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

1.1 Product identifier

Product Name	POLYVINYL CHLORIDE (PVC)

1.2 Other means of identification None

1.3 Recommended use of the chemical and restrictions on use

Identified Use	Raw material in plastic industry.
Restrictions on use	No data are available.

1.4 Details of the manufacturer

Company Identification	Thai Plastic and Chemicals Public Co Ltd
Company Address	Head office: 1 Siam Cement Road, Bangsue, Bangkok 10800 Plant: 8, I-1 RD, MAP TA PHUT INDUSTRIAL ESTATE, MUANG, RAYONG 21150 Telephone: +66 38 925 200 ext. 6183

1.5 Emergency telephone number

Emergency Phone No.	+66 38 925 200 ต่อ 6183

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification, 10th edition (2023)	Specific target organ toxicity - single exposure, Category 3 (Respiratory tract irritation)

2.2 GHS label elements including precautionary statement

Labelling according to GHS 10th edition (2023)

Hazard pictograms

Signal word	Warning
Hazard statements	H335 May cause respiratory irritation.
Precautionary statements	
Prevention	P261 Avoid breathing dust. P271 Use only outdoors or in a well-ventilated area.
Response	P304+P340 IF Inhaled: Remove person to fresh air and keep comfortable for breathing. P319 Get medical help if you feel unwell.

	Storage	P405 Store locked up. P403+P233 Store in a well-ventilated place. Keep container tightly closed.
	Disposal	P501 Dispose of contents/container to licensed waste disposal.
2.3	**Other hazards with do not result in classification**	No data are available.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Distinction of Substance or Mixture: Substance

Ingredients	**CAS No.**	**Concentration** (%wt)
Polyvinyl Chloride Homopolymer Other Name: Polyvinyl Chloride; PVC; Chloroethylene Polymer; Ethene, chloro-homopolymer Chemical formula: $(C_2H_3Cl)_n$	9002-86-2	>99.5%

SECTION 4: FIRST AID MEASURES

4.1 Description of necessary first aid measures

Inhalation	IF Inhaled: Remove person to fresh air and keep comfortable for breathing. If breathing is difficult. Get medical attention.
Skin contact	Wash exposed skin thoroughly with soap and water. If irritation occur, get medical attention.
Eye Contact	Wash eye thoroughly with large amount of water for 15 minutes, ensuring eyelids are held open. Get medical advice if any pain or redness develops or persists.
Ingestion	If a large amount is taken, see a doctor.

4.2 Most important symptoms and effects, acute and delayed Eye contact may cause redness. Inhalation of this substance may cause coughing and irritation to the throat and lungs. [1][2]

4.3 Indication of immediate medical attention and special treatment needed, if necessary None

SECTION 5: FIRE-FIGHTING

5.1	**Suitable Extinguishing media**	Carbon dioxide (CO_2), water spray.
5.2	**Special hazards arising from the chemical**	Hydrogen chloride carbon monoxide and carbon dioxide. It may decompose into benzene, aromatic, and aliphatic hydrocarbons. Since PVC contains chlorine, uncontrolled burning or open-air incineration can produce dioxins during the combustion process.[3]
5.3	**Specific protective actions for fire-fighters**	Evacuate people from the fire area. Isolate the area and designate it as a restricted, hazardous zone. If the situation is not dangerous, move chemical containers away from the fire. Firefighters should use standard protective equipment. In confined spaces, firefighters should use a self-contained breathing apparatus (SCBA).

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1	**Personal precautions, protective equipment and emergency procedures**	
	For non-emergency personnel	Avoid inhaling dust. Follow your organization's emergency plan.
	For emergency personnel	Eliminate all ignition sources. Provide adequate ventilation. Stop leak if safe to do so. Wear protective clothing as described in Section 8 of this safety data sheet. Avoid inhaling dust.
6.2	**Environmental precautions**	Prevent entry into waterways, sewers and surface water reservoir. Contain released product to prevent further contamination of soils.
6.3	**Methods and materials for containment and cleaning up**	Collect spilled or leaked chemical substances thoroughly using a vacuum cleaner or other appropriate equipment. Do not allow dust to disperse. Store the collected material in suitable, labeled containers awaiting disposal. Dispose of the material according to the procedures described in Section 13 (Disposal Considerations).

SECTION 7: HANDLING AND STORAGE

7.1	**Precautions for safe handling**	Avoid all personal contact. Wash thoroughly after handling. Launder contaminated clothing prior to use. Do not eat, drink and smoke in working area. Good Industrial hygiene should be applied. Avoid inhaling dust of the product. Ensure adequate ventilation. Related equipment should be grounded and protected against static electricity buildup.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed. Store in a cool and well-ventilated place. Keep away from direct sunlight, fire and ignition sources. Keep away from strong oxidants, strong acid and PVC solvent (organic solvent) Further details on proper arrangement and storage methods can be found in the "User Manual" document.


