



MATERIAL SAFETY DATA SHEET

BEGIN MSDS 00224279

SECTION 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

SUBSTANCE: GP

TRADE NAMES/SYNONYMS:

GRADE POWDER; POWDER FOR CEMENTED CARBIDE PRODUCT WITH COBALT/NICKEL BINDER;
00224279

CREATION DATE: Nov 19 1999

REVISION DATE: Dec 20 1999

SECTION 2 COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: TUNGSTEN CARBIDE

CAS NUMBER: 12070-12-1

EC NUMBER (EINECS): 235-123-0

PERCENTAGE: 60-96

COMPONENT: COBALT

CAS NUMBER: 7440-48-4

EC NUMBER (EINECS): 231-158-0

PERCENTAGE: 0-30

COMPONENT: NICKEL

CAS NUMBER: 7440-02-0

EC NUMBER (EINECS): 231-111-4

PERCENTAGE: 0-20

COMPONENT: TITANIUM CARBIDE

CAS NUMBER: 12070-08-5

EC NUMBER (EINECS): 235-120-4

PERCENTAGE: 0-15

COMPONENT: TANTALUM CARBIDE

CAS NUMBER: 12070-06-3

EC NUMBER (EINECS): 235-118-3

PERCENTAGE: 0-15

COMPONENT: TITANIUM CARBO-NITRIDE

CAS NUMBER: 12627-33-7

EC NUMBER: Not assigned.

PERCENTAGE: 0-10



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COMPONENT: NICKEL CARBIDE
CAS NUMBER: 12710-36-0
EC NUMBER: Not assigned.
PERCENTAGE: 0-10

COMPONENT: CHROMIUM CARBIDE
CAS NUMBER: 12012-35-0
EC NUMBER (EINECS): 234-576-1
PERCENTAGE: 0-5

COMPONENT: VANADIUM CARBIDE
CAS NUMBER: 12070-10-9
EC NUMBER (EINECS): 235-122-5
PERCENTAGE: 0-5

COMPONENT: HIGHLY REFINED MINERAL OILS
CAS NUMBER: 8012-95-1
EC NUMBER (EINECS): 232-384-2
PERCENTAGE: 0-3

COMPONENT: LIGHT MINERAL OIL
CAS NUMBER: 8042-47-5
EC NUMBER (EINECS): 232-455-8
PERCENTAGE: 0-3

COMPONENT: PENTAOXYLETHYLENE NONYLPHENOL ETHER
CAS NUMBER: Not assigned.
EC NUMBER: Not assigned.
PERCENTAGE: 0-1

SECTION 3 HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=2 FIRE=3 REACTIVITY=0

EC CLASSIFICATION (CALCULATED): Not determined.

EMERGENCY OVERVIEW:

PHYSICAL FORM: powder

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, allergic reactions, cancer hazard (in humans)

PHYSICAL HAZARDS: Negligible fire and explosion hazard in bulk form. Dust/air mixtures may ignite or explode.

POTENTIAL HEALTH EFFECTS:

INHALATION:

SHORT TERM EXPOSURE: irritation, allergic reactions, difficulty breathing, asthma, headache, dizziness, tumors

LONG TERM EXPOSURE: same as effects reported in short term exposure. lack of sense of smell, nausea, vomiting, digestive disorders, chest pain, difficulty breathing, asthma, irregular heartbeat, headache, lung damage, paralysis, reproductive effects, effects on the brain, cancer



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SKIN CONTACT:

SHORT TERM EXPOSURE: irritation, allergic reactions, rash, itching

LONG TERM EXPOSURE: same as effects reported in short term exposure, skin disorders

EYE CONTACT:

SHORT TERM EXPOSURE: irritation

LONG TERM EXPOSURE: same as effects reported in short term exposure

INGESTION:

SHORT TERM EXPOSURE: vomiting, digestive disorders, diarrhea, difficulty breathing, headache, dizziness

LONG TERM EXPOSURE: rash, ringing in the ears, digestive disorders, difficulty breathing, hearing loss, bluish skin color

CARCINOGEN STATUS:

OSHA: N

NTP: Y

IARC: Y

SECTION 4 FIRST AID MEASURES

INHALATION: Remove from exposure immediately. Use a bag valve mask or similar device to perform artificial respiration (rescue breathing) if needed. Get medical attention.

SKIN CONTACT: Remove contaminated clothing, jewelry, and shoes immediately. Wash with soap or mild detergent and large amounts of water until no evidence of chemical remains (at least 15-20 minutes). Get medical attention, if needed.

EYE CONTACT: Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains. Get medical attention immediately.

INGESTION: If vomiting occurs, keep head lower than hips to help prevent aspiration. Get medical attention, if needed.

SECTION 5 FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Negligible fire and explosion hazard in bulk form. Dust/air mixtures may ignite or explode.

EXTINGUISHING MEDIA: dolomite, dry powder for metal fires, sand, graphite, soda ash, sodium chloride

Do not get water directly on material.

