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ROLLED ALLOYS, INC. - TEMPERANCE, MICHIGAN 48182
MATERIAL SAFETY DATA SHEET

SECTION I

REVIEWED: July 20, 2001

NAME: ROLLED ALLOYS, INC.
ADDRESS: 125 WEST STERNS ROAD, TEMPERANCE, MICHIGAN 48182
PRODUCT IDENTIFICATION: STAINLESS STEEL, NICKEL, COBALT AND TITANIUM BASED ALLOYS.

EMERGENCY TELEPHONE NO.: (734) 847-0561**SECTION II - CHEMICAL COMPONENTS**

CHEMICAL COMPONENTS	C.A.S. NO.	RANGE %	TLV(UNITS)	OSHA PEL
NICKEL	7440-02-0	0-99	1.5 mg/m ³	1 mg/m ³
IRON (LIMITS FOR IRON OXIDE FUMES)	1309-37-1	0-89	5 mg/m ³	10 mg/m ³
CHROMIUM	7440-47-3	0-33	0.5 mg/m ³	1 mg/m ³
MANGANESE (LIMITS FOR DUST) (LIMITS FOR FUMES)	7439-96-5	0-16	5 mg/m ³ 1 mg/m ³	5 mg/m ³ N. LISTED
MOLYBDENUM	7439-98-7	0-30	5 mg/m ³	0.1 mg/m ³
COPPER (LIMITS FOR FUMES)	7440-50-8	0-34	0.2 mg/m ³	0.1 mg/m ³
SILICON (LIMITS FOR DUST)	7440-21-3	0-4	10 mg/m ³	15 mg/m ³
TUNGSTEN	7440-33-7	0-5	5 mg/m ³	N. LISTED
ALUMINUM (LIMITS FOR DUST) (LIMITS FOR WELDING FUMES)	7429-90-5	0-2	10 mg/m ³ 5 mg/m ³	15 mg/m ³ N. LISTED
COLUMBIUM (NIOBIUM) (LIMITS FOR DUST)	7440-03-1	0-6	10 mg/m ³	15 mg/m ³
COBALT	7440-48-4	0-66	0.02 mg/m ³	0.1 mg/m ³
TITANIUM	7440-32-6	0-90	10 mg/m ³	15 mg/m ³

SECTION III - PHYSICAL DATA

BOILING POINT (F.) - N/A	SPECIFIC GRAVITY (H ₂ O-1) - 8
VAPOR PRESSURE (MM HG.) - N/A	PERCENT VOLATILE BY VOLUME (%) - N/A
VAPOR DENSITY (AIR = 1) - N/A	EVAPORATION RATE - N/A
SOLUBILITY IN WATER - N/A	MELTING POINT 2375°F - 3020°F
APPEARANCE & ODOR - METALLIC AND ODORLESS SOLID	

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED) - N/A	FLAMMABLE LIMITS - N/A	EXTINGUISHING MEDIA - N/A
SPECIAL FIRE FIGHTING PROCEDURES - N/A	UNUSUAL FIRE EXPLOSION HAZARDS - N/A	

SECTION V - HEALTH HAZARD DATA**(X) MAJOR EXPOSURE HAZARD:** **INHALATION (X)** **SKIN CONTACT ()** **SKIN ABSORPTION ()** **INGESTION ()**

NOTE: Steel products in the natural state do not present an inhalation, injection, or contact hazard. However, operations such as burning, welding, sawing, brazing, or grinding may result in the following effects if exposures exceed permissible limits:

SYMPTOMS: ACUTE: Excessive inhalation of fumes from many metals can produce an acute reaction known as "metal fume fever". Symptoms consist of chills and fever (very similar to and easily confused with flue symptoms) which come on a few hours after exposure. Dermatitis due to sensitization may occur in some individuals.

CHRONIC: Excessive and repeated overexposure of nickel and chromium can cause various forms of dermatitis, inflammation and/or ulceration of upper respiratory tract. Both chromium and nickel have been associated with upper respiratory cancer. Excessive and repeated over exposure of iron fumes can cause siderosis. Excessive and prolonged inhalation of manganese fumes can cause bronchitis, pneumonitis, lack of coordination. Copper - pulmonary effects. Excessive and prolonged overexposure of cobalt may cause an asthma-like disease with cough and dyspnea.

EMERGENCY FIRST AID AND PROCEDURES: In case of excessive exposure, remove to fresh air and seek a physician's assistance.

SECTION VI - REACTIVITY DATA

STABLE (X) UNSTABLE () CONDITIONS TO AVOID - N/A	INCOMPATIBILITY (MATERIALS TO AVOID) - N/A
DECOMPOSITION PRODUCTS - N/A	HAZARDOUS POLYMERIZATION: MAY OCCUR () WILL NOT OCCUR (X)
CONDITIONS TO AVOID - N/A	

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED - N/A	WASTE DISPOSAL METHOD - N/A
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE - N/A	

SECTION VIII - PERSONNEL PROTECTION INFORMATION

RESPIRATORY PROTECTION: For welding, burning, grinding and cutting operations, local exhaust ventilation should be provided. If fumes or dust cannot be controlled with exhaust ventilation, an appropriate NIOSH-approved respirator should be used to prevent excessive inhalation exposure.

GLOVES: Gloves may be necessary to prevent skin sensitization and dermatitis.

EYE PROTECTION: Approved safety glasses or goggles should be worn when working with dust metals.

PREPARED BY: ROLLED ALLOYS, INC.

WHILE THE INFORMATION AND RECOMMENDATIONS SET FORTH ON THIS SHEET ARE BELIEVED TO BE ACCURATE AS OF THE PRESENT DATE, THE COMPANY MAKES NO REPRESENTATION OR WARRANTY WITH RESPECT THERETO AND DISCLAIMS ALL LIABILITY FROM RELIANCE THEREON.

N. LISTED = NONE LISTED, N/A = NOT APPLICABLE, UN = UNKNOWN