

WESTAIM AEROSPACE PRODUCTION -- NICKEL GRAPHITE POWDER -- 3439-01-103-6352

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

Product ID:NICKEL GRAPHITE POWDER  
MSDS Date:02/26/1999  
FSC:3439  
NIIN:01-103-6352  
Status Code:A  
MSDS Number: CKDMM  
=== Responsible Party ===  
Company Name:WESTAIM AEROSPACE PRODUCTION  
Address:10101-114TH ST- FORT SASKATCHEWAN  
City:ALBERTA, CANADA, T8L 3W4  
Country:CA  
Info Phone Num:780-992-7444  
Emergency Phone Num:403-992-7444  
CAGE:36717  
=== Contractor Identification ===  
Company Name:PERFORMANCE ALLOYS  
Address:1212 HIGHLAND AVENUE  
Box:City:MANHATTAN BEACH  
State:CA  
ZIP:90266  
Country:US  
Phone:310-546-8459  
Contract Num:SP0490-99-M-W168  
CAGE:0A4S7  
Company Name:WESTAIM AEROSPACE PRODUCTION  
Address:10101-114TH ST- FORT SASKATCHEWAN  
Box:City:ALBERTA, CANADA, T8L 3W4  
Country:CA  
Phone:780-992-7444  
CAGE:36717

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

Ingred Nam

e:NICKEL POWDER  
CAS:7440-02-0  
RTECS #:QR5950000  
Minumum % Wt:60.  
Maxumum % Wt:85.  
OSHA PEL:1 MG/M3  
ACGIH TLV:1.5 MG/M3

Ingred Name:GRAPHITE  
CAS:7782-42-5  
RTECS #:MD9659600  
Minumum % Wt:15.  
Maxumum % Wt:45.  
OSHA PEL:SEE TABLE Z-3  
ACGIH TLV:2 MG/M3

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

LD50 LC50 Mixture:LD50=250 MG/KG (RAT INTRAPERITONEAL)

Routes of Entry: Inhalation:YES Skin:UNKNOWN Ingestion:YES

Reports of Carcinogenicity:NTP:UNKNOWN IARC:YES

Health Hazards

Acute and Chronic:EYES: IRRITATION DUE TO MECHANICAL

ABRASION. SKIN: IRRITATION ON PROLONGED OR REPEATED CONTACT. SKIN SENSITIZATION. INGESTION: GI TRACT IRRITATION WITH BURNING AND DIARRHEA. CHRONIC: CHRONIC INHALATION OF NICKEL MAY PRODUCE COUGHING, SHORTNESS OF BREATH, INCREASED SUSCEPTIBILITY TO PULMONARY EDEMA, INTERSTITIAL FIBROSIS. REPEATED INHALATION OF IMPURE GRAPHITE FOR YEARS MAY CAUSE GRAPHITOSIS, A PROGRESSIVE, DISABLING PNEUMONCONIOSIS. EXPOSED PERSON

MAY BE ASYMPTOMATIC FOR

YEARS AND SUDDENLY BECOME DISABLED OR MAY DEVELOP HEADACHE, COUGH DYSPNEA, CHEST TIGHTNESS, PAIN, DEPRESSION, DECREASED APPETITE, BLACK SPUTUM AND DIGITAL CLUBBING.

Explanation of Carcinogenicity:METALLIC NICKEL AND CERTAIN NICKEL

ALLOYS ARE CLASSIFIED BY IARC AS GROUP 2B, POSSIBLY CARCINOGENIC TO HUMANS, BASED ON INADEQUATE EVIDENCE OF EFFECTS TO HUMANS.

EPIDEMIOLOGY STUDIES HAVE DEMONSTRATED AN INCREASED RISK OF NASAL, LUNG, AND POSSIBLE RIS

K OF LARYNGEAL CANCER, THE MOST LIKELY

CAUSATIVE AGENTS WERE ALLOYS OF NICKEL AND NOT METALLIC NICKEL ITSELF.

Effects of Overexposure:EYES: IRRITATION, SKIN: IRRITATION. SKIN

SENSITIZATION: REDNESS, INFLAMMATION, SKIN ERUPTIONS. RECOVERY USUALLY OCCURS WITHIN A WEEK OF DISCONTINUING EXPOSURE; HOWEVER, IN SOME CASES, SEVERAL WEEKS MAY BE NEEDED. ONCE ACQUIRED, NICKEL SENSITIVITY USUALLY PERSISTS. INGESTION: IRRITATION OF GASTRO-INTESTINAL TRACT, CHARACTERIZED BY BURN

ING AND DIARRHEA.

