

Chemical Name : PERESEAL[®] AF Bathroom & Kitchen Version : 1.3
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Section 1. Product and Company Identification

Product Name	: PERESEAL[®] AF Bathroom & Kitchen Silicone Sealant	Emergency Telephone Number: +65 6558 6388
Chemical Name	: Oxime Silicone Sealant	Telephone number for Information: +65 6558 6388
Supplier/Manufacturer Information	: PFE Technologies Pte Ltd 9 Gul Street 4 Singapore 629238	Fax Number: +65 6558 7310
Contact Person	: info@pfe.tech	
Email	: info@pfe.tech	
Website	: www.pfe.tech	

Section 2. Hazards Identification

GHS classification

Health hazards : Skin sensitizer – Category 1
Carcinogenicity – Category 2
Specific Target Organ Toxicity – Repeated Exposure – Category 2

GHS label elements

Hazard pictograms : 

Signal word : Warning

Hazard statements : May cause an allergic skin reaction
Suspected of causing cancer.
Causes damage to organs through prolonged or repeated exposure

Precautionary statements

Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wear protective gloves. Do not breathe dust. Contaminated work clothing should not be allowed out of the workplace.

Response : Get medical advice/attention if you feel unwell. IF exposed or concerned: Get medical advice/attention. IF ON SKIN: Wash with plenty of water. Wash contaminated clothing before reuse. If skin

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irritation or rash occurs: get medical attention.

Storage : Store locked up.

Disposal : Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in classification

Primary hazards : No data available.

Specific hazards : No data available.

Section 3. Composition / Information on Ingredients

Chemical nature : Mixture of polydimethylsiloxanes, fillers and cross-linkers.

Substance or Preparation : Mixtures

Hazardous Ingredients

Chemical Identity	Concentration*	CAS number
Oxime silane	<10%	Trade secret
Titanium dioxide	<10%	13463-67-7
butanone oxime vinylsilane	<1%	2224-33-1
Aminofunctional Silane	<1%	Trade secret
Octamethylcyclotetrasiloxane	<1%	556-67-2

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Trade secret information : A specific chemical identity and/or percentage of composition has been withheld as a trade secret.

Section 4. First-aid Measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention following exposure or if feeling unwell.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention following exposure or if feeling unwell. If unconscious,

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place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention following exposure or if feeling unwell. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

There is no specific antidote. Treatment is symptomatic and supportive.

Section 5. Fire-Fighting Measures

Extinguishing Media

Suitable extinguishing media : Use dry chemical, CO₂, alcohol-resistant foam.

Specific hazards arising from the chemical : By heating and fire, irritating vapors/gases may be formed. In case of fire, carbon monoxide and carbon dioxide may be formed.

Special protective actions for fire-fighters : Remove sources of combustibles. Extinguish the fire using fire-fighting media listed above. Cool surrounding tanks, buildings and so on by spraying with water to prevent the fire extension. The fire fighting should be done from the windward side, with suitable respiratory protective device, if necessary.

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.

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Section 6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Use water spray to keep fire-exposed containers cool. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- For emergency responders** : If specialised 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 material for containment and cleaning up

- Small spill** : Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 of SDS for emergency contact information and section 13 of SDS for waste disposal.
- Large spill** : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 of SDS for emergency contact information and section 13 of SDS for waste disposal.

Section 7. Handling and Storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see section 8 of SDS). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not breathe dust. Do not ingest. Use only with adequate ventilation. 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.

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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. 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 of SDS) and food and drink. 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.

Section 8. Exposure Controls / Personal Protection

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. Wear suitable gloves and eye/face protection.

Occupational exposure limits:

Chemical name	Type	Exposure limit values	Source
Titanium dioxide	TWA	10 mg / m ³	Singapore. PELs. (Workplace Safety and Health (Permissible Exposure Levels of Toxic Substances) Order) (2006)

Personal protective equipment (PPE)

Respiratory protection : Gas mask for organic gas if MEKO exposure limits are exceeded (3 ppm 8-hr TWA, recommended workplace exposure guideline).

