

August 27, 2008

OSHA Compliance Manager



Subject: Material Safety Data Sheet for CalValves Reamers

Dear Sir:

In accordance with the Occupational Safety and Health Standard 1910.1200 – Hazard Communication, Cal Grinding, Inc. is providing you with a Material Safety Data Sheet for our CalValves® Reamers.

Please note Section VI – Health Hazard Data of the MSDS points out that during routine operation and use, cemented carbide products do not present inhalation, ingestion, skin contact or other chemical hazards. However, non-routine operations such as grinding, cutting and brazing of cemented products (which typically occur during sharpening operations) may release dust or fumes, which may present health hazards if the exposure limits described in Section II - Hazardous Ingredients are exceeded. The health hazards described in the MSDS relate to these non-routine operations, as well as exposure to components of powder.

Should you have any questions concerning this information, do not hesitate to contact me.

Sincerely:

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Cal Grinding, Inc.
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CALVALVES® CARBIDE PRODUCTS MATERIAL SAFETY DATA SHEET

SECTION I

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CHEMICAL NAME: CEMENTED CARBIDE PRODUCT WITH COBALT BINDER;
CEMENTED CARBIDE PRODUCT BRAZED TOOLS USING BRAZING FILLING
METAL; CEMENTED CARBIDE PRODUCT TITANIUM NITRIDE COATED.

TRADENAME AND SYNONYMS: ALL CALVALVES® CARBIDE, CEMENTED CARBIDE GRADES,
BRAZED AND COATED TOOLS.

CHEMICAL FAMILY: REFRACTORY METAL CARBIDE.

SECTION II – HAZARDOUS INGREDIENTS

CAL VALVES® CARBIDES PRODUCTS MAY CONTAIN SOME OR ALL OF THE FOLLOWING TOXIC
CHEMICALS.

MATERIAL	% BY WEIGHT	OSHA/PEL	ACGIH/TLV
COBALT (7440-48-4)	3 - 30%	0.1 mg/m ³ (d)	0.05 mg/m ³
VANADIUM CARBIDE (12070-10-9)	0 - 0.05 %	0.05 mg/m ³ (a)	0.05 mg/m ³
NICKEL (7440-02-2)	18.5 %	1 mg/m ³	1 mg/m ³
TUNGSTEN CARBIDE (12070-12-1)	41 - 97 % (c)	5 mg/m ³	5 mg/m ³
TANTALUM CARBIDE (12070-06-3)	0 - 52 %	5 mg/m ³	5 mg/m ³
TITANIUM CARBIDE (12070-08-9)	0 - 15 %	10 mg/m ³	10 mg/m ³
CHROMIUM CARBIDE (12012-35-0)	0 - 5.1%	1 mg/m ³	5 mg/m ³
CHROMIUM (+3) (7440-47-3)	0 - 4.5 %	1 mg/m ³	0.5 mg/m ³
SILVER (7440-22-4)	50.0 % (b)	0.01 mg/m ³	0.1 mg/m ³
CADMIUM DUST (7440-43-9)	16.0 % (b)	0.2 mg/m ³	0.05 mg/m ³
COPPER DUST (7440-50-8)	15.5 % (b)	1 mg/m ³	1 mg/m ³
ZINC DUST (7440-66-6)	15.5 % (b)	5 mg/m ³	5 mg/m ³
NICKEL DUST (7440-02-0)	3.0 % (b)	1 mg/m ³	1 mg/m ³
TITANIUM NITRIDE COATING (25583-20-4)	0 - 0.5 %	10 mg/m ³	10 mg/m ³

- (a) CEILING LIMIT
- (b) BRAZING FILLER METAL ON BRAZED TOOLS
- (c) STEL (SHORT TERM EXPOSURE LIMIT) FOR TUNGSTEN 10 mg/m³
- (d) FINAL RULE TIME WEIGHTED AVERAGE LIMIT 0.05 mg/m³

SECTION III PHYSICAL & CHEMICAL CHARACTERISTICS

APPEARANCE & ODOR: DARK GRAY METAL / NO ODOR
SPECIFIC GRAVITY (H₂O = 1): 11.0 – 15.5

PERCENT VOLATILE BY VOLUME: 0
BOILING POINT: N/A
VAPOR PRESSURE: N/A
HOW BEST MONITORED: AIR SAMPLE

SOLUBILITY IN WATER: INSOLUBLE
EVAPORATION RATE: N/A
VAPOR DENSITY (AIR = 1): N/A

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SECTION IV FIRE & EXPLOSION HAZARD DATA
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FLASH POINT: N/A **TEST METHOD USED:** - **FLAMMABLE LIMITS:** N/A **LEL:** - **UEL:** -

HARD CEMENTED CARBIDE PRODUCT IS NOT A FIRE HAZARD. TUNGSTEN CARBIDE PRODUCT POWDER AND DUST GENERATED IN HARD METAL GRINDING OPERATIONS IS EXPECTED TO BE A FIRE AND EXPLOSIVE HAZARD IF ALLOWED TO ACCUMULATE AND SUBJECTED TO HIGH TEMPERATURES OR IGNITION SOURCES.