INHALATION: PERSONS EXPOSED TO IMPURE GRAPHITE FOR YEARS MAY BE ASYMPTOMATIC FOR YEARS AND THEN SUDDENLY BECOME DISABLED OR MAY DEVELOP HEADACHE, COUGH DYSPNEA TIGHTNESS IN THE CHEST, PAIN, DEPRESSION, DECREASED APPETITE, BLACK SPUTUM AND DIGITAL CLUBBING.

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

First Aid:EYE CONTACT: IMMEDIATELY FLUSH WITH RUNNING WATER FOR AT LEAST 15 MINUTES, KEEPING EYELIDS OPEN. GET MEDICAL ATTENTION IF

IRRITATION PERSISTS. SKIN CONTACT: WASH CONTAMINATED AREA WITH SOAP AND WATER. AVOID PROLONGED OR REPEATED CONTACT WITH SKIN. WASH AFTER HANDLING. REMOVE CONTAMINATED CLOTHING AND WASH BEFORE REUSE. INHALATION: ALLOW VICTIM TO REST IN A WELL VENTILATED AREA. SEEK IMMEDIATE MEDICAL ATTENTION. INGESTION: NO ADDITIONAL INFORMATION.

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

Flash Point:NON-FLAMMABLE

Extinguishing Media:DRY CHEMICAL, ADDITIONAL GRAPHITE, DRY EARTH. FOR

SURROUNDING FIRE: WATER FOG, STANDARD FOAM, CARBON DIOXIDE, DRY CHEMICAL.

Fire Fighting Procedures:MOVE CONTAINERS OF THE PRODUCT FROM THE AREA IF IT IS SAFE TO DO SO. DIKE FIRE CONTROL WATER FOR LATER DISPOSAL.

Unusual Fire/Explosion Hazard:THIS PRODUCT IS EXPECTED NOT TO EXPLODE IN RESPONSE TO MECHANICAL IMPACT, BUT DUST-AIR MIXTURES MAY BE EXPLOSIVE IN CONTACT WITH A SOURCE OF IGNITION, SUCH AS A SPARK.

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

Spill Release Procedures:SMALL SPILLS SHOULD BE SWEEPED UP USING EITHER WET OR DRY METHODS. CLEANUP PERSONNEL SHOULD BE PROTECTED AGAINST DUST INHALATION AND DERMAL CONTACT. WEAR ADEQUATE PERSONAL PROTECTIVE EQUIPMENT AND AVOID DUST GENERATION.

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

Handling and Storage Precautions:CLEAN UP PERSONNEL MUST USE THE PROTECTIVE CLOTHING AND EQUIPMENT REQUIRED TO AVOID EXPOSURE. SA

FETY SHOWERS AND EYE WASH STATIONS SHOULD BE PROVIDED IN THE WORK AREA. KEEP CONTAINER TIGHTLY CLOSED. STORE CONTAINERS IN A COOL WELL-VENTILATED AREA AWAY FROM MINERAL ACIDS AND INCOMPATIBLE MATERIALS.

Other Precautions:PROTECT CONTAINERS FROM PHYSICIAL DAMAGE.

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

Respiratory Protection:USE SUPPLIED AIR RESPIRATOR OR SCBA FOR EMERGENCIES, FIRES, EXPOSURES EXCEEDING 1000 TIMES LIMITS. IF AIRBORNE CONC. EXCEE

DS LIMIT, USE AIR-PURIFYING RESPIRATOR. IF 50 TIMES LIMIT, USE FULL FACEPIECE RESPIRATOR. IF DUST, USE CARTRIDGE WITH DUST FILTER. FOR FUMES, USE CARTRIDGE WITH HEPA FILTER OR ONE APPROVED FOR FUME. USE NIOSH OR NIOSH/MSHA RESPIRATORS.

Ventilation:LOCAL EXHAUST FOR PRODUCT USE. PROVIDE ADEQUATE GENERAL VENTILATION WITH AN EQUAL VOLUME OF MAKE UP AIR.

