

SAFETY DATA SHEET

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended.

SECTION 1. IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

1.1 Product name : PK404DM (Two-Part Thermal Conductive Gap Filler)

Product Code(s) : PK404DM

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

: Cure-In-Place gasket.
Use pattern: professional use.
No restrictions on use known.

1.3 Details of the supplier of the safety data sheet:

Shiu Li Technology Co.,Ltd

No.435, Yongfeng Rd., Bade City,
Taoyuan County 33455, Taiwan

E-mail: service@shiuli.com.tw
Website: www.shiuli.com.tw

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1.4 Emergency Telephone Number

: +886-3-3788588

1.5 National Contact

: E-mail: service@shiuli.com.tw
Website: www.shiuli.com.tw

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Part A :Blue paste. No odour.

Part B :White paste. No odour

Most important hazards:

Occupational exposure to the substance or mixture may cause adverse effects. For further information, please refer to section 11 of the SDS.

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. See Section 12 for more environmental information.

The product is not classified as hazardous according to Regulation (EC) No. 1272/2008.

2.2 Label elements

Hazard pictogram(s)

None required according to Regulation (EC) No. 1272/2008.

Signal word:

None required according to Regulation (EC) No. 1272/2008.

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Hazard statements:

None required according to Regulation (EC) No. 1272/2008.

Precautionary statements:

None required according to Regulation (EC) No. 1272/2008.

Supplemental Hazard Statements:

None required according to Regulation (EC) No. 1272/2008.

2.3 Other hazards

Other hazards which do not result in classification:

Toxic fumes may be released during a fire. Prolonged exposure may cause eye irritation. Prolonged or repeated contact with skin may cause irritation in some cases. Mild respiratory irritant. Inhalation of fumes may result in metal fume fever, a flu-like illness. May cause gastrointestinal irritation.

PBT assessment:

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Not applicable

3.2 Mixtures

Chemical nature - Mixture of: Metal compounds; Siloxanes

The following substances shall be indicated according to legislation:

Substance name	CAS No	EC No.	Reach Registration No.	% Weight	Classification according to Regulation (EC) nr. 1272/2008	SCL, M-factor, ATE
Aluminium oxide	1344-28-1	215-691-6	Not applicable.	85.0 - 95.0	not hazardous Substances for which there are Member Country workplace exposure limits.	Not applicable
Vinylpolydimethyl siloxane	68083-19-2	Polymer	Not applicable.	5.0 - 15.0	Skin Irrit. 2; H315 Eye Irrit. 2; H319 (Supplier)	Not applicable

For the full text of the H phrases not mentioned in this Section or in Section 2, see Section 16.

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SECTION 4. FIRST-AID MEASURES

4.1 Description of first aid measures

- Ingestion* : Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. When symptoms persist or in all cases of doubt, seek medical advice.
- Inhalation* : If inhaled, move to fresh air. If breathing is difficult, give oxygen by qualified medical personnel only. If breathing has stopped, give artificial respiration. When symptoms persist or in all cases of doubt, seek medical advice.
- Skin contact* : For skin contact, wash with soap and water while removing contaminated clothing. When symptoms persist or in all cases of doubt, seek medical advice.
- Eye contact* : Rinse immediately with plenty of water, also under the eyelids. Remove contact lenses, if present and easy to do. When symptoms persist or in all cases of doubt, seek medical advice.

4.1.2 Self-protection for the first aider

- : None known or reported by the manufacturer.

4.2 Most important symptoms and effects, both acute and delayed

- : May be mildly irritating to skin, eyes and respiratory system. Exposure may cause temporary irritation, redness or discomfort. May cause coughing and breathing difficulties.
- Inhalation of fumes may result in metal fume fever, a flu-like illness. Symptoms of metal fume fever may include fever, fatigue, vomiting, muscle aches and shortness of breath.
- Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

4.3 Indication of any immediate medical attention and special treatment needed

- : Provide general supportive measures and treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

- : Use media suitable to the surrounding fire such as water fog or fine spray, alcohol foams, carbon dioxide and dry chemical.

Unsuitable extinguishing media

- : None known.

5.2 Special hazards arising from the substance or mixture

- : Burning produces obnoxious and toxic fumes. The pressure in sealed containers can increase under the influence of heat. In the event of fire the following can be released: Carbon oxides; Metal oxides; Nitrogen oxides (NOx); Silicon oxides.

5.3 Advice for firefighters

Protective equipment for fire-fighters

- : Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode.

Special fire-fighting procedures

- : Move containers from fire area if safe to do so. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses. Dike for water control.



