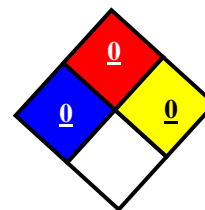


Health	1
Flammability	0
Physical Hazard	0
Personal Protection	B

HMIS Rating

Minera Roca Rodando

MATERIAL SAFETY DATA SHEET



NFPA Rating

SECTION I - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Trade Name: ASPECT™, NYGLOS®, NYCEM®, RRIMGLOS®, WOLLASTOCOAT®, ULTRAFIBE®
- Various grades, surface treated

MSDS Number: M200

Synonyms: Wollastonite, Calcium silicate **Revision:** 5

Manufacturer: Minera Roca Rodando S. de R.L. de C.V. **Date Issued:** 2 November 2011

Address: Carret. Minas Pilares Km 0.0, Carret. Nogales Km 15.5 **Emergency Phone:** 011-52-662-289-1000
Hermosillo, Sonora, Mexico **Manufacturer FAX:** 011-52-662-289-1090

SECTION II - COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	EINECS No.	%	TLV	PEL
Natural wollastonite	13983-17-0	237-772-5	>98	10 mg/m ³ ^(I) 3 mg/m ³ ^(R)	15 mg/m ³ ^(total) 5 mg/m ³ ^(resp)
Non-hazardous Treatment	Proprietary ^(*)	Proprietary	<2	None Assigned	None Assigned

Key: TLV = ACGIH, 8 hr. Time Weighted Average (TWA) for Particulates Not Otherwise Classified (PNOC); ^I = Inhalable fraction; ^R = Respirable fraction; PEL = OSHA permissible exposure limit for Particulates Not Otherwise Regulated (PNOR); ^{total} = Total dusts; ^{resp} = Respirable dusts; ^{*} = Proprietary silane coating; all coatings are listed on the *TSCA Inventory*.

SECTION III - HAZARDS IDENTIFICATION

Specific Risks: Airborne particulate created during handling is considered nuisance dust and should be minimized through the use of good work practices and adequate ventilation (see sections VII and VIII for suggested handling and engineering controls).

HMIS Rating: Health: 1 Flammability: 0 Physical Hazard: 0 Personal Protection: B

Primary Routes of Entry: Via respirable dust to the lungs and respiratory system and via coarse dust and particulate to the eyes.

Primary Target Organs: Lungs, respiratory system and eyes.

Potential Health Effects:

Inhalation: Irritating to the mucous membranes and respiratory tract. Excessive exposures to dust may cause sore throat, coughing or upper respiratory irritation.

Skin Contact: Possible dryness or irritation resulting from long term exposures to product dust. Not a dangerous substance as determined by testing done in accordance to EU Directive 67/548/EEC as amended. Results were non-detected or well below any classification criteria.

Trade Name: ASPECT™, NYGLOS®, RRIMGLOS®, WOLLASTOCOAT®, ULTRAFIBE®, NYCEM® - Variuos grades, surface treated MSDS Number: M200

Eye Contact: A mechanical irritant which can cause moderate to severe eye irritation. Not a dangerous substance as determined by testing done in accordance to EU Directive 67/548/EEC as amended. Results were non-detected or well below any classification criteria.

Ingestion: Non-hazardous when ingested. Prolonged or repeated exposure may be irritating to mouth, throat and esophagus (sore throat, nausea and retching). Potentially a mild irritant to the GI tract if excessive quantity is ingested.

Medical Conditions Aggravated by Exposure: Pre-existing chronic upper respiratory and lung diseases such as, but not limited to, bronchitis, emphysema and asthma.

Carcinogenicity: This product is not classified by NTP or OSHA. IARC classifies wollastonite as Group 3: Unclassifiable as to carcinogenicity to humans.

SECTION IV - FIRST AID MEASURES

Inhalation: Remove to fresh air. Drink water to clear throat and blow nose to evacuate dust. If coughing and irritation develop, call a physician.

Eye Contact: Flush with large amounts of water until irritation subsides, as least 15 minutes. See a physician if irritation persists.

