Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

AC100E PART A

SYNONYMS

PRODUCT USE

Adhesive system applied by a cartridge.

SUPPLIER

Company: Powers Fasteners Australasia Pty Ltd
Address:
Factory 3, 205 Abbotts Road
Dandenong South
VIC 3175
AUSTRALIA
Telephone: +61 3 8787 5888
Telephone: 1800 677 872 (freecall)
Fax: +61 3 8787 5899

Section 2 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE

HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

According to the Criteria of NOHSC, and the ADG Code.

POISONS SCHEDULE

None

RISK

Irritating to eyes, respiratory system and skin.
May cause SENSITISATION by skin contact.

SAFETY

Wear eye/face protection.
Use only in well ventilated areas.
Keep container in a well ventilated place.
Take off immediately all contaminated clothing.
In case of contact with eyes, rinse with plenty of water and contact Doctor or Poisons Information Centre.
If you feel unwell contact Doctor or Poisons Information Centre. (Show the label

continued...

Section 2 - HAZARDS IDENTIFICATION ...

if possible).

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
2-hydroxyethyl methacrylate	868-77-9	1-19
methylstyrene, mixed isomers	1321-45-5	1-19
silica amorphous	7631-86-9	1-10
dipropoxy-p-toluidine	38668-48-3	0.1-0.9
silica crystalline - quartz	14808-60-7	Not Spe

Section 4 - FIRST AID MEASURES

SWALLOWED

- Immediately give a glass of water.
- First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

EYE

If this product comes in contact with eyes:

- Wash out immediately with water.
- If irritation continues, seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

If skin contact occurs:

- Immediately remove all contaminated clothing, including footwear
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Other measures are usually unnecessary.

NOTES TO PHYSICIAN

For acute or short term repeated exposures to styrene:
INHALATION:

- Severe exposures should have cardiac monitoring to detect arrhythmia.
- Catecholamines, especially epinephrine (adrenaline) should be used cautiously (if at all).
- Aminophylline and inhaled beta-two selective bronchodilators (e.g. salbutamol) are the drugs of choice for treatment of bronchospasm.

INGESTION:

- Ipecac syrup should be given for ingestions exceeding 3ml (styrene)/kg.
- For patients at risk of aspiration because of obtundation, intubation should

continued...

Section 4 - FIRST AID MEASURES ...

precede lavage.
• Pneumonitis is a significant risk. Watch the patient closely in an upright (alert patient) or left lateral head-down position (obtunded patient) to reduce aspiration potential. [Ellenhorn and Barceloux: Medical Toxicology]
BIOLOGICAL EXPOSURE INDEX - BEI
These represent the determinants observed in specimens collected from a healthy worker who has been exposed at the Exposure Standard (ES or TLV):

Determinant	Index	Sampling Time	Comments
1. Mandelic acid in urine	800 mg/gm creatinine	End of shift	NS
	300 mg/gm creatinine	Prior to next shift	NS
2. Phenylglyoxylic acid in urine	240 mg/gm creatinine	End of shift	NS
	100 mg/gm creatinine	Prior to next shift	
3. Styrene in venous blood	0.55 mg/L	End of shift	SQ
	0.02 mg/L	Prior to next shift	SQ

NS: Non-specific determinant; also seen after exposure to other materials.
SQ: Semi-quantitative determinant - Interpretation may be ambiguous; should be used as a screening test or confirmatory test.
B: Background levels occur in specimens collected from subjects NOT exposed

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA
• There is no restriction on the type of extinguisher which may be used.
Use extinguishing media suitable for surrounding area

FIRE FIGHTING
• Alert Fire Brigade and tell them location and nature of hazard.
• Wear breathing apparatus plus protective gloves for fire only.
• Prevent, by any means available, spillage from entering drains or water courses.
• Use fire fighting procedures suitable for surrounding area.
• DO NOT approach containers suspected to be hot.
• Cool fire exposed containers with water spray from a protected location.
• If safe to do so, remove containers from path of fire.
• Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD
• Non combustible.
• Not considered a significant fire risk, however containers may burn.
Decomposition may produce toxic fumes of.

continued...

