



MATERIAL SAFETY DATA SHEET

SECTION 1 IDENTITY

NAME OF PRODUCT:

Sunnen Metalbond Honing Stone: N, D, (Example N28001-P860) or NM, DM, XE11, XD11, XE05, XG91, XH10, XH28, XH99, XJ06, XJ87, XE07, XE01 & XE10 (Example K8-NM51) or TM, TMA, TMB, TMC, TMD, TMF, TMG, TMH, TML, DMA, DMB, DMC, DMD, DMF, DMG, DMH, DML, GM, GMA, GMB, GMC, GMD, GMF, GMG, GMH, GML, RM, RMA, RMB, RMC, RMD, RMF, RMG, RMH, RML, WM, WMA, WMB, WMC, WMD, WMF, WMG, WMH, WML, SM, SMA, SMB, SMC, SMD, SMF, SMG, SMH, SML, BM, BMA, BMB, BMC, BMD, BMF, BMG, BMH, BML, NMA, NMB, NMC, NMD, NMF, NMG, NMH & NML (Example P28-SML 5701A)

General Hone Metal Bond Abrasive with MDE, GHB, GHD, GHE, GHG, GHR or GHN prefix. For example: GHN01MDE25SGFC

MANUFACTURER'S NAME AND ADDRESS:

SUNNEN PRODUCTS COMPANY
7910 MANCHESTER
ST. LOUIS, MO 63143

CONTACT:
CHUCK KORN

EMERGENCY TELEPHONE NUMBER:

314-781-2105

DATE:
MARCH 17, 2004

SECTION 2 INGREDIENTS/IDENTITY (PER 29 CFR 1910.1200(g))

CHEMICAL NAME OF COMPONENTS	Max Wt%	CAS NO.	OSHA Z1A 8 HR TWA mg./cu.m	ACGIH TWA	CARCINOGENIC
Aluminum Oxide	20	1344-28-1	10 Dust/5 Respirable	10	N
Copper (metal) as fume	85	7440-50-8	0.1	0.2	N
as dust/mist	-	7440-50-8	1	1	N
Cobalt (metal) as dust/fume	95	7440-48-4	0.1	0.05	N
Nickel (metal)	10	7440-02-0	1	1	Y
Silver (metal) as dust/fume	10	7440-22-4	0.01	0.1	N
Tin (metal) as inorganic					
except oxide	5-20	7440-31-5	2	2	N
Iron (metal)	35	7439-89-6	NONE	NONE	N
Silicon Carbide	10	409-21-2	10 Dust/5 Respirable	10	N
Titanium (metal)	0.5	7440-32-6	NONE	NONE	N
Zinc (metal)	12	7440-66-6	NONE	NONE	N
Graphite	33	7782-42-5	5 Respirable	2	N
Cubic Boron Nitride	33	10043-11-5	NONE	NONE	N

FOR FURTHER SAFETY AND HEALTH INFORMATION REGARDING THE COMPOSITION OF THIS MATERIAL CONTACT SUNNEN PRODUCTS. THIS MIXTURE CONTAINS TOXIC CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 AND 40 CFR PART 372.

These mixture ingredients are cited on the following lists:

NAME	CAS	CITATIONS
COPPER	7440-50-8	2,4,8,10,11,12,13,14,15,16,17,18,19,20,21,22,23
NICKEL	7440-02-0	1,2,3,4,5,7,8,10,11,12,13,14,15,16,17,18,19,20,21,22,23
TIN	7440-31-5	2,4,10,11,12,13,15,16,17,18,21,22,23
COBALT	7440-48-4	2,4,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23
SILVER	7440-22-4	2,4,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22
ZINC	7440-66-6	8,9,10,13,18,21,22
TIN	7440-31-5	2,4,9,10,11,12,13,15,16,17,18,21,22,23
TITANIUM	7440-32-6	7,8,9,18

SILICON CARBIDE 409-21-2 4,9,13,16,17,22
ALUMINUM OXIDE 1344-28-1 4,9,13,16,17

1=IARC 2=OSHA 3=NTP 4=ACGIH 5=NFA49 6=NFA325M 7=DOT HMT 49CFR172.101 8=EPA SARA III 9=RTECS
10=MA RTK 11=AK RTK 12=CA RTK 13=FL RTK 14=IL RTK 15=ME RTK 16=MN RTK 17=NH RTK 18=NJ RTK
19=Cincinnati, Ohio RTK 20=Norwood, Ohio RTK 21=PA RTK 22=RI RTK 23=WV RTK