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SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Keep people away from and upwind of spill/leak. Restrict access to area until completion of clean-up. Wear appropriate protective equipment.

6.2 Environmental precautions

Prevent product from entering drains, sewers, waterways and soil.

6.3 Methods and material for containment and cleaning up

: Ventilate the area. Remove all sources of ignition. Prevent further leakage or spillage if safe to do so. Use inert, non-combustible absorbents to assist the pick up of material. Scrape up product and place it into a container for disposal. Keep in properly labelled containers. Never return spills in original containers for re-use. Contaminated absorbent material may pose the same hazards as the spilled product. Contact the proper local authorities.

6.4 Reference to other sections

: Refer to protective measures listed in sections 7 and 8. Refer to Section 13 for disposal of contaminated material.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling

: Use with adequate ventilation. Wear suitable protective equipment during handling. Wear eye/face protection. Avoid breathing dust, fume or vapors. Avoid contact with skin, eyes and clothing. Keep away from extreme heat and direct flame. Keep away from incompatibles. Keep containers closed when not in use. Wash thoroughly after handling.

7.2 Conditions for safe storage, including any incompatibilities

: Store in cool/well-ventilated place. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. Do not store near any incompatible materials (see Section 10).

7.3 Specific end use(s)

: Cure-In-Place gasket.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control Parameters

Exposure Limits:			
Chemical Name	Exposure Limits	Type	Notes
Aluminium oxide	10 mg/m ³ (TWA)	France (OEL)	None.
	1.25 mg/m ³ (respirable dust); 10 mg/m ³ (inhalable) (exposure factor 2) (TWA)	Germany (OEL)	(General dust limit)
	6 mg/m ³ (respirable dust) (TWA)	Hungary (OEL)	None.
	2.5 mg/m ³ (inhalable); 1.2 mg/m ³ (respirable dust) (TWA)	Poland (OEL)	None.
	10 mg/m ³ (TWA)	Spain (OEL)	None.
	10 mg/m ³ (inhalable); 4 mg/m ³ (respirable dust) (TWA)	The United Kingdom (WELs)	None.
Vinylpolydimethyl siloxane	None known.	European Union (OEL)	None.

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Biological Exposure Indices:

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

Derived No Effect Level (DNEL): No information available.

Predicted No Effect Concentration (PNEC): No information available.

8.2 Exposure controls

Ventilation and engineering measures

: Ensure adequate ventilation, especially in confined areas. Apply technical measures to comply with the occupational exposure limits. Good ventilation (typically 10 air changes per hour) should be sufficient to control airborne levels. In case of insufficient ventilation wear suitable respiratory equipment.

Respiratory protection

: In case of insufficient ventilation wear suitable respiratory equipment. The filter class for the respirator must be suitable for the maximum expected contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If this concentration is exceeded, self-contained breathing apparatus must be used. Seek advice from respiratory protection specialists.

Skin protection

: Gloves impervious to the material are recommended. The suitability for a specific workplace should be discussed with the producers of the protective gloves. The selected protective gloves have to satisfy the specifications of EU Directive 89/689/EEC and the standard EN 374 derived from it. Wear sufficient clothing to prevent skin contact.

Eye / face protection

: If product is processed in a manner that generates dusts or fumes, wear as appropriate: Tightly fitting safety goggles; Safety glasses with side shields. See also EN 166. .

Other protective equipment

: Ensure that eyewash stations and safety showers are close to the workstation location. Other equipment may be required depending on workplace standards.

General hygiene considerations

: Avoid breathing dust, fume or vapors. Avoid contact with skin, eyes and clothing. Wash thoroughly after handling. Remove and wash contaminated clothing before re-use. Handle in accordance with good industrial hygiene and safety practice.

8.3 Environmental exposure controls

: Avoid release to the environment.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state : Blue paste (Part A) ; White paste. (Part B)

Colour : Blue (mixed)

Odour : No odour.

Odour threshold : No information available.

pH : No information available.

Flash point : No information available.

Flashpoint (Method) : No information available.

Lower flammable limit (% by vol.)

: No information available.

Upper flammable limit (% by vol.)

: No information available.

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Auto-ignition temperature

: No information available.

Decomposition temperature

: No information available.

Oxidizing properties : None known.

Explosive properties : Not explosive

Initial boiling point and boiling range

: No information available.

Melting/Freezing point : No information available.

Relative density : No information available.

Solubility in water : Insoluble.

Other solubility(ies) : No information available.

Vapour pressure : No information available.

Vapour density : No information available.

Partition coefficient: n-octanol/water

: No information available.

Viscosity : No information available.

Evaporation rate (BuAe = 1)

: No information available.

