

HOBART BROTHERS OF CANADA
An ITW Canada company
MATERIAL SAFETY DATA SHEETFOR WELDING CONSUMABLES AND RELATED PRODUCTS CONFIRMS TO
WHMIS – WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM**SECTION I -- PRODUCT IDENTIFICATION AND USE****Manufacturer / Supplier:****HOBART BROTHERS OF CANADA**
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PRODUCT IDENTIFIER: **TUBULAR WELDING WIRE**TRADE NAME: for **“GROUP A”**FabCO 87, RXR, XL-71
Flux-Cor 7XR
Vision AP 70
Eclipse RXR-XLS
Vision Hi-Dep 70
FabCOR 86, 96, 80XLS
Metal-Cor 6XC
Eclipse Ultimet 716
Vision MetCOR 70**CLASSIFICATION:**
AWS A5.20, CSA/CWB W48

Product used for ELECTRIC ARC WELDING

NOTE: READ AND UNDERSTAND THE MANUFACTURER'S PRODUCT DATA SHEET**SECTION II -- HAZARDOUS INGREDIENTS****IMPORTANT** -- This section covers the materials from which these products are manufactured. The fumes and gases produced during welding with normal use of these products are covered by Section V – REACTIVITY DATA.

THE TERM “HAZARDOUS” IN HAZARDOUS INGREDIENTS SHOULD BE INTERPRETED AS A TERM REQUIRED AND DEFINED IN THE HAZARDOUS PRODUCTS ACT.

GROUP A**EXPOSURE LIMIT**

INGREDIENT	CAS No.	% WT.	ACGIH TLV	LD₅₀ / LC₅₀
IRON	7439-89-6	60-100	5.0	LD ₅₀ 30 GM/KG (Oral, Rat)
FERROSILICON	8049-17-0	1-5	10	20 GM/KG (SKN-RBT)
MANGANESE	7439-96-5	1-5	0.2 **	LD ₅₀ 9.0 GM/KG (Oral, Rat)
MAGNESIUM	7439-95-4	.1-1.0	N.A.V.	N.A.V.
TITANIUM DIOXIDE	13463-67-7	5.10	10.0	N.A.V.
IRON OXIDE	1309-37-1	.5-1.5	5.0 (as Fe ₂ O ₃)	N.A.V.

SECTION III -- PHYSICAL DATA

Filled tubular steel wires of various diameters and brownish-red to white-grey in colour. Other physical data is not applicable or not available.

SECTION IV -- FIRE AND EXPLOSION HAZARD DATA

Tubular welding wires as shipped are non-flammable, non-explosive and essentially non-hazardous until welded. Welding arcs and sparks can ignite combustibles and flammable products. See CSA W117.2-M87 Section 9.7 for further details.

SECTION V -- REACTIVITY DATA**STABLE:** YES**INCOMPATIBILITY WITH OTHER SUBSTANCES:** AVOID CONTACT WITH ACIDS AND BASES.**HAZARDOUS DECOMPOSITION PRODUCTS:**

Welding fumes and gases 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 workers may be exposed include: coatings on the metal being welded (such as paint, plating, or galvanizing), the number of welders and 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, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapours from cleaning and degreasing activities).

When the electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section II. Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidization of the material shown in Section II, plus those from the base metal and coating, etc....

It is understood, however, that the elements and/or oxides to be mentioned are virtually always present as complex oxides and not as metals (Characterization Of Arc Welding Fume: American Welding Society) the elements or oxides listed below correspond to the ACGIH categories located in (TLV Threshold Limit Values for Chemical Substances in the Work Environment).

Reasonable expected constituents of the fume would include: complex oxides of iron, manganese, silicon, 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.

GROUP A**EXPOSURE LIMIT**

SUBSTANCE	CAS No.	ACGIH TLV	LD₅₀ / LC₅₀
IRON OXIDE	1309-37-1	5.0 (AS Fe ₂ O ₃)	N.A.V.
SILICON OXIDE	7631-86-9	3.0	LD ₅₀ 3160 mg/kg (Oral, Rat)
MANGANESE	7439-96-5	1.3 STEL * (FUME)	LD ₅₀ 9.0 gm/kg (Oral, Rat)
TITANIUM OXIDE	13463-67-7	10.0	N.A.V.
MAGNESIUM OXIDE	1309-48-4	10.0	N.A.V.

SECTION VI -- TOXICOLOGICAL PROPERTIES/HEALTH HAZARD DATA**POSSIBLE ROUTE OF ENTRY/EXPOSURE:** INHALATION (PRIMARY) - EYE - SKIN

The ACGIH recommended general limit for welding fume NOC (Not Otherwise Classified), is 5.0 mg/m³. The ACGIH TLVs, (1991-92) preface states these limits are not fine lines between safe and dangerous concentration and should not be used by anyone untrained in the discipline of industrial hygiene. See section V for specific fume constituents which may modify this TLV.

