

1. Chemical product and company identification

A. Product name **VERSAFLOW 60 PLUS; VERSAFLOW 60 PLUS WF**
Brand Code 2830, 367B

B. Recommended use and Limitations on use

Recommended use For Industrial Use Only
Limitations on use Users should be informed of the potential presence of respirable dust and respirable crystalline silica as well as their potential hazards. Appropriate training in the proper use and handling of this material should be provided as required under applicable regulations.

C. Supplier information

Company name HarbisonWalker International
Address 1305 Cherrington Parkway, Suite 100
 Moon Township Pennsylvania 15108
 United States

Telephone General Phone: 412-375-6600
Email sds@thinkhwi.com
Contact person Product Safety Specialist
Emergency telephone number CHEMTREC 24 HOUR 1-800-424-9300
 EMERGENCY #

2. Hazards identification

A. Hazard category/Classification

Physical hazards Not classified.
Health hazards Carcinogenicity Category 1A
 Specific target organ toxicity, single exposure Category 3 respiratory tract irritation
 Specific target organ toxicity, repeated exposure Category 2
Environmental hazards Not classified.

B. Warning label items including precautionary statement

• **Pictogram**



• **Signal word** Danger

• **Hazard statement**

H335 May cause respiratory irritation.
 H350 May cause cancer.
 H373 May cause damage to organs through prolonged or repeated exposure.

• **Precautionary statement**

Prevention

P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P260 Do not breathe dust/fume/gas/mist/vapors/spray.
 P271 Use only outdoors or in a well-ventilated area.
 P281 Use personal protective equipment as required.

Response

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 P308 + P313 IF exposed or concerned: Get medical advice/attention.
 P312 Call a POISON CENTER or doctor/physician if you feel unwell.

Storage

P403 + P233 Store in a manner to minimize airborne dust.
 Store in a well-ventilated place. Keep container tightly closed.

Disposal

P501 Dispose of contents/container (in accordance with related regulations).

C. Other hazards not included in the hazard category criteria (e.g. dust explosion hazard) None known.

Supplemental information None.

3. Composition/information on ingredients

Chemical identity	Common and alternative names	CAS number	ID number	Content in percent (%)
Mullite		1302-93-8	KE-01057	60 - 80
Amorphous Silica		7631-86-9	KE-31032	10 - 20
	SILICA, AMORPHOUS, FUMED * SILICA (CRYSTALLINE FREE)			
Aluminium Oxide (Non-Fibrous)		1344-28-1	KE-01012	2.5 - 10
Cement, Alumina, Chemicals		65997-16-2	KE-00880	2.5 - 10
Fumes, Silica		69012-64-2	KE-17303	2.5 - 10
Titanium Dioxide		13463-67-7	KE-33900	1 - 2.5
Other components below reportable levels				2.5 - 10

4. First aid measures

- A. In case of eye contact** Rinse with water. Get medical attention if irritation develops and persists.
- B. In case of skin contact** Wash off with soap and water. Get medical attention if irritation develops and persists.
- C. In case of inhalation** Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
- D. In case of swallowing** Rinse mouth. Get medical attention if symptoms occur.
- E. Note to physician** Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.
- General advice** IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

- A. Suitable (and unsuitable) extinguishing media**
- Suitable extinguishing media** Use fire-extinguishing media appropriate for surrounding materials.
- Unsuitable extinguishing media** Not available.
- B. Specific hazards arising from the chemical (example: hazardous combustion products)** Not available.
- C. Specific methods of fire-fighting** Not available.

6. Accidental release measures

- A. Personal precautions, protective equipment and emergency measures** Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the MSDS.
- B. Environmental precautions** Avoid discharge into drains, water courses or onto the ground.
- C. Methods and materials for containment and cleaning up** Stop the flow of material, if this is without risk. Following product recovery, flush area with water. Put material in suitable, covered, labeled containers. For waste disposal, see section 13 of the MSDS.

7. Handling and storage

- A. Precautions for safe handling** Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep formation of airborne dusts to a minimum. Provide appropriate exhaust ventilation at places where dust is formed. Do not breathe dust. Avoid prolonged exposure. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.
- B. Conditions for safe storage (including any incompatibilities)** Avoid dust formation. Store away from incompatible materials (see Section 10 of the MSDS).