Skin Contact: Normal good personal hygiene practices. Wash with mild soap and warm water after each exposure.

Ingestion: Emergency procedures not normally required. May be a temporary irritant to the GI system.

SECTION V - FIREFIGHTING MEASURES

NFPA Rating: Health: 0 Flammability: 0 Instability: 0 Special Hazards: 0

Flashpoint and Method: This is a non-flammable product LEL: N/Ap UEL: N/Ap

Extinguishing Method Not applicable. Product will not burn.

Special Firefighting Procedures: Not applicable.

Fire or explosion Hazards: None.

SECTION VI - ACCIDENTAL RELEASE MEASURES

Clean-up Procedures: Avoid creating airborne dust. Dust suppressing cleaning methods such as wet sweeping or vacuuming should be used to clean the work area. If vacuuming, the vacuum must be equipped with an efficient secondary filter (such as a HEPA filter). Compressed air or dry sweeping should not be used for cleaning. Scoops or shovels may be used to minimize dust. Use respiratory protection in dusty conditions.

Personal Precautions: If dusty conditions exist, wear a face mask approved for use with dusts such as 3M 8511, N-95 or equivalent.

Environmental Precautions: None normally required. Product contains naturally occurring minerals.

SECTION VII - HANDLING AND STORAGE

Storage Requirements: Store in dry area in sealed containers. Always segregate materials by major hazard class.

Special Sensitivity or Incompatibility: Avoid contact with strong acids.

Handling Precautions: When handling the product, avoid exposure, assure proper respiratory protection if dust potential exceeds PEL/TLV. Limit use of power tools unless in conjunction with local exhaust. Use hand tools whenever possible. Frequently clean the work area with HEPA filtered vacuum or wet sweeping to minimize the

Trade Name: ASPECT™, NYGLOS®, RRIMGLOS®, WOLLASTOCOAT®, ULTRAFIBE®, NYCEM® - Variuos grades, surface treated MSDS Number: M200
accumulation of debris. Do not use compressed air for clean-up. Good housekeeping practices should be employed to prevent generation and accumulation of dusts.

SECTION VIII - EXPOSURE CONTROLS/PERSONAL PROTECTION

General Information: The manufacturer has not established a specific recommended exposure guideline for wollastonite. As with most industrial materials, it is prudent to minimize unnecessary exposure to respirable dusts. Note that industrial hygiene standards and occupational exposure limits differ between countries and local jurisdictions. Check with your employer to identify any “respirable dust”, “total dust” or “fiber” exposure standards to follow in your area. If no regulatory dust or fiber control standard apply, a qualified industrial hygiene professional can assist with a specific evaluation of workplace conditions and the identification of appropriate respiratory protection practices.

Respiratory Protection: For dust concentrations below the applicable exposure limit value, personal protection equipment is not required. If PEL/TLV is exceeded, wear an approved face mask such as 3M 8511, N-95 or equivalent, to protect against dust. The evaluation of workplace hazards and appropriate respiratory protection is best performed on a case by case basis, by a qualified industrial hygienist.

Eye Protection: Wear safety glasses with side shields or goggles to protect eyes against dust and particulate matter.

Skin Protection: Under normal conditions use of protective gloves and clean, body-covering clothing are adequate.

Engineering Controls: Maintain sufficient mechanical or natural ventilation to assure dust concentrations remain below PEL/TLV. Dust suppressing control technologies such as local exhaust ventilation, point of generation dust collection, down draft work stations, emission controlling tool designs, and materials handling equipment are effective means of minimizing airborne fiber emissions. The need for ventilation should be evaluated by a professional industrial hygienist. Ventilation systems should be designed by a professional engineer.

SECTION IX - PHYSICAL and CHEMICAL PROPERTIES

Physical Form: White acicular, free flowing non-metallic mineral powder. No characteristic odor.

Melting Point: 1540° C

Density: 2.9 g/mL

Solubility in Water: 0.01 g/100 cc

pH: 9.9 Aqueous Solution

SECTION X - STABILITY and REACTIVITY

Stability: Product is stable under normal conditions.

Hazardous Polymerization: Cannot occur.

