Material Safety Data Sheet Conforms to Regulation (EC) 1272/2008

PhireGuard V-100

Issuing date: 29-07-2019, Version 1.1.

Section 1: Product and Company Identification

1.1 Product identifier

Product form	Substance
Trade name	Phireguard V-100
CAS N°	1047637-37-5
EC N°	809-920-4
REACH registration N°	01-2120089691-46-0000
Proper shipping name	None
Formula	C17H32O8Cl6P2
Synonyms	2.2-Bis(chloromethyl)trimethylene bis(bis(2-chloro-1-methylethyl) phosphate)
Product group	Raw material

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

1.2.1 Relevant identified uses

Main use category	Industrial use
Use of the substance/preparation	Fire-retarding agent Production of polyurethane foam
Function or use category	Flame retardants and fire preventing agents

1.2.2 Uses advised against

No additional information available

1.3 Details of the supplier of the safety data sheet

Jiangsu Yoke Technology Co., Ltd
Economic Development Zone
Yixing, Jiangsu Province
China
Tel: +86 510 87126528
Email: shenfu@yokechem.com

Only representative company name:

Shekoy Chemicals Europa B.V.
Kromme Spieringweg 431
2141 AH Vijfhuizen.
The Netherlands
Tel: +31-(0)23-3035365
Email: purchase@shekoy.com

E-mail address of the competent person responsible for the sds: gc@yokechem.com

1.4 Emergency telephone number

Country	Emergency telephone	Hours of operation
Belgium	+32 70 245 245	24hrs
France	+33 1 45 42 59 59	24hrs
Germany	+49 214 3099300	24hrs
Italy	+39 800 883 300	24hrs
Norway	+47 22 59 13 00	24hrs
Poland	+48 42 63 14 724	24hrs
Portugal	+351 808 250 143	24hrs
Romania	+402 212 106 282	24hrs
Spain	+34 156 20420	24hrs
Sweden	+46 8 33 12 31 / 112	24hrs
Switzerland	+41 44 251 5151 (in Switzerland dial 145)	24hrs
The Netherlands	+31 30 274 8888	24hrs
Turkey	+90 312 433 7001 or +90 800 314 7900	24hrs
United Kingdom of Great Britain and Northern Ireland	+44 844 892 0111	24hrs

Section 2 Hazards Identification / Classification and Labeling

2.1. Classification of the substance or mixture

Classification in accordance with the CLP Regulation EC/1272/2008:

Classification: None

2.2. Label elements

Labeling in accordance with the CLP Regulation EC/1272/2008:

Signal word: None
Hazard Statements: None
Precautionary Statements: None

2.3. Other hazards

Substance does meet the criteria for PBT according to Regulation (EC) No 1907/2006, Annex XIII: No.
Substance does meet the criteria for vPvB according to Regulation (EC) No 1907/2006, Annex XIII: No.
Other hazards which does not results in a classification: none

Section 3 Chemical Information / Composition

3.1. Substances

Substance	Weight %	CAS No	EC No	CLP	Haz. St.
Phosphoric acid, 2,2 bis(chloromethyl)- 1,3 propanediyltetrakis(2-chloropropyl)ester	90-95	1047637-37-5	809-920-4	-	-
Reaction products of phosphoryl trichloride and methyloxirane	5-10		807-935-0	Warning	H302

3.2. Mixtures

Not applicable

Section 4: First-Aid Measures

4.1. Description of first aid measures

First-aid measures general:

Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.

First-aid measures after inhalation:

Move exposed person to fresh air. Keep person warm and at rest.
If not breathing, if breathing is irregular or if respiratory arrest occurs provide artificial respiration or oxygen by trained personnel. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as collar, tie, belt or waistband.

First-aid measures after ingestion:

Wash out mouth with water. Move exposed person to fresh air. Keep person warm and at rest. 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 doesn't enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in the recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as collar, tie, belt or waistband.

First-aid measures after skin contact:

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Obtain medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

First-aid measures after 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 if irritation occurs.

4.2. Most important symptoms and effects both acute and delayed

Symptoms/Injuries after inhalation:	No data available
Symptoms/Injuries after skin contact:	No effect known
Symptoms/Injuries after eye contact:	No effect known
Symptoms/Injuries after ingestion:	No data available
Chronic symptoms:	No effects known

4.3. Indication of any immediate medical attention and special treatment needed

NOTES TO PHYSICIAN: Treat symptomatically.