Eye / face protection : Safety glasses with side shields

Hand protection : Chemical resistant gloves

Skin protection : Chemical resistant boots. Chemical resistant clothing

Hygiene measures : Avoid contact with eyes, skin, and clothing. Wash hands after handling. When using do not eat, drink or smoke.

Section 9. Physical and Chemical Properties

Appearance

Physical state : Solid

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Form	: Paste
Colour	: Clear to white
Odour	: Faint odour.
Odour threshold	: Not available.
pH	: Not available.
Melting point	: Not applied.
Boiling point	: Not applied.
Flash point	: 81 °C
Burning time	: Not available.
Burning rate	: Not available.
Evaporation rate	: Not available.
Flammability (solid, gas)	: Not available.
Lower and upper explosive (flammable) limits	: Lower: Not available. Upper: Not available.
Vapour pressure	: Not available.
Vapour density	: Not available.
Density	: 1.03 g/cm ³ (23 °C)
Relative density	: Not available.
Solubility	: Not available.
Solubility in water	: Insoluble.
Partition coefficient: n-octanol/water	: Not available.
Auto-ignition temperature	: 450 °C
Decomposition temperature	: No decomposition if stored and applied as directed.
SADT	: Not available.
Viscosity	: Dynamic: Not available Kinematic: Not available
Explosive properties:	: Not available.
Oxidizing properties:	: Not available.

Section 10. Stability and Reactivity

Reactivity	: Stable under normal conditions.
Chemical stability	: The product is stable.
Conditions to avoid	: Keep away from heat, sparks and open flame.
Incompatible materials	: Moisture.
Hazardous decomposition products	: Reacts with water/moisture liberating Methylketoxime (MEKO) = 2-Butanone-oxime. Measurements at temperatures above 150°C in presence of air (oxygen) have shown that small amounts of formaldehyde are formed due to oxidative degradation.

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Section 11. Toxicological Information

Information on likely routes of exposure

Inhalation : No data available.
Ingestion : No data available.
Skin Contact : No data available.
Eye Contact : No data available.

Information on toxicological effects

Acute toxicity

Oral

Product : No data available.
Specified substances
 Oxime silane : No data available.
 Titanium dioxide : LD 50 (Rat): > 10,000 mg/kg
 Octamethylcyclotetrasiloxane : LD 50 (Rat): 4,800 mg/kg (OECD-Guideline 401 (Acute Oral Toxicity)) Not classified
 LD 50 (Mouse): 1,700 mg/kg Not classified
 LD 50 (Rat): 2,995 mg/kg (OPPTS 870.1100)
 Aminofunctional Silane :
 Butanone oxime vinylsilane : No data available.

Dermal

Product : No data available.
Specified substances
 Oxime silane : No data available.
 Titanium dioxide : LD 50 (Rabbit): > 10,000 mg/kg
 Octamethylcyclotetrasiloxane : LD 50 (Rat): > 2,400 mg/kg (OECD Test Guideline 402) Not classified
 Aminofunctional Silane : LD 50 (Rabbit): > 2,000 mg/kg
 Butanone oxime vinylsilane : No data available.

Inhalation

Product : No data available.
Specified substances
 Oxime silane : No data available.
 Titanium dioxide : LC50 (Rat, 4 h): > 6.8 mg/l
 Octamethylcyclotetrasiloxane : LC50 (Rat, 4 h): > 12.1 mg/l LC50 (Rat, 4 h): 36 mg/l (OECD Test Guideline 403)
 Aminofunctional Silane : No data available.
 Butanone oxime vinylsilane : No data available.

Repeated dose toxicity

Product : No data available.
Specified substances
 Oxime silane : No data available.
 Titanium dioxide : No data available.

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Octamethylcyclotetrasiloxane : No data available.
 Aminofunctional Silane : NOAEL (Rat, Oral, 28 d): >= 500 mg/kg
 Butanone oxime vinylsilane : No data available.

Skin corrosion / irritation

Product : No data available.

Serious eye damage / irritation

Product : No data available.

Respiratory or skin sensitization

Product : Causes sensitization on guinea-pigs. No human information is available.

Germ Cell Mutagenicity

In vitro

Product : No data available.