FIRE FIGHTING: Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after

fire is out. If this is impossible then take the following precautions: Keep



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unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products.

SECTION 6 ACCIDENTAL RELEASE MEASURES

WATER RELEASE:

Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers.

OCCUPATIONAL RELEASE:

Avoid heat, flames, sparks and other sources of ignition. Do not touch spilled material. Small spills: Collect spilled material in appropriate container for disposal. Move containers away from spill to a safe area. Large spills: Wet down area with water. Dike for later disposal. Remove sources of ignition. Keep unnecessary people away, isolate hazard area and deny entry. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

SECTION 7 HANDLING AND STORAGE

Store and handle in accordance with all current regulations and standards. Avoid generating dust. See original container for storage recommendations. Keep separated from incompatible substances.

Use methods to minimize dust.

SECTION 8 EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:

TUNGSTEN CARBIDE:

TUNGSTEN AND INSOLUBLE COMPOUNDS (as W):

- 5 mg/m³ OSHA TWA (vacated by 58 FR 35338, June 30, 1993)
- 10 mg/m³ OSHA STEL (vacated by 58 FR 35338, June 30, 1993)
- 5 mg/m³ ACGIH TWA
- 10 mg/m³ ACGIH STEL
- 5 mg/m³ NIOSH recommended TWA 10 hour(s)
- 10 mg/m³ NIOSH recommended STEL

COBALT:

COBALT METAL, DUST, AND FUME (as Co):

- 0.1 mg/m³ OSHA TWA
- 0.05 mg/m³ OSHA TWA (vacated by 58 FR 35338, June 30, 1993)
- 0.02 mg/m³ ACGIH TWA
- 0.05 mg/m³ NIOSH recommended TWA 10 hour(s)

NICKEL:



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NICKEL, METAL AND INSOLUBLE COMPOUNDS (as Ni):

- 1 mg/m³ OSHA TWA
- 1.5 mg/m³ ACGIH TWA (Inhalable fraction) (metal)
- 0.2 mg/m³ ACGIH TWA (Inhalable fraction) (insoluble compounds)
- 0.015 mg/m³ NIOSH recommended TWA

NICKEL CARBIDE:

NICKEL, SOLUBLE COMPOUNDS (as Ni):

- 1 mg/m³ OSHA TWA
- 0.1 mg/m³ OSHA TWA (vacated by 58 FR 35338, June 30, 1993)
- 0.1 mg/m³ ACGIH TWA (Inhalable fraction)
- 0.015 mg/m³ NIOSH recommended TWA 10 hour(s)

CHROMIUM CARBIDE:

CHROMIUM, CHROMIC AND CHROMOUS COMPOUNDS (as Cr):

- 0.5 mg/m³ OSHA TWA (soluble salts)
- 1 mg/m³ OSHA TWA (insoluble salts)
- 0.5 mg/m³ ACGIH TWA
- 0.5 mg/m³ NIOSH recommended TWA 10 hour(s)

VANADIUM CARBIDE:

- 1 mg/m³ NIOSH recommended TWA 10 hour(s)
- 3 mg/m³ NIOSH recommended STEL

HIGHLY REFINED MINERAL OILS:

MINERAL OIL MIST:

- 5 mg/m³ OSHA TWA
- 5 mg/m³ ACGIH TWA (Notice of Intended Changes 1993-1994)
- 10 mg/m³ ACGIH STEL (Notice of Intended Changes 1993-1994)
- 5 mg/m³ NIOSH recommended TWA
- 10 mg/m³ NIOSH recommended STEL

VENTILATION: Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Wear appropriate chemical resistant clothing.

GLOVES: Wear appropriate chemical resistant gloves.

RESPIRATOR: Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.

Any dust, mist, and fume respirator.

Any air-purifying respirator with a high-efficiency particulate filter.

Any powered, air-purifying respirator with a dust, mist, and fume filter.

Any powered, air-purifying respirator with a high-efficiency particulate filter.

For Unknown Concentrations or Immediately Dangerous to Life or Health -

Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.

Any self-contained breathing apparatus with a full facepiece.



SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: solid
PHYSICAL FORM: powder
ODOR: Not available
BOILING POINT: Not applicable
MELTING POINT: Not available
VAPOR PRESSURE: Not applicable
VAPOR DENSITY: Not applicable
SPECIFIC GRAVITY: Not available
WATER SOLUBILITY: Not available
PH: Not applicable
VOLATILITY: Not applicable
ODOR THRESHOLD: Not available
EVAPORATION RATE: Not applicable
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure.

CONDITIONS TO AVOID: Avoid generating dust. Avoid heat, flames, sparks and other sources of ignition.

INCOMPATIBILITIES: No data available.

HAZARDOUS DECOMPOSITION:
Thermal decomposition products: miscellaneous decomposition products

POLYMERIZATION: Will not polymerize.

SECTION 11 TOXICOLOGICAL INFORMATION

TUNGSTEN CARBIDE:
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: respiratory disorders
MUTAGENIC DATA: Available.