Section 5 - FIRE FIGHTING MEASURES ...

carbon dioxide (CO2).
nitrogen oxides (NOx).
other pyrolysis products typical of burning organic material.
May emit poisonous fumes.
May emit corrosive fumes.

FIRE INCOMPATIBILITY
Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

HAZCHEM

None

Personal Protective Equipment

PERSONAL PROTECTION EQUIPMENT
Breathing apparatus.
Gas tight chemical resistant suit.
Limit exposure duration to 1 BA set - 30 mins.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS
- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Wear impervious gloves and safety goggles.
- Trowel up/scrape up.
- Place spilled material in clean, dry, sealed container.
- Flush spill area with water.

MAJOR SPILLS
Minor hazard.
- Clear area of personnel.
- Alert Fire Brigade and tell them location and nature of hazard.
- Control personal contact by using protective equipment as required.
- Prevent spillage from entering drains or water ways.
- Contain spill with sand, earth or vermiculite.
- Collect recoverable product into labelled containers for recycling.
- Absorb remaining product with sand, earth or vermiculite and place in appropriate containers for disposal.
- Wash area and prevent runoff into drains or waterways.
- If contamination of drains or waterways occurs, advise emergency services.

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

continued...

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- DO NOT allow material to contact humans, exposed food or food utensils.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately. Launder contaminated clothing before re-use.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE CONTAINER

- Polyethylene or polypropylene container.
- Packing as recommended by manufacturer
- Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY

Avoid reaction with oxidising agents

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m³	STEL ppm	STEL mg/m³	Peak ppm	Peak mg/m³
Australian Exposure Standards	Vinyl toluene	50	242	100	483		
Australian Exposure Standards	Silica - Amorphous, Fume		2				

continued...

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION ...

	(thermally generated) (respirable dust) (g)	
Australian Exposure Standards	Silica - Amorphous, Fumed silica (respirable dust)	2
Australian Exposure Standards	Silica - Crystalline, Quartz	0.2

No data available for 2-hydroxyethyl methacrylate as (CAS: 868-77-9) / (CAS: 1321-45-5) / (CAS: 38668-48-3)

Not available. Refer to individual constituents.

EXPOSURE STANDARDS FOR MIXTURE

"Worst Case" computer-aided prediction of vapour components/concentrations:

Composite Exposure Standard for Mixture (TWA) (mg/m³): 249.6 mg/m³
If the breathing zone concentration of ANY of the components listed below is exceeded, "Worst Case" considerations deem the individual to be overexposed.
Component Breathing Zone ppm Breathing Zone mg/m³ Mixture Conc: (%)

Component	Breathing zone (ppm)	Breathing Zone (mg/m³)	Mixture Conc (%)
methylstyrene, mixed isomers	26.00	124.8000	19.0
2-hydroxyethyl methacrylate	24.00	124.8000	19.0

Operations which produce a spray/mist or fume/dust, introduce particulates to the breathing zone.
If the breathing zone concentration of ANY of the components listed below is exceeded, "Worst Case" considerations deem the individual to be overexposed.
At the "Composite Exposure Standard for Mixture" (TWA) (mg/m³): 38 mg/m³

Component	Breathing Zone (mg/m³)	Concentration (%)
silica amorphous	65.6842	10.0

INGREDIENT DATA

2-HYDROXYETHYL METHACRYLATE:
No exposure limits set by NOHSC or ACGIH
CEL TWA: 50 ppm, 260 mg/m³
Designated S in List of MAK values: Danger of sensitization.
MAK values, and categories and groups are those recommended within the Federal Republic of Germany

continued...

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION ...

