Thermacote Welco

MATERIAL SAFETY DATA SHEET

THERMACOTE WELCO Co.; HWY 161, YORK ROAD, KINGS MOUNTAIN, N.C. 28086

TELEPHONE No. 704-739-6421

SECTION 1 - Product Identification

This MSDS covers all THERMACOTE-WELCO | welding products identified as WELDING ELECTRODE WELCO | Products are covered by Separate MSDS)
Trade name and nominal composition are listed in Section 2-A

SECTION 2 - Hazardous Ingredients*

IMPORTANT This section covers the materials contained in the product as shipped. The fumes and gases produced during welding are covered in Section 6.

Ingredient	CAS No.	PEL(1)	TLV(2)	Ingredient	CAS No.	PEL(1)	TLV(2)
Barium Carbonate ($BaCO_3$)	513-77-9	0.5	0.5	Iron (Fe)	7439-89-6	NONE	NONE
Calcium Carbonate ($CaCO_3$	1317-65-3	NONE	10	Manganese (Mn)	7439-96-5	C5	C5
Calcium Fluoride (CaF_2)	7789-75-5	2.5 (as F)	2.5 (as F)	Molybdenum (Mo)	7439-98-7	15	10
Chromium (Cr)	7440-47-3	1	0.5	Nickel (Ni)	7440-02-0	1	1
Cobalt (Co)	7440-48-4	0.1	0.05	Silicon Dioxide (SiO_2)	60676-86-0	0.1	0.1
Copper (Cu)	7440-50-8	1	1	Sodium Aluminum Fluoride (Na_3 Al F_6)	15096-52-3	2.5 (as F)	2.5 (as F)
				Titanium Dioxide (TiO_2)	13463-67-7	15	10

SECTION 2-A - Tradename and Nominal Composition

Wt.% - of combined wire and flux 1% or greater, Ni & Cr 0.1 or greater

COMPOSITION RANGE CODE — 1 -10% - A, 11 - 30% - B, 31 - 60% - C, 61 - 100% - D

PRODUCT NAME	$BaCO_3$	$CaCO_3$	CaF_2	Cr	Co	Cu	Fe	Mn	Mo	Ni	SiO_2	Na_3AlF_6	TiO_2
WELCO 33	A	A	A	A		B		A		C	A	A	A

SECTION 3 - Physical Data

Welding electrodes are solid alloy wire which is flux coated.

SECTION 4 - Fire and Explosion Data

Nonflammable; however, welding arcs and sparks can ignite flammable liquids and vapors and combustible solids.

Notes: *As defined by OSHA (29CFR1910.1200) or certain state regulations.
1 Permissible Exposure Limit - (mg/m^3) -OSHA (29CFR1910.)
2 Threshold Limit Value - (mg/m^3) -American Conference of Governmental Industrial Hygienists (current as of MSDS revision date).

Exposure Limits: Section 2 lists specific hazardous ingredients and exposure limits. Section 6 lists exposure limits for hazardous reaction products that might be formed by welding and high temperature cutting. IMPORTANT - Determine actual exposure by industrial hygiene monitoring.

POSSIBLE SIGNS AND SYMPTOMS OF EXPOSURE TO DUST, WELDING FUME AND GASES

SHORT TERM EXPOSURE:

Metallic taste; nausea; tightness of chest; fever; irritation of eyes, nose, throat and skin; loss of consciousness/death due to welding gases or lack of oxygen.

LONG TERM EXPOSURE

Adverse effects may result from long time exposure to welding fume, gases, or dusts. These effects may include skin sensitization, neurological damage, and respiratory disease such as bronchial asthma, lung fibrosis or pneumoconiosis. Nickel and chromium must be considered possible carcinogens under OSHA (29CFR1910.1200). The International Agency for Research on Cancer 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. This conclusion was based on experience in certain nickel refining operations. Chromium has also 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 of workers melting and working alloys containing nickel/chromium have found no increased risk of cancer. Nevertheless, exposures MUST be maintained below the levels specified in section 2 and section 6.

AGGRAVATION of preexisting respiratory or allergic conditions may occur in some workers.

EMERGENCY AND FIRST AID

Remove from exposure and obtain prompt medical attention. If victim is unconscious, administer oxygen. If not breathing, resusitate immediately.

SECTION 6 - Reactivity Information

Hazardous Reaction Products:

Fumes and gases from welding and high temperature cutting cannot be classified simply. The composition and quantity of both depend on the metal being welded, the process, procedures, and electrodes used. The constituents of the fume are generally different from the ingredients listed in Section 2 and may include oxides of the metals, chromates, fluorides, and complex metallics. The gases may include carbon monoxide, ozone, and oxides of nitrogen. Chlorinated solvents may be decomposed by the arc into toxic gases such as phosgene. The following exposure limits apply to those fumes and gases which may be found in the welding or high temperature cutting environment.

Substance	PEL	TLV	Substance	PEL	TLV
Aluminum fume (Al)	NONE	5.0	Manganese fume (Mn)	C5.0	1.0
Carbon monoxide (CO)	50ppm	50ppm	Molybdenum (soluble) (Mo)	5.0	5.0
Chromium (Chromates)	0.1	0.05	Nickel (soluble) (Ni)	1.0	0.1
Cobalt fume (Co)	0.1	0.05	Nitrogen dioxides (NO_2)	C5.0ppm	3ppm
Copper fume (Cu)	0.1	0.2	Ozone (O_3)	0.1ppm	0.1ppm
Fluorides (as F)	2.5	2.5	Phosgene ($COCl_2$)	0.1ppm	0.1ppm
Iron oxide fume (as Fe)	10.0	5.0			

(PEL/TLV values are mg/m^3 except where indicated as ppm)

SECTION 7 - Spill or Leak Procedures

Vacuum residue from cutting, grinding, or welding operations into suitable container. Dispose of in accordance with EPA or local regulations

SECTION 8 - Special Protection Information

Respiratory Protection:

Necessary when permissable exposure limits may be exceeded during cutting, grinding, or welding. Use air-supplied respirator in confined spaces. — Use only NIOSH approved respirator in accordance with 29CFR1910.134

Ventilation:

Use local exhaust when cutting, grinding, or welding. IMPORTANT -maintain exposures below the limits in Section 2 and 6. Confined spaces require special attention to provision of adequate ventilation.

Eye Protection and Protective Clothing: Required when cutting, grinding, or welding. Wear gloves, face protection, and flame retardant clothing. Do not expose skin. Select welding lense shade from AWS publication F2.2.

SECTION 9 - Special Precautions

IMPORTANT - Maintain exposures below the PEL/TLV. Use industrial hygiene air monitoring to ensure that your use of this material does not create exposures which exceed PEL/TLV. Always use exhaust ventilation. Refer to the following sources for important additional information:

ANSI Z49.1 The American Welding Society
P. O. Box 351040, Miami, FL 33135

OSHA(29CFR1910), U.S. Dept. of Labor
Washington D.C. 20210