



# Product Systems

## Technical Information

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### > PVC-U Pipe Cement – Type P

#### MATERIAL SAFETY DATA SHEET

##### TYPE P SOLVENT CEMENT

Date of Issue: November 2007

Replaces: May 2005 Issue

#### IDENTIFICATION OF THE MATERIAL AND SUPPLIER

##### COMPANY DETAILS

**Company:** ACM Pty Ltd - ABN 55 064 142 212  
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#### PRODUCT IDENTIFICATION

**Product Name:** PVC-U Pipe Cement - Type P  
**Other Names:** ADHESIVES containing flammable liquid  
**Manufacturer's Code:** 104/105

#### USE

For bonding UPVC pipes and fittings in pressure applications. Apply by brush.

#### COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Entity	CAS #	Proportion
Cyclohexanone	108-94-1	30 - 60 %
Tetrahydrofuran	109-99-9	30 - 60 %
PVC homopolymer	9002-86-2	10 - < 30%
Other ingredients determined not to be hazardous	Not applicable	< 1%

### **STATEMENT OF HAZARDOUS NATURE**

**NOHSC Classification:** Hazardous Substance

**ADG Classification:** Dangerous Goods, Class 3

**SUSDP Classification:** Not scheduled

### **HEALTH HAZARD INFORMATION**

#### **RISK PHRASES**

**R20** Harmful by inhalation  
**R36/37** Irritating to eyes and respiratory system.  
**R65** Harmful: may cause lung damage if swallowed.  
**R66** Repeated exposure may cause may cause skin dryness or cracking.  
**R67** Vapours may cause drowsiness and dizziness.

#### **SAFETY PHRASES**

**S2** Keep out of reach of children.  
**S9** Keep container in a well ventilated place.  
**S16** Keep away from ignition sources. No smoking  
**S25** Avoid contact with eyes.  
**S29** Do not empty into drains  
**S33** Take precautionary measures against static discharges.

### **FIRST AID**

**Swallowed:** For advice, call a Poisons Information Centre or a doctor at once. Do NOT induce vomiting. If spontaneous vomiting occurs, keep head below the hips to prevent aspiration into lungs.

**Eyes:** Can stick eyelids together. If in eye, irrigate immediately with copious amounts of water for 15 minutes with eyelids held open. Seek medical advice immediately.

**Skin:** Wash affected areas with soap and copious quantities of water immediately. Remove contaminated clothing and footwear. Decontaminate footwear and wash clothing before reuse. Seek medical advice if skin irritation develops.

**Inhaled:** Remove victim to fresh air. Seek medical advice immediately if adverse symptoms such as respiratory irritation, dizziness or unconsciousness develop. If breathing has stopped apply artificial respiration.

**First Aid Facilities:** Have eyewashes and safety showers available where contact can occur.

**Advice to Doctor:** Treat symptomatically. Look for signs of aspiration into lungs. The substance may cause chemical pneumonitis.

### **FIRE FIGHTING MEASURES**

**Extinguishing Media:** Water fog, foam, dry chemical, carbon dioxide.

**Hazardous Combustion Products:** Smoke, carbon monoxide, carbon dioxide, chlorine gas, hydrogen chloride and other noxious fumes.

**Precautions for Fire Fighters:** This product is highly flammable. Keep containers cool with water spray to prevent rupture of container. Wear full protective equipment including self-contained breathing apparatus. Vapour accumulation could flash and or explode even if ignited from a distance.

**Hazchem Code:** 3[Y]E

### **ACCIDENTAL RELEASE MEASURES**

**Emergency Procedures:** This product is a highly flammable liquid. Isolate hazard area and deny entry to unauthorised personnel. Remove all sources of ignition. Stop leak if it can be done without personal risk. Avoid breathing vapours. Ventilate enclosed area.

### **CLEAN UP PROCEDURE:**

**Small Spills:** Wear safety goggles or face shield and butyl rubber gloves and wipe up spill with paper or rags. Allow product to dry outdoors or in a well ventilated area and dispose as general industrial waste.

**Large spills:** Notify fire brigade. Wearing full personal protective equipment, including self-contained breathing apparatus, contain spill with sand, earth or Vermiculite. Prevent run-off into drains or waterways. Bail or pump any free liquid into sealable metal containers. Collect absorbed material and also place it in into sealable metal drums. Seal containers and label them in accordance with the Hazardous Substances Labelling Code.

### **HANDLING AND STORAGE**

**Precaution for Safe Handling:** Practice sound industrial hygiene. Wear butyl rubber gloves, safety glasses with side shields and clothing that will minimise skin contact. Wash hands before work breaks. Remove contaminated clothing and protective equipment before entering eating areas. Keep away from ignition sources and guard against static electricity discharges. Avoid run-off into drains or watercourses.