METHYLSTYRENE, MIXED ISOMERS:
TLV TWA: 50 ppm [ACGIH]
TLV STEL: 100 ppm [ACGIH]
PEL TWA: 100 ppm, 480 mg/m³ [OSHA Z1]
TLV TWA: 50 ppm, 240 mg/m³; STEL: 100 ppm, 485 mg/m³ A4
NOTE: This substance has been classified by the ACGIH as A4 NOT classifiable as causing Cancer in humans
ES TWA: 50 ppm, 240 mg/m³; STEL: 100 ppm, 485 mg/m³
OES TWA: 100 ppm, 491 mg/m³; STEL: 150 ppm, 736 mg/m³
MAK value: 100 ppm, 490 mg/m³
MAK Category V Peak Limitation: Substances with intensive odour Allows excursions of twice the MAK value for 10 minutes at a time, 4 times per shift.
MAK values, and categories and groups are those recommended within the Federal Republic of Germany
IDLH Level: 400 ppm
The toxicological properties of vinyltoluene are similar to those of styrene and the TLV- TWA and STEL are analogous. The limits are thought to be protective against mucous membrane and ocular irritation and should reduce the complaints of objectionable odour. Given that axonal degeneration found in rats inhaling vinyltoluene is more significant than in rats inhaling comparable concentrations of styrene, and that neurological changes are more prominent, the limits are the subject of review.
Human subjects show ocular and upper respiratory tract irritation at 400 ppm, complain of a strong objectionable odour at 300 ppm and a strong but tolerable odour at 200 ppm.. At 50 ppm, the odour is detectable and may become disagreeable, but does not produce irritation of the mucous membranes.

SILICA AMORPHOUS:
containing no asbestos and <1% crystalline silica
TLV TWA: 10 mg/m³ total dust
TLV TWA: 2 mg/m³ respirable dust (fumed silica)
ES TWA: 2 mg/m³ respirable dust (fumed silica)
OES TWA: 6 mg/m³ total inhalable dust
OES TWA: 2.4 mg/m³ respirable dust
IDLH Level: 3000 mg/m³

DIPROPOXY-P-TOLUIDINE:
No exposure limits set by NOHSC or ACGIH

SILICA CRYSTALLINE - QUARTZ:
TLV TWA: 0.05 mg/m³ (R) Quartz A2 [ACGIH]
PEL: (Quartz (Respirable)) [OSHA Z3]250 / (%SiO(2)+5) mppcf
Footnote (b): The percentage of crystalline silica in the formula is the amount determined from airborne samples, except in those instances in which other methods have been shown to be applicable.
PEL: (Quartz (Respirable)) [OSHA Z3]10 / (%SiO(2)+2) mg/m³
Footnote (e): Both concentration and percent quartz for the application of this limit are to be determined from the fraction passing a size-selector with the following characteristics.

Aerodynamic diameter (unit density sphere)	Percent passing selector
2.0	90

continued...

2.5	75
3.5	50
5.0	25
10	0

The measurements under this note refer to the uses of an AEC (now NRC) instrument. The respirable fraction of coal dust is determined with an MRE; the figures corresponding to that of 2.4 mg/m³ in the table for coal dust, is 4.5 mg/m³.
PEL: (Quartz (Total Dust)) [OSHA Z3]30 / (%SiO(2) + 2) mg/m³
TLV TWA: 0.05 mg/m³ (respirable dust) A2
The concentration of respirable dust for application of this limit is to be determined from the fraction that penetrates a separator whose size collection efficiency is described by a cumulative lognormal function with a median aerodynamic diameter of 4.0 µm (+-) 0.3 µm and with a geometric standard deviation of 1.5 µm (+-) 0.1 µm, i.e..generally less than 5 µm.
WARNING: For inhalation exposure ONLY:
This substance has been classified by the ACGIH as A2 Suspected Human Carcinogen.
ES TWA: 0.2 mg/m³
MEL TWA: 0.3 mg/m³ (respirable dust)
Because the margin of safety of the quartz TLV is not known with certainty and given the associated link between silicosis and lung cancer it is recommended that quartz concentrations be maintained as far below the TLV as prudent practices will allow.