Section 5 Fire-fighting Measures

FIRE FIGHTING
Alert Fire Brigade and tell them location and nature of hazard.
Wear full body protective clothing with breathing apparatus.
Prevent, by any means available, spillage from entering drains or water course.
Use water delivered as a fine spray to control fire and cool adjacent area.
Avoid spraying water onto liquid pools.
DO NOT approach containers suspected to be hot.
Cool fire exposed containers with water spray from a protected location.
If safe to do so, remove containers from path of fire.

5.1. Extinguishing Media

Suitable extinguishing media:
In case of fire use water spray (fog), foam, dry chemical or CO2.

Unsuitable extinguishing media:
None

5.2. Special hazards arising from the substance or mixture

Combustion products include: carbon dioxide (CO2), phosphorus oxides (POx), other pyrolysis products typical of burning organic material. May emit poisonous fumes. May emit corrosive fumes.

In a fire or if heated, a pressure increase will occur and the container may burst. 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.

FIRE/EXPLOSION HAZARD: Combustible. Slight fire hazard when exposed to heat or flame. Heating may cause expansion or decomposition leading to violent rupture of containers. On combustion, may emit toxic fumes of carbon monoxide (CO). May emit acrid smoke. Mists containing combustible materials may be explosive.
FIRE INCOMPATIBILITY: Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.
PERSONAL PROTECTION: Respirator Type A Filter of sufficient capacity

5.3. Advice for fire brigade

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

Section 6 Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through split material. Avoid breathing vapour or mist. Provide adequate ventilation. Put on appropriate personal protective equipment (see section 8).

6.2. Environmental precautions

Avoid dispersal of split 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).

6.3. Methods and material for containment and cleaning up

Large spill: Clear area of personnel and move upwind. Alert Fire Brigade and tell them location and nature of hazard. Wear breathing apparatus plus protective gloves. Prevent, by any means available, spillage from entering drains or water course. No smoking, naked lights or ignition sources. Increase ventilation. Stop leak if safe to do so. Contain spill with sand, earth or vermiculite. Collect recoverable product into labeled containers for recycling. Absorb remaining product with sand, earth or vermiculite. Collect solid residues and seal in labeled drums for disposal. Wash area and prevent runoff into drains. If contamination of drains or waterways occurs, advise emergency services.

Small spill: Remove all ignition sources. Clean up all spills immediately. Avoid breathing vapors and contact with skin and eyes. Control personal contact by using protective equipment. Contain and absorb spill with sand, earth, inert material or vermiculite. Wipe up. Place in a suitable, labeled container for waste disposal.

6.4. Reference to other sections

See section 1 for emergency contact.
See section 8 for personal protection equipment.
See section 13 for additional waste treatment.

Section 7 Handling and Storage

7.1. Precautions for safe handling

Avoid all personal contact, including inhalation. Wear protective clothing when risk of exposure occurs. Use in a well-ventilated area. Prevent concentration in hollows and sumps. DO NOT enter confined spaces until atmosphere has been checked. Avoid smoking, naked lights or ignition sources. Avoid contact with incompatible materials. When handling, DO NOT eat, drink or smoke. Keep containers securely sealed when not in use. Avoid physical damage to containers. Always wash hands with soap and water after handling. Work clothes should be laundered separately. Use good occupational work practice. Observe manufacturer's storing and handling recommendations. Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions. DO NOT allow clothing wet with material to stay in contact with skin.

7.2. Conditions for safe storage, including any incompatibilities

SUITABLE CONTAINER: Metal can or drums; Packaging as recommended by manufacturer. Check all containers are clearly labeled and free from leaks.
STORAGE INCOMPATIBILITY: Avoid reaction with oxidizing agents.
STORAGE REQUIREMENTS: 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), 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 un-labeled containers. Use appropriate containment to avoid environmental contamination.

7.3. Specific end use(s)

No additional information available

Section 8 Exposure Control and Personal Protection

8.1. Control parameters

No data available.

8.2. Exposure controls

Occupational exposure controls:

Technical measures: If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Personal protection measures:

Respiratory protection: Use a properly fitted, air-purifying or air-fed 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: organic vapour filter (Type A) if product forms vapour/aerosol.

Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. After contamination with product change the gloves immediately and dispose of them according to relevant national and local regulations <1 hours (breakthrough time): nitrile rubber, PVC.

Eye 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. Recommended: Tightly fitting safety goggles.

Skin 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. Recommended: Wear protective clothing.

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.

Environmental exposure controls:

Technical measures: 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.