Specified substances

Oxime silane : No data available.
 Titanium dioxide : No data available.
 Octamethylcyclotetrasiloxane : Ames-Test (OECD-Guideline 471 (Genetic Toxicology: Salmonella typhimurium, Reverse Mutation Assay)): negative (not mutagenic)
 Mouse Lymphoma Assay (OECD Guidline 476): negative (not mutagenic)
 Aminofunctional Silane : No data available.
 Butanone oxime vinylsilane : No data available.

In vivo

Product : No data available.

Specified substances

Oxime silane : No data available.
 Titanium dioxide : No data available.
 Octamethylcyclotetrasiloxane : Chromosomal aberration (OECD-Guideline 474 (Genetic Toxicology: Micronucleus Test)) Inhalation (Rat, male and female): negative
 Aminofunctional Silane : No data available.
 Butanone oxime vinylsilane : No data available.

Carcinogenicity

Product : No data available.

Specified substances

Oxime silane : No data available.
 Titanium dioxide : No data available.
 Octamethylcyclotetrasiloxane : No data available.
 Aminofunctional Silane : No data available.
 Butanone oxime vinylsilane : No data available.

Reproductive toxicity

Product : No data available.

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Specified substances

Oxime silane : No data available.
 Titanium dioxide : No data available.
 Octamethylcyclotetrasiloxane : No data available.
 Aminofunctional Silane : No data available.
 Butanone oxime vinylsilane : No data available.

Specific Target Organ Toxicity - Single Exposure

Product : No data available.

Specified substances

Oxime silane : No data available.
 Titanium dioxide : No data available.
 Octamethylcyclotetrasiloxane : No data available.
 Aminofunctional Silane : No data available.
 Butanone oxime vinylsilane : No data available.

Specific Target Organ Toxicity - Repeated Exposure

Product : No data available.

Specified substances

Oxime silane : No data available.
 Titanium dioxide : No data available.
 Octamethylcyclotetrasiloxane : No data available.
 Aminofunctional Silane : No data available.
 Butanone oxime vinylsilane : No data available.

Aspiration Hazard

Product : No data available.

Specified substances

Oxime silane : No data available.
 Titanium dioxide : No data available.
 Octamethylcyclotetrasiloxane : No data available.
 Aminofunctional Silane : No data available.
 Butanone oxime vinylsilane : No data available.

Metabolism : No data available.

Other effects

Toxicity of methyl ethyl ketoxime (MEKO) liberated when the material is in touch with water or moisture in the air, or the material is curing. SKIN CONTACT: May cause mild skin irritation. EYE CONTACT: Causes severe eye irritation may damage tissue. ACUTE ORAL TOXICITY: LD50 = 4ml/kg (rat). ACUTE INHALATION: 4-hr LC50 = > 4.8mg/l (rat). INHALATION TOXICITY: Narcotic (central nervous system) effects in high concentrations. Effects were reversible when exposure was ended. Prolonged overexposure causes adverse effects on the blood. SKIN SENSITIVITY: Positive (guinea pig). No allergic reaction to humans. CARCINOGENICITY: A lifetime (about two years) inhalation study in male and female mice and rats revealed that liver tumors were observed in male mice and rats at a high exposure level of 375 ppm. OTHER LONG-TERM EXPOSURE TESTS: Atrophy of nasal epithelium cells was observed in both mice and rats at all concentrations. The effect appeared reversible at lower concentrations. PERMISSIBLE CONCENTRATION: TWA 3 ppm (supplier's recommended value), Keep well ventilated (STEL 10 ppm or less). The WEEL recommended value of AIHA is TWA 10 ppm.

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Section 12. Ecological Information

General information : not applicable

Ecotoxicity

Acute toxicity

Fish

Product : No data available.
Specified substances

Oxime silane	: No data available.
Titanium dioxide	: LC0 (Leuciscus idus, 48 h): > 1,000 mg/l
Octamethylcyclotetrasiloxane	: No data available.
Aminofunctional Silane	: LC50 (Lepomis macrochirus): > 100 mg/l
Butanone oxime vinylsilane	: No data available.

