



RS CAST ACRYLIC BONDER - AB1 #144-406

Chemwatch Independent Material Safety Data Sheet

Issue Date: 7-Feb-2008

NA317TC

CHEMWATCH 02-0966

Version No:2.0

CD 2009/3 Page 1 of 26

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

RS CAST ACRYLIC BONDER - AB1 #144-406

PROPER SHIPPING NAME

TOXIC LIQUID, ORGANIC, N.O.S.(contains methylene chloride and methyl methacrylate)

PRODUCT USE

■ The use of a quantity of material in an unventilated or confined space may result in increased exposure and an irritating atmosphere developing.

Before starting consider control of exposure by mechanical ventilation.
Adhesive.

SUPPLIER

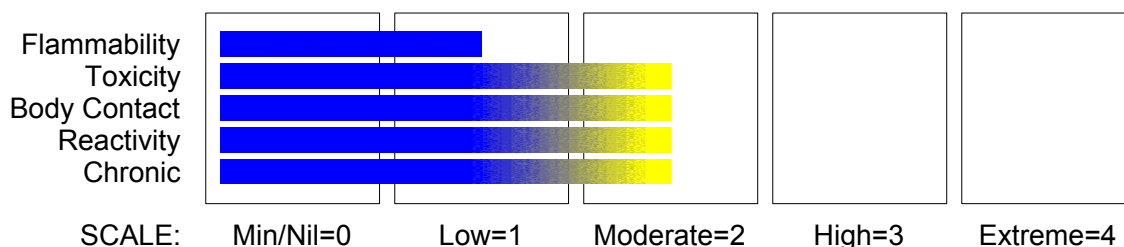
Company: RS Components	Company: RS Components
Address:	Address:
Units 30 & 31	25 Pavesi Street
Warehouse World	Smithfield
761 Great South Road	NSW2164
Penrose Auckland	AUS
	Telephone: 1300 656 636
	Emergency Tel: 1800 039 008
	Emergency Tel: 03 9573 3112
	Fax: 1300 656 696

Section 2 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE

HAZARDOUS SUBSTANCE. DANGEROUS GOODS. According to the Criteria of NOHSC, and the ADG Code.

CHEMWATCH HAZARD RATINGS



continued...

RS CAST ACRYLIC BONDER - AB1 #144-406

Chemwatch Independent Material Safety Data Sheet

Issue Date: 7-Feb-2008

NA317TC

CHEMWATCH 02-0966

Version No:2.0

CD 2009/3 Page 2 of 26

Section 2 - HAZARDS IDENTIFICATION



POISONS SCHEDULE

S5

RISK

- Harmful if swallowed.
 - Can become highly flammable in use.
 - Irritating to eyes respiratory system and skin.
 - Limited evidence of a carcinogenic effect.
 - May cause SENSITISATION by skin contact.
 - Vapours may cause drowsiness and dizziness.
 - Potentially explosive peroxides may form on standing*.
 - Inhalation and/or skin contact may produce health damage*.
 - Cumulative effects may result following exposure*.
 - Possible respiratory sensitiser*.
 - May affect fertility*.
 - Repeated exposure potentially causes skin dryness and cracking*.
- * (limited evidence).

SAFETY

- Do not breathe gas/fumes/vapour/spray.
- Use only in well ventilated areas.
- Keep container in a well ventilated place.
- Avoid exposure - obtain special instructions before use.
- To clean the floor and all objects contaminated by this material use water and detergent.
- Keep container tightly closed.
- Keep away from food drink and animal feeding stuffs.
- In case of contact with eyes rinse with plenty of water and contact Doctor or Poisons Information Centre.
- If swallowed IMMEDIATELY contact Doctor or Poisons Information Centre. (show this container or label).
- This material and its container must be disposed of as hazardous waste.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
methylene chloride	75-09-2	30-60
ethylene glycol phenyl ether	122-99-6	1-5
methyl methacrylate	80-62-6	30-60

Section 4 - FIRST AID MEASURES

SWALLOWED

- IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.
- For advice, contact a Poisons Information Centre or a doctor.
- Urgent hospital treatment is likely to be needed.
- In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.
- If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the MSDS should be provided. Further action will be the responsibility of the medical specialist.

continued...

RS CAST ACRYLIC BONDER - AB1 #144-406

Chemwatch Independent Material Safety Data Sheet

Issue Date: 7-Feb-2008

NA317TC

CHEMWATCH 02-0966

Version No:2.0

CD 2009/3 Page 3 of 26

Section 4 - FIRST AID MEASURES

- If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the MSDS.
 - Where medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:
 - INDUCE vomiting with fingers down the back of the throat, ONLY IF CONSCIOUS. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- NOTE: Wear a protective glove when inducing vomiting by mechanical means.
- Avoid giving milk or oils.
 - Avoid giving alcohol.

EYE

- If this product comes in contact with the eyes:
- Wash out immediately with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- If pain persists or recurs 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.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor, without delay.

NOTES TO PHYSICIAN

- for poisons (where specific treatment regime is absent):

BASIC TREATMENT

- Establish a patent airway with suction where necessary.
- Watch for signs of respiratory insufficiency and assist ventilation as necessary.
- Administer oxygen by non-rebreather mask at 10 to 15 L/min.
- Monitor and treat, where necessary, for pulmonary oedema .
- Monitor and treat, where necessary, for shock.
- Anticipate seizures .
- DO NOT use emetics. Where ingestion is suspected rinse mouth and give up to 200 ml water (5 ml/kg recommended) for dilution where patient is able to swallow, has a strong gag reflex and does not drool.

ADVANCED TREATMENT

- Consider orotracheal or nasotracheal intubation for airway control in unconscious patient or where respiratory arrest has occurred.
- Positive-pressure ventilation using a bag-valve mask might be of use.
- Monitor and treat, where necessary, for arrhythmias.
- Start an IV D5W TKO. If signs of hypovolaemia are present use lactated Ringers solution. Fluid overload might create complications.
- Drug therapy should be considered for pulmonary oedema.
- Hypotension with signs of hypovolaemia requires the cautious administration of fluids. Fluid overload might create complications.
- Treat seizures with diazepam.

continued...

RS CAST ACRYLIC BONDER - AB1 #144-406

Chemwatch Independent Material Safety Data Sheet

Issue Date: 7-Feb-2008

NA317TC

CHEMWATCH 02-0966

Version No:2.0

CD 2009/3 Page 4 of 26

Section 4 - FIRST AID MEASURES

- Proparacaine hydrochloride should be used to assist eye irrigation.
- BRONSTEIN, A.C. and CURRANCE, P.L.
EMERGENCY CARE FOR HAZARDOUS MATERIALS EXPOSURE: 2nd Ed. 1994.
Treat symptomatically.
for intoxication due to Freons/ Halons;
A: Emergency and Supportive Measures
- Maintain an open airway and assist ventilation if necessary
 - Treat coma and arrhythmias if they occur. Avoid (adrenaline) epinephrine or other sympathomimetic amines that may precipitate ventricular arrhythmias. Tachyarrhythmias caused by increased myocardial sensitisation may be treated with propranolol, 1-2 mg IV or esmolol 25-100 microgm/kg/min IV.
 - Monitor the ECG for 4-6 hours
- B: Specific drugs and antidotes:
- There is no specific antidote
- C: Decontamination
- Inhalation; remove victim from exposure, and give supplemental oxygen if available.
 - Ingestion; (a) Prehospital: Administer activated charcoal, if available. DO NOT induce vomiting because of rapid absorption and the risk of abrupt onset CNS depression. (b) Hospital: Administer activated charcoal, although the efficacy of charcoal is unknown. Perform gastric lavage only if the ingestion was very large and recent (less than 30 minutes)
- D: Enhanced elimination:
- There is no documented efficacy for diuresis, haemodialysis, haemoperfusion, or repeat-dose charcoal.
- POISONING and DRUG OVERDOSE, Californian Poison Control System Ed. Kent R Olson; 3rd Edition
- Do not administer sympathomimetic drugs unless absolutely necessary as material may increase myocardial irritability.
 - No specific antidote.
 - Because rapid absorption may occur through lungs if aspirated and cause systematic effects, the decision of whether to induce vomiting or not should be made by an attending physician.
 - If lavage is performed, suggest endotracheal and/or esophageal control.
 - Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach.
 - Treatment based on judgment of the physician in response to reactions of the patient.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.
- Water spray or fog - Large fires only.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- 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

■ WARNING:

- Can become highly flammable in use.
- Avoid evaporation.

WARNING: In use may form flammable/ explosive vapour-air mixtures.

- Combustible.
- Slight fire hazard when exposed to heat or flame.

continued...

