Vanderbilt Minerals, LLC
A Wholly Owned Subsidiary of R.T. Vanderbilt Holding Company, Inc.

SAFETY DATA SHEET

GHS
United States
English (US)

Section 1. Identification

Product name VANSIL® WG

Code 59329

Supplier/Manufacturer Vanderbilt Minerals, LLC
33 Winfield Street
Norwalk, CT 06855

In case of emergency

1-203-295-2140

Chemtrec: 1-800-424-9300
Outside US: +1-703-527-3887

Chemical name Calcium silicate mineral (calcium metasilicate)

Synonym Wollastonite

Material uses Ceramic additive

Product type Solid.

Relevant identified uses of the substance or mixture and uses advised against

Not applicable.

Section 2. Hazards identification

OSHA/HCS status This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture CARCINOGENICITY - Category 1A
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1

GHS label elements

Hazard pictograms

Signal word Danger

Hazard statements May cause cancer if inhaled.
Causes damage to organs through prolonged or repeated exposure if inhaled. (respiratory tract)

Precautionary statements

General Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Avoid excessive dust generation. Avoid breathing dust. Use only with adequate ventilation.

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection: Recommended: splash goggles. Wear protective clothing. Do not breathe dust. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

Response Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention.

Storage Store locked up. Store in a dry place.

Disposal Dispose of contents and container in accordance with all local, regional, national and international regulations.

Section 2. Hazards identification

Hazards not otherwise classified May cause mechanical eye or skin irritation in high concentrations. Product may become slippery when wet.

Wollastonite is a naturally occurring mineral which may contain impurities in its natural form. Vanderbilt Minerals, LLC specifically tests its wollastonite ore to ensure there is no detectible asbestos. The detection limit for these tests is 0.006%.

Section 3. Composition/information on ingredients

Substance/mixture Substance

Chemical name Calcium silicate mineral (calcium metasilicate)

Ingredient name	CAS number	% by weight
wollastonite	13983-17-0	98 - 100
quartz	14808-60-7	0.8 - 1.3

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact Flush with plenty of water for at least 15 minutes, occasionally lifting upper and lower eyelids. If irritation develops and persists, seek medical attention.

Skin contact Flush skin with plenty of water. Seek medical attention if irritation develops.

Inhalation Move to fresh air. If respiratory distress develops, seek medical attention.

Ingestion Unlikely to be toxic by ingestion. Rinse mouth out with water. Do not induce vomiting unless directed to do so by medical personnel. Seek medical attention if significant quantities have been ingested or symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact Not a primary eye irritant. May cause mechanical irritation.

Skin contact No known significant effects or critical hazards.

Inhalation No known significant effects or critical hazards.

Ingestion No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact No specific data.

Skin contact No specific data.

Inhalation No specific data.

Ingestion No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician Treat symptomatically.

Specific treatments No specific treatment.

Protection of first-aiders No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

Section 4. First aid measures

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

This product is not combustible. Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media

No restrictions on extinguishing media for this product.

Specific hazards arising from the chemical

No specific fire or explosion hazard. This product is not flammable and does not support fire.

Hazardous thermal decomposition products

There are no hazardous decomposition products.

Special protective actions for fire-fighters

Product may become slippery when wet.

Special protective equipment for fire-fighters

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders

If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill

Minimize dust generation.

Move containers from spill area. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor.

Large spill

Minimize dust generation.

Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures

Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Recommended Storage

Store away from direct sunlight in dry conditions. Close container after use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
wollastonite	**OSHA PEL (United States).** TWA: 15 mg/m^3 total dust; 5 mg/m^3 respirable dust (PNOR) **ACGIH TLV (United States).** TWA: 1 mg/m^3 inhalable particulate matter
quartz	**OSHA PEL (United States).** TWA: 0.05 mg/m^3 from respirable fraction **ACGIH TLV (United States).** TWA: 0.025 mg/m^3 from respirable fraction

Appropriate engineering controls

If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 8. Exposure controls/personal protection

Eye/face protection
Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. Recommended: splash goggles

Skin protection

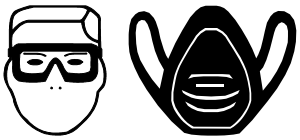
Hand protection
Protective gloves should be worn under normal conditions of use.