Particle characteristics : Not applicable.

9.2 Other Information

Volatiles (% by weight) : No information available.

Volatile organic Compounds (VOC's)

: 0 g/L

Other physical/chemical comments

: No additional information.

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity : Not normally reactive.

10.2 Chemical stability : Stable under normal conditions.

10.3 Possibility of hazardous reactions

: Hazardous polymerization does not occur. No dangerous reaction known under conditions of normal use.

10.4 Conditions to avoid : Direct sources of heat. Do not use in areas without adequate ventilation. Avoid contact with incompatible materials.

10.5 Incompatible materials

: Strong oxidizing agents; Strong acids; Strong bases; Halocarbons

10.6 Hazardous decomposition products

: None known.

Burning produces obnoxious and toxic fumes. In the event of fire the following can be released: Carbon oxides; Metal oxides; Nitrogen oxides (NOx); Boron and compounds; Silicon oxides; formaldehyde

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SECTION 11. TOXICOLOGICAL INFORMATION

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended.

11.1 Information on Toxicological effects:

Acute toxicity : According to the classification criteria of the European Union, this product is not considered as being an acutely toxic chemical.

Skin corrosion/Irritation : According to the classification criteria of the European Union, this product is not considered as being a skin corrosive or irritant.

Serious eye damage/irritation

: According to the classification criteria of the European Union, the product is not considered as being an eye irritant.

Respiratory or skin sensitisation

: Not expected to be a skin or respiratory sensitizer.

Germ cell mutagenicity : Contains no ingredient listed as a mutagen.

Carcinogenicity : Contains no ingredient listed as a carcinogen.

Reproductive toxicity : Contains no ingredient listed as toxic to reproduction.

STOT-single exposure : According to the classification criteria of the European Union, this product is not expected to cause target organ toxicity through a single exposure.

STOT-repeated exposure : According to the classification criteria of the European Union, this product is not expected to cause target organ toxicity through repeated exposures.

Aspiration hazard : According to the classification criteria of the European Union, this product is not considered as being an aspiration hazard to humans.

Routes of exposure : Eye contact; Skin contact; Inhalation; Ingestion

Effects of acute exposure :

Inhalation: Mild respiratory irritant. May cause coughing and breathing difficulties.

Inhalation of fumes may result in metal fume fever, a flu-like illness. Symptoms of metal fume fever may include fever, fatigue, vomiting, muscle aches and shortness of breath.

Skin contact: Prolonged skin contact may cause skin irritation. Direct skin contact may cause temporary redness.

Eye contact: Prolonged exposure may cause eye irritation. Direct eye contact may cause temporary redness.

Ingestion: Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Potential Chronic Health Effects

: None known or reported by the manufacturer.

Information on other Hazards

: None known or reported by the manufacturer.

11.1.1 Acute Toxicity

Toxicological data

: There is no available data for the product itself, only for the ingredients. See below for individual ingredient acute toxicity data.

<u>Chemical name</u>	<u>LC₅₀(4hr)</u> <u>inh, rat</u>	<u>LD₅₀</u>	
		<u>(Oral, rat)</u>	<u>(Rabbit, dermal)</u>
Aluminium oxide	>2.3 mg/L (dust) (no deaths)	> 2000 mg/kg (No mortality)	No information available.
Vinylpolydimethyl siloxane	No information available.	> 15 360 mg/kg	> 15 360 mg/kg

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SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity : Not expected to be harmful to aquatic organisms. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. Should not be released into the environment.

See the following tables for individual ingredient ecotoxicity data.

Ecotoxicity data:

<u>Ingredients</u>	CAS No	Toxicity to Fish		
		LC50 / 96h	NOEC / 21 day	M Factor
Aluminium oxide	1344-28-1	> 100 mg/L (Brown trout)	No information available.	None.
Vinylpolydimethyl siloxane	68083-19-2	No information available.	No information available.	No information available.

<u>Ingredients</u>	CAS No	Toxicity to Daphnia		
		EC50 / 48h	NOEC / 21 day	M Factor
Aluminium oxide	1344-28-1	> 100 mg/L (Daphnia magna)	No information available.	None.
Vinylpolydimethyl siloxane	68083-19-2	No information available.	No information available.	No information available.

<u>Ingredients</u>	CAS No	Toxicity to Algae		
		EC50 / 96h or 72h	NOEC / 96h or 72h	M Factor
Aluminium oxide	1344-28-1	> 100 mg/L/72hr (Green algae)	No information available.	None.
Vinylpolydimethyl siloxane	68083-19-2	No information available.	No information available.	No information available.