RS CAST ACRYLIC BONDER - AB1 #144-406

Chemwatch Independent Material Safety Data Sheet

Issue Date: 7-Feb-2008

NA317TC

CHEMWATCH 02-0966

Version No:2.0

CD 2009/3 Page 5 of 26

Section 5 - FIRE FIGHTING MEASURES

- Heating may cause expansion or decomposition leading to violent rupture of containers.
 - On combustion, may emit toxic fumes of carbon monoxide (CO).
 - May emit acrid smoke.
 - Mists containing combustible materials may be explosive.
- Combustion products include: carbon dioxide (CO₂), hydrogen chloride, phosgene, nitrogen oxides (NO_x), other pyrolysis products typical of burning organic material.
- Contains low boiling substance: Closed containers may rupture due to pressure buildup under fire conditions.
- May emit clouds of acrid smoke.
- May emit poisonous fumes.

FIRE INCOMPATIBILITY

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

HAZCHEM: 2X

Personal Protective Equipment

Gas tight chemical resistant suit.

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.
- Wipe up.
- Place in a suitable, labelled container for waste disposal.

MAJOR SPILLS

■ Chemical Class: aliphatics, halogenated

For release onto land: recommended sorbents listed in order of priority.

SORBENT TYPE	RANK	APPLICATION	COLLECTION	LIMITATIONS
LAND SPILL - SMALL				
cross- linked polymer - particulate	1	shovel	shovel	R, W, SS
cross- linked polymer - pillow	1	throw	pitchfork	R, DGC, RT
wood fiber - pillow	2	throw	pitchfork	R, P, DGC, RT
treated wood fibre - particulate	2	shovel	shovel	R, W, DGC
sorbent clay - particulate	3	shovel	shovel	R, I, P
foamed glass - pillow	3	throw	pitchfork	R, P, DGC, RT
LAND SPILL - MEDIUM				
cross- linked polymer - particulate	1	blower	skiploader	R, W, SS
cross- linked	2	throw	skiploader	R, DGC, RT

continued...

RS CAST ACRYLIC BONDER - AB1 #144-406

Chemwatch Independent Material Safety Data Sheet

Issue Date: 7-Feb-2008

NA317TC

CHEMWATCH 02-0966

Version No:2.0

CD 2009/3 Page 6 of 26

Section 6 - ACCIDENTAL RELEASE MEASURES

polymer - pillow				
sorbent clay - particulate	3	blower	skiploader	R, I, P
polypropylene - particulate	3	blower	skiploader	W, SS, DGC
foamed glass - pillow	3	throw	skiploader	R, P, DGC, RT
expanded mineral - particulate	4	blower	skiploader	R, I, W, P, DGC

Legend

DGC: Not effective where ground cover is dense

R; Not reusable

I: Not incinerable

P: Effectiveness reduced when rainy

RT: Not effective where terrain is rugged

SS: Not for use within environmentally sensitive sites

W: Effectiveness reduced when windy

Reference: Sorbents for Liquid Hazardous Substance Cleanup and Control;

R.W Melvold et al: Pollution Technology Review No. 150: Noyes Data Corporation 1988.

- Clear area of personnel and move upwind.

- Alert Fire Brigade and tell them location and nature of hazard.

- Wear full body protective clothing with breathing apparatus.

- Prevent, by any means available, spillage from entering drains or water course.

- Stop leak if safe to do so.

- Contain spill with sand, earth or vermiculite.

- Collect recoverable product into labelled containers for recycling.

- Neutralise/decontaminate residue.

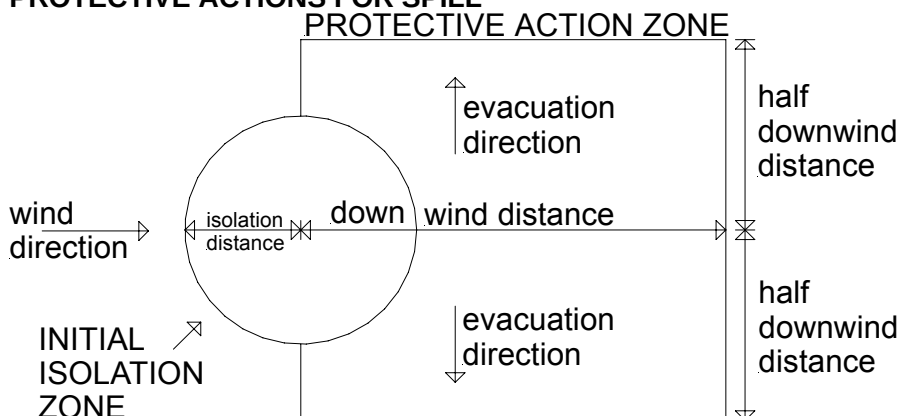
- Collect solid residues and seal in labelled drums for disposal.

- Wash area and prevent runoff into drains.

- After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.

- If contamination of drains or waterways occurs, advise emergency services.

PROTECTIVE ACTIONS FOR SPILL



From US Emergency Response Guide 2000

Guide 153

SMALL SPILLS

Name	Isolation Distance	Downwind Day	Protection Night
Toxic liquid, organic, n.o.s. (Inhalation Hazard Zone A)	700 ft (215 m)	1.2 mile (1.9 km)	2.7 mile (4.3 km)
Toxic liquid, organic,	200 ft (60 m)	0.2 mile (0.3 km)	0.7 mile (1.1 km)

continued...

RS CAST ACRYLIC BONDER - AB1 #144-406

Chemwatch Independent Material Safety Data Sheet

Issue Date: 7-Feb-2008

NA317TC

CHEMWATCH 02-0966

Version No:2.0

CD 2009/3 Page 7 of 26

Section 6 - ACCIDENTAL RELEASE MEASURES

n.o.s. (Inhalation Hazard
Zone B)

Toxic liquid, organic, n.o.s. (when Inhalation Hazard is on a package or shipping paper)	700 ft (215 m)	1.2 mile (1.9 km)	2.7 mile (4.3 km)
---	----------------	-------------------	-------------------

LARGE SPILLS

Name	Isolation Distance	Downwind Day	Protection Night
Toxic liquid, organic, n.o.s. (Inhalation Hazard Zone A)	3000 ft (915 m)	(7.0+ mile (11.0+ km)	(7.0+ mile (11.0+ km)
Toxic liquid, organic, n.o.s. (Inhalation Hazard Zone B)	600 ft (185 m)	1 mile (1.6 km)	2.5 mile (4 km)
Toxic liquid, organic, n.o.s. (when Inhalation Hazard is on a package or shipping paper)	3000 ft (915 m)	(7.0+ mile (11.0+ km)	(7.0+ mile (11.0+ km)
From IERG (Canada/Australia)			
Isolation Distance	25 metres		
Downwind Protection Distance	250 metres		
IERG Number	36		

FOOTNOTES

1 PROTECTIVE ACTION ZONE is defined as the area in which people are at risk of harmful exposure. This zone assumes that random changes in wind direction confines the vapour plume to an area within 30 degrees on either side of the predominant wind direction, resulting in a crosswind protective action distance equal to the downwind protective action distance.

2 PROTECTIVE ACTIONS should be initiated to the extent possible, beginning with those closest to the spill and working away from the site in the downwind direction. Within the protective action zone a level of vapour concentration may exist resulting in nearly all unprotected persons becoming incapacitated and unable to take protective action and/or incurring serious or irreversible health effects.

3 INITIAL ISOLATION ZONE is determined as an area, including upwind of the incident, within which a high probability of localised wind reversal may expose nearly all persons without appropriate protection to life-threatening concentrations of the material.

4 SMALL SPILLS involve a leaking package of 200 litres (55 US gallons) or less, such as a drum (jerrican or box with inner containers). Larger packages leaking less than 200 litres and compressed gas leaking from a small cylinder are also considered "small spills".

LARGE SPILLS involve many small leaking packages or a leaking package of greater than 200 litres, such as a cargo tank, portable tank or a "one-tonne" compressed gas cylinder.

5 Guide 153 is taken from the US DOT emergency response guide book.

6 IERG information is derived from CANUTEC - Transport Canada.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:

methylene chloride 4000ppm

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

methylene chloride 750ppm

other than mild, transient adverse effects without perceiving a clearly defined odour is:

methylene chloride 200ppm

continued...

