

## Safety Data Sheet

Date Prepared: 1 April 2011

Revision No: 7

### Section 1 - Chemical Product and Company Identification

**Product Identifier:** Polyvinyl Alcohol (PVA)

**Other means of identification:**

Fully Hydrolyzed PVA – 117, 117K, 117H, Polysizer 173, 117S, CST, 105

Partially Hydrolyzed PVA – 217, 217SB, 217MB, 217PK, 217S, 220, 220SB, 220S, 220K, 224, 224SB, 224S, 225, 205, 205MB, 205S, 212, 613.

**Recommended Applications:**

Fiber sizing agents, paper processing agents, adhesives, manufacture of polyvinyl butyral resins, stabilizer for polyvinyl chloride polymerization.

**Supplier:** Kuraray Asia Pacific Pte Ltd.

**Address :** Manufacturing Site :10 Sakra Avenue. Singapore 627887

Sales Office :331 North Bridge Road, #18-02, Odeon Towers,  
Singapore 188720

**Department:** Production

**Person-In-Charge:** Shift Supervisor / Superintendent

**Phone:** 65-68677088 Ext 201, 65-68677108

**Fax:** 65-68677104

**Emergency Contact:** 65-68677088 Ext 201, 65-68677108

### Section 2 – Hazards Identification

This substance is not classified as dangerous according to Singapore Legislation and the Global Harmonized System (GHS).

**Inhalation:**

Dust causes irritation of the respiratory tract, with coughing and chest discomfort.

**Eye:**

Causes irritation, experienced as stinging and discomfort or pain. Corneal injury may occur due to mechanical action.

**Skin:**

May cause minor irritation with itching and possible slight local redness

**Ingestion:**

Oral toxicity is low. May cause abdominal discomfort, nausea, vomiting and diarrhea

**Carcinogenicity:**

This product contains no components listed as carcinogenic by IARC, NTP, and OSHA 1910(Z).

**Chronic Effects:**

No chronic health effects known.

**Other Hazards:**

Polyvinyl Alcohol is non-toxic; avoid big quantity of PVA contact with eyes and skin.

Avoid big quantity of PVA into the nose, as this can cause blockage to the airway.

Spillage can cause slippery hazard.

**Section 3 - Composition / Information on Ingredients**

**Chemical Identification:** Polyvinyl Alcohol (PVA)

**Synonyms:** PVA, PVOH, PVAL

**Component and composition:**

	CAS Number	Exposure Limits ACGIH TLV	Exposure Limits OSHA PEL	Weight Percent (%)
Polyvinyl Alcohol	9002-89-5 (fully hydrolyzed) 25213-24-5 (partially hydrolyzed)	2mg/m <sup>3</sup> (as organic dust)		94.0% min
Water	7732-18-5	None Established	None Established	5.0% max
Methyl Acetate	79-20-9	TWA 200ppm	200ppm	0.5% max
Methanol	67-56-1	TWA 200ppm	200ppm	3.0% max

**Chemical Structure:** [-C<sub>2</sub>H<sub>4</sub>O-]<sub>n</sub>

## **Section 4 - First Aid Measures**

### **Eye Contact:**

Flush eyes with plenty of water. If irritation persists, seek medical attention.

### **Skin Contact:**

In case of skin contact, wash thoroughly with soap and water.

### **Ingestion:**

Ingestion is unlikely route of exposure. Do not induce vomiting unless instructed by a physician.

### **Inhalation:**

Remove source(s) of contamination and move victim to fresh air. Rinse mouth with water. If breathing has stopped, give artificial respiration, then oxygen if needed. Contact physician immediately.

*After first aid, get appropriate in-plant, paramedic, or community medical support.*

## **Section 5 – Fire Fighting Measures**

### **Suitable fire-extinguishing media:**

Water, Alcohol type or all purpose type foam for large fires and carbon dioxide or dry chemical media for small fires

### **Specific hazards arising from the chemical:**

Toxic fume of carbon dioxide and carbon monoxide are generated when PVA burns. Powders with diameters less than 0.1mm may cause dust explosions if ignited by static ignition charges or strong friction.

### **Special protective actions for fire fighters:**

Use water spray to cool fire-exposed containers and structures. Use water spray to disperse vapors, re-ignition is possible. Use self-contained breathing apparatus and protective clothing.

## **Section 6 - Accidental Release Measures**

### **Personal precautions, protective equipment and emergency measures:**

Avoid breathing vapors. Evacuate area until vapor has been dispersed. Remove all sources of ignition. Stop or reduce discharge if it can be done safely. Wear personal protective equipment (i.e. respiratory apparatus, chemical protection suit, gloves, boots, goggles, mask, etc) as needed to avoid inhaling and / or skin contact.

### **Environmental precautions:**

Clean up spills in a way that it does not disperse dust into the air. Use non-sparking tools and equipment. Reduce airborne dust and moistening with water to prevent scattering.

**Methods and materials for containment and cleaning up:**

Clean up spill for disposal or recovery and place in a closed container.

**Section 7 - Handling and Storage****Precautions for safe handling:**

Minimize breathing of vapors and avoid prolonged or repeated contact with skin. Wear proper protective equipment. If ventilation is not sufficient, wear proper respiratory equipment. Do not use near ignition sources.