12.2 Persistence and degradability

: The product itself has not been tested.
Contains the following chemicals which are not readily biodegradable: Aluminium oxide.

12.3 Bioaccumulation potential

: The product itself has not been tested.

12.4 Mobility in soil

: The product itself has not been tested.

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12.5 Results of PBT and vPvB assessment

: This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

12.6 Endocrine disrupting properties

: None known or reported by the manufacturer.

12.7 Other Adverse Environmental effects

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

12.8 Additional information : None known or reported by the manufacturer.



SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods:

Handling for Disposal : Handle in accordance with good industrial hygiene and safety practice. Refer to protective measures listed in sections 7 and 8. This material and its container must be disposed of in a safe way.

Methods of Disposal : Empty container or liners may retain some product residues. Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.
Dispose of in accordance with the European Directives on waste and hazardous waste. Waste must be classified and labelled prior to recycling or disposal. According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14. TRANSPORTATION INFORMATION

<i>Regulatory Information</i>	14.1 UN Number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing Group	<i>Label</i>
ADR/RID	None.	not regulated	not regulated	none	
ADR/RID Additional information	Not classified as dangerous for conveyance in the meaning of the regulations for the transport of dangerous goods by road and rail.				
ICAO/IATA	None.	Not regulated.	not regulated	none	

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ICAO/IATA Additional information	None.				
IMDG	None.	Not regulated.	not regulated	none	
IMDG Additional information	None.				

14.5 Environmental hazards : This product does not meet the criteria for an environmentally hazardous mixture, according to the IMDG Code. See Section 12 for more environmental information.

14.6 Special precautions for user

: Appropriate advice on safety must accompany the package.

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

: Not applicable.

SECTION 15. REGULATORY INFORMATION

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

: Classification according to Regulation (EC) No. 1272/2008 on the classification of hazardous mixtures.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorisation, as amended:

None of the components are specifically listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use, as amended

None of the components are specifically listed.

Directive 2012/18/EU (Seveso III) on the control of major-accident hazards involving dangerous substances:

None of the components are specifically listed.

Directive 98/24/EC on the protection of the health and safety of workers from risks related to chemical agents at work:

Vinylpolydimethyl siloxane (CAS #68083-19-2)

Directive 94/33/EC on the protection of young people at work:

None of the components are specifically listed.

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended [including Regulation (EU) 2015/830].

Follow national regulation for work with chemical agents.

German legislation on water endangering substances VwVwS: Water contaminating class (Germany) - 1 (self classified)

15.2 Chemical safety assessment

: A chemical safety assessment has not been carried out by the Manufacturer of this product.

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SECTION 16. OTHER INFORMATION**Legend**

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ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
CAS: Chemical Abstract Services
CLP: Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
EC: European Community
EC50: Effective Concentration 50%
ECHA: European Chemicals Agency
EEC: European Economic Community
EN: European Standard
EU: European Union
HSDB: Hazardous Substances Data Bank
IATA: International Air Transport Association
IBC: Intermediate Bulk Container
IMDG: International Maritime Dangerous Goods
LC: Lethal Concentration
LD: Lethal Dose
NOEC: No observable effect concentration
OECD: Organisation for Economic Co-operation and Development
OEL: National occupational exposure limits
PEL: Permissible exposure limit
RID: Regulations concerning the International Carriage of Dangerous Goods by Rail
RTECS: Registry of Toxic Effects of Chemical Substances
SDS: Safety Data Sheet
STEL: Short Term Exposure Limit
TWA: Time Weighted Average
WEL: Workplace Exposure Limit

Information Source

:

1. Material Safety Data Sheet from manufacturer.
2. Canadian Centre for Occupational Health and Safety, CCInfoWeb Databases, 2019 (Chempendium, RTECs, HSDB, INCHEM).
3. European Chemicals Agency, Classification Legislation, 2019.
4. OECD - The Global Portal to Information on Chemical Substances - eChemPortal, 2019.

Preparation Date (dd/mm/yyyy)

: 15/03/2022

Reviewed Date SDS (dd/mm/yyyy)

: 15/03/2022

Revision No.

: 1

Revision Information

: All (format change)

Regulation and Procedure

:

H-phrases (full-text)

H315 - Causes skin irritation.

H319 - Causes serious eye irritation.


Other special considerations for handling

: Provide adequate information, instruction and training for operators.



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<p>Prepared for: Shiu Li Technology Co.,Ltd No.435, Yongfeng Rd., Bade City, Taoyuan County 33455, Taiwan Telephone: +886-3-3788588 http://www.shiuli.com.tw</p>	
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DISCLAIMER

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