

# UNCONTROLLED

## LUSTRESEAL POLYURETHANE M20

ChemWatch Material Safety Data Sheet  
Issue Date: Thu 7-Feb-2002

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### Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

#### PRODUCT NAME

LUSTRESEAL POLYURETHANE M20

#### SYNONYMS

polyurethane urethane moisture cure  
curing resin solution  
Cobblestone Paving

commercial heavy- duty concrete sealer

#### PROPER SHIPPING NAME

RESIN SOLUTION

#### PRODUCT USE

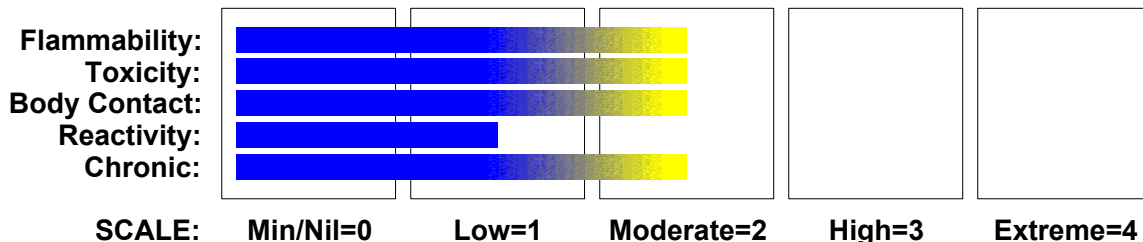
Commercial / heavy duty sealer for concrete, Covacrete, Stencilcrete and Stampcrete, suitable for internal and external use. The use of a quantity of material in an unventilated or confined space may result in increased exposure and an irritating atmosphere developing Before starting consider control of exposure by mechanical ventilation

#### SUPPLIER

Company: Cobblestone Paving Australia P/L  
Address:  
PO Box 2057  
Burleigh Mdc, Gold Coast  
QLD, 4220  
AUS

Company: Cobblestone Paving Australia P/L  
Address:  
45 Alex Fisher Drive  
Burleigh Gardens  
QLD, 4220  
AUS  
Telephone: +61 7 5593 7766  
Fax: 07 5593 7777

#### HAZARD RATINGS



### Section 2 - HAZARDS IDENTIFICATION

#### STATEMENT OF HAZARDOUS NATURE

**HAZARDOUS SUBSTANCE. DANGEROUS GOODS.**

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

continued...

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## Section 2 - HAZARDS IDENTIFICATION ...



### POISONS SCHEDULE

S6

### RISK

Flammable.  
Harmful by inhalation and in contact with skin.  
Irritating to eyes and skin.  
May cause SENSITISATION by inhalation.  
HARMFUL-May cause lung damage if swallowed.  
Ingestion may produce health damage\*.  
Cumulative effects may result following exposure\*.  
May produce discomfort of the respiratory system\*.  
Limited evidence of a carcinogenic effect\*.  
Possible skin sensitiser\*.  
May be harmful to the foetus/ embryo\*.  
Vapours potentially cause drowsiness and dizziness\*.  
\* (limited evidence)

### SAFETY

Keep away from sources of ignition. No smoking.  
Keep container in a well ventilated place.  
Avoid exposure - obtain special instructions before use.  
Do not empty into drains.  
Keep container tightly closed.  
Take off immediately all contaminated clothing.  
In case of contact with eyes, rinse with plenty of water and contact Doctor or Poisons Information Centre.  
If you feel unwell contact Doctor or Poisons Information Centre. (Show the label if possible).

## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
xylene	1330-20-7	30-60
moisture curing polyurethane resin		30-60
organic solvent unregulated		10-30
toluene-2,4-diisocyanate	584-84-9	<1

## Section 4 - FIRST AID MEASURES

### SWALLOWED

- For advice, contact a Poisons Information Centre or a doctor.
- If swallowed do NOT induce vomiting.
  - If vomiting occurs, lean patient forward or place on left side (head-down)

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## Section 4 - FIRST AID MEASURES ...

position, if possible) to maintain open airway and prevent aspiration.

- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconsciousness
- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Seek medical advice.

### EYE

If this product comes in contact with the eyes:

- Immediately hold eyelids apart and flush the eye continuously with 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.
- Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
- Transport to hospital or doctor without delay.
- 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.

### NOTES TO PHYSICIAN

For sub-chronic and chronic exposures to isocyanates:

- This material may be a potent pulmonary sensitiser which causes bronchospasm even in patients without prior airway hyperreactivity.
- Clinical symptoms of exposure involve mucosal irritation of respiratory and gastrointestinal tracts.
- Conjunctival irritation, skin inflammation (erythema, pain vesiculation) and gastrointestinal disturbances occur soon after exposure.
- Pulmonary symptoms include cough, burning, substernal pain and dyspnoea.
- Some cross-sensitivity occurs between different isocyanates.
- Noncardiogenic pulmonary edema and bronchospasm are the most serious consequences of exposure. Markedly symptomatic patients should receive oxygen, ventilatory support and an intravenous line.
- Treatment for asthma includes inhaled sympathomimetics (epinephrine [adrenalin], terbutaline) and steroids.
- Activated charcoal (1 g/kg) and a cathartic (sorbitol, magnesium citrate) may be useful for ingestion.
- Mydriatics, systemic analgesics and topical antibiotics (Sulamyd) may be used for corneal abrasions.
- There is no effective therapy for sensitised workers.

[Ellenhorn and Barceloux; Medical Toxicology]

NOTE: Isocyanates cause airway restriction in naive individuals with the degree of response dependant on the concentration and duration of exposure. They induce

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## Section 4 - FIRST AID MEASURES ...

smooth muscle contraction which leads to bronchoconstrictive episodes. Acute changes in lung function, such as decreased FEV<sub>1</sub>, may not represent sensitivity. [Karol & Jin, Frontiers in Molecular Toxicology, pp 56-61, 1992].

For acute or short term repeated exposures to xylene:

- Gastro-intestinal absorption is significant with ingestions. For ingestions exceeding 1-2 ml (xylene)/kg, intubation and lavage with cuffed endotracheal tube is recommended. The use of charcoal and cathartics is equivocal.
- Pulmonary absorption is rapid with about 60-65% retained at rest.
- Primary threat to life from 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 (pO<sub>2</sub> < 50 mm Hg or pCO<sub>2</sub> > 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.
- Epinephrine (adrenalin) is not recommended for treatment of bronchospasm because of potential myocardial sensitisation to catecholamines. Inhaled cardioselective bronchodilators (e.g. Alupent, Salbutamol) are the preferred agents, with aminophylline a second choice.

### BIOLOGICAL EXPOSURE INDEX - BEI

These represent the determinants observed in specimens collected from a healthy worker exposed at the Exposure Standard (ES or TLV):

Determinant	Index	Sampling Time	Comments
Methylhippu-ric acids in urine	1.5 gm/gm creatinine	End of shift	
	2 mg/min	Last 4 hrs of shift	

## Section 5 - FIRE FIGHTING MEASURES

### EXTINGUISHING MEDIA

- Alcohol stable 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.
- May be violently or explosively reactive.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.
- If safe, switch off electrical equipment until vapour fire hazard removed.
- Use water delivered as a fine spray to control fire and cool adjacent area.
- Avoid spraying water onto liquid pools.
- 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.

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## Section 5 - FIRE FIGHTING MEASURES ...

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### 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.
- Vapour may travel a considerable distance to source of ignition.
- Heating may cause expansion or decomposition leading to violent rupture of containers.
- On combustion, may emit toxic fumes of carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>), isocyanates, nitrogen oxides (NO<sub>x</sub>) and minor amounts of hydrogen cyanide

### FIRE INCOMPATIBILITY

Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.  
Avoid reaction with water, alcohols, strong bases, alkalis, metal compounds and detergent solutions. Reacts with water, may generate a large volume of foam, carbon dioxide gas (CO<sub>2</sub>) and heat. Foaming in confined space may produce pressure. Isocyanates will attack and embrittle some plastics and rubbers.