8. Exposure controls/personal protection

A. Exposure limit values, biological limit values, etc

Korea. OELs. Standards for Exposure to Chemical Substances and Physically Hazardous Factors

Components	Type	Value
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	TWA	10 mg/m3
Amorphous Silica (CAS 7631-86-9)	TWA	10 mg/m3
Titanium Dioxide (CAS 13463-67-7)	TWA	10 mg/m3

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	TWA	1 mg/m3	Respirable fraction.
Mullite (CAS 1302-93-8)	TWA	1 mg/m3	Respirable fraction.
Titanium Dioxide (CAS 13463-67-7)	TWA	10 mg/m3	

Biological limit values

No biological exposure limits noted for the ingredient(s).

Exposure guidelines

Occupational exposure to nuisance dust (total and respirable) and respirable crystalline silica should be monitored and controlled.

B. Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

C. Personal protective equipment

- **Respiratory protection** Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits.
- **Eye protection** If contact is likely, safety glasses with side shields are recommended.
- **Hand protection** Wear appropriate chemical resistant gloves.
- **Body protection** Use of an impervious apron is recommended.



Hygiene measures

Observe any medical surveillance requirements. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

A. Appearance

Physical state	Solid.
Form	Solid.
Color	Not available.

B. Odor Not available.

C. Odor threshold Not available.

D. pH Not available.

E. Melting point/freezing point Not available.

F. Boiling point, initial boiling point, and boiling range Not available.

G. Flash point Not available.

H. Evaporation rate Not available.

I. Flammability (solid, gas) Not available.

J. Upper/lower limit on flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
K. Vapor pressure	Not available.
L. Solubility	
Solubility (water)	Not available.
M. Vapor density	Not available.
N. Specific gravity	Not available.
O. n-octanol/water partition coefficient	Not available.
P. Auto-ignition temperature	Not available.
Q. Decomposition temperature	Not available.
R. Viscosity	Not available.
S. Molecular weight	Not available.
Other data	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

10. Stability and reactivity

Reactivity The product is stable and non-reactive under normal conditions of use, storage and transport.

A. Stability and hazardous reaction potential

Stability	Material is stable under normal conditions.
Hazardous reaction potential	No dangerous reaction known under conditions of normal use.

B. Conditions to avoid (e.g. static discharge, shock or vibration, etc) Contact with incompatible materials.

C. Incompatible materials Acids. Fluorine. Chlorine.
Incompatibility is based strictly upon potential theoretical reactions between chemicals and may not be specific to industrial application exposure.

D. Hazardous decomposition products No hazardous decomposition products are known.

11. Toxicological information

A. Information on likely routes of exposure

• Respiratory organs	May cause irritation to the respiratory system. Prolonged inhalation may be harmful.
• Skin	No adverse effects due to skin contact are expected.
• Eyes	Direct contact with eyes may cause temporary irritation.
• Mouth	Expected to be a low ingestion hazard.

B. Information on health hazards

• Acute toxicity (list all possible routes of exposure)	Not known.
• Corrosivity or irritation to the skin	Prolonged skin contact may cause temporary irritation.
• Serious eye damage/eye irritation	Direct contact with eyes may cause temporary irritation.
• Respiratory sensitization	Not a respiratory sensitizer.
• Skin sensitization	This product is not expected to cause skin sensitization.

• **Carcinogenic properties**
/Carcinogenicity

In 1997, IARC (the International Agency for Research on Cancer) concluded that crystalline silica inhaled from occupational sources can cause lung cancer in humans. However in making the overall evaluation, IARC noted that "carcinogenicity was not detected in all industrial circumstances studied. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." (IARC Monographs on the evaluation of the carcinogenic risks of chemicals to humans, Silica, silicates dust and organic fibres, 1997, Vol. 68, IARC, Lyon, France.) In June 2003, SCOEL (the EU Scientific Committee on Occupational Exposure Limits) concluded that the main effect in humans of the inhalation of respirable crystalline silica dust is silicosis. "There is sufficient information to conclude that the relative risk of lung cancer is increased in persons with silicosis (and, apparently, not in employees without silicosis exposed to silica dust in quarries and in the ceramic industry). Therefore, preventing the onset of silicosis will also reduce the cancer risk..." (SCOEL SUM Doc 94-final, June 2003) According to the current state of the art, worker protection against silicosis can be consistently assured by respecting the existing regulatory occupational exposure limits. May cause cancer. Occupational exposure to respirable dust and respirable crystalline silica should be monitored and controlled.