RS CAST ACRYLIC BONDER - AB1 #144-406

Chemwatch Independent Material Safety Data Sheet

Issue Date: 7-Feb-2008

NA317TC

CHEMWATCH 02-0966

Version No:2.0

CD 2009/3 Page 8 of 26

Section 6 - ACCIDENTAL RELEASE MEASURES

American Industrial Hygiene Association (AIHA)

Ingredients considered according to the following cutoffs

Very Toxic (T+)	$\geq 0.1\%$	Toxic (T)	$\geq 3.0\%$
R50	$\geq 0.25\%$	Corrosive (C)	$\geq 5.0\%$
R51	$\geq 2.5\%$		
else	$\geq 10\%$		

where percentage is percentage of ingredient found in the mixture

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

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

■ Contains low boiling substance:

Storage in sealed containers may result in pressure buildup causing violent rupture of containers not rated appropriately.

- Check for bulging containers.
- Vent periodically
- Always release caps or seals slowly to ensure slow dissipation of vapours.
- DO NOT allow clothing wet with material to stay in contact with skin.

The substance is a peroxidisable vinyl monomer that may exothermically polymerise as a result of decomposition of accumulated peroxides; that is, the peroxides initiate very energetic polymerisation of the bulk monomer

Purchases of peroxidisable chemicals should be restricted to ensure that the chemical is used completely before it can become peroxidised.

- A responsible person should maintain an inventory of peroxidisable chemicals or annotate the general chemical inventory to indicate which chemicals are subject to peroxidation. An expiration date should be determined. The chemical should either be treated to remove peroxides or disposed of before this date.
- The person or laboratory receiving the chemical should record a receipt date on the bottle. The individual opening the container should add an opening date.
- Unopened containers received from the supplier should be safe to store for 18 months.
- Opened containers of inhibited material should not be stored for more than 12 months; they should NOT be stored under an inert atmosphere. Generally, storage of inhibited vinyl monomers should be under air rather than nitrogen or other inert atmosphere, because customary inhibitors are phenolic compounds, which require oxygen for their action. Most vinyl monomers may be polymerized without removal of inhibitor by proper adjustment of initiator concentration, thus making the isolation of the more hazardous uninhibited material unnecessary.
- Opened containers of uninhibited material (>500 g) should not be stored for more than 24 hours; small samples (less than 10 g) may be stored longer than 24 hours with discretion. Generally storage of uninhibited vinyl monomers should be under nitrogen and below room temperatures. For storage in excess of 24 hours, a suitable inhibitor should be added, and its name and quantity should be placed on the label.

SUITABLE CONTAINER

- DO NOT use aluminium or galvanised containers.
- Lined metal can, lined metal pail/ can.
- Plastic pail.
- Polyliner drum.
- Packing as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

For low viscosity materials

- Drums and jerricans must be of the non-removable head type.
- Where a can is to be used as an inner package, the can must have a screwed enclosure.

For materials with a viscosity of at least 2680 cSt. (23 deg. C) and solids (between 15 C deg. and 40 deg C.):

- Removable head packaging;
- Cans with friction closures and

continued...

RS CAST ACRYLIC BONDER - AB1 #144-406

Chemwatch Independent Material Safety Data Sheet

Issue Date: 7-Feb-2008

NA317TC

CHEMWATCH 02-0966

Version No:2.0

CD 2009/3 Page 9 of 26

Section 7 - HANDLING AND STORAGE

- low pressure tubes and cartridges may be used.

-

Where combination packages are used, and the inner packages are of glass, there must be sufficient inert cushioning material in contact with inner and outer packages *.

-

In addition, where inner packagings are glass and contain liquids of packing group I and II there must be sufficient inert absorbent to absorb any spillage *.

-

* unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic.

STORAGE INCOMPATIBILITY

■ Segregate from:

- powdered metals such as aluminium, zinc and
- alkali metals such as sodium, potassium and lithium.

May attack, soften or dissolve rubber, many plastics, paints and coatings.

- Contamination with polymerisation catalysts - peroxides, persulfates, oxidising agents - also strong acids, strong alkalies, will cause polymerisation with exotherm - generation of heat.
- Polymerisation of large quantities may be violent - even explosive.
- Segregate from alcohol, water.
- Avoid magnesium, aluminium and their alloys, brass and steel.
- Stable under controlled storage conditions provided material contains adequate stabiliser / polymerisation inhibitor.
- Bulk storages may have special storage requirements
- WARNING: Gradual decomposition in strong, sealed containers may lead to a large pressure build-up and subsequent explosion. Rapid and violent polymerisation possible at temperatures above 32 deg c.

STORAGE REQUIREMENTS

■ Easily peroxidisable.

- Products formed as a result of peroxidation are not only safety hazards but may chemically alter the chemical behavior of the parent compound.
- Should have a warning label affixed bearing the date of receipt in the laboratory and the date on which the container label is first opened, or laboratory synthesised materials are the responsibility of the individual chemist.
- WARNING: This product may form peroxides which themselves are not themselves particularly hazardous but which on decomposition may initiate explosive polymerisation of the bulk monomer (Trommsdorf effect).
- Should be evaluated every 12 months, redated if safe or else discarded.
- Quantities of uninhibited monomers exceeding 500 ml should not be stored for more than 24 hours.
- The oxidation of iodide to iodine or the conversion of colourless ferrothiocyanate to red ferrithiocyanate by peroxides are simple and convenient tests for most peroxides.
- Before distilling or evaporating a suitable polymerisation inhibitor should be added.
- Leave at least 10% bottoms.
- Use a shield when evaporating or distilling mixtures which may contain peroxidisable compounds.
- Store away from heat and light.
- Particular attention should be paid to the adequacy of the closure on storage containers.

Peroxides may be removed by;

- passing the material over a column of ordinary activated alumina (care should be taken in disposal of the activated alumina);
- shaking with a concentrated solution of ferrous salt (provided the carrier solvent is water-insoluble);
- agitation with an approximately equimolar mixture of ferrous sulfate and sodium bisulfate;
- commercial quantities may be treated with a 5% solution of aqueous sodium carbonate.

Jackson et al: Control of Peroxizable Compounds; Safety in the Chemical Laboratory, Journal of Chemical Education; Vol 47, 1970, pp A175-A188

- When solvents have been freed from peroxides by percolation through a column of activated alumina, the adsorbed peroxides must promptly be desorbed by treatment with polar solvents, methanol or water, which must in turn be discarded safely.***.
- Storage requires stabilising inhibitor content and dissolved oxygen content to be monitored. Refer to

continued...

RS CAST ACRYLIC BONDER - AB1 #144-406

Chemwatch Independent Material Safety Data Sheet

Issue Date: 7-Feb-2008

NA317TC

CHEMWATCH 02-0966

Version No:2.0

CD 2009/3 Page 10 of 26

Section 7 - HANDLING AND STORAGE

- manufacturer's recommended levels.
- DO NOT overfill containers so as to maintain free head space above product.
- Blanketing or sparging with nitrogen or oxygen free gas will deactivate stabiliser.
- 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.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+: May be stored together

O: May be stored together with specific precautions

X: Must not be stored together

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Notes
Australia Exposure Standards	methylene chloride (Methylene chloride)	50	174			Sk
Australia Exposure Standards	methyl methacrylate (Methyl methacrylate)	50	208	100	416	

The following materials had no OELs on our records

- ethylene glycol phenyl ether: CAS:122- 99- 6

EMERGENCY EXPOSURE LIMITS

Material	Revised IDLH Value (mg/m ³)	Revised IDLH Value (ppm)
methylene chloride		2, 000
methyl methacrylate		1, 000

MATERIAL DATA

RS CAST ACRYLIC BONDER - AB1 #144-406:

■ Sensory irritants are chemicals that produce temporary and undesirable side-effects on the eyes, nose or throat. Historically occupational exposure standards for these irritants have been based on observation of workers' responses to various airborne concentrations. Present day expectations require that nearly every individual should be protected against even minor sensory irritation and exposure standards are established using uncertainty factors or safety factors of 5 to 10 or more. On occasion animal no-observable-effect-levels (NOEL) are used to determine these limits where human results are unavailable. An additional approach, typically used by the TLV committee (USA) in determining respiratory standards for this group of chemicals, has been to assign ceiling values (TLV C) to rapidly acting irritants and to assign short-term exposure limits (TLV STELs) when the weight of evidence from irritation, bioaccumulation and other endpoints combine to warrant such a limit. In contrast the MAK Commission (Germany) uses a five-category system based on intensive odour, local irritation, and elimination half-life. However this system is being replaced to be consistent with the European Union (EU) Scientific Committee for Occupational Exposure Limits (SCOEL); this is more closely allied to that of the USA.

OSHA (USA) concluded that exposure to sensory irritants can:

continued...

