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R & D METALS AND CHEMICALS INC -- INCO 718, NICKEL AND HIGH NICKEL BARE WELDING WIRE -- 3439-01-097-5989

========== Product Identification ==========

Product ID:INCO 718, NICKEL AND HIGH NICKEL BARE WELDING WIRE
MSDS Date:08/01/2000
FSC:3439
NIIN:01-097-5989
Status Code:A
MSDS Number: CKXHR
=== Responsible Party ===
Company Name:R & D METALS AND CHEMICALS INC
Address:201C PERIMETER PARK ROAD
Box:22533
Ci
ty:KNOXVILLE
State:TN
ZIP:37922-2233
Country:US
Info Phone Num:865-531-6065/800-645-7476
Emergency Phone Num:800-645-7476
CAGE:56406
=== Contractor Identification ===
Company Name:R & D METALS & CHEMICALS, INC
Address:201C PERIMETER PARK
Box:22533
City:KNOXVILLE
State:TN
ZIP:37922-2233
Country:US
Phone:423-531-6065 / FAX: 423-531-2044
Contract Num:SP0490-99-M-W783
CAGE:56406

========== Composition/Information on Ingredients ==========

Ingred Name:ALUMINUM
CAS:7429-90-5
RTECS #:BD033000

0
Minumum % Wt:.2
Maxumum % Wt:.3
OSHA PEL:15 MG/M3
ACGIH TLV:9 MG/M3

Ingred Name:CARBON
CAS:7440-44-0
RTECS #:FF5250000
= Wt:.04

Ingred Name:CHROMIUM (VI)
CAS:7440-47-3
RTECS #:GB4200000
Minumum % Wt:17.
Maxumum % Wt:21.
OSHA PEL:0.10 MG/M3
ACGIH TLV:0.05 MG/M3
EPA Rpt Qty:1 LB
DOT Rpt Qty:1 LB

Ingred Name:NICKEL
CAS:7440-02-0
RTECS #:QR5950000
Minumum % Wt:50.
Maxumum % Wt:55.
OSHA PEL:1 MG/M3, SOLUBLES
ACGIH TLV:1 MG/M3, SOLUBLES

Ingred Name:COLUMBIUM (NIOBIUM) (PLUS TANTALUM)
CAS:7440-03
-1
RTECS #:QT9900000
= Wt:3.

Ingred Name:COPPER ELEMENT
CAS:7440-50-8
RTECS #:GL5325000
= Wt:.3
OSHA PEL:0.10 MG/M3, FUME
ACGIH TLV:0.20 MG/M3, FUME
EPA Rpt Qty:5000 LBS
DOT Rpt Qty:5000 LBS

Ingred Name:IRON
CAS:7439-89-6
RTECS #:NO4565500
Fraction by Wt: BALANCE
OSHA PEL:10 MG/M3,OXIDE FUME
ACGIH TLV:5 MG/M3,OXIDE FUME

Ingred Name:MANGANESE
CAS:7439-96-5
RTECS #:OO9275000
= Wt:.35
OSHA PEL:C5 MG/M3
ACGIH TLV:1MG/M3, FUME

Ingred Name:MOLYBDENUM

EL:5.0 MG/M3
ACGIH TLV:5.0 MG/M3

Ingred Name:SILICON
= Wt:.2
OSHA PEL:0.08MG/M3, SIO2
ACGIH TLV:0.10MG/M3, SIO2

Ingred Name:TITANIUM
CAS:7440-32-6
RTECS #:XR1700000
Minumum % Wt:.9
Maxumum % Wt:1.1
OSHA PEL:15.0 MG/M3 ,DIOXIDE
ACGIH TLV:10 MG/M3, DIOXIDE

