

Document HSE-OHH/MSDS/059 Revision: 02	Safety Data Sheet Poly Vinyl Chloride	Date Prepared: 15-04-2013 Revision Date: 30-11-2017
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Section 1: Chemical Product and Company Identification



Company Identification: Engro Polymer & Chemicals Ltd

12th Floor, Ocean Towers, G-3, Khayaban-e-Iqbal, Block 9, Clifton, Karachi.

Emergency Telephone Number: (+92) 21-111-411-411

Product Identifier: SABZ PVC - Suspension PVC

Trade Name : AU-58 , AU-60,AU-67R,AU-67S,AU-72

Alternative names: PVC, Suspension PVC

Chemical Name: Polyvinyl Chloride

CAS No. 9002-86-2

Product Use:

Relevant identified uses of the substance or mixture and uses advised against Identified Use(s) Used in both rigid and flexible pipes, profiles, foam, packaging, injection moldings, calendared sheet, film and flooring products as well as cable insulation/sheathing etc. Uses Advised Against None.

Section 2: Hazard Identification

EMERGENCY OVERVIEW:

Color: White

Physical State: Solid

Appearance: Powder, Granular

Odor: Odorless

Signal Word: WARNING

MAJOR HEALTH HAZARDS: MAY CAUSE DAMAGE TO RESPIRATORY SYSTEM THROUGH PROLONGED OR REPEATED EXPOSURE. MAY BE IRRITATING TO EYES. POLYVINYL CHLORIDE CONTAINS VINYL CHLORIDE. VINYL CHLORIDE IS A CANCER-SUSPECT AGENT. THIS PRODUCT CONTAINS VINYL CHLORIDE MONOMER (VCM) AT CONCENTRATIONS OF 10 PPM OR LESS (<0.001%). **PHYSICAL HAZARDS:** Use methods to minimize generation of dust. PVC dust is capable of propagating a secondary dust explosion.

PRECAUTIONARY STATEMENTS: Do not breathe dust. Avoid contact with skin, eyes and clothing. Keep container tightly closed and properly labeled. Wash thoroughly after handling. Use only with adequate ventilation.

ADDITIONAL HAZARD INFORMATION: Fumes produced in processing may irritate respiratory tract, skin, and eyes. This material causes mild mechanical irritation to skin and eyes. Good hygiene and safety practices should be used when handling and working with this material. Good hygiene practices include but are not limited to: wearing suitable gloves and/or eye protection; washing hands and affected skin immediately after handling, before breaks, and at the end of the workday; regularly cleaning work area and clothing; etc

Classification of the substance or mixture
Not classified as dangerous for supply/use.

Prepared By: MAS	Reviewed By: SRA	Approved By: ARK
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Hazard Pictogram(s) None.
Signal Word(s) None.
Hazard Statement(s) None.
Precautionary Statement(s) None.
Additional label requirements None.
Other hazards
This product is classified as a dust explosive (class ST1)
Additional Information

None:

GHS CLASSIFICATION:

GHS: TARGET ORGAN TOXICITY (REPEATED EXPOSURE):	Category 2 - May cause damage to lungs and respiratory system through prolonged or repeated exposure
GHS: CARCINOGENICITY:	Not classified as a carcinogen per GHS criteria This product is not classified as a carcinogen by NTP, IARC or OSHA This material does not contain vinyl chloride monomer (VCM) at high enough levels to classify it as a carcinogen

UNKNOWN ACUTE TOXICITY: Not applicable. This product was tested as a whole. This information only pertains to untested mixtures.

GHS SYMBOL: Health hazards



GHS SIGNAL WORD: WARNING

GHS SIGNAL WORD: WARNING

GHS HAZARD STATEMENTS:

GHS - Health Hazard Statement(s)

- May cause damage to organs through prolonged or repeated exposure: (Respiratory System)

GHS - Precautionary Statement(s) - Prevention

- Do not breathe dust

GHS - Precautionary Statement(s) - Response

- Get medical advice/attention if you feel unwell

GHS - Precautionary Statement(s) - Storage

- There are no Precautionary-Storage phrases assigned

GHS - Precautionary Statement(s) - Disposal

- Dispose of contents and container in accordance with applicable local, regional, national, and/or international regulations

Hazards Not Otherwise Classified (HNOC)

Minimize dust formation

PVC dust is capable of propagating a secondary dust explosion

See Section 11: TOXICOLOGICAL INFORMATION

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Section 3: Composition and Information on Ingredients

Synonyms: Polyvinyl chloride, PVC

Component	Percent [%]	CAS Number
Polyvinyl chloride	99.999	9002-86-2
Vinyl chloride	< 0.001	75-01-4

Section 4: First Aid Measures

4.1 Description of first aid measures

Inhalation If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.