Section 9 Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance	Viscous liquid
Color	Light yellow
Odor	Mild
Boiling point/range	231,3°C
Melting point/range	Not determined
Flash point	218,8°C
Flammability	Not applicable
Auto ignition temperature	>500°C
Explosive properties	Not applicable
Explosion limits	Not applicable
Oxidizing properties	Not determined
Vapor pressure	30.8 Pa (20°c)
Density	1377 kg/m³ (20°c)
Bulk density	Not applicable
Solubility in water	Insoluble (<5mg/L)
Solubility in other solvents	Not determined
pH value	5.85
Acid value	< 0.1 mg KOH/g
Partition coefficient n-octanol/water	4.0
Relative vapor density (air=1)	Not determined
Viscosity	4000 cP

9.2. Other information

No other information available.

Section 10 Stability and Reactivity

10.1. Reactivity

On burning release toxic and corrosive gases/vapours (phosphorus oxides, carbon monoxide-carbon dioxide).

10.2. Chemical Stability

Stable under normal conditions of use. Keep out of direct exposure to sunlight. Keep in a well-ventilated storage. If open, store under Nitrogen.

Provided the container is not open and kept in a ventilated area, away from direct sunlight exposition, the shelf-life of the product is at least one year.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid:

Exposure to moisture and water. Hydrolysis: Phenol, substituted phenols

10.5. Incompatible materials

Acid. Bases. Strong oxidizing agents.

10.6. Hazardous decomposition products

Oxides of phosphorous. Carbon oxides.

Section 11 Toxicological Information

11.1. Information on toxicological effects

Acute toxicity

Oral LD50 Rat	No data available
Dermal LD50Rat	No data available
Inhalation LC50	No data available

Irritation

Skin	No data available
Eye	No data available

Genotoxicity

In vivo bone marrow cytogenicity:	No data available
Ames test:	No data available
In vitro cell gene mutation test (in mouse lymphoma cells)	No data available
In vitro cytogenetic test (in mouse lymphoma cells)	No data available

Other toxicological information

Classification is based on read-across evaluation with substance:
2.2-Bis(Chloromethyl)trimethylene bis(bis(2-chloroethyl)phosphate)

Section 12 Ecological Information

12.1. Toxicity

Ecotoxicity

Fish 96h-LC50 (Brachydanio rerio) :	10.5 mg/L
Algae (Pseudokirchneriella subcapita) 72h-EC50 :	5.62 mg/L
Daphnia 48h-EC50:	4.46 mg/L

12.2. Persistence and degradability

Readily biodegradable

12.3. Bioaccumulative potential

Does not bioaccumulate;

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

Neither PBT nor vPvB substance.

12.6. Other adverse effects

No information available

Section 13 Disposal Considerations

13.1. Waste treatment methods

Examine possibilities for re-utilisation. Product residues and uncleaned empty containers should be packaged, sealed, labelled, and disposed of or recycled according to relevant national and local regulations. Where large quantities are concerned, consult the supplier. When uncleaned empty containers are passed on, the recipient must be warned of any possible hazard that may be caused by residues. For disposal within the EC, the appropriate code according to the European Waste List (EWL) should be used. It is among the tasks of the polluter to assign the waste to waste codes specific to industrial sectors and processes according to the European Waste List (EWL).

Section 14 Transport Information

Not regulated

Section 15 Regulatory Information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EC regulation 1272/2008 (CLP)

See section 2

Replaces 67/548/EC as from December 1st 2010

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable - 67/548/EEC, 1999/45/EC, Regulation (EC) No 1272/2008, Regulation (EC) No 1907/2006, 98/24/EC, 92/85/EEC, 94/33/EC, 91/689/EEC and 1999/13/EC.

REACH registration nr: 01-2120089691-46-0000

A safety data sheet is not required for this product under Article 31 of REACH. This SDS has been created on a voluntary basis (to pass on relevant information required under Article 32).

15.2. Chemical safety assessment

No information available

Section 16 Other Information

16.1 Indication of changes

New

16.2. Key literature references and sources for data

- ESIS (European chemical Substances Information System), http://esis.jrc.ec.europa.eu/
- REACH registered chemicals, http://echa.europa.eu/chem_data_en.asp
- IFA GESTIS - International limit values for chemical agents - occupational exposure limits (OELs), http://www.dguv.de/ifa/en/gestis/limit_values/index.jsp

This product should be stored, handled and used in accordance with good industrial hygiene practices and in conformity with any legal regulation. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information and recommendations set forth herein are presented in good faith according to our best present knowledge, but without warranty. Information is supplied upon the condition that the persons receiving the same will make their own determination as to its safety and suitability for their purposes prior to use. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product. In no event will Jiangsu Yoke Technology Co., Ltd or

its affiliates be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information.