Incompatibilities: None in designed use.

Conditions to Avoid: None in designed use.

Decomposition Products: No hazardous products of decomposition.

SECTION XI - TOXICOLOGICAL INFORMATION

LD₅₀: N/Av

LC₅₀: N/Av

Toxicology and Epidemiology Overview: A review on the toxicology and epidemiology of wollastonite was published in 2005 in the journal *Inhalation Toxicology* (Maxim and McConnell, 2005; see references in Section XVI). In general, studies have focused on the effects of wollastonite (and coated wollastonite) on the lungs and have been negative for pulmonary fibrosis, lung cancer, or mesothelioma.

Trade Name: ASPECT™, NYGLOS®, RRIMGLOS®, WOLLASTOCOAT®, ULTRAFIBE®, NYCEM® - Variuos grades, surface treated MSDS Number: M200
Surface-treated wollastonites have not been studied extensively. Maxim and McConnell (2005) reviewed a study done to examine the effects of the coatings on wollastonite biopersistence. The study showed that the coatings did not increase biopersistence and demonstrates that these coatings would not have an impact on the pathogenicity of wollastonite.

Maxim and McConnell (2005) conclude that there is inadequate evidence for the carcinogenicity of wollastonite in animals and, based on strong evidence that wollastonite is not biopersistent, believe that a well-designed animal

inhalation bioassay would have a negative result. The epidemiological evidence for wollastonite is limited, but does not suggest that workers are at significant risk of an increased incidence of pulmonary fibrosis, lung cancer, or mesothelioma. Morbidity studies have demonstrated a non-specific increase in bronchitis and reduced lung function.

Toxicological Hazards: The International Agency for Research on Cancer (IARC) has classified wollastonite as Group 3: Unclassifiable as to carcinogenicity to humans.

The Australian National Occupational Health and Safety Commission (NOHSC) noted that “there is sufficient evidence for the non-toxicity and non-carcinogenicity of wollastonite fibers in experimental animals” and that there is “inadequate evidence for the toxicity and carcinogenicity of wollastonite fibers in humans.” (Douglas, 2001; see reference in Section XVI).

The German MAK Commission evaluation states: In all probability, wollastonite fibers do not have any carcinogenic affects.

Teratogenicity, Mutagenicity, other Reproductive Effects: None known

SECTION XII - ECOLOGICAL INFORMATION

Ecological Hazards: Wollastonite is a naturally occurring mineral. Unless contaminated in service, this product is neutral to the environment. Wollastonite is listed a with a Wassergefährdungsklasse (WGK) hazard of “1 - slightly hazardous to water” under the German Federal Water Management Act.

SECTION XIII - DISPOSAL CONSIDERATIONS

Waste Disposal Method: Wollastonite is not classified as a hazardous waste according to Federal regulations (40 CFR 261). Any processing, use, alteration or chemical additions to the product, as purchased, may alter the disposal requirements. Wollastonite may be disposed in an approved landfill unless contaminated in service. If contaminated with hazardous materials, place waste in suitable container. Seal and properly label the waste container. Send the container to an approved Transportation, Storage and Disposal (TSD) facility via an approved waste hauler. Be sure manifests have been completed and an adequate "Paper trail" has been established.

SECTION XIV - TRANSPORTATION INFORMATION

US DOT Shipping Name: Not regulated **DOT Label:** None **UN/NA Number:** None

Canadian TGD Shipping Description: Not regulated as dangerous goods according to Canadian TDGA

International Dangerous Goods Information:

IMO: Not regulated as dangerous goods according to the IMDG Code.

ICAO: Not regulated as dangerous goods according to the IACO Technical Instructions.

SECTION XV - REGULATORY INFORMATION

Refer to Section II for occupational exposure limits in the United States.