PERSONAL PROTECTION

EYE

- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them. DO NOT wear contact lenses.

HANDS/FEET

Wear chemical protective gloves, eg. PVC.
Wear safety footwear or safety gumboots, eg. Rubber.
NOTE: The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.

OTHER

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

continued...

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION ...

RESPIRATOR

Respiratory protection may be required when ANY "Worst Case" vapour-phase concentration is exceeded (see Computer Prediction in "Exposure Standards").

Protection Factor (Min)	Half-Face Respirator	Full-face Respirator
10 x ES	A-AUS	-
	A-PAPR-AUS	-
20 x ES	-	A-AUS
	-	A-PAPR-AUS
100 x ES	-	A-2
	-	A-PAPR-2

^ - Full-face

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required. For further information consult site specific CHEMWATCH data (if available), or your Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

PHYSICAL PROPERTIES

Molecular Weight: Not Applicable
Melting Range (°C): Not Available
Solubility in water (g/L): Partly Miscible
pH (1% solution): Not Available
Volatile Component (%vol): Not Available
Relative Vapour Density (air=1): Not Available
Lower Explosive Limit (%): Not Available
Autoignition Temp (°C): Not Available
State: Non Slump Paste

Boiling Range (°C): Not Available
Specific Gravity (water=1): 1.61
pH (as supplied): Not Available
Vapour Pressure (kPa): Not Available
Evaporation Rate: Not Available
Flash Point (°C): Not Applicable
Upper Explosive Limit (%): Not Available
Decomposition Temp (°C): Not Available

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

Product is considered stable and hazardous polymerisation will not occur.

continued...

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. The material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.

EYE

Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).
The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

SKIN

The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.
Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.

INHALED

The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

CHRONIC HEALTH EFFECTS

Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Limited evidence shows that inhalation of the material is capable of inducing a sensitisation reaction in a significant number of individuals at a greater frequency than would be expected from the response of a normal population. Pulmonary sensitisation, resulting in hyperactive airway dysfunction and pulmonary allergy may be

continued...

Section 11 - TOXICOLOGICAL INFORMATION ...

accompanied by fatigue, malaise and aching. Significant symptoms of exposure may persist for extended periods, even after exposure ceases. Symptoms can be activated by a variety of nonspecific environmental stimuli such as automobile exhaust, perfumes and passive smoking. . Practical experience shows that skin contact with the material is capable either of inducing a sensitisation reaction in a substantial number of individuals, and/or of producing a positive response in experimental animals. Sensitisation may give severe responses to very low levels of exposure, in situations where exposure may occur. Chronic solvent inhalation exposures may result in nervous system impairment and liver and blood changes. [PATTYS]. Sensitisation may result in allergic dermatitis responses including rash, itching, hives or swelling of extremities.

AC100e Part A

2-HYDROXYETHYL METHACRYLATE:

TOXICITY	IRRITATION
Oral (rat) LD50: 5050 mg/kg	Eye (rabbit): SEVERE *
Dermal (rabbit): >5000 mg/kg*	Effects persist beyond 21 days post-exposure
	Skin (rabbit): non-irritating*

* Rohm & Haas

Based on the available oncogenicity data and without a better understanding of the carcinogenic mechanism the Health and Environmental Review Division (HERD), Office of Toxic Substances (OTS), of the US EPA previously concluded that all chemicals that contain the acrylate or methacrylate moiety (CH2=CHCOO or CH2=C(CH3)COO) should be considered to be a carcinogenic hazard unless shown otherwise by adequate testing.
This position has now been revised and acrylates and methacrylates are no longer de facto carcinogens.