COBALT:
TOXICITY DATA:

6171 mg/kg oral-rat LD50

CARCINOGEN STATUS: IARC: Human Inadequate Evidence, Animal Sufficient Evidence, Group 2B; ACGIH: A3 -Animal Carcinogen (Cobalt and cobalt compounds)

LOCAL EFFECTS:

Irritant: inhalation, skin, eye

ACUTE TOXICITY LEVEL:

Slightly Toxic: ingestion

TARGET ORGANS: immune system (sensitizer)

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: respiratory disorders, skin disorders and allergies



TUMORIGENIC DATA: Available.

MUTAGENIC DATA: Available.

ADDITIONAL DATA: Alcohol may enhance the toxic effects.

NICKEL:

CARCINOGEN STATUS: NTP: Anticipated Human Carcinogen; **IARC:** Human Inadequate Evidence, Animal Sufficient Evidence, Group 2B (Nickel); **ACGIH:** A5 -Not Suspected as a Human Carcinogen metal

LOCAL EFFECTS:

Irritant: inhalation, skin

ACUTE TOXICITY LEVEL: Insufficient Data.

TARGET ORGANS: immune system (sensitizer)

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: immune system disorders or allergies, respiratory disorders, skin disorders and allergies

TUMORIGENIC DATA: Available.

MUTAGENIC DATA: Available.

REPRODUCTIVE EFFECTS DATA: Available.

TITANIUM CARBIDE:

ADDITIONAL DATA: May cross the placenta.

NICKEL CARBIDE:

CARCINOGEN STATUS: IARC: Human Sufficient Evidence, Animal Sufficient Evidence, Group 1 (Nickel and nickel compounds); **ACGIH:** A4 -Not Classifiable as a Human Carcinogen soluble compounds; **EC:** Category 1

TARGET ORGANS: immune system (sensitizer)

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: immune system disorders or allergies, respiratory disorders, skin disorders and allergies

ADDITIONAL DATA: May cross the placenta. May be excreted in breast milk.

CHROMIUM CARBIDE:

CARCINOGEN STATUS: IARC: Human Inadequate Evidence, Animal Inadequate Evidence, Group 3 (Trivalent chromium compounds)

VANADIUM CARBIDE:

LOCAL EFFECTS:

Irritant: inhalation, skin, eye

HIGHLY REFINED MINERAL OILS:

IRRITATION DATA:

100 mg/24 hour(s) skin-rabbit mild; 500 mg eyes-rabbit moderate; 100 mg/24 hour(s) skin-guinea pig mild

TOXICITY DATA:

22 gm/kg oral-mouse LD50

CARCINOGEN STATUS: IARC: Human Inadequate Evidence, Animal Inadequate Evidence, Group 3 (Highly refined mineral oils)

LOCAL EFFECTS:

Irritant: eye

ACUTE TOXICITY LEVEL:

Relatively Non-toxic: ingestion

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: respiratory disorders, skin disorders and allergies

TUMORIGENIC DATA: Available.

LIGHT MINERAL OIL:

CARCINOGEN STATUS: IARC: Human Inadequate Evidence, Animal Inadequate Evidence, Group 3 (Highly refined mineral oils)



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SECTION 12 ECOLOGICAL INFORMATION

Not available

SECTION 13 DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations.

SECTION 14 TRANSPORT INFORMATION

No classification assigned.

SECTION 15 REGULATORY INFORMATION

U.S. REGULATIONS:
TSCA INVENTORY STATUS: N

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CERCLA SECTION 103 (40CFR302.4): Y

NICKEL: 100 LBS RQ

SARA SECTION 302 (40CFR355.30): N

SARA SECTION 304 (40CFR355.40): N

SARA SECTION 313 (40CFR372.65): Y

Cobalt

NICKEL, METAL AND INSOLUBLE COMPOUNDS (as Ni)

NICKEL, SOLUBLE COMPOUNDS (as Ni)

CHROMIUM, CHROMIC AND CHROMOUS COMPOUNDS (as Cr)

SARA HAZARD CATEGORIES, SARA SECTIONS 311/312 (40CFR370.21):

ACUTE: Y

CHRONIC: Y

FIRE: Y

REACTIVE: N

SUDDEN RELEASE: N

OSHA PROCESS SAFETY (29CFR1910.119): N

STATE REGULATIONS:

California Proposition 65: Y

Known to the state of California to cause the following:

Cobalt

Cancer (Jul 01, 1992)

NICKEL, METAL AND INSOLUBLE COMPOUNDS (as Ni)

Cancer (Oct 01, 1989)

NICKEL

Cancer (Oct 01, 1987)

(nickel refinery particulates from the pyrometallurgical process)

NICKEL, SOLUBLE COMPOUNDS (as Ni) Cancer (Oct 01, 1989)

EUROPEAN REGULATIONS:

EC NUMBER: Not assigned.



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SECTION 16 OTHER INFORMATION

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