International Occupational Exposure Limits:

Great Britain	10 mg/m ³ (total inhalable dust); 4 mg/m ³ (respirable dust)
Austria	10 mg/m ³ (total dust)
France	10 mg/m ³ (general dust)
Ireland	10 mg/m ³ (total dust); 4 mg/m ³ (respirable dust)

Trade Name: ASPECT™, NYGLOS®, RRIMGLOS®, WOLLASTOCOAT®, ULTRAFIBE®, NYCEM® - Variuos grades, surface treated MSDS Number: M200

Poland	4 mg/m ³ (total dust)
Denmark	1 fiber/cm ³ (wollastonite)
Sweden	0.5 fibers/ml (natural fibers)
Canada, Quebec	1 fibre/cm ³ (wollastonite TWAEV)

International Inventory Listings:

- Australia:** **AICS:** Wollastonite is included in the *Australian Inventory of Chemical Substances*, June 1996 Ed..
- Canada:** **DSL:** As a naturally occurring substance, wollastonite is considered to be on the Canadian Domestic Substances List (DSL). Proprietary silane coatings are on the DSL or the Non-Domestic Substances List (NDSL).
WHMIS: Not controlled by WHMIS.
- China:** **IECSC:** Wollastonite is included in the *Inventory of Existing Substances in China*.
- EEC:** **EINECS/ELINCS:** All components of this product are included in the EINECS AND ELINCS EEC Chemical Inventories.
IUCLID: Chemical information on wollastonite has been submitted for inclusion in the *International Uniform Chemical Information Database*.
67/548/EEC: ALTox a/s has on 27/7/98 evaluated and determined that wollastonite is not to be classified according to EEC directive (67/548/EEC).
95/3/EC, Annex III: Listed for use in "Plastic materials and articles intended to come into contact with foodstuffs.
- Japan:** **ENCS:** Wollastonite is exempt from the list of *Existing and New Chemical Substances* as a naturally occurring mineral.
- Korea:** **ECL:** Wollastonite is included in the *Korean Existing Chemical List*, ECL Number KE-35416.
- New Zealand:ERMA:** Wollastonite is included in the Environmental Risk Management Authority
- Philippines:** **PICCS:** Wollastonite is included in the *Philippine Inventory of Chemicals and Chemical Substances*.
- USA:** **EPA-TSCA:** Wollastonite is exempt from the *TSCA Inventory* as a naturally occurring mineral. All proprietary surface treatments are included on the *TSCA Inventory*.
EPA-CERCLA Reportable Quantity: N/Ap
EPA-SARA Title III: Substances in this product are not reportable under Section 313.
EPA-FIFRA: Wollastonite is present on the list of Pesticide Product Inert Ingredients.
FDA: Approved as pigment or colorant in food contact surface coatings, 21 CFR 175.300.
OSHA: Particulate is regulated as nuisance dust - Particulate Not Otherwise Regulated (PNOR).
ACGIH: Particulate is regulated as a nuisance dust - Particulate Not Otherwise Classified (PNOC).

SECTION XVI - OTHER INFORMATION

References:

- Douglas, D. (2001). Chrysotile Asbestos Health Assessment of Alternatives. National Occupational Health and Safety Commission, March 2001. Available online at: <http://www.nohsc.gov.au/pdf/drafts/chrysotile-ha-mar-01.pdf>.
- IARC Monograph (1997). 68:283-305.
- Maxim, L.D., and E.E. McConnell, (2005). A Review of the Toxicology and Epidemiology of Wollastonite. *Inhalation Toxicology* 17:451-466.
- TOMES®: Hazardous Substances Data Bank, Registry of Toxic Effects Chemical Substances.

Prepared by NYCO: The foregoing information has been compiled by NYCO from sources it considers reliable and as of the date of this document, is believed to be accurate to the best of NYCO's knowledge. Before using the product identified hereon, all of the foregoing information should be carefully considered. The information herein applies only to the product identified hereon and does not relate to its use in combination with any other material or in any process. The information is provided in good faith to comply with applicable laws. However, no warranty or representation of law or fact, with respect to such information, is intended or given.

Trade Name: ASPECT™, NYGLOS® , RRIMGLOS® , WOLLASTOCOAT® , ULTRAFIBE® , NYCEM® - Variuos grades, surface treated MSDS Number: M200

Approval Date: 2 November 2011

Reason for Issue: No changes in content. Date update only.

Supersedes Date: 12 September 2008