

SAFETY DATA SHEET

SECTION 1: PRODUCT IDENTIFICATION

Product Identifier: Olivine, various grades

Synonyms: Olivine sand, Olivine flour, Magnesium iron silicate

Other Means of Identification: Green Lightning

Recommended Use: Various commercial and industrial uses

Restrictions on Use: None Known

Supplier Identifier: Bell & Mackenzie, A Business of Allredi Blast and Abrasives Canada Inc., 500 Sherman Ave., N., P.O. Box 844 LCD #1, Hamilton, Ontario L8N 3N9 Telephone #905-527-6000 or 1-888-794-5665

Emergency Telephone Number: See above

SECTION 2: HAZARD(S) IDENTIFICATION

Classification: GH / Hazcom 2012

Physical: Not Hazardous

Health: Skin Sensitizer Category 1 / Carcinogen Category 1

Environmental: Not Hazardous

Label: Danger



Depending on the type of handling and use (e.g. grinding, drying) airborne respirable dust may be generated. Prolonged and/or massive inhalation of respirable dust may cause mucous membrane and respiratory irritation and lung injury. Principal symptoms are shortness of breath and reduced pulmonary function. Occupational exposure to respirable dust should be monitored and controlled. This product should be handled with care to avoid dust generation.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS NO	%	Other Identifiers
Olivine	1317-71-1	>99.3	
Chromium Compounds	7440-47-3	0.2-1.0	
Nickel Compounds	7440-02-0	0.2-0.4	

SECTION 4: FIRST AID MEASURES

Inhalation: Remove affected person(s) to fresh air. Apply oxygen if difficulty breathing and consult a Professional immediately.

Ingestion: If large amounts are swallowed, rinse mouth with water. Don't induce vomiting. Consult a Physician if discomfort continues.

Skin Contact: Wash exposed skin gently but thoroughly with soap and lukewarm water for about 10 minutes. Seek medical attention if rash develops.

Eye Contact: Immediately flush eyes thoroughly with lukewarm water for at least 15 minutes while holding the eye lid open. Do not rub eyes. If irritation persists, seek medical attention.

Most Important Symptoms/Effects, Acute and Delayed: Dust may cause mechanical eye and skin irritation. Excessive inhalation of dust may cause mucus membrane and respiratory irritation and lung injury with symptoms of shortness of breath and reduced pulmonary function. May cause an allergic skin reaction. May cause cancer.

Immediate Medical Attention and Special Treatment: None Required.

SECTION 5: FIRE FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: This product will not burn. Use appropriate extinguishing media for surrounding fire.

Unsuitable Extinguishing Media: None known.

Specific Hazards Arising from the Product: Non-flammable or combustible. Dry powders may accumulate static charge in handling, which can be a source of ignition for flammable atmospheres.

Special Protective Equipment and Precautions for Fire-Fighters: None required with respect to this product. Fire Fighters should always wear full protective firefighting gear and self-contained breathing apparatus.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: Wear appropriate clothing and respiratory protection (see Section 8). Avoid generating airborne dust during clean-up.

Environmental Precautions: No specific precautions. Report any spills and releases as required to the appropriate authorities.

Methods for Containment and Cleaning Up: If uncontaminated, collect using dustless method (HEPA vacuum or wet method) and place in appropriate container for use. If contaminated: a) use appropriate

method for the nature of contamination, and b) consider possible toxic or fire hazards associated with the contaminating substances. Collect for appropriate disposal.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling: Avoid inhalation of dust. Use normal precautions against bag breakage or spills of bulk material. Avoid creation of respirable dust. Use good housekeeping in storage and use areas to prevent accumulation of dust in the work area. Use adequate ventilation and dust collection. Maintain, use, clean and fit test ventilation and dust collection equipment. Practice proper personal hygiene. Wear suitable respiratory protective equipment. Empty containers (bags, bulk containers, storage tanks, etc. retain product residue and must be handled in accordance with the provisions of this SDS. Dust can accumulate electrostatic charges due to friction from transfer and mixing operations and cause an electrical spark (ignition source), which can ignite flammable liquids and atmospheres. Provide adequate precautions when adding this product to flammable and combustible mixtures like paints and coating, such as electrical grounding and bonding, inert atmosphere or non-sparking tools. However, bonding and grounds may not eliminate the hazard for static accumulation.