IARC Monographs. Overall Evaluation of Carcinogenicity

Amorphous Silica (CAS 7631-86-9)	3 Not classifiable as to carcinogenicity to humans.
Fumes, Silica (CAS 69012-64-2)	3 Not classifiable as to carcinogenicity to humans.
Titanium Dioxide (CAS 13463-67-7)	2B Possibly carcinogenic to humans.

• **Mutagenic properties**
/Mutagenicity

No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

• **Reproductive toxicity**

This product is not expected to cause reproductive or developmental effects.

• **Specific target organ toxicity - single exposure**

May cause respiratory irritation.

• **Specific target organ toxicity - repeated exposure**

May cause damage to organs through prolonged or repeated exposure.

• **Aspiration hazard**

Not an aspiration hazard.

12. Ecological information

A. Ecotoxicity

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Hazardous to the aquatic environment, acute hazard

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

B. Persistence/degradability

No data is available on the degradability of this product.

C. Bioaccumulative potential

No data available.

D. Mobility in soil

No data available for this product.

E. Other adverse effects

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

A. Method of disposal

This product, in its present state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40 CFR 261.4 (b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste.

B. Disposal considerations (including disposal of contaminated containers or packaging)

Not available.

Waste code

Since this product is used in several industries, no Waste Code can be provided by the supplier. The Waste Code should be determined in arrangement with your waste disposal partner or the responsible authority.

14. Transport information

IATA

A. UN number

Not applicable.

B. UN proper shipping name

Not applicable.

C. Transport hazard class(es)

Class

Not applicable.

Subsidiary risk

-

D. Packing group

Not applicable.

E. Environmental hazards

No.

F. Special precautions for user

Not applicable.

IMDG

- A. UN number** Not applicable.
B. UN proper shipping name Not applicable.
C. Transport hazard class(es)
Class Not applicable.
Subsidiary risk -
D. Packing group Not applicable.
E. Environmental hazards
Marine pollutant No.
EmS Not applicable.
F. Special precautions for user Not applicable.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

15. Regulatory information

A. Restrictions under the Industrial Safety and Health Law

Harmful Substances Prohibited from Manufacturing

Not regulated.

Harmful Substances Requiring Permission for Manufacture or Use

Not regulated.

Controlled Hazardous Substances

Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)

Mullite (CAS 1302-93-8)

Titanium Dioxide (CAS 13463-67-7)

Harmful Substances Requiring Special Medical Examination

Mullite (CAS 1302-93-8)

MINERAL DUST (CAS 1344-28-1) Dust

MINERAL DUST (CAS 13463-67-7) Dust

Workplace Environmental Monitoring Harmful Materials

Mullite (CAS 1302-93-8)

OTHER MINERAL DUST (CAS 1344-28-1) Dust

OTHER MINERAL DUST (CAS 13463-67-7) Dust

Occupational Exposure Limit

Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)

Amorphous Silica (CAS 7631-86-9)

Titanium Dioxide (CAS 13463-67-7)

B. Restrictions under the Chemicals Control Law (Previously Toxic Chemicals Control Law)

Accidental Release Prevention Substances

Not regulated.

Observational Chemicals

Not regulated.

C. Restrictions under the Dangerous Substance Safety Management Act

D. Restrictions under the Wastes Control Act

Halogenated Materials in Waste Organic Solvents

Not regulated.

Hazardous Substances

Not regulated

E. Restrictions under other foreign or domestic laws

Clean Air Conservation Act

Air Pollutants

Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)

Mullite (CAS 1302-93-8)

Titanium Dioxide (CAS 13463-67-7)

Specific Air Pollutants

Not regulated.

Act on the Registration and Evaluation of Chemicals

Banned Toxic Chemicals

Not regulated.

Designated Existing Chemicals Subject to Registration (PEC) (MoE No. 2015-92)

Not listed.

Restricted Chemical Substances

Not regulated.

Toxic Chemicals

Not regulated.

Further information This material safety data sheet was prepared in accordance with Article 41 of the Industrial Safety and Health Law.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Korea	Existing Chemicals List (ECL)	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

A. Source of information Not available.

B. Issue date 07-20-2018

C. Number of revisions and date of most recent revision Not applicable.

D. Other Not available.

Disclaimer This information is based on our present knowledge on creation date. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Revision information Product and Company Identification: Product Codes
Composition / Information on Ingredients: Ingredients