RS CAST ACRYLIC BONDER - AB1 #144-406

Chemwatch Independent Material Safety Data Sheet

Issue Date: 7-Feb-2008

NA317TC

CHEMWATCH 02-0966

Version No:2.0

CD 2009/3 Page 11 of 26

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

- cause inflammation
- cause increased susceptibility to other irritants and infectious agents
- lead to permanent injury or dysfunction
- permit greater absorption of hazardous substances and
- acclimate the worker to the irritant warning properties of these substances thus increasing the risk of overexposure.

METHYLENE CHLORIDE:

- For methylene chloride

Odour Threshold Value: 158 ppm (detection), 227 ppm (recognition)

NOTE: Detector tubes for methylene chloride, measuring in excess of 25 ppm are commercially available.

Long-term measurements (4 hrs) may be conducted to detect concentrations exceeding 13 ppm.

Exposure at or below the recommended TLV-TWA (and in the absence of occupational exposure to carbon monoxide) is thought to minimise the potential for liver injury and to provide protection against the possible weak carcinogenic effects which have been demonstrated in laboratory rats and mice. Enhancement of tumours of the lung, liver, salivary glands and mammary tissue in rodent studies has lead NIOSH to recommend a more conservative outcome. The ACGIH however concludes that in the absence of documentation of health-related injuries at higher exposures after a long history of methylene chloride use and a number of epidemiologic studies, the recommended TLV-TWA provides an adequate margin of safety.

Concentration effects:

Concentration	Clinical effects
>300 ppm	Sweet odour
500-1000 ppm (1-2 h)	Unpleasant odour, slight anaesthetic effects, headache, light-headedness, eye irritation and elevated COHb concentration
2300 ppm (5 min.)	Odour strong, intensely irritating; dizziness
7200 ppm (8-16 min)	Paraesthesia, tachycardia
>50000 ppm	Immediately life-threatening.

Established occupational exposure limits frequently do not take into consideration reproductive end points that are clearly below the thresholds for other toxic effects. Occupational reproductive guidelines (ORGs) have been suggested as an additional standard. These have been established after a literature search for the reproductive no-observed-adverse effect-level (NOAEL) and the lowest-observed-adverse-effect-level (LOAEL). In addition the US EPA's procedures for risk assessment for hazard identification and dose-response assessment as applied by NIOSH were used in the creation of such limits. Uncertainty factors (UFs) have also been incorporated.

:

ETHYLENE GLYCOL PHENYL ETHER:

■ Sensory irritants are chemicals that produce temporary and undesirable side-effects on the eyes, nose or throat. Historically occupational exposure standards for these irritants have been based on observation of workers' responses to various airborne concentrations. Present day expectations require that nearly every individual should be protected against even minor sensory irritation and exposure standards are established using uncertainty factors or safety factors of 5 to 10 or more. On occasion animal no-observable-effect-levels (NOEL) are used to determine these limits where human results are unavailable. An additional approach, typically used by the TLV committee (USA) in determining respiratory standards for this group of chemicals, has been to assign ceiling values (TLV C) to rapidly acting irritants and to assign short-term exposure limits (TLV STELs) when the weight of evidence from irritation, bioaccumulation and other endpoints combine to warrant such a limit. In contrast the MAK Commission (Germany) uses a five-category system based on intensive odour, local irritation, and elimination half-life. However this system is being replaced to be consistent with the European Union (EU) Scientific Committee for Occupational Exposure Limits (SCOEL); this is more closely allied to that of the USA.

OSHA (USA) concluded that exposure to sensory irritants can:

- cause inflammation
- cause increased susceptibility to other irritants and infectious agents
- lead to permanent injury or dysfunction
- permit greater absorption of hazardous substances and

continued...

RS CAST ACRYLIC BONDER - AB1 #144-406

Chemwatch Independent Material Safety Data Sheet

Issue Date: 7-Feb-2008

NA317TC

CHEMWATCH 02-0966

Version No:2.0

CD 2009/3 Page 12 of 26

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

• acclimate the worker to the irritant warning properties of these substances thus increasing the risk of overexposure.

Exposure limits with "skin" notation indicate that vapour and liquid may be absorbed through intact skin. Absorption by skin may readily exceed vapour inhalation exposure. Symptoms for skin absorption are the same as for inhalation. Contact with eyes and mucous membranes may also contribute to overall exposure and may also invalidate the exposure standard.

CEL TWA: 25 ppm, 140 mg/m³ (skin)

[Dow]

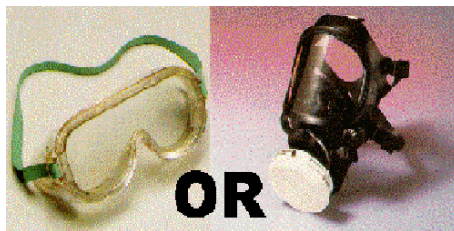
METHYL METHACRYLATE:

■ Odour Threshold Value (methyl methacrylate): 0.049 ppm (detection), 0.34 ppm (recognition)

NOTE: Detector tubes measuring in excess of 50 ppm, are available.

Concentrations as low as 125 ppm methyl methacrylate have produced irritation of the mucous membranes of exposed workers. The recommended TLV-TWA is thought to be sufficiently low to protect against discomfort from irritation and acute systemic intoxication.

PERSONAL PROTECTION



EYE

- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET

■ 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.
- Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.

Suitability and durability of glove type is dependent on usage. Factors such as:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity,

are important in the selection of gloves.

General warning: Do NOT use latex gloves! Use only recommended gloves - using the wrong gloves may increase the risk:

Exposure condition Short time use; (few minutes less than 0.5 hour) Little physical stress

Use of thin nitrile rubber gloves: Nitrile rubber (0.1 mm) Excellent tactility ("feel"), powder-free Disposable Inexpensive Give adequate protection to low molecular weight acrylic monomers

Exposure condition Medium time use; less than 4 hours Physical stress (opening drums, using

Use of medium thick nitrile rubber gloves Nitrile rubber, NRL (latex) free; <0.45 mm

continued...

RS CAST ACRYLIC BONDER - AB1 #144-406

Chemwatch Independent Material Safety Data Sheet

Issue Date: 7-Feb-2008

NA317TC

CHEMWATCH 02-0966

Version No:2.0

CD 2009/3 Page 13 of 26

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

tools, etc.)

Exposure condition Long time Cleaning operations

Moderate tactility ("feel"), powder-free Disposable Moderate price Gives adequate protection for most acrylates up to 4 hours Do NOT give adequate protection to low molecular weight monomers at exposures longer than 1 hour Nitrile rubber, NRL (latex) free; >0.56 mm low tactility ("feel"), powder free High price Gives adequate protection for most acrylates in combination with commonly used solvents up to 8 hours Do NOT give adequate protection to low molecular weight monomers at exposures longer than 1 hour Avoid use of ketones and acetates in wash-up solutions.

Where none of these gloves ensure safe handling (for example in long term handling of acrylates containing high levels of acetates and/or ketones, use laminated multilayer gloves.

Guide to the Classification and Labelling of UV/EB Acrylates Third edition, 231 October 2007 - Cefic.

OTHER

- Overalls.
- Eyewash unit.
- Barrier cream.
- Skin cleansing cream.

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	AXNO- P- - AUS
	-	
AXNO- P- - PAPR- AUS		-
20 x ES	-	
AXNO- P- - AUS		-
	AXNO- P- - PAPR- AUS	100 x ES
-		AXNO- P- - 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

■ Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection.

An approved self contained breathing apparatus (SCBA) may be required in some situations.

Provide adequate ventilation in warehouse or closed storage area. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:
solvent, vapours, degreasing etc., evaporating from tank (in still air).
aerosols, fumes from pouring operations,

Air Speed:
0.25- 0.5 m/s (50- 100 f/min.)
0.5- 1 m/s (100- 200 f/min.)

continued...

RS CAST ACRYLIC BONDER - AB1 #144-406

Chemwatch Independent Material Safety Data Sheet

Issue Date: 7-Feb-2008

NA317TC

CHEMWATCH 02-0966

Version No:2.0

CD 2009/3 Page 14 of 26

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation) direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion) grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).

1- 2.5 m/s (200- 500 f/min.)

2.5- 10 m/s (500- 2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range

1: Room air currents minimal or favourable to capture

2: Contaminants of low toxicity or of nuisance value only.

3: Intermittent, low production.

4: Large hood or large air mass in motion

Upper end of the range

1: Disturbing room air currents

2: Contaminants of high toxicity

3: High production, heavy use

4: Small hood- local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Viscous liquid with a characteristic odour; insoluble in water.

PHYSICAL PROPERTIES

Liquid.

Does not mix with water.

Sinks in water.