Skin Contact Wash skin with soap and water.

Eye Contact Flush eyes with water for at least 15 minutes.

Ingestion Wash out mouth with water. Do not induce vomiting. Obtain immediate medical attention if ill effects occur.

4.2 Most important symptoms and effects, both acute and delayed

May cause physical abrasion in contact with skin and eyes. High concentrations of dust may be irritant to the respiratory tract. Repeated exposure by inhalation may produce adverse effects on the lungs.

4.3 Indication of any immediate medical attention and special treatment needed Unlikely to be required but if necessary treat symptomatically. Low acute toxicity under normal conditions of handling and use.

Section 5: Fire and Explosion Data

Extinguishing media

Suitable Extinguishing media As appropriate for surrounding fire.

Unsuitable extinguishing media None.

Special hazards arising from the substance or mixture

Combustible but not readily ignited under normal circumstances/conditions. Limited Risk of dust explosion when mixed with air. Combustion or thermal decomposition will evolve toxic and irritant vapors. Hydrogen chloride, Carbon monoxide, Carbon dioxide, fire soot

Advice for firefighters

A self-contained breathing apparatus and full protective clothing should be worn in fire conditions.

Section 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures Provide adequate ventilation. Ensure suitable personal protection during removal of spillages. Protect against dust.

6.2 Environmental precautions

Avoid release to the environment. Contain spillages. Transfer to a lidded container for disposal or recovery.

6.3 Methods and material for containment and cleaning up Spillages should be collected by suction or moistened with water and swept / shovelled up into waste drums or plastic bags.

6.4 Additional Information

Spillages or uncontrolled discharges into watercourses must be alerted.

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Section 7: Handling and Storage

Precautions for safe handling

Avoid contact with skin and eyes. Avoid dust generation. Avoid inhalation of high concentrations of dusts. Provide adequate ventilation where operational procedures demand it. Avoid build-up of dusts especially in the vicinity of electrical equipment and switchgear. Take precautionary measures against static discharges. Ensure Adequate earthing. During hot processing operations: Avoid inhalation of high concentrations of vapors.

7.2 Conditions for safe storage, including any incompatibilities Keep only in original container at temperatures not exceeding 40 Deg C. Keep container tightly closed. Keep away from heat and sources of ignition. Fixed storage Vessels should be adequately earthed. Keep away from food, drink and animal feedingstuffs.

Storage temperature at temperatures not exceeding (°C): 40 °C.

Storage life Stable under normal conditions. See Section: 10.2

Incompatible materials strong acids See Section: 10.3

Contact supplier for further information.

Section 8: Exposure Controls/Personal Protection

Regulatory Exposure Limit(s): As listed below.

Component	OSHA Final PEL TWA	OSHA Final PEL STEL	OSHA Final PEL Ceiling
Particles Not Otherwise Regulated (PNOR) 00-00-001	15 mg/m ³ (Total) 5 mg/m ³ (Respirable)	-----	-----
Vinyl chloride 75-01-4	1 ppm	5 ppm	-----

OEL: Occupational Exposure Limit; **OSHA:** United States Occupational Safety and Health Administration; **PEL:** Permissible Exposure Limit; **TWA:** Time Weighted Average; **STEL:** Short Term Exposure Limit

NON-REGULATORY EXPOSURE LIMIT(S): As listed below.

Component	ACGIH TWA	ACGIH STEL	ACGIH Ceiling	OSHA TWA (Vacated)	OSHA STEL (Vacated)	OSHA Ceiling (Vacated)
Ethene, chloro-, homopolymer (PolyVinyl Chloride)	1 mg/m ³	-----	-----	-----	-----	-----
Vinyl chloride	1 ppm	-----	-----	-----	-----	-----

- The Non-Regulatory United States Occupational Safety and Health Administration (OSHA) limits, if shown, are the Vacated 1989 PEL's (vacated by 58 FR 35338, June 30, 1993).

- The American Conference of Governmental Industrial Hygienists (ACGIH) is a voluntary organization of professional industrial hygiene personnel in government or educational institutions in the United States. The ACGIH develops and publishes recommended occupational exposure limits each year called Threshold Limit Values (TLVs) for hundreds of chemicals, physical agents, and biological exposure indices.