Body protection
Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection
Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection
Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: disposable particulate mask

Personal protective equipment (Pictograms)



Section 9. Physical and chemical properties

Appearance

Physical state Solid. [Powder]

Color White.

Odor Odorless.

pH 10 [Conc. (% w/w): 10%]

Melting point Not applicable.

Boiling point Not applicable.

Flash point Not applicable.

Evaporation rate Not applicable.

Vapor pressure Not applicable.

Vapor density Not applicable.

Relative density Not available.

Solubility in water Insoluble

Viscosity Not applicable.

Section 10. Stability and reactivity

Reactivity Not reactive

Chemical stability The product is stable.

Possibility of hazardous reactions Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid No specific data.

Section 10. Stability and reactivity

Incompatible materials No specific data.

Hazardous decomposition products Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Data not available for wollastonite.

CRYSTALLINE SILICA: Not irritating to the skin or eyes based on OECD 404 and 405 studies, respectively (EUROSIL, 2008).

Exposure to high levels of any dust may result in mechanical irritation of the respiratory tract, skin and eyes; not sufficient for classification.

Sensitization

Not available.

Mutagenicity

Mixed findings in several *in vitro* studies (Aslam et al, 1993; Liu et al, 1993; Koshi et al, 1991; NTP / Zeiger et al, 1987), and no known structure activity relationship to a proven germ cell mutagen; not sufficient for classification.

Carcinogenicity

IARC (1997) classifies wollastonite as Group 3 (not classifiable as to its carcinogenicity to humans), based on inadequate evidence in both humans and animals. Since animal studies have shown no convincing evidence of a carcinogenic potential for wollastonite, and one mortality study of a small cohort of wollastonite workers showed no excess of lung or pleural malignancies (Huuskonen et al., 1982b), an ACGIH A4, Not Classifiable as a Human Carcinogen, cancer designation is recommended. In a 2 year rat inhalation bioassay (NTP / McConnell et al, 1991), wollastonite did not cause an increased incidence of tumors; however, some concern exists regarding the concentration of specific fiber sizes used in the study.

Conclusion/Summary

CRYSTALLINE SILICA: Silica dust, crystalline, in the form of quartz is classified by IARC as Group 1 (carcinogenic to humans) based on "sufficient evidence" in occupationally exposed humans and sufficient evidence in animals. Crystalline silica of respirable size is classified by the NTP as a known human carcinogen. In its 2013 Proposed Rule on respirable crystalline silica, "OSHA preliminarily concludes that the human data provides ample evidence that exposure to respirable crystalline silica increases the risk of lung cancer among workers", while NIOSH identifies various crystalline or fused silicas a potential occupational carcinogens. However, not all epidemiologic and animal studies have demonstrated a cancer association and some uncertainty exists concerning the cancer classification of crystalline silica. For example, in Europe, a recent review concludes that crystalline silica should not be classified as a carcinogen since silicosis of the lung is the key endpoint for classification (Morfeld, 2010).

Classification

Product/ingredient name	OSHA	IARC	ACGIH	NTP
wollastonite	(a)	3	A4	-
quartz	(a)	1	-	Known to be a human carcinogen.

(a) OSHA does not have a set list of carcinogens or potential carcinogens, but defers to the IARC and NTP classifications. For quartz, see OSHA's qualitative statement in text above.

Reproductive toxicity

Not available.

Teratogenicity

Section 11. Toxicological information

Not available.

Specific target organ toxicity (single exposure)

Single exposure data not available. After short-term (3 to 5 day) exposure in rats, pulmonary inflammatory responses have been observed (Warheit et al, 1991), indicating a potential for acute respiratory irritation; not sufficient for classification.

Specific target organ toxicity (repeated exposure)

Studies of mine and mill workers suggest wollastonite may have the potential to adversely affect the lung (pneumoconiosis) and/or lung function (Finnish cohort: Huuskonen et al, 1983. US cohort: Shasby et al, 1979; Hanke et al, 1984; including the subsequent studies on these cohorts.). However, a recent analysis of data from one US wollastonite facility found no evidence for such effects among never smokers or former smokers. Based on human epidemiology studies and a 2 year inhalation bioassay in rats, overall evidence suggests that wollastonite fibers are unlikely to cause human lung disease.