Conditions for Safe Storage: Store in properly closed containers. Keep dry.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters:

Chemical Name	OSHA PEL	ACGIH TLV
Olivine	5 mg/m ³ (respirable) 15 mg/m ³ (total) as particulates	None Established not otherwise regulated
Nickel Compounds	1.0 mg/m ³	0.2 mg/m ³ (inhalable fraction)
Chromium Compounds	0.5 mg/m ³	0.5 mg/m ³

Appropriate Engineering Controls: Minimize airborne dust generation. Use process enclosures, local exhaust ventilation or other engineering controls to keep airborne levels below recommended exposure limits.

Individual Protection Measures

Eye/Face Protection: Wear safety glasses with side shields. Use tight fitting goggles if dust is generated

Skin Protection: Use protective gloves. Wear suitable protective clothing.

Respiratory Protection: Selection and use of respiratory protective equipment should be in accordance with OSHA General Industry Standard 29 CFR 1910.134; or in Canada with CSA Standard Z94.4

Comments: Proper and safe use of the material is solely the purchaser's responsibility. Bell & Mackenzie extends no warranties and makes no representations as to the suitability of the product for the purchaser's intended purpose or the consequences of purchaser's actions.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Light green to gray-green sand size granules

pH (400 g/l water at 20°C): Not Applicable

Odor: Odorless

Melting Point: 1398.8°C-1700°C

Freezing Point: Not Applicable

Boiling Point: Not Applicable
Flash Point: Not Applicable
Flammability (solid, gas): Fully oxidized, will not burn
Upper and Lower Flammability or Explosive Limit: Not Applicable
Specific Gravity (water = 1): 2.3 – 3.6
Evaporation Rate: Not Applicable
Solubility in Water: Insoluble
Vapor Density: Not Applicable
Vapor Pressure (air = 1): Not Applicable
Auto-ignition Temperature: Will not burn
Decomposition Temperature: Not Applicable
Flammable Limits (LEL/UEL): Not Applicable
Partition Coefficient: n-octanol/water: Not Applicable
Viscosity: Not Applicable

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Not reactive under normal conditions of storage and use.
Chemical Stability: Product is stable at normal temperatures.
Possibility of Hazardous Reactions: None Known.
Conditions to Avoid: None Known.
Incompatible Materials: None Known.
Hazardous Decomposition Products: None Known.

SECTION 11: TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Inhalation. Skin Contact. Eye Contact. Ingestion

Acute Toxicity: No acute toxicity data is available for this product.

Skin Corrosion/Irritation: May cause an allergic skin irritation.

Serious Eye Damage/Irritation: May cause mechanical irritation and possible injury.

Ingestion: No adverse effects expected for normal, incidental ingestion.

STOT (Specific Target Organ Toxicity) – Single Exposure: Prolonged overexposure to any nuisance dust may cause lung injury. Symptoms include cough, shortness of breath and reduced pulmonary function. This product contains small amounts of nickel and chromium compounds. Hexavalent chromium has not been detected in this product (detection limit 0.1%). Overexposure to nickel and chromium compounds may cause respiratory and skin sensitization.

STOT (Specific Target Organ Toxicity) – Repeated Exposure: Prolonged overexposure to any nuisance dust may cause lung injury. Symptoms include cough, shortness of breath and reduced pulmonary function. This product contains small amounts of nickel and chromium compounds. Hexavalent chromium has not been detected in this product (detection limit 0.1%). Overexposure to nickel and chromium compounds may cause respiratory and skin sensitization.

Respiratory and/or Skin Sensitization: Nickel compounds have been shown to cause skin sensitization in animals and humans. Overexposure to nuisance dusts may cause mucous membrane and respiratory irritation, cough, sore throat, nasal congestion, sneezing and shortness of breath.

