

SAFETY DATA SHEET

Section 1. Identification

| | | |
|------------------------------|---|---|
| Product name | VANSIL® W-30 | <u>In case of emergency</u> |
| Code | 59279 | 1-203-295-2140 |
| Supplier/Manufacturer | Vanderbilt Minerals, LLC 33 Winfield Street Norwalk, CT 06855 | 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 (inhalation) - Category 1A SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (respiratory tract) (inhalation) - 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) |
| <u>Precautionary statements</u> | |
| 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. Use personal protective equipment as required. 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. |

Section 2. Hazards identification

Disposal

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

Hazards not otherwise classified

May cause mechanical eye or skin irritation in high concentrations. Product may become slippery when wet.

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 | <99 |
| 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.

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

Section 7. Handling and storage

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: 10 mg/m ³ total dust; 3 mg/m ³ respirable dust (PNOS) |
| quartz | OSHA PEL (United States). TWA respirable fraction formula: 10 mg/m ³ / % SiO ₂ +2 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.

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

Section 8. Exposure controls/personal protection

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.

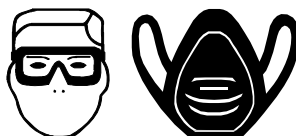
Other skin protection

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 available. |
| Evaporation rate | Not applicable. |
| Vapor pressure | Not applicable. |
| Vapor density | Not applicable. |
| Relative density | Not available. |
| Solubility in water | Insoluble |
| Viscosity | Not available. |

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. |
| 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. In an epidemiological study of a small cohort of wollastonite quarry workers (Huuskonen et al, 1983), the observed deaths from all cancers and lung cancer were lower than expected. 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 | NTP |
|-------------------------|------|------|---------------------------------|
| wollastonite | (a) | 3 | - |
| 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

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)

Section 11. Toxicological information

| Name | Category | Route of exposure | Target organs |
|--------|------------|-------------------|-------------------|
| quartz | Category 1 | Inhalation | respiratory tract |

Aspiration hazard

Not available.

Information on the likely routes of exposure

Routes of entry anticipated: Oral, Inhalation.

Potential chronic health effects

General

Not available.

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.

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 listed or exempted.

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 311/312

Classification

Delayed (chronic) health hazard

State regulations

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

Section 15. Regulatory information

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

International regulations

Canada inventory

All components are listed or exempted.

Europe inventory

All components are listed or exempted.

International lists

Australia inventory (AICS): All components are listed or exempted.

China inventory (IECSC): All components are listed or exempted.

Japan inventory: All components are listed or exempted.

Korea inventory: 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.

Taiwan inventory (CSNN): All components are listed or exempted.

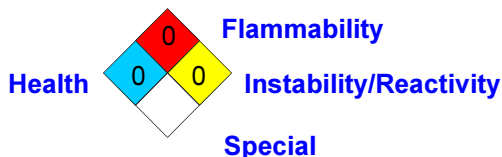
Section 16. Other information

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

| | | |
|---------------------|---|---|
| Health | * | 1 |
| Flammability | | 0 |
| Physical hazards | | 0 |
| Personal protection | | E |

* Chronic Potential

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



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

History

Date of printing 6/22/2015.

Validation date 6/22/2015.

Date of previous issue 3/10/2015.

Version 2.01

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 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 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.

Notice to reader

Information presented herein has been compiled from sources considered to be dependable and is accurate and reliable to the best of our knowledge and belief but is not guaranteed to be so. Nothing herein is to be construed as recommending any practice or any product in violation of any patent or in violation of any law or regulation. It is the user's responsibility to determine for himself the suitability of any material for a specific purpose and to adopt such safety precautions as may be necessary. We make no warranty as to the results to be obtained in using any material and, since conditions of use are not under our control, we must necessarily disclaim all liability with respect to the use of any material supplied by us.