

STRUCTASET 401

Chemwatch Independent Material Safety Data Sheet

Issue Date: 31-Mar-2011

C9317EC

CHEMWATCH 4753-63

Version No:2.0

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Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
1- ethenyl- 3- methylbenzene [CAS 100- 80- 1]		1-10
1- ethenyl- 4- methylbenzene [CAS 622- 97- 9]		1-10
2- hydroxypropyl methacrylate	923-26-2	1-10
dibenzoyl peroxide	94-36-0	1-5
2- ethylhexylbenzoate	5444-75-7	1-5

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 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.
 - Seek medical attention without delay; 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.
- Prosthesis 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.

NOTES TO PHYSICIAN

- For acute or short term repeated exposures to petroleum distillates or related hydrocarbons:
 - Primary threat to life, from pure petroleum distillate ingestion and/or inhalation, is respiratory failure.
 - Patients should be quickly evaluated for signs of respiratory distress (e.g. cyanosis, tachypnoea, intercostal retraction, obtundation) and given oxygen. Patients with inadequate tidal volumes or poor arterial blood gases (pO₂ 50 mm Hg) should be intubated.
 - Arrhythmias complicate some hydrocarbon ingestion and/or inhalation and electrocardiographic evidence of myocardial injury has been reported; intravenous lines and cardiac monitors should be established in obviously symptomatic patients. The lungs excrete inhaled solvents, so that hyperventilation improves clearance.
 - A chest x-ray should be taken immediately after stabilisation of breathing and circulation to document aspiration and detect the presence of pneumothorax.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- - Water spray or fog.
- Alcohol stable foam.
- Dry chemical powder.
- Carbon dioxide.

FIRE FIGHTING

- - Alert Fire Brigade and tell them location and nature of hazard.
 - May be violently or explosively reactive.
 - Wear breathing apparatus plus protective gloves.
 - Prevent, by any means available, spillage from entering drains or water course.
- When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 500 metres in all directions.

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Section 5 - FIRE FIGHTING MEASURES

FIRE/EXPLOSION HAZARD

- - Liquid and vapour are flammable.
 - Moderate fire hazard when exposed to heat or flame.
 - Vapour forms an explosive mixture with air.
 - Moderate explosion hazard when exposed to heat or flame.
- Combustion products include: carbon monoxide (CO), carbon dioxide (CO₂), other pyrolysis products typical of burning organic material.

FIRE INCOMPATIBILITY

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

HAZCHEM

•2YE

Personal Protective Equipment

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

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.

MAJOR SPILLS

- - Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear breathing apparatus plus protective gloves.

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

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- - Containers, even those that have been emptied, may contain explosive vapours.
- Do NOT cut, drill, grind, weld or perform similar operations on or near containers.
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of overexposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.

SUITABLE CONTAINER

- - Packing as supplied by manufacturer.
- Plastic containers may only be used if approved for flammable liquid.
- Check that containers are clearly labelled and free from leaks.
- For low viscosity materials (i) : Drums and jerry cans must be of the non-removable head type. (ii) : 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)
- For manufactured product having a viscosity of at least 250 cSt. (23 deg. C)
- Manufactured product that requires stirring before use and having a viscosity of at least 20 cSt (25 deg. C).

STORAGE INCOMPATIBILITY

- Vinyl toluene (syn: methylstyrene)
- polymerises explosively unless inhibited with, typically, 10-50 ppm tert-butylcatechol
- reacts violently with strong oxidisers, strong acids, peroxides
- is incompatible with aluminium chloride, ammonia, aliphatic amines, alkanolamides, caustics, metal salts
- uninhibited monomer may block vents and confined spaces by forming a solid polymeric material.

WARNING:

- May decompose violently or explosively on contact with other substances.
- This substance is one of the relatively few compounds which are described as "endothermic" i.e. heat is absorbed into the

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Section 7 - HANDLING AND STORAGE

compound, rather than released from it, during its formation.