Carcinogenicity: Olivine is not listed as a carcinogen or suspected carcinogen by IARC, NTP or OSHA. Nickel and Hexavalent chromium are classified as carcinogens. Hexavalent chromium has not been

detected in this product. Nickel compounds are classified by IARC as "carcinogenic to humans" (Group 1) and by NTP as "known to be human carcinogens". None of the other components are listed as carcinogens or suspected carcinogens by IARC, NTP or OSHA.

Reproductive Toxicity: No specific data is available, however, there is no evidence that this product has any effect on reproduction.

Germ Cell Mutagenicity: No specific data is available, however, there is no evidence that this product is a germ cell mutagen.

Interactive Effects: None known

Comments: Although Bell & Mackenzie has taken reasonable care in the preparation of this Safety Data Sheet, no warranties are made. Bell & Mackenzie makes no representations and assumes no responsibility as to the accuracy or suitability of the Safety Data Sheet for the applications intended by the purchaser.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: No data available.

Persistence and Degradability: Olivine, nickel compounds and chromium compounds are not biodegradable.

Bioaccumulative potential: This product is not expected to bio accumulate.

Mobility in Soil: Not Applicable

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal Methods: If uncontaminated, dispose as an inert, non-metallic mineral. If contaminated, dispose in accordance with all applicable local, state/provincial and federal regulations in light of the contamination present. Local regulations may be more stringent than regional and national requirements. It is the responsibility of the waste generator to determine the toxicity and physical characteristics of the material to determine the proper waste identification and disposal in compliance with applicable regulations. Dust formation from residues left in packaging should be stored in enclosed receptacles. Disposal of packaging should be carried out in compliance with local regulations. Re-use of the packaging is not recommended.

SECTION 14: TRANSPORT INFORMATION

This product is not regulated for transportation under the U.S. DOT, Canadian TDG, IMDG, or IATA Regulations.

SECTION 15: REGULATORY INFORMATION

Safety, Health and Environmental Regulations

Canada

WHMIS 1988 Classification: Class D, Division 2, Subdivision A (Very Toxic Material causing other Toxic Effects).

Canadian Environmental Protection Act: All the components of this material are listed on the Canadian Domestic Substances List or exempt from notification requirements.

SARA 311/312 (Hazard categories for SARA Section 311/312 Reporting): Chronic Health.

SARA 313: This product contains the following chemicals subject to annual release reporting requirements under the SARA Section 313 (40 CFR 371): Nickel Compounds 0.1-0.34% chromium compounds 0.1-0.5%.

CERCLA Section 103 Reportable Quantity: None

California Proposition 65: This product contains nickel compounds which are known to the State of California to cause cancer.

Toxic Substances Control Act (TSCA): All of the components of this product are listed on the EPA TSCA Inventory or exempt from premanufacture notification requirements.

SECTION 16: OTHER INFORMATION

Hazardous Material Information System (HMIS):

Health 1 **

Flammability 0

Physical Hazard 0

** Warning – Chronic health effect possible.

National Fire Protection Association (NFPA):

Health 1

Flammability 0

Reactivity 0

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Key to Abbreviations:

ACGIH – American Conference of Governmental Industrial Hygienists

OSHA – Occupational Safety and Health Administration

IARC – International Agency for Research on Cancer

Olivine sand is produced from rock dunite. In the rock small amounts of fibrous minerals can be found, first of all in the mineral group of inosilicates such as pyroxene and amphiboles. A normal element analysis (chemical) reports the nickel content as NiO, and may therefore be misleading in showing the form nickel appears in the product. In Olivine, nickel is relative strongly bounded in the silicate lattice and thus not bio-available.

Disclaimer: The information contained herein is based on technical data Bell & Mackenzie believes reliable. No warranties, expressed or implied, are made and no liability is assumed by Bell & Mackenzie (A Business of Allredi Blast and Abrasives Canada Inc.) in connection with any use of this information. It is the

user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use in accordance with local, provincial, federal or state regulations.