**Conditions for safe storage, including incompatibilities:**

Store in cool dry, well-ventilated area away from all sources of ignition

**Section 8 - Exposure Controls / Personal Protection****Control Parameters / Occupational Exposure Limits:**

Singapore National Environment Agency Emission Limit 100 ppm  
ACGIH-TLV  $2\text{mg}/\text{m}^3$  (as organic dust, TWA), OSHA-PEL  $2\text{mg}/\text{m}^3$  (as organic dust, TWA)

**Appropriate Engineering measures:**

Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

**Individual protection measures, such as personal protective equipment (PPE):****Respiratory protection:**

Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen.

**Skin protection:**

Wear chemically protective gloves, boots, aprons, and gauntlets prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133).

**Eye-protection:**

Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

**Additional Notes:**

Never eat, drink, or smoke in work areas. Practise good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

## Section 9 – Physical and chemical properties

Appearance physical state:	Clear, granulated powder
Color:	White to slightly yellowish
Odor:	Slightly vinegary
Odor threshold:	No data available

Property	Value
Melting point	150 ~ 230°C
Boiling point	No data available
Flash point	More than 70°C
Explosion limit	Dust, 35g/m <sup>3</sup>
Vapor pressure	No data available
Vapor density	Not Applicable
Relative density	1.19 ~ 1.31
Solubility	Soluble in Water Insoluble in Ethyl Acetate, Benzene Toluene, MIBK
Partition coefficient	No data available
Viscosity	No data available
Molecular mass	No data available
pH	Aqueous solution is neutral or slightly acid.
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Auto-ignition temperature	440°C
Decomposition temperature	160°C
Oxidizing properties	No data available
Bulk Density	0.3 ~ 0.7
Heat of Combustion	5.99 kcal/g (1,100 kJ/mol)
Specific Heat	0.4 cal/g°C (1.7 kJ/kg°C)

## Section 10 – Stability and reactivity

### Chemical Stability:

- This product is stable at room temperature in closed containers under normal storage and handling conditions. It may decompose at temperatures higher than 200°C.

### Reactivity / Incompatible materials:

- Acetic acid reacts with alcohols to form acetic acid esters and reacts with alkaline to form salts.
- Strongly corrosive. Aqueous solution of acetic acid corrodes metals.
- Incompatibility with strong oxidizing materials, alkalis, organic peroxide

### Conditions to avoid:

- Strong oxidizing agents.

**Hazardous decomposition products:**

- Thermal oxidative decomposition can produce carbon monoxide and carbon dioxide.

**Possibility of hazardous reaction:**

- Hazardous polymerization cannot occur.

**Section 11 – Toxicological information****Effects on humans:**

Polyvinyl Alcohol is non toxic; avoid large quantity PVA contact with eyes and skin.

Avoid large quantity of PVA into the nose, as this can cause blockage to the airway.

**Acute toxicity:**

<b>Chemical Name</b>	<b>Test Results</b>
Polyvinyl alcohol	Oral LD50 (Rat): > 20000 mg/kg
Methanol	Dermal LD50 (Rabbit): 15800 mg/kg
Methanol	Inhalation LC50 (4 hour(s), Rat): 64000 ppm (v)
Methanol	Oral LD50 (Rat): 5628 mg/kg

**Chronic toxicity:**

Methanol: Human exposure to methanol may result in illness, systemic poisoning, blindness, optic nerve damage and perhaps death, after being ingested, absorbed through the skin or inhaled. Death due to cardiac or respiratory failure has been reported in some cases from consumption of as little as 30 mls.

**Mutagenic effects:**

No Information

**Carcinogenic effects:**

No Information

**Teratogenic effects:**

No Information

**Section 12 – Ecological information**

The product is not expected to be hazardous to the environment.

## **Section 13 – Disposal consideration**

Dispose of spilled material in accordance to state and local regulations for waste that is non hazardous by local regulation. Note that this information applies to the materials as manufactured. Processed, used or contaminated PVA may make this information inappropriate, inaccurate or incomplete.

## **Section 14 – Transport information**

Follow all relevant regulations for transportation in your country

### **Land Transport**

ADR Class: Not Restricted

ADR Item Number: None

RID Class: Not Restricted

RID Item Number: None

Hazards Identification: Not Relevant

Substrate Identification Number: 1993

Proper shipping name: Not Relevant

UN Number: None

### **Sea Transport**

IMO/IMDG Code: Not Restricted

Class: Not Restricted

Packing Group: Not Relevant

UN Number: None

Marine Pollutant: No

Proper Shipping Name: Not Relevant

### **Air Transport**

IATA/ICAO-DGR Class: Not Restricted

UN Number: None

Proper Shipping Name: Not Relevant

Packing Group: Not Relevant

## **Section 15 – Regulatory information**

Applicable Singapore Regulations:

Workplace Safety and Health Act and Workplace Safety and Health (General Provisions) Regulations: This product is subject to the SDS, labeling, PEL and other requirements in the Act / Regulations.

Environmental Protection and Management Act and Environmental Protection and Management (Air Impurities) Regulation: This product is subject to the requirements in the Act / Regulations.

EINECS Number: 209 1833/2035454

TSCA Inventory: Listed

## **Section 16 - Other Information**

**Prepared By:** Production Department, Kuraray Asia Pacific Pte Ltd

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