Aquatic invertebrates

Product : No data available.
Specified substances

Oxime silane	: No data available.
Titanium dioxide	: No data available.
Octamethylcyclotetrasiloxane	: No data available.
Aminofunctional Silane	: EC50 (Daphnia magna, 48 h): 87.4 mg/l
Butanone oxime vinylsilane	: No data available.

Chronic toxicity

Fish

Product : No data available.
Specified substances

Oxime silane	: No data available.
Titanium dioxide	: No data available.
Octamethylcyclotetrasiloxane	: No data available.
Aminofunctional Silane	: No data available.
Butanone oxime vinylsilane	: No data available.

Aquatic invertebrates

Product : No data available.
Specified substances

Oxime silane	: No data available.
Titanium dioxide	: No data available.
Octamethylcyclotetrasiloxane	: No data available.
Aminofunctional Silane	: No data available.
Butanone oxime vinylsilane	: No data available.

Toxicity to aquatic plants

Product : No data available.

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Persistence and degradability

Biodegradation

Product : No data available.

BOD / COD Ratio

Product : No data available.

Specified substances

Oxime silane : No data available.

Titanium dioxide : No data available.

Octamethylcyclotetrasiloxane : No data available.

Aminofunctional Silane : No data available.

Butanone oxime vinylsilane : No data available.

Bioaccumulative potential

Product : No data available.

Mobility in soil

: No data available.

Known or predicted distribution to environmental compartments

Oxime silane : No data available.

Titanium dioxide : No data available.

Octamethylcyclotetrasiloxane : No data available.

Aminofunctional Silane : No data available.

Butanone oxime vinylsilane : No data available.

Results of PBT and vPvB assessment : No data available.

Oxime silane : No data available.

Titanium dioxide : No data available.

Octamethylcyclotetrasiloxane : No data available.

Aminofunctional Silane : No data available.

Butanone oxime vinylsilane : No data available.

Other adverse Effects : No data available.

Section 13. Disposal Considerations

General information : Do not discharge into drains, water courses or onto the ground. See Section 8 for information on appropriate personal protective equipment.

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

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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. See Section 8 for information on appropriate personal protective equipment. The hazard and precautionary statements displayed on the label also apply to any residues left in the container.

Section 14. Transport Information

Special precautions for user : This product is not regarded as dangerous goods according to the ICAO/IATA, ADR/RID, ADNR and IMDG regulations on the transport of dangerous goods.

ADR / RID : Not regulated.

IMDG – International Maritime Dangerous Goods Code : Not regulated.

IATA : Not regulated.

Special precautions for user : This product is not regarded as dangerous goods according to the national and international regulations on the transport of dangerous goods. Keep away from foodstuffs and animal feed. keep away from odour sensitive materials

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not available

Section 15. Regulatory Information

Ingredient name	Type	Authority	Conditions
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Harmful Chemicals List I : Not listed

Harmful Chemicals List II : Not listed

Applicable regulations:

Factories Act

Act on the Control of Transboundary Movements of Hazardous Wastes and their Disposal

Environmental Public Health Act Environmental Public Health (Toxic Industrial Waste) Regulations

Singapore. Hazardous Substances Control List (Environmental Protection and Management Act, Second Schedule, Part 1, Control of Hazardous Substances)

Environmental Pollution Control (Hazardous Substances) Regulations

Singapore. PELs. (Workplace Safety and Health (Permissible Exposure Levels of Toxic Substances) Order)

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International lists:

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

Canada inventory Not determined.

Japan inventory All components are listed or exempted.

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

New Zealand Inventory (NZIoC) All components are listed or exempted.

Philippines inventory (PICCS) All components are listed or exempted.

United States inventory (TSCA 8b) Q (quantity restricted)

Korea inventory All components are listed or exempted.

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

Section 16. Other Information

History

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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)

RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail

UN = United Nations

References : Not available

Notice to reader

Unless otherwise specified in section 1, PFE Technologies Pte Ltd products are intended for industrial application only. They are not intended for specific medical applications, neither for long-lasting (> 30 days) implantation into the human body, injected or directly ingested, nor for the manufacture of multiple usable contraceptives.

Keep out of the reach of children.

Further Information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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