**Storage:** Store in a cool dry place and out of direct sunlight. Store in a manner that will minimize fire or explosion risks. Guard against static electricity accumulation or discharge. Store in a bonded area, and if in excess of the regulatory quantity, in a flammable goods store. Do not store with oxidizing agents. May form explosive peroxides, due to the presence of THF, on storage.

### **EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Exposure:** An exposure limit for this product has not been set. The exposure standards to [NOHSC:1003(1995)]for the major components are:

<b>Exposure standard</b>	<b>TWA</b>
Tetrahydrofuran	100 ppm
Cyclohexanone	25 ppm
PVC homopolymer (Nuisance dust)	10mg/m <sup>3</sup>

**Biological Limit Values:** Biological limits for tetrahydrofuran = 8 mg/L. (BAT)

**Engineering Controls:** Use only in well ventilated areas and with local exhaust ventilation. Maintain air concentrations below exposure standards.

**Personal Protection Equipment:** Under condition of ordinary use, wear safety glasses with side shields, butyl rubber gloves long sleeved overalls and sturdy work boots. In case of large spills or when working in confined areas, use a full-face respirator fitted with suitable organic vapour canister (for selection guidance see AS 17150), impervious long sleeved overalls, long sleeved butyl rubber gloves and butyl rubber gumboots.

### **PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance:** A green or clear, slightly viscous liquid

**Odour:** Characteristic ketonic odour

**pH:** Not applicable

**Vapour Pressure:** Not established for this product.  
(THF=173 hPa, cyclo ≈ 4.5 hPa.)

**Vapour Density:** >1 (Air=1)

**Boiling Point:** Not established for this product.  
(THF = 65°C, cyclohexanone = 155°C)

**Melting Point:** Not established for this product.

(THF = -109°C, cyclohexanone = -31°C)

**Solubility in Water:** Partially soluble

**Specific Gravity:** ca. 0.97

**Flash Point:** -25°C (Closed cup)

**Flammability limits:** Not established for this product.

(L.E.L. THF = 1.5, cyclo = 1.3 % by vol.)

(U.E.L. THF = 12.4, cyclo = 9.4 % by vol.)

**Ignition temperature:** Not established for this product.

(THF = 215°C, cyclo. = 430°C.)

**Other Properties:** VOC = 822g/L

## **STABILITY AND REACTIVITY**

**Chemical Stability:** This material is stable under normal ambient and anticipated storage and handling conditions.

**Conditions to Avoid:** Avoid excessive temperatures, ignition sources and contact with incompatible materials.

**Incompatible Materials:** Strong mineral acids, hydrides, strong alkalies, oxidizing agents, and chloroform.

**Hazardous Decomposition Products:** Thermal decomposition will produce hydrogen chloride.

**Hazardous Reactions:** Explosive peroxides can form on storage or when exposed to direct sunlight or air. Hazardous polymerization will not occur.

## **TOXICOLOGICAL INFORMATION**

This mixture has not been tested as a whole for its health effects. The toxicology data and health effects given below are those of the major components, of this preparation.

### **HEALTH EFFECTS - Acute**

**Swallowed:** Ingestion may cause headaches, nausea, vomiting and adverse effects to the central nervous system due to the presence of tetrahydrofuran and cyclohexanone. Large doses may result in coma and death. Toxicity by this route is expected to be low. LD<sub>50</sub> (rat) for tetrahydrofuran is > 1650 mg/kg for and for cyclohexanone is 1535mg/kg.

**Eyes:** Strong eye irritant. Can stick eyelids together. May cause reddening of the eye and lachrymation. May produce transient corneal damage due to the presence of cyclohexanone.

**Skin:** Skin irritant due to the presence of THF and cyclohexanone. May cause some reddening, drying and rough chapped skin. Both cyclohexanone and THF are absorbed through the skin. LD<sub>50</sub> (rabbit) for cyclohexanone is 948mg/kg and for THF is [no data].

**Inhaled:** Irritant to the respiratory system. Inhalation of high vapour or mist concentrations may lead to dizziness, nausea and loss of consciousness and continued inhalation may lead to death. LC<sub>50</sub> (rat) for cyclohexanone is 32 mg/L/4h and for THF is 53.9 mg/L/4 h.

**HEALTH EFFECTS – Chronic**

Prolonged or repeated skin contact with THF or cyclohexanone may defeat the skin and could lead to irritant contact dermatitis. Liver and kidney damage have been reported for both THF and cyclohexanone in test animals, particularly at high exposure levels. None of the ingredients in this mixture is a sensitizer, mutagenic or carcinogenic.