METHYLSTYRENE, MIXED ISOMERS:

TOXICITY	IRRITATION
Oral (rat) LD50: 2255 mg/kg	Skin (rabbit): 100% moderate
Intraperitoneal (rat) LD50: 2324 mg/kg	Eye (rabbit): 90 mg - mild
Oral (mouse) LD50: 3160 mg/kg	
Inhalation (mouse) LC50: 3020 mg/m3/4h	
Olfaction and eye effects recorded	

SILICA AMORPHOUS:

TOXICITY	IRRITATION
Oral (rat) LD50: 3160 mg/kg	Skin (rabbit): non-irritating *
Dermal (rabbit) LD50: >5000 mg/kg *	Eye (rabbit): non-irritating *

continued...

Section 11 - TOXICOLOGICAL INFORMATION ...

Inhalation (rat) LC50: >0.139 mg/l/14h * * [Grace]
Reports indicate high/prolonged exposures to amorphous silicas induced lung fibrosis in experimental animals; in some experiments these effects were reversible. [PATTYS]
The substance is classified by IARC as Group 3:
NOT classifiable as to its carcinogenicity to humans.
Evidence of carcinogenicity may be inadequate or limited in animal testing.

DIPROPOXY-P-TOLUIDINE:
None available.

SILICA CRYSTALLINE - QUARTZ:

TOXICITY	IRRITATION
Nil reported	Inhalation (human)LCLo:0.3 mg/m3/10Y
	Inhalation (human)TCLo:16 mppcf*/8H/17.9Y
	Intermittent; focal fibrosis, (pneumoconiosis), cough, dyspnoea
	Inhalation (rat) TCLo: 50 mg/m3/6H/71W
	Intermittent; liver - tumours.

* Millions of particles per cubic foot (based on impinger samples counted by light field techniques).
WARNING: For inhalation exposure ONLY: This substance has been classified by the IARC as Group 1: CARCINOGENIC TO HUMANS
NOTE : the physical nature of quartz in the product determines whether it is likely to present a chronic health problem. To be a hazard the material must enter the breathing zone as respirable particles.

Section 12 - ECOLOGICAL INFORMATION

Drinking Water Standards:
hydrocarbon total: 10 ug/l (UK max.).
DO NOT discharge into sewer or waterways.

Section 13 - DISPOSAL CONSIDERATIONS

- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Management Authority for disposal.
- Bury residue in an authorised landfill.
- Recycle containers if possible, or dispose of in an authorised landfill.

Puncture containers to prevent re-use and bury at an authorised landfill.

Section 14 - TRANSPORTATION INFORMATION

Shipping Name:
None
Dangerous Goods Class: None
UN/NA Number: None
ADR Number: None
Packing Group: None

continued...

Section 14 - TRANSPORTATION INFORMATION ...

Labels Required:
Additional Shipping Information:
International Transport Regulations:
IMO: None

HAZCHEM

None

Section 15 - REGULATORY INFORMATION

POISONS SCHEDULE

None

REGULATIONS

2-hydroxyethyl methacrylate (CAS: 868-77-9) is found on the following regulatory lists:
Australian Inventory of Chemical Substances (AICS)

methylstyrene, mixed isomers (CAS: 25013-15-4) is found on the following regulatory lists:
Australian Inventory of Chemical Substances (AICS)

silica amorphous (CAS: 7631-86-9) is found on the following regulatory lists:
Australian Inventory of Chemical Substances (AICS)

dipropoxy-p-toluidine (CAS: 38668-48-3) is found on the following regulatory lists:
Australian Inventory of Chemical Substances (AICS)

silica crystalline - quartz (CAS: 14808-60-7) is found on the following regulatory lists:
Australia - South Australia - Hazardous Substances Requiring Health Surveillance
Australia Hazardous Substances Requiring Health Surveillance
Australian Inventory of Chemical Substances (AICS)

Section 16 - OTHER INFORMATION

Issue Date: Mon 3-Feb-2003
Print Date: Mon 31-Jan-2005