Ingred Name:WELDING FUME
ACGIH TLV:5.0 MG/M3

========== Hazards Identification ==========

Health Hazards Acute and Chronic:WELDING ELECTRODES ARE A NON-HAZARDOUS SOLID AT AMBIENT TEMPERATURES. THIS MSDS COVERS TH
E HAZARDS FROM
THE FUMES AND GASES PRODUCED WHILE WELDING DURING NORMAL USE OF THESE PRODUCTS. GENERATED WELDIN G GENERATES FUMES, GASES, AND ELECTROMAGNETIC RADIATION WITH KNOWN ADVERSE HEALTTH EFFECTS. THE COMPOSITION OF WELDING EMISSIONS VARIES SUBSTANTIALLY WITH THE WELDING PROCESS. ACUTE: SHORT TERM EXPOSU RE TO WELDING FUME MAY RESULT IN DISCOMFORT, DIZZINESS, NAUSEA, AND DRYNESS OR IRRITATION OF THE THROAT. CHRONIC: LONG TERM EXPOSURE TO WELDING FUME, GASES,

OR DUST MAY CONTRIBUTE TO PULMONARY IRRITAT ION (CONTD. SEE CARCINOGENICITY)
Explanation of Carcinogenicity:(CONTD. FROM HEALTH) OR PNEUMOCONIOSIS. LONG TERM EXPOSURE TO IRON FUME MAY PRODUCE SIDEROSIS, WHICH IS GENERALLY REGARDED AS BENIGH. NICKEL AND CHROMIUM SHOULD BE CONSIDERED POSSIBLE CARCINOGENS PER OSHA 29 CFR 1910.1200. CERTAIN NICKEL COMPOUNDS HAVE BEEN IMPLICATED BASED ON EXPERIENCE IN NICKEL REFINING OPERATIONS. SPECIFIC (CONTD. SEE TOXICOLOGICAL)
Effects

of Overexposure:SHORT TERM EXPOSURE: DISCOMFORT, DIZZINESS, NAUSEA, DRYNESSS OR IRRITATION OF THROAT. BURNS FROM ELECTROMAGNETIC RADIATION. LONG TERM EXPOSURE: PULMONARY IRRITATION, PNEUMOCONIOSIS, SIDEROSIS, POSSIBL Y CANCER.
Medical Cond Aggravated by Exposure:INDIVIDUALS WITH IMPAIRED PULMONARY FUNCTIONS OR ILLNESS MAY HAVE SYMPTOMS EXACERBATED BY IRRITANTS CONTAINED IN WELDING FUMES

========== First Aid Measures ==========

First Aid:REMOVE F
ROM DUST OR FUME EXPOSURE. IF BREATHING HAS STOPPED PERFORM ARTIFICIAL RESPIRATION. SUMMON MEDICAL AID IMMEDIATELY.

========== Fire Fighting Measures ==========

Flash Point:NONE
Autoignition Temp:Autoignition Temp Text:NONE P
Lower Limits:NONE
Upper Limits:NONE
Extinguishing Media:THIS ALLOY IS NONCOMBUSTIBLE. USE EXTINGUISHING MEDIA APPROPRIATE TO THE SURROUNDING FIRE.
Fire Fighting Procedures:IF THIS MATERIAL IS REDUCED TO POWDER FORM, CAUTION MUST BE USED
TO PREVENT FIRE OR EXPLOSION. TO EXTINGUISH A METAL POWDER FIRE USE DRY SAND, DRY GRAPHITE OR OTHER CLASS "D" FIRE EXTINGUISHING POWDER .
Unusual Fire/Explosion Hazard:NO UNUNUAL FIRE OR EXPLOSION HAZARDS ARE ASSOCIATED WITH THIS MATERIAL. AVOID CONTACT WITH MINERAL ACIDS AND OXIDIZING AGENTS WHICH MAY GENERATE HYDROGEN GAS; THE EVOLUTION OF HTDROGEN MAYBE AS EXPLOS ION HAZARD.

========== Accidental Release Measures ==========

Spill Release Procedures:NOT
APPLICABLE.