SECTION 3 PHYSICAL & CHEMICAL CHARACTERISTICS

SPECIFIC GRAVITY (WATER=1)7.8 (APPROX)
EVAPORATION RATENOT VOLATILE
MELTING POINT>1100°F (>593°C)
SOLUBILITY IN WATERNOT SOLUBLE
PERCENT VOLATILE BY WEIGHTNOT VOLATILE
REACTIVITY IN WATERNOT REACTIVE
VAPOR PRESSURE (mm Hg).....NOT VOLATILE
APPEARANCE AND ODORSOLID OBJECT
VAPOR DENSITY (Air=1)NOT VOLATILE

SECTION 4 SPECIAL PRECAUTIONS

HANDLING AND STORAGE: NONE Refer to Section 7.

SECTION 5 CORROSIVELY AND REACTIVITY DATA

STABILITY: Material is stable under normal conditions of transport and storage. POLYMERIZATION: Hazardous polymerization will not occur. INCOMPATIBILITY (MATERIALS TO AVOID): Acids, bases or strong oxidizing agents. HAZARDOUS DECOMPOSITION PRODUCTS: Metal fumes if heated. Anti-Rust coating is combustible and will produce oxides of carbon.

SECTION 6 HEALTH, FIRST AID AND MEDICAL DATA

ACUTE AND CHRONIC HEALTH EFFECTS AND EFFECTS OF OVEREXPOSURE

As a solid object the metalbond honing stone presents no hazard at normal temperatures. However, if modified for use (by abrading, melting, welding, cutting or processing in any other fashion that creates potentially hazardous dust or fumes) the operator will be exposed to air-borne metal particles or fumes which can be inhaled, swallowed, or come in contact with the skin or eyes. Metal dusts or fumes, may cause irritation to the eyes, nose, or throat; leave a metallic taste in the mouth; result in metal fume fever (flu-like symptoms). Symptoms may be aggravated for sensitive individuals with respiratory conditions (such as emphysema). Persons with light skin, sensitive skin or large amounts of body hair may experience skin disorders from increased sensitivity to contact with metal fumes, dust or fines suspended in the honing oil.

ABBREVIATIONS USED IN THE FOLLOWING SECTION: NAIF=NO APPLICABLE INFORMATION FOUND, SKIN=SKIN ABSORPTION, EYE=EYE CONTACT, INHAL=INHALATION, INGEST=INGESTION. THE INFORMATION PRESENTED AND CONCLUSIONS DRAWN ARE FROM OTHER THAN DIRECT TEST DATA.

COBALT: ACUTE SKIN: Cobalt is an allergen. Sensitization dermatitis may occur in persons who are previously exposed. A rash may develop, usually in the areas of folded skin of the elbow, neck, and face. Cross sensitization can occur between cobalt and nickel and cobalt and chromium. Some cobalt salts are photo sensitizers. Cobalt insoluble salts can form soluble complexes with body fluid on eczematous skin and sensitizes the skin. Cobalt in ionised form is known to react with proteins. EYE: May cause irritation with redness, pain, and itching. May cause lesions similar to contact dermatitis. INHAL: May cause shortness of breath, asthma, difficult breathing during exertion, wheezing, interstitial pneumonitis (inflammation of lung), and/or lung densities. Loss of sense of smell. Headaches, weakness, irritability, and changes to the electrical activity of the brain. INGEST: May cause hypotension (low blood pressure), pain, vomiting, weight loss, inflammation of nerves, nerve deafness, and sensations of hotness or nausea. Severe exposure may cause pericardial effusion (heart problem), convulsions, or enlargement of the thyroid. Cobalt reacts with alcohol to produce severe cardiac effects. CHRONIC SKIN: May cause contact dermatitis. Sensitization dermatitis may follow inhalation or prolonged contact. EYE: May cause inflammation. See acute effects. INHAL: May cause pneumoconiosis (a progressive lung disease), sensitization of the respiratory tract,

obstructed airways syndrome (difficult breathing), interstitial lung disease (a disease affecting the connecting tissue between cells), and density of the lung with symptoms as described in acute exposure. Produces gastric disturbances and blood in the urine. INGEST: May adversely affect the pancreas, thyroid gland (goitre), heart (enlarged), or bone marrow. Increased red blood cell count.