Molecular Weight: Not Applicable

Specific Gravity (water=1): 1.2

pH (1% solution): Not Applicable

Evaporation Rate: Not Available

Lower Explosive Limit (%): Not Available

Decomposition Temp (°C): Not Available

Boiling Range (°C): 40

Solubility in water (g/L): Immiscible

Vapour Pressure (kPa): Not Available

Relative Vapour Density (air=1): Not Available

Upper Explosive Limit (%): Not Available

State: Liquid

Melting Range (°C): Not Available

pH (as supplied): Not Applicable

Volatile Component (%vol): Not Available

Flash Point (°C): Not Available

Autoignition Temp (°C): Not Available

Viscosity: Not Available

continued...

RS CAST ACRYLIC BONDER - AB1 #144-406

Chemwatch Independent Material Safety Data Sheet

Issue Date: 7-Feb-2008

NA317TC

CHEMWATCH 02-0966

Version No:2.0

CD 2009/3 Page 15 of 26

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Stable under controlled storage conditions provided material contains adequate stabiliser / polymerisation inhibitor.
- Bulk storages may have special storage requirements
- WARNING: Gradual decomposition in strong, sealed containers may lead to a large pressure build-up and subsequent explosion. Rapid and violent polymerisation possible at temperatures above 32 deg c.
- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual. Central nervous system (CNS) depression may include nonspecific discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal. At sufficiently high doses the material may be hepatotoxic (i.e. poisonous to the liver). Signs may include nausea, stomach pains, low fever, loss of appetite, dark urine, clay-coloured stools, jaundice (yellowing of the skin or eyes).

EYE

■ Evidence exists, or practical experience predicts, that the material may cause eye irritation in a substantial number of individuals and/or may produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Repeated or prolonged eye contact may cause inflammation characterised by a temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.

SKIN

- The material produces severe skin irritation; evidence exists, or practical experience predicts, that the material either:
- produces severe inflammation of the skin in a substantial number of individuals following direct contact, and/or
 - produces significant and severe inflammation when applied to the healthy intact skin of animals (for up to four hours), such inflammation being present twenty-four hours or more after the end of the exposure period.
 - Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.

NOTE: Prolonged contact is unlikely, given the severity of response, but repeated exposures may produce severe ulceration.

Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.

Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds 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.

continued...

RS CAST ACRYLIC BONDER - AB1 #144-406

Chemwatch Independent Material Safety Data Sheet

Issue Date: 7-Feb-2008

NA317TC

CHEMWATCH 02-0966

Version No:2.0

CD 2009/3 Page 16 of 26

Section 11 - TOXICOLOGICAL INFORMATION

INHALED

■ Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system, in a substantial number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system.

Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo.

Inhalation hazard is increased at higher temperatures.

Inhalation exposure may cause susceptible individuals to show change in heart beat rhythm i.e. cardiac arrhythmia. Exposures must be terminated.

Acute intoxication by halogenated aliphatic hydrocarbons appears to take place over two stages. Signs of a reversible narcosis are evident in the first stage and in the second stage signs of injury to organs may become evident, a single organ alone is (almost) never involved.

At high concentrations most of the absorbed methylene chloride (dichloromethane) is exhaled unchanged; the remainder is metabolised to carbon monoxide, carbon dioxide and inorganic chloride. Inhalation may produce fatigue, weakness, sleepiness, light-headedness, chills, nausea, diarrhoea and abdominal pain. The lowest published lethal dose is 20,000 ppm for 20 hours. The body metabolises methylene chloride to carbon monoxide and adds to the body burden of carboxyhaemoglobin (COHb) contributed by other sources. The increase in COHb is related to the magnitude of vapour exposure and duration. Serious poisoning can occur without raised COHb concentrations, although these raised concentrations may persist for several hours. Central nervous system (CNS) effects are thought to be due to methylene chloride itself or methylene chloride in combination with other sources of COHb, rather than the COHb metabolite. The raised COHb concentrations are not usually expected to produce adverse effects in healthy individuals but may be cause for concern in individuals with cardiovascular disease. Encephalopathy (brain injury) has been reported after repeated exposure. Angina, myocardial infarction, cardiac arrhythmias and cardiac arrest have also been reported, although the cardiovascular system is not generally a target for methylene chloride toxicity. Hypotension, shock and metabolic acidosis may also occur as a result of overexposure. Respiratory failure may develop, secondary to CNS depression, in severe cases.

CHRONIC HEALTH EFFECTS

■ On the basis, primarily, of animal experiments, concern has been expressed that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment.

Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.

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.

Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

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 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.

There is some evidence to provide a presumption that human exposure to the material may result in impaired fertility on the basis of: some evidence in animal studies of impaired fertility in the absence of toxic effects, or evidence of impaired fertility occurring at around the same dose levels as other toxic effects but which is not a secondary non-specific consequence of other toxic effects.

Methylene chloride exposures cause liver and kidney damage in animals and this justifies consideration before exposing persons with a history of impaired liver function and/or renal disorders.

Chronic exposure may produce central nervous system damage including confusion, delusions, slurred speech, memory impairment, anxiety, focal seizures, encephalopathy and visual and auditory hallucinations. These

continued...

RS CAST ACRYLIC BONDER - AB1 #144-406

Chemwatch Independent Material Safety Data Sheet

Issue Date: 7-Feb-2008

NA317TC

CHEMWATCH 02-0966

Version No:2.0

CD 2009/3 Page 17 of 26

Section 11 - TOXICOLOGICAL INFORMATION

effects are probably due to chronic carbon monoxide poisoning resulting from methylene chloride metabolism.

Two epidemiological studies of workers exposed to methylene chloride have been published. An excess in pancreatic tumours was noted in one study. Chronic exposure to methylene chloride (approximately 30-120 ppm TWA) did not appear to increase the risk of deaths arising from lung cancer or cardiovascular disease. A study from Zeneca's Central Toxicology Laboratory added further support to the claim that solvent methylene chloride is not a human carcinogen. This study supported a previous finding by the European Centre of Ecology and Toxicology (ECETOC) that methylene chloride induced-cancers, previously identified in mice, were a consequence of a unique metabolic pathway found only in mice.

TOXICITY AND IRRITATION

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

■ Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested.

Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production. Where no "official" classification for acrylates and methacrylates exists, there has been cautious attempts to create classifications in the absence of contrary evidence. For example

Monoalkyl or monoarylestere of acrylic acids should be classified as R36/37/38 and R51/53

Monoalkyl or monoaryl estere of methacrylic acid should be classified as R36/37/38.

The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may produce severe 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) thickening of the epidermis.

Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis. Prolonged contact is unlikely, given the severity of response, but repeated exposures may produce severe ulceration.

METHYLENE CHLORIDE:

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY

Oral (human) LDLo: 357 mg/kg

Oral (rat) LD50: 1600 mg/kg

Inhalation (human) TCLo: 500 ppm/ 8 hr

Inhalation (rat) LC50: 88000 mg/m³/30 m

■ The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may produce severe 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) thickening of the epidermis.

Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema

IRRITATION

Skin (rabbit): 810 mg/24hr- SEVERE

Skin (rabbit): 100mg/24hr- Moderate

Eye(rabbit): 162 mg - Moderate

Eye(rabbit): 500 mg/24hr - Mild

continued...

RS CAST ACRYLIC BONDER - AB1 #144-406

Chemwatch Independent Material Safety Data Sheet

Issue Date: 7-Feb-2008

NA317TC

CHEMWATCH 02-0966

Version No:2.0

CD 2009/3 Page 18 of 26

Section 11 - TOXICOLOGICAL INFORMATION

of the epidermis. Prolonged contact is unlikely, given the severity of response, but repeated exposures may produce severe ulceration.

WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans. Inhalation (human) TCLo: 500 ppm/ 1 y - I Eye(rabbit): 10 mg - mild

ETHYLENE GLYCOL PHENYL ETHER:

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY

Oral (rat) LD50: 1260 mg/kg

Dermal (rat) LD50: 14422 mg/kg

Dermal (rabbit) LD50: 5000 mg/kg

■ The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

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.

Studies with some ethylene glycol ethers and their esters indicate reproductive changes, testicular atrophy, infertility and kidney function changes. The metabolic acetic acid derivatives of the glycol ethers (alkoxyacetic acids), not the ether itself, have been found to be the proximal reproductive toxin in animals. The potency of these metabolites decrease significantly as the chain length of the ether increases.