- The majority of endothermic compounds are thermodynamically unstable and may decompose explosively under various circumstances of initiation.

- Many but not all endothermic compounds have been involved in decompositions, reactions and explosions and, in general, compounds with significantly positive values of standard heats of formation, may be considered suspect on stability grounds.

BREThERICK L.: Handbook of Reactive Chemical Hazards.

- 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.

- Avoid reaction with oxidising agents.

STORAGE REQUIREMENTS

■ - Store in original containers in approved flammable liquid storage area.

- Store away from incompatible materials in a cool, dry, well-ventilated area.

- DO NOT store in pits, depressions, basements or areas where vapours may be trapped.

- No smoking, naked lights, heat or ignition sources.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³
Australia Exposure Standards	Structaset 401 (Vinyl toluene)	50	242	100	483
Australia Exposure Standards	dibenzoyl peroxide (Benzoyl peroxide)		5		

The following materials had no OELs on our records

• 2- hydroxypropyl methacrylate:

CAS:923- 26- 2 CAS:27813- 02- 1

• 2- ethylhexylbenzoate:

CAS:5444- 75- 7

PERSONAL PROTECTION

RESPIRATOR

Type A-P Filter of sufficient capacity

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

■ - 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.

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

OTHER

■ - Overalls.

- PVC Apron.

- PVC protective suit may be required if exposure severe.

- Eyewash unit.

- Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity.

- For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets), non sparking safety footwear.

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS

■ For flammable liquids and flammable gases, local exhaust ventilation or a process enclosure ventilation system may be required. Ventilation equipment should be explosion-resistant.

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).	Air Speed: 0.25- 0.5 m/s (50- 100 f/min.)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5- 1 m/s (100- 200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1- 2.5 m/s (200- 500 f/min.)

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Off-white paste with an aromatic odour; not miscible with water.

PHYSICAL PROPERTIES

Does not mix with water.

Sinks in water.

State	Free- flowing Paste	Molecular Weight	Not Applicable
Melting Range (°C)	Not Available	Viscosity	Not Available
Boiling Range (°C)	>165	Solubility in water (g/L)	Immiscible
Flash Point (°C)	53	pH (1% solution)	Not Available
Decomposition Temp (°C)	Not Available	pH (as supplied)	Not Available
Autoignition Temp (°C)	Not Available	Vapour Pressure (kPa)	Not Available
Upper Explosive Limit (%)	5.2	Specific Gravity (water=1)	1.7
Lower Explosive Limit (%)	1.1	Relative Vapour Density (air=1)	Not Available
Volatile Component (%vol)	Not Available	Evaporation Rate	Not Available

Section 10 - STABILITY AND REACTIVITY

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

- Irritating to eyes, respiratory system and skin.
- Vapours may cause dizziness or suffocation.

CHRONIC HEALTH EFFECTS

- May cause SENSITISATION by skin contact.

TOXICITY AND IRRITATION

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

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Section 11 - TOXICOLOGICAL INFORMATION

2-ETHYLHEXYLBENZOATE:

STRUCTASET 401:

■ No significant acute toxicological data identified in literature search.

■ 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.

2-HYDROXYPROPYL METHACRYLATE:

STRUCTASET 401:

■ 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.

2-HYDROXYPROPYL METHACRYLATE:

TOXICITY

Oral (mouse) LD50: 7964 mg/kg

Oral (rat) LD50: 5050 mg/kg *

Oral (rat) LD50: 11, 200 mg/kg

■ 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.

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.

for CAS 963-26-2 2-hydroxypropyl methacrylate

NOTE: Allergic contact dermatitis is reported following exposure of guinea pigs (mild) and humans (severe).

for CAS 27813-02-1 1-hydroxypropyl methacrylate

IRRITATION

Nil Reported *

DIBENZOYL PEROXIDE:

TOXICITY

Oral (rat) LD50: 7710 mg/kg

Inhalation (human) TCLo: 12 mg/m³

Subcutaneous (Rat) LD: 40 mg/kg (@ 50%)

Intraperitoneal (Mouse) LD50: 440 mg/kg

Intravenous (Rabbit) LD: 16 mg/kg

■ The material may be irritating to the eye, with prolonged contact causing 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.