EXTINGUISHING MEDIA: FOR POWDER FIRES, USE ABC TYPE FIRE EXTINGUISHER, WATER, SODIUM CHLORIDE, SODE ASH, DRY SAND OR DRY DOLOMITE.

SPECIAL FIRE FIGHTING PROCEDURES: FOR A POWDER FIRE CONFINED TO A SMALL AREA, USE RESPIRATOR APPROVED FOR TOXIC DUSTS AND FUMES. FOR A LARGE FIRE, FIRE FIGHTERS SHOULD USE SELF CONTAINED BREATHING APPARATUS. AVOID BREATHING FUMES FROM BURNING MATERIALS.

UNUSUAL FIRE & EXPLOSION HAZARD: POWDER AND DUST MAY PRESENT A FIRE OR EXPLOSION HAZARD UNDER RARE FAVORING CONDITIONS OF PARTICLE SIZE, DISPERSION AND STRONG IGNITION SOURCE. HOWEVER THIS IS NOT EXPECTED TO BE A PROBLEM UNDER NORMAL CONDITIONS.

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SECTION V REACTIVITY DATA
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STABILITY: STABLE
INCOMPATIBILITY: CONTACT OF DUST WITH STRONG OXIDIZERS MAY CAUSE FIRE OR EXPLOSION.
HAZARDOUS DECOMPOSITION PRODUCTS: NONE
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: N/A
MATERIALS TO AVOID: STRONG ACIDS
CONDITIONS TO AVOID: N/A

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SECTION VI HEALTH HAZARD DATA
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NOTE: DURING ROUTINE OPERATION AND USE, CEMENTED CARBIDE PRODUCTS DO NOT PRESENT INHALATION, INGESTION, SKIN CONTACT OR OTHER CHEMICAL HAZARDS. HOWEVER, NON-ROUTINE OPERATIONS SUCH AS GRINDING, CUTTING AND BRAZING OF CEMENTED PRODUCTS MAY RELEASE DUST OR FUMES, WHICH MAY PRESENT HEALTH HAZARDS IF THE EXPOSURE LIMITS DESCRIBED IN SECTION II HAZARDOUS INGREDIENTS ARE EXCEEDED. THE HEALTH HAZARDS DESCRIBED BELOW RELATE TO THESE NON-ROUTINE OPERATIONS, AS WELL AS EXPOSURE TO COMPONENTS OF POWDER.

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SECTION VI HEALTH HAZARDS CONT.
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ROUTES OF EXPOSURE: GRINDING CEMENTED CARBIDE PRODUCT WITH COBALT OR NICKEL BINDER MAY PRODUCE POTENTIALLY HAZARDOUS DUST WHICH CAN BE INHALED, SWALLOWED OR COME INTO CONTACT WITH THE SKIN OR EYES.

EFFECTS OF OVEREXPOSURE:

INHALATION: DUST CAN CAUSE IRRITATION OF THE NOSE AND THROAT. IT ALSO HAS THE POTENTIAL FOR CAUSING TRANSIENT OR PERMANENT RESPIRATORY DISEASE INCLUDING OCCUPATIONAL.

INHALATION: ASTHMA AND INTERSTITIAL FIBROSIS IN A SMALL PERCENTAGE OF EXPOSED INDIVIDUALS. INTERSTITIAL FIBROSIS CAN LEAD TO PERMANENT DISABILITY OR DEATH. IF PULMONARY SYMPTOMS DEVELOP (IE. PRODUCTIVE COUGH, WHEEZING, SHORTNESS OF BREATH, CHEST TIGHTNESS AND WEIGHT LOSS) SEEK MEDICAL ATTENTION.

SKIN CONTACT: CAN CAUSE IRRITATION OF AN ALLERGIC RASH DUE TO COBALT SENSITIZATION.

EYE CONTACT: CAN CAUSE MILD PAIN OR IRRITATION.

INGESTION: REPORTS OUTSIDE THE CARBIDE INDUSTRY SUGGEST THAT INGESTION OF SIGNIFICANT AMOUNTS OF COBALT HAS THE POTENTIAL FOR CAUSING BLOOD, HEART AND OTHER ORGAN PROBLEMS.

EMERGENCY & FIRST AID PROCEDURES: APPLICABLE FOR DUST OR MIST.

INHALATION: IF SYMPTOMS OF PULMONARY INVOLVEMENT LISTED ABOVE DEVELOP, REMOVE FROM EXPOSURE AND SEEK MEDICAL ATTENTION.

SKIN CONTACT: IF IRRITATION OR RASH OCCURS, THOROUGHLY WASH AFFECTED AREA WITH SOAP AND WATER AND ISOLATE FROM EXPOSURE. IF IRRITATION PERSISTS, SEEK MEDICAL ATTENTION.

EYE CONTACT: IF IRRITATION OCCURS, FLUSH WITH COPIOUS AMOUNTS OF WATER. IF IRRITATION PERSISTS, SEEK MEDICAL ATTENTION.

INGESTION: IF SUBSTANTIAL QUANTITIES ARE SWALLOWED, DILUTE WITH A LARGE AMOUNT OF WATER, INDUCE VOMITING AND SEEK MEDICAL ATTENTION.