Component	OXY REL 8 hr TWA	OXY REL STEL	OXY REL Ceiling
Polyvinyl chloride 9002-86-2 (99.999)	1 mg/m ³	-----	-----

Additional Advice:

1. The fabrication processes for the final product may involve coating, calendaring, and molding. To assess the health hazards associated with exposure to compounded PVC dusts, it may be necessary to have information on the

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ingredients used in the compounding of the resin

ENGINEERING CONTROLS: Provide local exhaust ventilation where dust or vapors may be generated. Ensure compliance with applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: Use good hygiene practices when handling this material. Safety glasses with side-shields or goggles are recommended when there is a potential for eye contact.

Skin and Body Protection: As a good hygiene practice, wear protective clothing to minimize skin contact such as standard industrial work clothes, coveralls, safety footwear.

Hand Protection: As a good hygiene practice, wear appropriate chemical resistant gloves. Consult a glove supplier for assistance in selecting an appropriate chemical resistant glove.

Protective Material Types:

Polyvinyl chloride (PVC), Tyvek®

Respiratory Protection: A NIOSH approved respirator with N95 (dust, fume, mist) cartridges may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits, or when symptoms have been observed that are indicative of overexposure. The added protection of a full face-piece respirator is required when visible dusty conditions are encountered and eye irritation may occur. A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

HYGIENE MEASURES: Handle in accordance with good industrial hygiene and safety practices. Good hygiene practices include but are not limited to: wearing suitable gloves and/or eye protection; washing hands and affected

skin immediately after handling, before breaks, and at the end of the workday; regularly cleaning work area and clothing; etc.

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Section 9: Physical and Chemical Properties

Physical State:	Solid
Appearance:	Powder, Granular
Color:	White
Odor:	Odorless
Odor Threshold [ppm]:	No data available.
Molecular Formula:	(C ₂ H ₃ Cl) _n
Decomposition Temperature:	No data available
Boiling Point/Range:	Not applicable to solids
Freezing Point/Range:	Not applicable to solids.
Melting Point/Range:	No data available
Vapor Pressure:	Not applicable
Vapor Density (air=1):	Not applicable
Relative Density/Specific Gravity (water=1):	1.4
Density:	1.4 gm/cm ³
Water Solubility:	Negligible
pH:	Not applicable
VOC Content (%):	No data available
Volatility:	Not applicable
Evaporation Rate (ether=1):	Not applicable
Partition Coefficient (n-octanol/water):	No data available
Flash point:	736 °F (391 °C)
Method:	ASTM D1929
Flammability (solid, gas):	Not flammable
Lower Flammability Level (air):	Not flammable
Upper Flammability Level (air):	Not flammable
Auto-ignition Temperature:	849 °F (454 °C)
Viscosity:	Not applicable to solids

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Section 10: Stability and Reactivity Data

10.1 Reactivity

None anticipated.

10.2 Chemical Stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

With the exception of sulphuric acid (> 90%) and nitric acid (>50%), PVC is resistant to acids and alkalis up to 60 deg C. However, above this temperature the polymer is Attacked by the stronger acids.

10.4 Conditions to avoid

Avoid dust generation. Avoid accumulation of dust. Keep away from heat.

10.5 Incompatible materials

See Section: 10.3

10.6 Hazardous decomposition products

Thermal decomposition will evolve toxic vapours. (Hydrogen chloride, Carbon monoxide, Carbon dioxide, fire soot)

Section 11: Toxicological Information

TOXICITY DATA:

PRODUCT TOXICITY DATA: OXYVINYL[®] PVC HOMOPOLYMER SUSPENSION RESIN (PRIME GRADES)

LD50 Oral: No data available	LD50 Dermal: No data available	LC50 Inhalation: No data available
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COMPONENT TOXICITY DATA:

Note: The component toxicity data is populated by the LOLI database and may differ from the product toxicity data given.

Component	LD50 Oral:	LD50 Dermal:	LC50 Inhalation:
Vinyl chloride	500 mg/kg (Rat)	-----	18 pph (15 min-Rat)

POTENTIAL HEALTH EFFECTS:

Eye contact: Eye exposure may cause mild irritation of the eye lids and conjunctiva. May cause eye irritation from the mechanical action of lodged particles.

Skin contact: This material is unlikely to cause chemical skin irritation. Skin irritation may occur due to mechanical action. Exposing skin to powder or fine particulate may cause slight redness, irritation.

Inhalation: No known effects. Inhalation of powder or fine particulates may cause irritation, cough.

Ingestion: No known effects. This material is practically non-toxic by the oral route.