For benzoyl peroxide:

The acute oral toxicity of benzoyl peroxide is very low: LD50 >2,000 mg/kg bw in mice, and 5,000 mg/kg bw in rats. No deaths occurred in male rats following inhalation of 24.3 mg/L.

Benzoyl peroxide was slightly irritating to skins in 24 hr-patch tests.

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.

IRRITATION

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

Skin effects (MAK): very weak

Section 12 - ECOLOGICAL INFORMATION

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

This material and its container must be disposed of as hazardous waste.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
2-hydroxypropyl methacrylate	LOW		LOW	HIGH
dibenzoyl peroxide	LOW	HIGH	LOW	MED
2-ethylhexylbenzoate	LOW		LOW	MED

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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.
 - 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.
 - Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
 - Dispose of by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or Incineration in a licenced apparatus (after admixture with suitable combustible material).
 - Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

Section 14 - TRANSPORTATION INFORMATION

Labels Required: FLAMMABLE LIQUID

HAZCHEM:

●2YE (ADG7)

ADG7:

Class or Division:	3	Subsidiary Risk:	None
UN No.:	3269	Packing Group:	III
Special Provision:	236	Limited Quantity:	5 L
Portable Tanks & Bulk Containers - Instruction:	None	Portable Tanks & Bulk Containers - Special Provision:	None
Packagings & IBCs - Packing Instruction:	None	Packagings & IBCs - Special Packing Provision:	P302

Name and Description: POLYESTER RESIN KIT

Land Transport UNDG:

Class or division:	3	Subsidiary risk:	None
UN No.:	3269	UN packing group:	III

Shipping Name: POLYESTER RESIN KIT

Air Transport IATA:

ICAO/IATA Class:	3	ICAO/IATA Subrisk:	None
UN/ID Number:	3269	Packing Group:	III
Special provisions:	A66		

Shipping Name: POLYESTER RESIN KIT †

Maritime Transport IMDG:

IMDG Class:	3	IMDG Subrisk:	None
UN Number:	3269	Packing Group:	III
EMS Number:	F- E , S- D	Special provisions:	236 340
Limited Quantities:	5 L		

Shipping Name: POLYESTER RESIN KIT

Section 15 - REGULATORY INFORMATION

POISONS SCHEDULE None

REGULATIONS

Regulations for ingredients

2-hydroxypropyl methacrylate (CAS: 923-26-2,27813-02-1) is found on the following regulatory lists;

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Section 15 - REGULATORY INFORMATION

"Australia Hazardous Substances", "Australia Inventory of Chemical Substances (AICS)", "OECD Representative List of High Production Volume (HPV) Chemicals"

dibenzoyl peroxide (CAS: 94-36-0) is found on the following regulatory lists;

"Australia Dangerous Goods Code (ADG Code) - List of Currently Assigned Organic Peroxides in Packagings", "Australia Exposure Standards", "Australia Hazardous Substances", "Australia Inventory of Chemical Substances (AICS)", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix E (Part 2)", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix F (Part 3)", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 2", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5", "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"

2-ethylhexylbenzoate (CAS: 5444-75-7) is found on the following regulatory lists;

"FEMA Generally Recognized as Safe (GRAS) Flavoring Substances 24 - Primary Names and Synonyms", "OECD Representative List of High Production Volume (HPV) Chemicals"

No data for Structaset 401 (CW: 4753-63)

Section 16 - OTHER INFORMATION

ND

Substance	CAS	Suggested codes
2- ethylhexylbenzoate	5444- 75- 7	

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name	CAS
2- hydroxypropyl methacrylate	923- 26- 2, 27813- 02- 1

■ 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.

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This is the end of the MSDS.