========== Handling and Storage ==========

Handling and Storage Precautions:READ AND UNDERSTAND MANUFACTURER'S INSTRUCTIONS AND PRODUCT LABEL. SEE AMERICAN NATIONAL STANDARD Z49.1, SAFETY IN WELDING AND CUTTING PUBLISHED BY AMERICAN WELDING SOCIETY, P.O. BOX 351040, MIAMI, FL , 33135 AND OSHA PUBLICATION 2206 (29 CFR 1910), GOVERNMENT PRINTING OFFICE, WASHINGTON D.C. 21402.
Other Precautions:USE EXHAUST SYSTEM TO CLEAR WELDING FUMES. MA

KE SURE
THAT INHALED AIR DOES NOT CONTAIN FUME CONSTITUENTS ABOVE PERMISSABLE LEVELS. FOR ADDITIONAL SAFETY INFORMATION ON WELDING AND CUTTING, SEE AMERICA N STANDARD Z49.1-1980, SAFETY IN WELDING AND CUTTING, AND THE WELDING HANDBOOK, (CONTD. SEE "OTHER I NFORMATION")

========== Exposure Controls/Personal Protection ==========

Respiratory Protection:USE RESPIRABLE FUME RESPIRATOR OR AIR SUPPLIED RESPIRATOR WHEN WELDING, BRAZING OR SOLDERING IN CONFINED SPACE OR

WHERE LOCAL EXHAUST OR VENTILATION DOES NOT KEEP EXPOSURE BELOW PEL, TLV, OR STEL.
Ventilation:USE ENOUGH VENTILATION, LOCAL EXHAUST AT THE ARC (OR FLAME) TO KEEP FUMES AND GASES BELOW PEL'S, TLV, OR STEL'S IN WORKERS BREATHING ZONE AND IN GENERAL AREA.
Protective Gloves:WEAR WELDERS GLOVES AND PROTECTIVE FACE SHIELD.
Eye Protection:WEAR HELMET OR USE FACE SHIELD WITH FILTER LENS OF APPROPRIATE SHADE NUMBER.
Other Protective Equipment:WEAR HEAD AND BODY PROTECTION WHICH HEL
P
PREVENT INJURY FROM RADIATION, SPARKS, FLAME AND ELECTRICAL SHOCK. WEAR ARM PROTECTORS, APRONS, HATS, SHOULDER PROTECTION, AS WELL AS DARK SUBSTANTIAL CLOTHING.
Work Hygienic Practices:FOR EYE PROTECTION INFORMATION SEE ANSI/ASC Z49.1 SECTION 4.2. PROVIDE PROTECTIVE SCREENS AND FLASH GOGGLES, IF NECESSARY,TO SHIELD OTHERS. TRAIN EMPLOYEE TO KEEP HIS HEAD OUT OF THE FUMES.
Supplemental Safety and Health
TRAIN THE EMPLOYEE NOT TO TOUCH LIVE ELECTRICAL PARTS AND TO INSULAT
E
HIMSELF FROM WORK AND GROUND. WELDERS SHOULD NOT WEAR SHORT SLEEVE SHIRTS, SHORT PANTS OR CUTOFFS. TRAIN THE EMPLOYEE TO KEEP HIS HEAD OUT OF THE FUMES. SEE ANSI/ASC Z49.1 SECTION 5.

========== Physical/Chemical Properties ==========

HCC:N1
Spec Gravity:METAL RODS.
Solubility in Water:NOT SOLUBLE.
Appearance and Odor:SOLID WIRE OR ROD, GREY TO SILVER IN COLOR.

========== Stability and Reactivity Data ==========

AVOID CONTACT WITH MINERAL ACIDS

AND OXIDIZING AGENTS WHICH MAY
GENERATE HYDROGEN GAS. THE EVOLUTION OF HYDROGEN MAY BE AN EXPLOSION HAZARD

Stability Condition to Avoid:SEE ECOLOGICAL FIELD FOR INFORMATION ON HAZARDOUS DECOMPOSITION PRODUCTS AND EXPOSURE LIMTS.