Consequently glycol ethers with longer substituents (e.g diethylene glycols, triethylene glycols) have not generally been associated with reproductive effects. One of the most sensitive indicators of toxic effects observed from many of the glycol ethers is an increase in the erythrocytic osmotic fragility in rats. This appears to be related to the development of haemoglobinuria (blood in the urine) at higher exposure levels or as a result of chronic exposure. Ethylene glycol ethers and acetates are mainly metabolised to alkoxyacetic acids but there is also a minor pathway through ethylene glycol to oxalic acid. The main pathway of ethylene glycol ethers is associated with significant clinical or experimental health effects, but the minor pathway is also interesting because formation of urinary stones depends principally upon urinary concentration of oxalate and calcium. In one study (1) the tendency to form urinary stones was 2.4 times higher amongst silk-screen printers exposed to ethylene glycol ethers, than among office workers. (1) Laitinen J., et al: Occupational Environmental Medicine 1996, 53 595-600.

Bacterial cell mutagen

IRRITATION

Skin (rabbit): 500 mg/24h - Mild

Eye (rabbit): 6 mg - Moderate

Eye (rabbit): 250 ug/24h - SEVERE

METHYL METHACRYLATE:

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY

Oral (rat) LD50: 7872 mg/kg

Inhalation (human) TCLo: 125 ppm

Dermal (rabbit) LD50: >5000 mg/kg

Inhalation (rat) LC50: 3750 ppm *

Dermal (rabbit) LD50: 35500 mg/kg *

■ Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested.

Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia,

continued...

RS CAST ACRYLIC BONDER - AB1 #144-406

Chemwatch Independent Material Safety Data Sheet

Issue Date: 7-Feb-2008

NA317TC

CHEMWATCH 02-0966

Version No:2.0

CD 2009/3 Page 19 of 26

Section 11 - TOXICOLOGICAL INFORMATION

have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production. Where no "official" classification for acrylates and methacrylates exists, there has been cautious attempts to create classifications in the absence of contrary evidence. For example Monoalkyl or monoarylesters of acrylic acids should be classified as R36/37/38 and R51/53 Monoalkyl or monoaryl esters of methacrylic acid should be classified as R36/37/38. 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.

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 ($\text{CH}_2=\text{CHCOO}$ or $\text{CH}_2=\text{C}(\text{CH}_3)\text{COO}$) 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.

Inhalation (human) TCLo: 60 mg/m³(15 ppm) [* Manuf. Rohm & Haas]

CARCINOGEN

Dichloromethane (methylene chloride)	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	2B
	Australia Exposure Standards - Carcinogens	Carcinogen Category	3
Anaesthetics, volatile	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	3
Methyl methacrylate	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	3

REPROTOXIN

methylene chloride	ILO Chemicals in the electronics industry that have toxic effects on reproduction	Reduced fertility or sterility
methyl methacrylate	ILO Chemicals in the electronics industry that have toxic effects on reproduction	Reduced fertility or sterility

SKIN

methylene chloride	Australia Exposure Standards - Skin	Notes	Sk
--------------------	-------------------------------------	-------	----

Section 12 - ECOLOGICAL INFORMATION

Refer to data for ingredients, which follows:

RS CAST ACRYLIC BONDER - AB1 #144-406:

METHYL METHACRYLATE:

■ Ecotoxicity of acrylates is a function of n-octanol/ water partition coefficient (log Pow, log Kow). Compounds with a log Pow >5 exhibit simple narcosis, but at lower log Pow the toxicity of acrylates is greater than predicted for simple narcotics.

continued...

RS CAST ACRYLIC BONDER - AB1 #144-406

Chemwatch Independent Material Safety Data Sheet

Issue Date: 7-Feb-2008

NA317TC

CHEMWATCH 02-0966

Version No:2.0

CD 2009/3 Page 20 of 26

Section 12 - ECOLOGICAL INFORMATION

If released to surface water, acrylic acid and the acrylic esters would all be rapidly biodegraded while a portion would volatilise to the air. Acrylic acid was shown to rapidly biodegrade aerobically in soil ($t_{1/2} < 1$ day). Volatilised acrylic acid and acrylic esters are predicted to degrade rapidly by atmospheric photo-oxidation with estimated half-lives of 2 to 24 h.

The mobility in soil of acrylic acid and its esters ranged from 'medium' to 'very high'. Calculated bioconcentration factors ranged from 1 to 37, suggesting a low bioconcentration potential. Acrylic acid and methyl acrylate showed limited biodegradability in the five day biochemical oxygen demand (BOD5) test, while ethyl acrylate and butyl acrylate were degraded easily (77% and 56%, respectively). Using the OECD method 301D 28-d closed bottle test, degradability for acrylic acid was 81% at 28 days, while the acrylic esters ranged from 57% to 60%. Acrylic acid degraded rapidly to carbon dioxide in soil ($t_{1/2} < 1$ day).

According to classification procedures developed by the US EPA, the acute toxicity of acrylic acid to fish and invertebrates ranged from 'slightly' toxic to 'practically non-toxic'. The acute toxicity of the acrylic esters was 'moderately' toxic. Effects on algae of these compounds could not be judged from static tests due to the extensive biodegradation and volatilisation that occurred during the tests. Toxicity tests were conducted using freshwater and marine fish, invertebrates, and algae. Acrylic acid effect concentrations for fish and invertebrates ranged from 27 to 236 mg/l. Effect concentrations (LC50 or EC50) for fish and invertebrates using methyl acrylate, ethyl acrylate, and butyl acrylate ranged from 1.1 to 8.2 mg/l. The chronic maximum acceptable toxicant concentration (MATC) for acrylic acid with *Daphnia magna* was 27 mg/l based on length and young produced per adult reproduction day and for ethyl acrylate was 0.29 mg/l based on both the reproductive and growth endpoints. MATC values represent an approximate threshold of chronic effects to an organism.

Overall these studies show that acrylic acid and the acrylic esters studied can rapidly biodegrade, have a low potential for persistence or bioaccumulation in the environment, and have low to moderate toxicity.

C. A. Staples et al; Chemosphere Vol 40, January 2000, pp 29-38.

RS CAST ACRYLIC BONDER - AB1 #144-406:

METHYL METHACRYLATE:

ETHYLENE GLYCOL PHENYL ETHER:

METHYLENE CHLORIDE:

■ DO NOT discharge into sewer or waterways.

RS CAST ACRYLIC BONDER - AB1 #144-406:

Marine Pollutant: Not Determined

METHYLENE CHLORIDE:

■ Fish LC50 (96hr.) (mg/l):	147.6- 193
■ <i>Daphnia magna</i> EC50 (48hr.) (mg/l):	224
■ BCF<100:	5
■ log Kow (Prager 1995):	1.25
■ Half- life Soil - High (hours):	672
■ Half- life Soil - Low (hours):	168
■ Half- life Air - High (hours):	4584
■ Half- life Air - Low (hours):	458
■ Half- life Surface water - High (hours):	672
■ Half- life Surface water - Low (hours):	168
■ Half- life Ground water - High (hours):	1344
■ Half- life Ground water - Low (hours):	336
■ Aqueous biodegradation - Aerobic - High (hours):	672
■ Aqueous biodegradation - Aerobic - Low (hours):	168
■ Aqueous biodegradation - Anaerobic - High (hours):	2688
■ Aqueous biodegradation - Anaerobic - Low (hours):	672
■ Aqueous biodegradation - Removal secondary treatment - High (hours):	94.50%
■ Photolysis maximum light absorption - High (nano- m):	250
■ Photolysis maximum light absorption - Low (nano- m):	220
■ Photooxidation half- life air - High (hours):	4584
■ Photooxidation half- life air - Low (hours):	458
■ First order hydrolysis half- life (hours):	704 YR

■ For methylene chloride:

continued...

RS CAST ACRYLIC BONDER - AB1 #144-406

Chemwatch Independent Material Safety Data Sheet

Issue Date: 7-Feb-2008

NA317TC

CHEMWATCH 02-0966

Version No:2.0

CD 2009/3 Page 21 of 26

Section 12 - ECOLOGICAL INFORMATION

log Kow : 1.25

log Koc : 1.68

log Kom : 1.44

Henry's atm m³/mol: 2.68E-03

BCF : 5

Environmental fate:

Methylene chloride is a volatile liquid, and tends to volatilise to the atmosphere from water and soil. The half-life of methylene chloride volatilisation from water has been found to be 21 minutes under experimental conditions but actual volatilisation from natural waters will depend on the rate of mixing, wind speed, temperature, and other factors. The Henry's law constant value (H) of 0.002 atm/m³/mol indicates that methylene chloride will volatilise rapidly from moist soil and water surfaces.

Methylene chloride is not strongly sorbed to soils or sediments. Based on its low soil organic carbon partitioning coefficient (Koc) of 25, methylene chloride is likely to be very highly mobile in soils and may be expected to leach from soils into groundwater.