CARCINOGENIC ASSESSMENT (NTP ANNUAL REPORT, IARC MONOGRAPHS, OTHER):
NICKEL HAS BEEN IDENTIFIED AS A SUSPECTED CARCINOGEN BY NTP, IARC, AND OSHA. NONE OF THE OTHER COMPONENTS OF THIS MATERIAL HAVE BEEN IDENTIFIED AS KNOWN OR SUSPECTED CARCINOGENS BY NTP, IARC, AND OSHA.

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SECTION VII PRECAUTIONS FOR SAFE HANDLING & USE
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STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: VENTILATE AREA OF SPILL. CLEAN UP USING METHODS WHICH AVOID DUST GENERATION SUCH AS VACUUM (WITH APPROPRIATE FILTER TO PREVENT AIRBORNE DUST LEVELS WHICH EXCEED THE PEL OR TLV). WET DUST MOP OR WET CLEAN UP. IF AIRBORNE DUST IS GENERATED, USE AN APPROPRIATE NIOSH APPROVED RESPIRATOR.

WASTE DISPOSAL METHOD: DISPOSE OF IN ACCORDANCE WITH APPROPRAITE GOVERNMENT REGULATIONS. MAY BE SOLD AS SCRAP FOR RECLAIM.

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SECTION VIII SPECIAL PROTECTION INFORMATION
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RESPIRATORY PROTECTION: USE AN APPRPOPRIATE NIOSH/MSHA APPROVED RESPIRATOR, IF AIRBORNE DUST CONCENTRATRATIONS EXCEED THE APPROPRAITE PEL OR TLV. ALL APPROPRIATE REQUIREMENTS SET FORTH IN 29 CFR 1910.134 SHOULD BE MET.

VENTILATION: USE LOCAL EXHAUST VENTILATION WHICH IS ADEQUATE TO LIMIT PERSONAL EXPOSURE TO AIRBORNE DUST LEVELS WHICH DO NOT EXCEED THE PEL OR TLV. IF SUCH EQUIPMENT IS NOT AVAILABLE, USE RESPIRATORS AS SPECIFIED ABOVE.

PROTECTIVE GLOOVES: PROTECTIVE GLOVES OR BARRIER CREAM ARE RECOMMENDED WHEN CONTACT WITH POWDER, DUST OR GRINDER MIST IS LIKELY. PRIOR TO APPLYING THE BARRIER CREAM OR USE OF PROTECTIVE GLOOVES, WASH THOROUGHLY.

EYE PROTECTION: SAFETY GLASSES WITH SIDE SHIELDS OR GOGGLES ARE RECOMMENDED.

OTHER PROTECTIVE EQUIPMENT: N/A

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SECTION IX SPECIAL PRECAUTIONS
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PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: MAINTAIN GOOD HOUSEKEEPING PROCEDURES TO PREVENT DUST ACCUMULATION DURING GRINDING. AVOID DUST INHALATION AND DIRECT SKIN CONTACT WITH DUST.

OTHER PRECAUTIONS: CLEAN UP USING METHODS WHICH AVOID DUST GENERATION SUCH AS A VACUUM (WITH APPROPRIATE FILTERS TO PREVENT AIRBORNE DUST). WET DUST MOP OR WET CLEAN UP, IF AIRBORNE DUST IS GENERATED, USE AN APPROPRIATE NIOSH/MSHA APPROVED RESPIRATOR.

WASH HAND S THOROUGHLY AFTER HANDLING, BEFORE EATING OR SMOKING. WASH EXPOSED SKIN AT THE END OF THE WORK SHIFT. DO NOT SHAKE CLOTHING, RAGS OR OTHER ITEMS TO REMOVE DUST. DUST SHOULD BE REMOVED BY WASHING OR VACUUMING (WITH APPROPRIATE FILTERS) THE CLOTHING, RAGS, OR OTHER ITEMS. PERIODIC MEDICAL EXAMINATIONS ARE RECOMMENED FOR INDIVIDUALS REGULARLY EXPOSED TO CARBIDE DUST OR GRINDING MIST.

ALTHOUGH CAL VALVES® HAS ATTEMPTED TO PROVIDE CURRENT AND ACCURATE INFORMATION HEREIN, CAL VALVES® MAKES NO REPRESENTATIONS REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION AND ASSUMES NO LIABILITY FOR ANY LOSS, DAMAGE OR INJURY OF ANY KIND WHICH MAY RESULT FROM OR ARISE OUT OF THE USE OF OR RELIANCE ON THE INFORMATION BY ANY PERSON. THIS MSDS IS PROVIDED TO USERS AND SUPPLIERS OF CAL VALVES® ONLY TO MEET THE INFORMATIONAL REQUIREMENTS OF SECTION 1910.1200

IN CASE OF QUESTIONS, PLEASE CALL: RONALD BEAUCHAMP (906) 786-8749

COMPANY NAME: CAL GRINDING, INC. DBA CAL VALVES

TITLE OF INDIVIDUAL: ENGINEERING MANAGER

ISSUE DATE: APRIL 8, 2002

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