Protective Gloves:GLOVES THAT ARE IMPERMEABLE TO DUST AND RESISTANT TO ABRASION.

Eye Protection:INDUSTRIAL SAFETY GLASSES WITH SIDE SHIELDS OR CHEMICAL GOGGLES.

Other Protective Equipment:THE USE OF CONTACT LENSES WHEN HANDLING THIS PRODUCT IS DISCOURAGED. LONG SLEEVED SHIRTS AND LONG LEGGED PANTS. BOOTS. SAFETY SHOWER AND EYE WASH STATION IN WORK AREA.

Work Hygienic Practices:LAUNDER CONTAMINATED CLOTHING BEFORE REUSE.

Supplemental Safety and Health

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

HCC:T6

Boiling Pt:=2760.C, 5000.F

B.P. Text:NICKEL

Melt/Freeze Pt:=1455.C, #####F

M.P/F

.P Text:NICKEL

Vapor Pres:0 MM OF HG (@ 20C)

Spec Gravity:4.09-6.18(WATER=1)

Solubility in Water:INSOLUBLE

Appearance and Odor:SOLID,SILVERY GREY METALLIC POWDER (DARK), ODORLESS.

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

Stability Indicator/Materials to Avoid:YES

MOISTURE, STRONG OXIDIZING AGENTS (ESPECIALLY WHEN HEATED). CHLORINATED PARAFFINS (ALKANES), AMMONIUM NITRATE, HYDRAZINE, PERFORMIC ACID, PHOSPHOROUS, SELENIUM, SULPHUR, AND TITANIUM.,

Hazardous

Decomposition Products: CONTACT BETWEEN NICKEL AND MINERAL ACIDS LIBERATES HYDROGEN GAS WHICH CAN FORM EXPLOSIVE MIXTURES WITH AIR.

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

Toxicological Information: TLV (ACGIH 1996) ACGIH TLV-TWA (1996) 1.5 MG/M<sup>3</sup> FOR NICKEL METAL AND INSOLUBLE COMPOUNDS OF NI. TOXICOLOGICALLY SYNERGISTIC PRODUCTS: NONE KNOWN. TERATOGENIC EFFECTS: THERE ARE NO REPORTS THAT EXPOSURE TO NICKEL HAS RESULTED IN BIRTH DEFECTS IN HUMANS.

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

Ecological: EXCOTOXICITY: NICKEL FORMS MANY WATER SOLUBLE COMPOUNDS. AT LOW LEVELS (APPROXIMATELY 0.05 MG/LITER) IN WATER. NICKEL STIMULATES THE GROWTH OF ALGAE WHILE AT HIGHER CONCENTRATIONS (>0.05 MG/L) IT IS GENERALLY TOXIC. NICKEL HAS BOTH AN ACUTE AND A CHRONIC EFFECT ON FISH AND AQUATIC INVERTEBRATES. STUDIES OF NICKEL IN THE AQUATIC FOOD CHAIN SHOWS DECREASING NICKEL CONCENTRATIONS AT INCREASING LEVELS IN THE FOOD CHAIN INDICATING THAT THERE IS NO BIOMAGNIFICATION OF NICKEL.

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

Waste Disposal Methods: DISPOSE OF WASTE ACCORDING TO LOCAL, PROVINCIAL, OR FEDERAL ENVIRONMENTAL REGULATIONS OR CONSULT YOUR ENVIRONMENTAL ADVISOR. RECYCLE TO PROCESS WHENEVER POSSIBLE.

===== MSDS Transport Information =====

Transport Information: NOT REGULATED UNDER TDG (CANADA). AIR TRANSPORT (ICAO/IATA): NOT REGULATED. MARINE TRANSPORT (IMDG CODE) : NOT REGULATED. WHMIS CLASS D-28: MATERIAL CAUSING OTHER TOXIC EFFECTS (TOXIC). FEDERAL AND PROVINCIAL REGULATIONS: CEPA DSL: NICKEL GRAPHIC POWDER.

Disclaimer (provided with this information by the compiling agencies): This information is formulated for use by elements of the Department of Defense. The United States of America in no manner whatsoever, expressly or implied, warrants this information to be accurate and

disclaims all liability for its use. Any person utilizing this document should seek competent professional advice to verify and assume responsibility for the suitability of this information to their particular situation.