NICKEL: ACUTE: SKIN: May cause swelling and irritation. Skin sensitization may occur upon repeated exposure. "nickel itch", a type of dermatitis resulting from sensitization to nickel may begin with a sensation of burning and itching at the place of contact and usually occurs seven days before the characteristic skin eruptions appear. The primary skin eruption is erythematous (red spots) or follicular (cavity); it may be followed by superficial discrete ulcers which discharge and become crusted. The eruption may spread to areas related to the activity of the primary site. Pigmented or depigmented plaques may be formed. This sensitization reaction may be accompanied by fever, inflammation of the mouth (stomatitis), gums (gingivitis), eyes (conjunctivitis), sudden asthmatic attacks and eosinophilic pneumonitis (inflammation of lungs). Recovery usually occurs within 7 days after exposure. Eczema was more severe in individuals with simultaneous sensitivity to nickel and cobalt than to a single metal. Nickel is not absorbed through the unbroken skin in amounts sufficient to cause intoxication. Metal may be affected by cutting oils or coolants and converted to a form that can penetrate the skin. **EYE:** May cause inflammation and irritation. Shown to be toxic to rabbit eye. **INHAL:** May cause respiratory irritation, cough, pneumonitis (inflammation of lung), and fever. Pulmonary edema (fluid in lungs) may be a delayed symptom. Pulmonary sensitization reaction or anaphylaxis (allergic shock) may occur causing eosinophilic pneumonitis (inflammation of lungs), asthma and host rejection of nickel containing prostheses. Poisoning may affect the heart, blood, liver, kidneys, and brain. Persons with pre-existing breathing disorders or a history of asthma, allergies or known sensitization to nickel may be at an increased risk from exposure. **INGEST:** Literature reports nausea, vomiting, diarrhea, giddiness. Produced blood, heart and liver damage. **CHRONIC: SKIN:** May cause sensitization dermatitis with symptoms as described under acute effects. **EYE:** May cause inflammation. Classified as moderately-to-severely toxic to rabbit eye. **INHAL:** May cause mucous membrane irritation and pulmonary sensitization (acquired sensitivity). All air-borne Nickel contaminating dusts should be regarded as carcinogenic. **INGEST:** Prolonged feeding studies with rats caused effects on the embryo. Nickel can potentially causes adverse affects on the immune system.

COPPER: ACUTE: SKIN: Changes causing hard or horny skin located on the hands and the soles of the feet has been reported. Copper salts may cause skin irritation (itching, redness and dermatitis). **EYE:** Copper salts may cause swelling, ulceration and cloudy cornea. **INHAL:** Melting, grinding, cutting of copper may produce fumes or dust exposure and breathing these fumes or dust may present health hazards. Fumes of copper may cause "Metal Fume Fever" with flu-like symptoms and skin and hair discoloration. Copper dust and fume may cause irritation of the upper respiratory tract, metallic taste in the mouth, and nausea. **INGEST:** Salts of copper act as irritants producing salivation, nausea, vomiting, stomach pain, bleeding stomach inflammation and diarrhea. **CHRONIC: SKIN: NAIF. EYE: NAIF. INHAL:** Ulceration with perforation of the nasal septum. **INGEST:** Individuals with Wilson's disease (hepatolenticular degeneration) can experience fatal intoxication.

SILVER: ACUTE: SKIN: Small particles of silver can implant in the skin and cause permanent discoloration. **EYE:** Silver particles can cause permanent discoloration of the eyes causing them to appear blue gray. **INHAL: NAIF. INGEST: NAIF. CHRONIC: SKIN: NAIF. EYE: NAIF. INHAL/INGEST:** Inhaling or ingesting silver can cause bluish discoloration of the skin and mucous membranes. May cause permanent coloration of the skin and eyes. Silver accumulates after it enters the body.