**HEALTH EFFECTS – Delayed Effects**

Liver and kidney damage as well as blood and bone marrow effects have been observed in test animals exposed to cyclohexanone.

**ECOLOGICAL INFORMATION**

**Ecotoxicity:** Based on the data of the major raw materials used in this product, this mixture may be toxic to aquatic organisms.

TOXICITY TO:	TEST DATA		
	Tetrahydrofuran	Cyclohexanone	PVC resin
<b>Fish</b>	P. promelas LC <sub>50</sub> = 2160 mg/L/96 h	L. indus LC <sub>50</sub> = 536 mg/L/48 h	There is no known data that suggests that PVC resin is toxic to aquatic organisms.
<b>Aqu. Invertebrates</b>	Daphnia magna EC <sub>50</sub> = 382 mg/L/24 h.	Daphnia magna EC <sub>50</sub> = 800 mg/L/24 h.	
<b>Algae</b>	Sc. quadricauda IC <sub>5</sub> = 3700 mg/L/8 d.	Sc. quadricauda IC <sub>5</sub> = 370 mg/L/8 d.	
<b>Micro-organisms</b>	Ps. putida EC <sub>5</sub> = 580 mg/L/16 h.	Ps. putida EC <sub>5</sub> = 180 mg/L/16 h.	

**Tetrahydrofuran:** (Closed bottle test): 39 %/28 d

**Cyclohexanone:** 87%/14 d (MITI test)

**PVC resin:** Shows no evidence of biodegradability in soil or water, but can be removed in biological treatment processes.

**MOBILITY**

Only low bioaccumulation is expected.

**Tetrahydrofuran:**log p (o/w) = 0.45

**Cyclohexanone:** log p (o/w) = 0.81  
**PVC resin:** No mobility in soil.

## **DISPOSAL CONSIDERATIONS**

This product is a hazardous waste and may only be disposed of in accordance with applicable State and local regulations. These regulations vary from jurisdiction to jurisdiction and hence the user is advised to seek advice from the local authority before considering disposal. The disposal information given below is a general guide and does not replace the requirement of the local regulations.

**Disposal:** If possible recycle, otherwise incinerate in a suitable facility. Empty containers should be drained thoroughly and then vented in a safe place away from heat or ignition sources. Send drums to a drum washing and recycling facility.

**Special Precautions:** Do not puncture, cut or weld a drum that has not been cleaned – it is an explosion hazard. The empty, uncleaned drums still fall under the auspices of the ADG Code and must be transported accordingly.

When large amounts of this product need to be disposed of, the services of a registered, professional waste disposal organisation is highly recommended.

## **TRANSPORT INFORMATION**

This product has been classified as Dangerous Goods. It must be transported in accordance with the ADG Code requirements.

**UN Number:** 1133  
**ADG Class:** 3  
**ADG Packaging Group:** II  
**IMDG/IMO Code:** Same classification as ADG Code  
**Shipping Name:** ADHESIVES containing flammable liquid  
**ADG Subsidiary Risk:** None allocated  
**Hazchem Code:** 3[Y] E  
**ICAO/IATA Code:** Same classification as ADG Code

## **REGULATORY INFORMATION**

**AICS:** All ingredients are listed in AICS  
**SUSDP** Not scheduled

## **OTHER INFORMATION**

## MSDS

**Issue Number:** 05  
**Date of Issue:** November 2007  
**Replaces Issue:** 04 (May 2005)  
**Changes made to the previous issue:** **Provided flash point of actual mixture and VOC in Section 9.**

## ACRONYMS

**ADG Code:** Australian Code for the Transport of Dangerous Goods by Road and Rail  
**AICS:** Australian Inventory of Chemical Substances.  
**CAS Number:** Chemical Abstracts Service Registry Number  
**DG:** Dangerous Goods  
**Hazchem Code:** An emergency action code of numbers and letters, which gives information to emergency services.  
**IARC:** International Agency for Research on Cancer.  
**IATA:** International Air Transport Association  
**ICAO:** International Civil Aviation Organization  
**IMDG:** International Maritime Dangerous Goods Code  
**IMO:** International Maritime Organization  
**N.O.S.:** Not otherwise specified.  
**NOHSC:** National Health and Safety Commission.  
**R-Phrases:** Risk Phrases.  
**S-Phrases:** Safety Phrases.  
**SUDP:** Standard for the Uniform Scheduling of Drugs and Poisons.  
**UN Number:** United Nations Number

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