Store in dry place


Store indoor

Good storage measures should be implemented for this product, and other materials should be kept separate from the area.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure Limits

Substance	Country/organization	Occupational Exposure Limits
Particulates Not Otherwise Regulated, Total and Respirable Dust (dust, nuisance dust, inert dust) [4] :	USA/OSHA	8-hour TWA: 15 mg/m³ (Total dust); 5 mg/m³ (Respirable)
	USA/California OSHA	8-hour TWA: 10 mg/m³ (Nuisance dust); 5 mg/m³ (Respirable)
	USA/ACGIH	8-hour TWA: 10 mg/m³ (Nuisance dust); 1 mg/m³ (Respirable)
Dust, (PVC) [5]	Canada	8-hour TWA: 1 mg/m³ (Respirable)
	Chaina	8-hour TWA: 5 mg/m³ (Respirable)

8.2 Appropriate engineering controls

For areas where PVC is heat-formed, a ventilation system should be installed to remove residual hydrochloric acid gas and vinyl chloride monomer vapors.
Do not inhale dust or chemical vapors.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear Safety glasses or goggle.

Skin protection		Wear dust resistant gloves and chemical or oil resistant apron and clothes.
Respiratory protection		In case of insufficient ventilation, use personal protective equipment. Recommended respirator or filter is N95 (NIOSH standard) or P2 (EN143 standard). If oil particles are also present, use a P100 filter (NIOSH standard).[6]
Thermal hazards	No data are available.	

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	Solid (powder)
Color	White
Odor	Normally odorless. If stored in unventilated packaging for an extended period, a slight odor may develop.
Melting point/freezing point	No data are available.
Initial boiling point/boiling range	No data are available.
Flammability	No data are available.
Lower and upper explosive limits/flammability limit	Not applicable.
Flash point	391 °C
Auto-ignition temperature	450 °C
Decomposition temperature	No data are available.
pH	Not applicable.
Kinematic viscosity	Not applicable.
Solubility	Insoluble in water.
Partition coefficient: n-octanol/water	No data are available.
Vapour pressure	No data are available.
Density or Relative density	No data are available.
Relative vapour density	Not applicable.
Particle characteristics	No data are available.

9.2 Other information No data are available.

SECTION 10: STABILITY AND REACTIVITY

10.1	**Reactivity**	No data are available.
10.2	**Chemical stability**	Stable under normal temperature and pressure.
10.3	**Possibility of hazardous reactions**	No data are available.
10.4	**Conditions to avoid**	Heat, sunlight, flame and ignition sources.
10.5	**Incompatible materials**	Strong oxidants, strong acids and organic solvents.[13]
10.6	**Hazardous decomposition products**	Thermal decomposition will release hydrogen chloride gas and carbon monoxide gas. It may decompose into benzene, aromatic, and aliphatic hydrocarbons.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Ingestion	No data are available.
Skin contact	No data are available.
Inhalation	No data are available.
Skin corrosion/irritation	No data are available.
Serious eye damage/irritation	No data are available.
Respiratory or skin sensitization	No data are available.
Germ cell mutagenicity	No data are available.
Carcinogenicity	According to International Agency for Research on Cancer (IARC), PVC is classified as Group 3 Not classifiable as to its carcinogenicity to humans. [7][8]
Reproductive toxicity	No data are available.
STOT - single exposure	PVC is classified as Specific target organ toxicity - single exposure, Category 3 (Respiratory tract irritation) by Japanese government. [9]
STOT - repeated exposure	No data are available.
Aspiration hazard	No data are available.

11.2 ข้อมูลอื่น ๆ PVC may contain trace amounts of residual vinyl chloride monomer, which is classified as a Category 1A carcinogen under EU regulations. [10]

SECTION 12: ECOLOGICAL

The information given is based on data available for the material, the components of the material, and similar materials.

12.1	**Toxicity**	No data are available.
12.2	**Persistence and degradability**	No data are available.
12.3	**Bioaccumulative potential**	No data are available.
12.4	**Mobility in soil**	No data are available.
12.5	**Other adverse effects**	The decomposition of PVC microplastics releases hazardous substances that negatively impact soil ecosystems, affecting soil animals, plants, microbes, enzyme activity, and nutrient cycling. [11]

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal methods

Waste Disposal:
Waste generated is classified as chemical waste. Dispose of it by secure landfill or by incineration with pollution control, in compliance with local regulations. Users must consider if the material can be reused or reprocessed.
As the supplier, the company has no control over the disposal or production processes of those possessing or using the substance. The disposal methods mentioned above apply to the product in the condition specified in Section 3 (Composition/Information on Ingredients) of the Safety Data Sheet, and do not include substances mixed with other materials or contaminants.
Packaging Disposal:
PVC resin packaging is chemical-contaminated waste. It must not be reused or filled with other substances. Disposal of such packaging must comply with local laws and regulations.