Based on a reported log octanol/water partition coefficient (Kow) of 1.3 an estimated bioconcentration factor (BCF) of 2.3 was derived. There is no evidence of biomagnification, but because the estimated BCF is low, significant biomagnification of methylene chloride in aquatic food chains is not expected.

Air: The main degradation pathway for methylene chloride in air is its reaction with photochemically generated hydroxyl radicals. Thus, the atmospheric lifetime of methylene chloride may be predicted from the hydroxyl radical concentration in air and the rate of reaction. Most reported rates for hydroxyl radical reaction with methylene chloride range from 1.0 x10⁻¹³ to 1.5 x10⁻¹³ cm³/mol/sec, and estimates of average atmospheric hydroxyl radical concentration range from 2.5 x10⁺⁵ to 1x10⁺⁶ mol/cm³. Using this information, the average atmospheric lifetime for methylene chloride may be calculated to be 130 days. Because this degradation pathway is relatively slow, methylene chloride may become widely dispersed but is not likely to accumulate in the atmosphere. The small amount of methylene chloride which reaches the stratosphere (about 1%) may undergo direct photolytic degradation; however, photolysis in the troposphere is not expected. Reactions of methylene chloride with ozone or other common atmospheric species (e.g., oxygen atoms, chlorine atoms, and nitrate radicals) are not believed to contribute to its breakdown.

Water: Methylene chloride undergoes slow hydrolysis in water. The experimental half-life reported for the hydrolysis reaction, at neutral conditions, is approximately 18 months at 25 C. However, the rate of reaction varies greatly with changes in temperature and pH. A hydrolytic half-life of 14 days was reported for methylene chloride in acidic solutions at 80-150 C. This experimental value, when extrapolated to 25 C, is about 700 years. Different mechanisms of hydrolyses may be responsible for these two widely different values.

Both aerobic and anaerobic biodegradation may be an important fate process for methylene chloride in water. Methylene chloride has been observed to undergo degradation at a rapid rate under aerobic conditions. Reported total methylene chloride loss was 100% after 7 days in a static culture flask biodegradability screening test.

Sediment and Soil: The rate of biodegradation was found to be dependent on soil type, substrate concentration, and redox state of the soil. Methylene chloride biodegradation has been reported to occur under both aerobic conditions and anaerobic conditions. The biodegradation of methylene chloride appears to be accelerated by the presence of elevated levels of organic carbon.

Methylene chloride has a low tendency to absorb to soil; therefore, there is a potential for leaching to groundwater. Also, because of the high vapor pressure, volatilisation to air is also a likely fate process from dry soil. Its high Henry's law constant (0.002 atm/m³/mol) indicates that volatilization from moist soil is also likely.

■ The UK Department of Environment have established that methylene chloride is not a greenhouse gas and the Organisation for Economic Cooperation and Development (OECD) in a Monograph have affirmed that there was no single international view that risk reduction measures are required for the solvent. The Monograph suggests that alternatives may pose a greater risk to the environment.

In the atmosphere methylene chloride degrades by reaction with photochemically produced hydroxy radicals (half-life 6 months). Methylene chloride rapidly volatilises from water and soil to the atmosphere (estimated half-life for volatilisation from water 3-5.6 hours). In soil methylene chloride may partially leach to ground water. It is not expected to bioaccumulate or bioconcentrate in the food chain.

Drinking Water Standards:

hydrocarbon total: 10 ug/l (UK max)

dichloromethane: 20 ug/l (WHO guideline)

Soil Guidelines: Dutch Criteria: detection threshold (target)

20 mg/kg (intervention)

continued...

RS CAST ACRYLIC BONDER - AB1 #144-406

Chemwatch Independent Material Safety Data Sheet

Issue Date: 7-Feb-2008

NA317TC

CHEMWATCH 02-0966

Version No:2.0

CD 2009/3 Page 22 of 26

Section 12 - ECOLOGICAL INFORMATION

Air Quality Standards:

3 mg/m3 averaging time 24 hours (WHO guideline).

ETHYLENE GLYCOL PHENYL ETHER:

■ For glycol ethers:

Environmental fate:

Ether groups are generally stable to hydrolysis in water under neutral conditions and ambient temperatures. OECD guideline studies indicate ready biodegradability for several glycol ethers although higher molecular weight species seem to biodegrade at a slower rate. No glycol ethers that have been tested demonstrate marked resistance to biodegradative processes. Upon release to the atmosphere by evaporation, high boiling glycol ethers are estimated to undergo photodegradation (atmospheric half lives = 2.4-2.5 hr). When released to water, glycol ethers undergo biodegradation (typically 47-92% after 8-21 days) and have a low potential for bioaccumulation (log Kow ranges from -1.73 to +0.51).

Ecotoxicity:

Aquatic toxicity data indicate that the tri- and tetra ethylene glycol ethers are "practically non-toxic" to aquatic species. No major differences are observed in the order of toxicity going from the methyl- to the butyl ethers.

Glycols exert a high oxygen demand for decomposition and once released to th environments cause the death of aquatic organisms if dissolved oxygen is depleted.

log Kow: 1.16

Koc: 102

Henry's atm m³ /mol: 2.00E-07

BCF: 2-4.5

Toxicity Fish: LC50(96)22.85-30.99mg/L

Toxicity invertebrate: LC50(96)22.08mg/L

Bioaccumulation: not sig

Degradation Biological: v sig

processes Abiotic: RxnOH*

METHYL METHACRYLATE:

■ Substances containing unsaturated carbons are ubiquitous in indoor environments. They result from many sources (see below). Most are reactive with environmental ozone and many produce stable products which are thought to adversely affect human health. The potential for surfaces in an enclosed space to facilitate reactions should be considered.

Source of unsaturated substances	Unsaturated substances (Reactive Emissions)	Major Stable Products produced following reaction with ozone.
Occupants (exhaled breath, ski oils, personal care products)	Isoprene, nitric oxide, squalene, unsaturated sterols, oleic acid and other unsaturated fatty acids, unsaturated oxidation products	Methacrolein, methyl vinyl ketone, nitrogen dioxide, acetone, 6MHQ, geranyl acetone, 4OPA, formaldehyde, nonanol, decanal, 9- oxo- nonanoic acid, azelaic acid, nonanoic acid.
Soft woods, wood flooring, including cypress, cedar and silver fir boards, houseplants	Isoprene, limonene, alpha-pinene, other terpenes and sesquiterpenes	Formaldehyde, 4- AMC, pinoaldehyde, pinic acid, pinonic acid, formic acid, methacrolein, methyl vinyl ketone, SOAs including ultrafine particles
Carpets and carpet backing	4- Phenylcyclohexene, 4-vinylcyclohexene, styrene, 2-ethylhexyl acrylate, unsaturated fatty acids and esters	Formaldehyde, acetaldehyde, benzaldehyde, hexanal, nonanal, 2- nonenal
Linoleum and paints/polishes containing linseed oil	Linoleic acid, linolenic acid	Propanal, hexanal, nonanal, 2-heptenal, 2- nonenal, 2-decenal, 1- pentene- 3- one, propionic acid, n- butyric acid
Latex paint	Residual monomers	Formaldehyde
Certain cleaning products,	Limonene, alpha- pinene,	Formaldehyde, acetaldehyde,

continued...

RS CAST ACRYLIC BONDER - AB1 #144-406

Chemwatch Independent Material Safety Data Sheet

Issue Date: 7-Feb-2008

NA317TC

CHEMWATCH 02-0966

Version No:2.0

CD 2009/3 Page 23 of 26

Section 12 - ECOLOGICAL INFORMATION

polishes, waxes, air fresheners	terpinolene, alpha- terpineol, linalool, linalyl acetate and other terpenoids, longifolene and other sesquiterpenes	glycoaldehyde, formic acid, acetic acid, hydrogen and organic peroxides, acetone, benzaldehyde, 4- hydroxy- 4- methyl- 5- hexen- 1- al, 5- ethenyl- dihydro- 5- methyl- 2(3H)- furanone, 4- AMC, SOAs including ultrafine particles
Natural rubber adhesive	Isoprene, terpenes	Formaldehyde, methacrolein, methyl vinyl ketone
Photocopier toner, printed paper, styrene polymers	Styrene	Formaldehyde, benzaldehyde
Environmental tobacco smoke	Styrene, acrolein, nicotine	Formaldehyde, benzaldehyde, hexanal, glyoxal, N- methylformamide, nicotinaldehyde, cotinine
Soiled clothing, fabrics, bedding	Squalene, unsaturated sterols, oleic acid and other saturated fatty acids	Acetone, geranyl acetone, 6MHO, 40PA, formaldehyde, nonanal, decanal, 9- oxo- nonanoic acid, azelaic acid, nonanoic acid
Soiled particle filters	Unsaturated fatty acids from plant waxes, leaf litter, and other vegetative debris; soot; diesel particles	Formaldehyde, nonanal, and other aldehydes; azelaic acid; nonanoic acid; 9- oxo- nonanoic acid and other oxo- acids; compounds with mixed functional groups (=O, - OH, and - COOH) C5 to C10 aldehydes
Ventilation ducts and duct liners	Unsaturated fatty acids and esters, unsaturated oils, neoprene	
" Urban grime"	Polycyclic aromatic hydrocarbons	Oxidized polycyclic aromatic hydrocarbons
Perfumes, colognes, essential oils (e.g. lavender, eucalyptus, tea tree)	Limonene, alpha- pinene, linalool, linalyl acetate, terpinene- 4- ol, gamma- terpinene	Formaldehyde, 4- AMC, acetone, 4- hydroxy- 4- methyl- 5- hexen- 1- al, 5- ethenyl- dihydro- 5- methyl- 2(3H) furanone, SOAs including ultrafine particles
Overall home emissions	Limonene, alpha- pinene, styrene	Formaldehyde, 4- AMC, pinonaldehyde, acetone, pinic acid, pinonic acid, formic acid, benzaldehyde, SOAs including ultrafine particles