TIN: ACUTE: SKIN: May cause skin irritation. **EYE:** May irritate eyes. **INHAL:** May irritate the mucous membranes. **INGEST:** Literature reports the toxicity is low. **CHRONIC:SKIN: NAIF. EYE: NAIF. INHAL:** Exposure to the dust or fumes of tin oxide can result in a benign lung disease called stannosis. No tissue reaction or breathing disorder has been associated with this lung condition. **INGEST: NAIF.**

EMERGENCY FIRST AID

INHALATION: Remove from further exposure. If unconsciousness occurs, seek immediate medical assistance and call a physician. If breathing has stopped, begin mouth to mouth resuscitation. **EYE CONTACT:** Remove contact lenses (if wearing) and flush eyes with water for 15 minutes. Seek medical attention to check for possible irritation. **SKIN CONTACT:** Wash contact areas with mild non-abrasive soap and water. **INGESTION:** Do not induce vomiting. Call physician or poison control center immediately.

SECTION 7 HANDLING, STORAGE AND USE PROCEDURES

NORMAL STORAGE AND HANDLING: No special procedures. **NORMAL USE:** Practice good personal hygiene while honing. Wash hands thoroughly to remove honing oil and micro-scopic particles of metal debris (suspended in the oil) before touching other parts of the body, food, drinks or smoking to avoid exposure to metal fines. Refer to

acute health effects- Section 6. STEPS TO BE TAKEN IN CASE OF LEAKS OR SPILLS: Treat chips or dust as metal alloys. WASTE DISPOSAL METHODS: Used honing stones are classified by the EPA as "scrap metal" and are not subject to regulation under 40 CFR parts 262-266 or part 270 or part 124 and are not subject to the notification requirements of Section 3010 of RCRA. Dispose of in accordance with applicable federal, state and local laws, regulations, rules, orders and ordinances. Ref. 40 CFR 261.6 (a)(3)(iv).

SECTION 8 PERSONAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Not normally required when honing with oil. If conditions of use (by abrading, melting, welding, cutting or processing in any other fashion) create potentially hazardous dust or fumes, use NIOSH approved respirator rated for metal dust to maintain levels of dust below ACGIH TLV and OSHA PEL/TLV levels. Normal honing operations using honing oil does not generate harmful levels of mists or fumes in the operators breathing zone. If unusual honing conditions generate any strong odor or detectable oil mist use NIOSH approved respirator rated for mineral oil mist to maintain oil mist levels below ACGIH TLV and OSHA PEL/TLV levels. **VENTILATION:** Normal ventilation is required. Do not operate honing machine within a closed un-ventilated space. If conditions of use (by abrading, melting, welding, cutting or processing in any other fashion that creates potentially hazardous dust or fumes) or if any strong odors or oil mist is detected, use forced ventilation to maintain levels of fumes or mists below ACGIH TLV and OSHA PEL/TLV levels. **SKIN PROTECTION:** Not required when handling solid material. Gloves and protective clothes if any operation generates dust. Skin protection is not normally required for short exposures while honing with oil. Oil impervious gloves should be worn while honing in the event any symptoms of skin distress appear. Note that some barrier creams have been shown to increase skin absorption of metallic compounds and also that many people are allergic to chemicals used in protective gloves. **EYE PROTECTION:** Always wear NIOSH approved safety glasses when honing or operating machinery. **OTHER EQUIPMENT:** No applicable information found. **MEASURES TO BE TAKEN DURING REPAIR AND MAINTENANCE OF CONTAMINATED EQUIPMENT THAT HAS BEEN IN CONTACT WITH THIS MATERIAL:** Remove traces of material dust if soldering, welding, brazing, cutting or other process involving ignition sources to prevent a fire hazard.

SECTION 9 FIRE AND EXPLOSION HAZARD DATA

Material in the solid state does not present a fire or explosion hazard. Dust hazards exist under favoring conditions of small particle Size. Dispersion in air and strong ignition source may result in an explosion.

NOTICE

THIS MATERIAL SAFETY DATA SHEET ("MSDS") IS SUPPLIED PURSUANT TO THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION'S HAZARD COMMUNICATION RULE (THE "RULE"), 29 CFR 1910.1200. THIS MSDS IS BEING FURNISHED TO THE IMMEDIATE PURCHASER OF THE MATERIAL TO WHICH IT REFERS WITHOUT REPRESENTATION OR WARRANTY AS TO THE COMPLETENESS OR ACCURACY OF ANY INFORMATION OR RECOMMENDATIONS CONTAINED HEREIN.

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