SECTION 14: TRANSPORT INFORMATION

		ADR/RID	IMDG	IATA/ICAO
14.1	**UN Number**	Not assigned	Not assigned	Not assigned
14.2	**UN proper shipping name**	Not assigned	Not assigned	Not assigned
14.3	**Transport hazard class**	Not assigned	Not assigned	Not assigned
14.4	**Packing group**	Not assigned	Not assigned	Not assigned
14.5	**Environmental hazards**	Not assigned	Not assigned	Not assigned
14.6	**Special precautions for user**		No special precautions.	

14.7 Annex II of MARPOL73/78 and the IBC Code — No data are available.

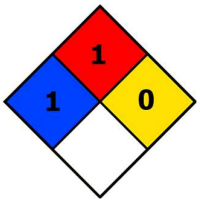
SECTION 15: REGULATORY INFORMATION

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

OSHA 29 CFR 1910.1017:	PVC resin may contain trace amounts of residual vinyl chloride monomer. Under normal operating conditions, which include adequate ventilation and an 8-hour OSHA work shift, detectable vinyl chloride monomer levels must not exceed PEL of 1.0 PPM, action level of 0.5 PPM, or C/STEL of 5.0 PPM.
TSCA (40 CFR 710):	Polyvinylchloride is included in TSCA list.
California Proposition 65:	PVC resin may contain trace amounts of residual vinyl chloride monomer, which is classified as carcinogen under California regulations.

SECTION 16: OTHER INFORMATION

16.1 NFPA



Health Hazards	1
Fire Hazards	1
Reactivity	0
Specific Hazardous	None

16.2 Abbreviations and acronyms::

ADR/RID	Agreement concerning the International Carriage of Dangerous Goods by Road / Regulations concerning the International Carriage of Dangerous Goods by Rail.
GHS	Globally Harmonized System of Classification and Labelling of Chemicals.
IATA/ICAO	International Air Transport Association / International Civil Aviation Organization.
IMDG	International Maritime Dangerous Goods.
OSHA	Occupational Safety and Health Administration
TWA	Time Weighted Average

16.3 References :

[1] Review of pulmonary effects of poly (vinyl chloride) and vinyl chloride exposure. Environmental Health Perspectives, Volume 41, Pages 167 – 169 https://doi.org/10.1289/ehp.8141167

[2] Vinyl Chloride and Polyvinyl Chloride Exposure and Occupational Lung Disease, CHEST, Volume 78, Issue 6, 826 – 828 https://doi.org/10.1378/chest.78.6.826

[3] Anastasiia O. Nosova, Mayya V. Uspenskaya, Ecotoxicological effects and detection features of polyvinyl chloride microplastics in soils: A review, Environmental Advances, Volume 13, 2023, 100437, ISSN 2666-7657, https://doi.org/10.1016/j.envadv.2023.100437.

[4] US Department of Labor, Occupational Safety and Health Administration; https://www.osha.gov/chemicaldata/801

[5] GESTIS - International Limit Values for Chemical Agents (GESTIS-ILV); https://ilv.ifa.dguv.de/limitvalues/25415

[6] 3M Respirator selection guide.

[7] International Agency for Research on Cancer (IARC), Monographs Volume 19: (1979) Some Monomers, Plastics and Synthetic Elastomers, and Acrolein.

[8] International Agency for Research on Cancer (IARC), Monographs Volume Sup 7: Overall Evaluations of Carcinogenicity: An Updating of IARC Monographs Volumes 1 to 42, 1987; 440 pages; ISBN 92-832-1411-0 (out of print)

[9] National Institute of Technology and Evaluation, NITE-CHRIP; https://www.chem-info.nite.go.jp/chem/english/ghs/15-mhlw-0019e.html

[10] Harmonised classification - Annex VI of Regulation (EC) No 1272/2008 (CLP Regulation) https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/11609

[11] Zhang M, Buekens A, Jiang X, Li X. Dioxins and polyvinylchloride in combustion and fires. Waste Manag Res. 2015 Jul;33(7):630-43. doi: 10.1177/0734242X15590651. PMID: 26185164.

[12] International Chemical Safety Cards (ICSC) of POLYVINYL CHLORIDE; https://chemicalsafety.ilo.org/dyn/icsc/showcard.display?p_lang=en&p_card_id=1487&p_version=2

[13] Edo, G.I., Ndudi, W., Ali, A.B.M. et al. Poly(vinyl chloride) (PVC): an updated review of its properties, polymerization, modification, recycling, and applications. J Mater Sci 59, 21605–21648 (2024). https://doi.org/10.1007/s10853-024-10471-4

Disclaimers

The types of applications specified here are for reference only. Customers are responsible for verifying and testing the product's suitability and application to ensure it meets their specific purposes and uses. Customers are solely responsible for the product's appropriateness, safety, lawful use, and handling processes.

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