Chronic Effects: Chronic exposure to the respirable fraction (particles less than 10 microns in size) of PVC particles, may produce pulmonary fibrosis. Particle sizes associated with suspension polymerization are typically greater than 10 microns in size. Product contains residual amounts of VCM, concentrations are less than 10 ppm(<0.001%).

SIGNS AND SYMPTOMS OF EXPOSURE:

Inhalation (Breathing): Respiratory System Effects: Inhalation of powders or fine particulates may cause respiratory tract irritation, cough.

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Skin: Skin Irritation. Exposure of powder or fine particulates to skin may cause slight redness, irritation due to mechanical effect.

Eye: Eye Irritation. Eye exposure may cause mild irritation of the eye lids and conjunctiva due to mechanical effect.

Ingestion (Swallowing): No known effects.

Other Health Effects: Occupational asthma has been reported.

ACUTE TOXICITY:
Vinyl chloride monomer (VCM) is NOT likely to be present at levels that would produce an acute biological effect when used in a well ventilated area. Acute biological effects of VCM include CNS and respiratory depression.

CHRONIC TOXICITY:
The available evidence from experimental animals and from humans indicates that pure PVC is not metabolized in mammals. Several studies have described pulmonary fibrosis from inhalation of high levels of respirable PVC particles. PVC resin particles generated by suspension polymerization are generally large enough in diameter that the majority are not considered respirable. Vinyl chloride monomer (VCM) is NOT likely to be present at levels that would produce a chronic biological effect when used in a well ventilated area. Chronic biological effects of VCM include damage to the liver, which causes angiosarcoma of the liver (a rare form of liver cancer in humans), Raynaud's syndrome, and acroosteolysis (bone loss in finger tips). Long latent period may exist between exposure and symptom onset

GHS HEALTH HAZARDS:
Skin Absorbent / Dermal Route? No.

GHS: CARCINOGENICITY:
Not classified as a carcinogen per GHS criteria. This product is not classified as a carcinogen by NTP, IARC or OSHA. This material does not contain vinyl chloride monomer (VCM) at high enough levels to classify it as a carcinogen.

SPECIFIC TARGET ORGAN TOXICITY (Repeated or Prolonged Exposure):
Category 2 - Respiratory System

Section 12: Ecological Information

12.1 Toxicity
Toxicity - Aquatic invertebrates Not harmful to aquatic organisms.
Toxicity - Fish Low toxicity to fish.
Toxicity - Algae Low toxicity to algae.
Toxicity - Sediment Compartment Not classified.
Toxicity - Terrestrial Compartment Not classified.

12.2 Persistence and Degradation
Solid with low volatility. The product is essentially insoluble in water. The product Shows no evidence for biodegradability in water. The product shows no evidence for Biodegradability in soil.

12.3 Bio accumulative potential
The product has low potential for bioaccumulation.

12.4 Mobility in soil The product has no mobility in soil.

12.5 Results of PBT and vPvB assessment Not classified as PBT or vPvB.

12.6 Other adverse effects

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Section 13: Disposal Considerations

13.1 Waste treatment methods

Recover and reclaim or recycle, if practicable. Contact supplier for further information. Disposal should be in accordance with local, state or national legislation.

13.2 Additional Information No special precautions are required for this product.

Section 14: Transport Information

DOT,ADR,IMDG,IATA : Not applicable

DOT,ADR,IMDG,IATA : Not Applicable

Environmental Hazards: Not applicable.

Additional Information: This material is not hazardous for transportation.

UN "Model Regulation": Not Applicable

Section 15: Other Regulatory Information

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

European Regulations - Authorisations and/or Restrictions On Use Candidate List of Substances of Very High Concern for Authorization: Not listed

REACH: ANNEX XIV list of substances subject to authorization: Not listed

REACH: Annex XVII Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles: Not listed

Community Rolling Action Plan (CoRAP) Not listed Regulation (EC) N° 850/2004 of the European Parliament and of the Council Not listed on persistent organic pollutants

Regulation (EC) N° 2037/2000 on substances that deplete the ozone layer: Not listed

hazardous chemicals: Not listed

National regulations Other Not known.

15.2 Chemical Safety Assessment A REACH chemical safety assessments has not been carried out.

Pakistan Environmental Protection Act, 1997 and rules & regulation made thereunder, including in particular the Hazardous Substance Rules 2014.

Section 16: Other Information

Prepared by : Engro Polymer & Chemicals Ltd

Disclaimer: Judgments as to the suitability of information herein for the purchaser's purposes are necessarily the purchaser's responsibility. Although reasonable care has been taken in the preparation of such information, Engro Polymer & Chemical Ltd extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to the purchaser's intended purpose or for consequences of its use.