CRYSTALLINE SILICA: Inhalation of respirable crystalline silica dust can cause silicosis, a form of progressive pulmonary fibrosis.

High levels of exposure to any dust may aggravate pre-existing respiratory conditions.

Aspiration hazard

Not available.

Information on the likely routes of exposure — Routes of entry anticipated: Oral, Inhalation.

Potential chronic health effects

General	Excessive exposure to any dust may aggravate pre-existing respiratory conditions.
Carcinogenicity	No known significant effects or critical hazards. CRYSTALLINE SILICA: May cause cancer. Risk of cancer depends on duration and level of exposure.
Mutagenicity	No known significant effects or critical hazards.
Teratogenicity	No known significant effects or critical hazards.
Developmental effects	No known significant effects or critical hazards.
Fertility effects	No known significant effects or critical hazards.
Other chronic effects	May adversely affect the lung (pneumoconiosis) and/or lung function. CRYSTALLINE SILICA: May cause silicosis. Severity of effect depends on duration and level of exposure.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Other information — Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Section 12. Ecological information

Bioaccumulative potential

Not available.

Other adverse effects No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	Not regulated.	-	-	-		-
TDG Classification	Not regulated.	-	-	-		-
ADR/RID Class	Not regulated.	-	-	-		-
IMDG Class	Not regulated.	-	-	-		-
IATA-DGR Class	Not regulated.	-	-	-		-

PG* : Packing group

Section 15. Regulatory information

U.S. Federal regulations

United States Inventory (TSCA 8b) All components are active or exempted.

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 311/312

Classification Delayed (chronic) health hazard

State regulations

Section 15. Regulatory information

Massachusetts The following components are listed: SILICA, CRYSTALLINE, QUARTZ

New York None of the components are listed.

New Jersey The following components are listed: SILICA, QUARTZ; QUARTZ (SiO2)

Pennsylvania The following components are listed: QUARTZ (SiO2)

California Prop. 65

WARNING: This product can expose you to crystalline silica respirable, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

International regulations

Inventory list

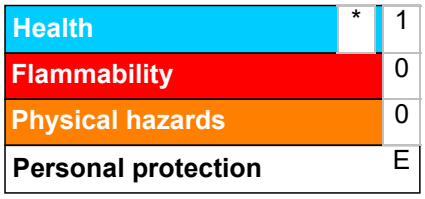
Australia Inventory (AIIC)	All components are listed or exempted.
Canada Inventory	All components are listed or exempted.
China Inventory (IECSC)	All components are listed or exempted.
Europe inventory	All components are listed or exempted.
Japan Inventory (CSCL)	All components are listed or exempted.
Japan inventory (ISHL)	All components are listed or exempted.
Malaysia Inventory (EHS Register)	All components are listed or exempted.
New Zealand Inventory of Chemicals (NZIoC)	All components are listed or exempted.
Philippines Inventory (PICCS)	All components are listed or exempted.
Korea inventory (KECI)	All components are listed or exempted.
Taiwan Chemical Substances Inventory (TCSI)	All components are listed or exempted.
Turkey Inventory (CICR)	All components are listed or exempted.

Section 16. Other information

Other special considerations

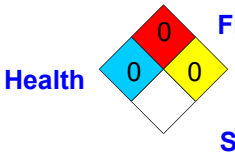
Airborne sampling for respirable quartz during mining, processing and bagging of this product routinely reflects concentrations ranging from below detection limit to 0.01 mg/m^3 over an 8 hour work shift. Levels at and below 0.01 mg/m^3 are typical.

Hazardous Material Identification System (U.S.A.)



* Chronic Potential

National Fire Protection Association (U.S.A.)



The customer is responsible for determining the PPE code for this material.

History

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Version	2

Key to abbreviations

ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973

Section 16. Other information

as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

Information contact

Vanderbilt Global Services, LLC
Corporate Risk Management
1-203-295-2143

Visit www.vanderbiltminerals.com for more information.

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