Hazardous Decomposition Products:VARIOUS ELEMENTAL METALS AND METAL OXIDES MAY BE GENERATED FROM MELTING OR CROSS HANDLING OPERATIONS. REFER TO PERMISSABLE EXPOSURE LIMITS.

========== Toxicological Information ==========

Toxicolo
gical Information:(CONTD. FROM CARGINOGENICITY) COMPOUNDS HAVE NOT BEEN DETERMINED AND A DIRECT ASSOCIATION BETWEEN NICKEL IN WELDING FUME AND CANCER HAS NOT BEEN DEMONSTRATED. SOME COMPOUNDS OF HEXAVALENT CHROMIUM HAV E BEEN REPORTED TO BE CARCINOGENIC. NO CLEAR ASSOCIATION HAS BEEN ESTABLISHED BETWEEN CHROMIUM IN WELDING FUME AND THE DEVELOPMENT OF CANCER. EXPOSURE LIMITS SHOULD BE MAINTAINED BELOW ESTABLISHED SAF E LEVELS.

========== Ecological Information ==========

Ecological:EXPOSURE: WELDING FUMES AND GASES CANNOT BE CLASSIFIED SIMPLY. COMPOSITION AND QUALITY OF BOTH ARE DEPENDENT UPON METAL BEING WELDED, PROCESS, PROCEDURE, ELECTRODES USED. OTHER CONDITIONS THAT INFLUEN CE COMPOSITION AND QUANTITY OF FUMES ANDGASES TO WHICH WORKERS MAY BE EXPOSED INCLUDE: COATINGS ON METAL BEING WELDED (PAINT, PLATING, GALVANIZING), NUMBER OF WELDERS, VOLUME OF WORK AREA, QUALITY AN D AMOUNT OF VENTILATION. POSITION OF W
ELDER'S HEAD
WITH RESPECT TO FUME PLUME, PRESENCE OF CONTAMINANTS IN ATMOSPHERE (CHLORINATED HYDROCARBON VAPORS FROM CLEANING AND (CONTD. SEE SARA TITLE I I I)

========== Disposal Considerations ==========

Waste Disposal Methods:PREVENT WASTE FROM CONTAMINATING SURROUNDING ENVIRONMENT. DISCARD ANY PRODUCT, RESIDUE, DISPOSABLE CONTAINER OR LINER IN AN ENVIRONMENTALLY ACCEPTABLE MANNER, IN FULL COMPLIANCE WITH FEDERAL, STATE AN D LOCAL REGULATIONS.

========== Regulatory Information ==========

SARA Title III Information:(CONTD. FROM ECOLOGICAL) 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 ELEC TRODE. FUME AND GAS DECOMPOSITION PRODUCTS, AND NOT THE INGREDIENTS IN THE ELECTRODE, ARE IMPORTANT. THE CONCENTRATION OF A GIVEN FUME OR GAS COMPONENT MAY DECREASE OR INCREASE
BY MANY TIMES THE ORIGI NAL CONCENTRATION IN THE ELECTRODE. ALSO, NEW COMPOUNDS NOT IN THE ELECTRODES MAY FORM. DECOMPOSITION PRODUCTS OF NORMAL OPERATION INCLUDE THOSE ORIGINATING FROM (CONTD. SEE FEDERAL REGULATORY)
Federal Regulatory Information:(CONTD. FROM SARA TITLE I I I) THE VOLATILIZATION, REACTION OR OXIDATION OF THE MATERIALS SHOWN IN INGREDIENTS, PLUS THOSE FROM THE BASE METAL AND COATING, ETC., AS NOTED ABOVE. MOST WELDING, EVENWITH PRIMITIVE VENTILATION, DO
ES
NOT PRODUCE EXPOSURES INSIDE THE WELDING HELMET ABOVE 5 MG/M3. THAT WHICH DOES, SHOULD BE CONTROLLED.

========== Other Information ==========

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