Abbreviations: 4-AMC, 4-acetyl-1-methylcyclohexene; 6MHQ, 6-methyl-5-heptene-2-one, 4OPA, 4-oxopentanal, SOA, Secondary Organic Aerosols

Reference: Charles J Weschler; Environmental Health Perspectives, Vol 114, October 2006.

Koc: 87

Half-life (hr) air: 2.7-3

Half-life (hr) H2O surface water: 6.3-336

Henry's atm m³ /mol: 3.24E-04

BOD 5 if unstated: 0.14

Log BCF: 0.55

Toxicity Fish: LC50(96)0.089mg/L

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
------------	-------------------------	------------------	-----------------	----------

RS Cast Acrylic
Bonder - AB1 #144-
406

No data

continued...

RS CAST ACRYLIC BONDER - AB1 #144-406

Chemwatch Independent Material Safety Data Sheet

Issue Date: 7-Feb-2008

NA317TC

CHEMWATCH 02-0966

Version No:2.0

CD 2009/3 Page 24 of 26

Section 12 - ECOLOGICAL INFORMATION

methylene chloride	LOW	HIGH	LOW	HIGH
ethylene glycol	LOW	No data	LOW	HIGH
phenyl ether				
methyl	LOW	No data	LOW	HIGH
methacrylate				

Section 13 - DISPOSAL CONSIDERATIONS

- Containers may still present a chemical hazard/ danger when empty.
 - Return to supplier for reuse/ recycling if possible.
- Otherwise:
- If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.
 - Where possible retain label warnings and MSDS and observe all notices pertaining to the product.
- Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.
- A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction,
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

- DO NOT allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Authority for disposal.
- Bury or incinerate residue at an approved site.
- Recycle containers if possible, or dispose of in an authorised landfill.

Section 14 - TRANSPORTATION INFORMATION



Labels Required: TOXIC
HAZCHEM: 2X (ADG6)

Land Transport UNDG:

Class or division:	6.1	Subsidiary risk:	None
UN No.:	2810	UN packing group:	III
Shipping Name: TOXIC LIQUID, ORGANIC, N.O.S. (contains methylene chloride and methyl methacrylate)			

continued...

RS CAST ACRYLIC BONDER - AB1 #144-406

Chemwatch Independent Material Safety Data Sheet

Issue Date: 7-Feb-2008

NA317TC

CHEMWATCH 02-0966

Version No:2.0

CD 2009/3 Page 25 of 26

Section 14 - TRANSPORTATION INFORMATION

Air Transport IATA:

ICAO/IATA Class:	6.1	ICAO/IATA Subrisk:	None
UN/ID Number:	2810	Packing Group:	III
Special provisions:	A3		
Shipping Name: TOXIC LIQUID, ORGANIC, N.O.S. *(CONTAINS METHYLENE CHLORIDE AND METHYL METHACRYLATE)			

Maritime Transport IMDG:

IMDG Class:	6.1	IMDG Subrisk:	None
UN Number:	2810	Packing Group:	III
EMS Number:	F- A, S- A	Special provisions:	223 274 944
Limited Quantities:	5 L	Marine Pollutant:	Not Determined
Shipping Name: TOXIC LIQUID, ORGANIC, N.O.S.(contains methylene chloride and methyl methacrylate)			

Section 15 - REGULATORY INFORMATION

POISONS SCHEDULE: S5

REGULATIONS

Regulations for ingredients

methylene chloride (CAS: 75-09-2) is found on the following regulatory lists;

"Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (Domestic water supply - organic compounds)", "Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (Aquatic habitat)", "Australia - Australian Capital Territory Environment Protection Regulation Ecosystem maintenance - Organic chemicals - Non-pesticide anthropogenic organics", "Australia - Australian Capital Territory Environment Protection Regulation Pollutants entering waterways - Domestic water quality", "Australia Exposure Standards", "Australia Hazardous Substances", "Australia High Volume Industrial Chemical List (HVICL)", "Australia Inventory of Chemical Substances (AICS)", "Australia National Pollutant Inventory", "Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Appendix E (Part 2)", "Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Appendix F (Part 3)", "Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Appendix I", "Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Schedule 5", "GESAMP/EHS Composite List of Hazard Profiles - Hazard evaluation of substances transported by ships", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk", "International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs", "International Council of Chemical Associations (ICCA) - High Production Volume List", "OECD Representative List of High Production Volume (HPV) Chemicals", "WHO Guidelines for Drinking-water Quality - Guideline values for chemicals that are of health significance in drinking-water"

ethylene glycol phenyl ether (CAS: 122-99-6) is found on the following regulatory lists;

"Australia Hazardous Substances", "Australia Inventory of Chemical Substances (AICS)", "GESAMP/EHS Composite List of Hazard Profiles - Hazard evaluation of substances transported by ships", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk", "International Council of Chemical Associations (ICCA) - High Production Volume List", "OECD Representative List of High Production Volume (HPV) Chemicals"

methyl methacrylate (CAS: 80-62-6) is found on the following regulatory lists;

"Australia Dangerous Goods Code (ADG Code) - Goods Too Dangerous To Be Transported", "Australia Exposure Standards", "Australia Hazardous Substances", "Australia High Volume Industrial Chemical List (HVICL)", "Australia Inventory of Chemical Substances (AICS)", "Australia National Pollutant Inventory", "Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Appendix C", "Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Schedule 6", "GESAMP/EHS Composite List of Hazard Profiles - Hazard evaluation of substances transported by ships", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk", "International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs", "International Air Transport Association (IATA) Dangerous Goods Regulations", "International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List", "OECD Representative List of High Production Volume (HPV) Chemicals"

No data for RS Cast Acrylic Bonder - AB1 #144-406 (CW: 02-0966)

Section 16 - OTHER INFORMATION

REPRODUCTIVE HEALTH GUIDELINES

Ingredient	ORG	UF	Endpoint	CR	Adeq TLV
methylene chloride	2.4 mg/m3	100	R	14	-

■ These exposure guidelines have been derived from a screening level of risk assessment and should not be construed as unequivocally safe limits. ORGS represent an 8-hour time-weighted average unless specified otherwise.

continued...

RS CAST ACRYLIC BONDER - AB1 #144-406

Chemwatch Independent Material Safety Data Sheet

Issue Date: 7-Feb-2008

NA317TC

CHEMWATCH 02-0966

Version No:2.0

CD 2009/3 Page 26 of 26

Section 16 - OTHER INFORMATION

CR = Cancer Risk/10000; UF = Uncertainty factor:

TLV believed to be adequate to protect reproductive health:

LOD: Limit of detection

Toxic endpoints have also been identified as:

D = Developmental; R = Reproductive; TC = Transplacental carcinogen

Jankovic J., Drake F.: A Screening Method for Occupational Reproductive

American Industrial Hygiene Association Journal 57: 641-649 (1996).

EXPOSURE STANDARD FOR MIXTURES

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

■ Composite Exposure Standard for Mixture (TWA) (mg/m3): 140 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 (%)
ethylene glycol phenyl ether	25.00	140.0000	5.0
ethylene glycol phenyl ether	0.00	0.0000	0.0

■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:

www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

This document is copyright. Apart from any fair dealing for the purposes of private study, research, review or criticism, as permitted under the Copyright Act, no part may be reproduced by any process without written permission from CHEMWATCH. TEL (+61 3) 9572 4700.

Issue Date: 7-Feb-2008

Print Date: 5-Feb-2010

This is the end of the MSDS.