SUBSTANCE	CAS No.	ACGIH TLV	LD₅₀ / LC₅₀
WELDING FUMES	NOC*	5.0 mg/m ³	N.A.V.

*NOC = NOT OTHERWISE CLASSIFIED

Electric arc welding may create one or more of the following health hazards: fumes and Gases can be dangerous to your health. Arc Rays can injure eyes and burn skin. Electric shock can kill.

EFFECTS OF ACUTE OVEREXPOSURE:

Welding fumes may result in discomfort such as dizziness, nausea, or dryness or irritation of nose, throat or eyes.

MANGANESE-MANGANESE DIOXIDE (MnO₂) intoxication can include typical metal fume effects of dry throat, coughing, tight chest, low back pain, vomiting, fatigue and headache.

IRON-IRON OXIDE probably none, except as nuisance dust.

EFFECTS OF CHRONIC OVEREXPOSURE:

Welding fumes may lead to siderosis (iron deposits in lungs) and is believed by some investigators to affect pulmonary functions.

MANGANESE-MANGANESE DIOXIDE (mnO₂) long term overexposure to manganese compounds may affect the central nervous system. Symptoms include muscular weakness, tremors similar to Parkinson's Disease. Behavioural changes and changes in handwriting may also appear.

IRON-IRON OXIDE - long term overexposure to iron fumes can cause deposits of iron in the lung. This condition is called "Siderosis". Lungs will clear in time when exposure to iron and its compounds ceases. Iron and magnetite Fe₃O₄ are not regarded as fibrogenic materials.

SECTION VII – FIRST AID MEASURES

INHALATION, EYE, & SKIN:

Remove from exposure and seek medical aid. Employ first aid techniques such as recommended by St. John's ambulance. Wash skin and eyes with water, to remove dust. If irritation persists after exposure, consult a physician.

GENERAL ADVICE:

Read and understand the manufacture's instructions and the precautionary label on the product.

SECTION VIII – PREVENTIVE MEASURES

ENGINEERING CONTROLS:

Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below TLV's in the worker's breathing zone and the general area. Train the welder to keep his head out of the fumes. (Refer to Section 10.0 of CAN/CSA W117.2-M87).

PERSONAL PROTECTIVE EQUIPMENT:**PERSONAL PROTECTIVE CLOTHING:**

Wear hand, head, and body protection which help to prevent injury from radiation, sparks and electrical shock. At a minimum this includes welder's 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 from work and ground.

RESPIRATORY PROTECTION:

Use approved fume respirator or air supplied 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 begin with shade number 14. Adjust if needed by selecting the next lighter and/or darker shade number or refer to W117.2-M87 Tables u. Provide protective screens and flash goggles, if necessary, to shield others.

SPECIAL PRECAUTIONS:

Read and understand the manufacture's product data sheet. Maintain exposure below the TLV. Use industrial hygiene monitoring to ensure that your use of this product does not create exposure which exceed TLV. Always use exhaust ventilation. Refer to Section XI for additional information.

SECTION IX – STORAGE AND HANDLING

STORAGE REQUIREMENTS: Dry at room temperature. Humidity should be below 70% and temperature within the limits 5 to 50°C.

HANDLING PROCEDURES AND EQUIPMENT: REFER TO SECTION VIII – PREVENTIVE MEASURES

SECTION X – CLEAN-UP AND WASTE DISPOSAL

CLEAN-UP: N.A.P.

WASTE DISPOSAL:

Prevent waste from contaminating surrounding environment. Discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with federal, provincial, and local regulations.

SECTION XI – ADDITIONAL INFORMATION

SPECIAL SHIPPING INFORMATION: N.A.P.

REFERENCES AND SOURCES USED:

ACGIH-TLVs, "THRESHOLD LIMIT VALUES AND BIOLOGICAL EXPOSURE INDICES FOR 1991-1992"

CCOHS INFODISK, A2(91-2) "CANADIAN CENTRE FOR OCCUPATIONAL HEALTH AND SAFETY"

CAN/CSA W117.2-M87, "SAFETY IN WELDING, CUTTING, & ALLIED PROCESSES"

ANSI/ASC Z49.1-88, "SAFETY IN WELDING & CUTTING"

OSHA (29CFR1910), "HAZARD COMMUNICATION STANDARD"

SAX, IRVING N., "DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS", SIXTH EDITION, VAN NOSTRAND REINHOLD, 1984

ANDERSON, ROY S., "HEALTH HAZARDS DETERMINATIONS, HEALTH EFFECTS FROM USE OF WELDING ELECTRODES.", 1985

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NOTE: Hobart Brothers of Canada believes this data to be accurate and to reflect qualified expert opinion regarding current research. However, Hobart Brothers of Canada cannot make any expressed or implied warranty as to this information.