are exposed is to take an air sample inside the weldor's helmet, if worn, or in the worker's breathing zone. ANSI/AWS FI.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 1984-85 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 this TLV.

Effects of Overexposure: FUMES AND GASES can be dangerous to your health. Primary route of exposure is inhalation of fumes. Preexisting respiratory or allergic conditions may be aggravated in some individuals. 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 is 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 Canadian Red Cross.

MATERIAL	CAS NO.	LD50 or LC50	ROUTE OF ENTRY	SPECIES
Cr VI Oxide	1333-82-0	LD50=80mg/kg	oral	rat
Cobalt Oxide	1307-96-6	LD50=202mg/kg	oral	rat
Copper Oxide	1317-38-1	LD50=470mg/kg	oral	rat
Iron Oxide	1309-37-1	LD50=5500mg/kg	intraperitoneal	rat
Vanadium Pentoxide	1314-62-1	LD50=23mg/kg	oral	rat
Molybdenum Oxide	18868-43-4	LD50=125mg/kg	oral	rat
Nickel Oxide	1313-99-1	LD50=50mg/kg	subcutaneous	mouse
Tungsten Oxide	1314-35-8	LD50=840mg/kg	oral	rat
Ozone	10028-15-6	LC50=34,5ppm/3H	inhalation	cat
Carbon Monoxide	630-08-0	LC50=2444ppm/4H	inhalation	mouse
Fluorine	7782-41-4	LC50=185ppm/1H	inhalation	rat

LC50 and LD50 values are the amount of a substance given to the stated species that cause 50% of that species to die.

Carcinogenicity: Nickel and chromium must be considered possible carcinogens under OSHA (29CFR1910,1200). The International Agency for Research on Cancer (IARC) has indicated that nickel and certain nickel compounds are probably carcinogenic for humans, but that the specific compounds which may be carcinogenic cannot be specified precisely. Chromium has been listed by IARC because of "sufficient evidence for the carcinogenicity of chromium and certain chromium compounds". The studies forming the basis for the conclusion were from operations different from the production or welding of nickel and chromium alloys. Recent epidemiological studies on worker's melting and working alloys containing nickel/chromium have found no increased risk of cancer. Nevertheless, exposure limits for these and all others must be maintained below the levels specified in Section 2 and 5.

SECTION VII
(PRECAUTION 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 Society, P.O. Box 351040, Miami, FL 33135 and OSHA Publication 2206 (29CFR 1910), US Government Printing Office, Washington DC. 20402 for more detail on the following:

Ventilation: Use enough ventilation, local exhaust at the arc, or both to keep the fumes and gases below the TLV'S in the worker's breathing zone and the general area. train the weldor to keep his head out of the fumes.

Respiratory Protection: Use respirable fume respirator or air supplies and respirator when welding in confined 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 shade darker to see the weld zone. Then go to the next lighter shade that gives sufficient view of the weld zone. Provide screens and flash goggles, to shield others.

Protective Clothing: Wear head, hand and body protection that will help to prevent injury from radiation, sparks and electrical shock. See ANSI Z-49.1. At a minimum, this includes weldor's glove's and a protective face shield and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Train the weldor not to touch live electrical parts and to insulate himself from work and ground.

Waste: Dispose of any grinding dust or waste residues in accordance with EPA or local regulations.

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