### HAZCHEM

3[Y]

### Personal Protective Equipment

Glasses:  
Chemical goggles.

Gloves:  
1.PE/EVAL/PE 2.PVA 3.VITON

Respirator:  
Type AB-P Filter of sufficient capacity

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## Section 6 - ACCIDENTAL RELEASE MEASURES

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### EMERGENCY PROCEDURES

#### MINOR SPILLS

- DO NOT touch the spill material.
- 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 small quantities with vermiculite or other absorbent material.
  - Wipe up.
  - Collect residues in a flammable waste container.

#### MAJOR SPILLS

- DO NOT touch the spill material.
- Clear area of personnel and move upwind.
  - Alert Fire Brigade and tell them location and nature of hazard.

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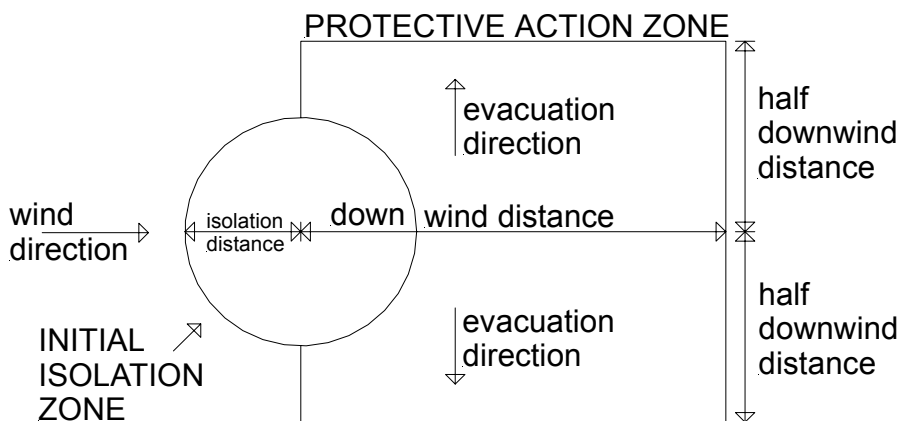
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## Section 6 - ACCIDENTAL RELEASE MEASURES ...

- May be violently or explosively reactive.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.
- No smoking, naked lights or ignition sources.
- Increase ventilation.
- Stop leak if safe to do so.
- Water spray or fog may be used to disperse / absorb vapour.
- Contain spill with sand, earth or vermiculite.
- Use only spark-free shovels and explosion proof equipment.
- Collect recoverable product into labelled containers for recycling.
- Absorb remaining product with sand, earth or vermiculite.
- Collect solid residues and seal in labelled drums for disposal.
- Wash area and prevent runoff into drains.
- If contamination of drains or waterways occurs, advise emergency services.

### PROTECTIVE ACTIONS FOR SPILL



From IERG (Canada/Australia)

Isolation Distance	25 metres
Downwind Protection Distance	300 metres
IERG Number	14

### 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"

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## Section 6 - ACCIDENTAL RELEASE MEASURES ...

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compressed gas cylinder.

5 Guide 127 is taken from the US DOT emergency response guide book.

6 IERG information is derived from CANUTEC - Transport Canada.

### EMERGENCY RESPONSE PLANNING GUIDLINES (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:

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

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

American Industrial Hygiene Association (AIHA)

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

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## Section 7 - HANDLING AND STORAGE

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### PROCEDURE FOR HANDLING

Avoid generating and breathing mist.

- 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.
- DO NOT enter confined spaces until atmosphere has been checked.
- Avoid smoking, naked lights or ignition sources.
- Avoid generation of static electricity.
- DO NOT use plastic buckets.
- Earth all lines and equipment.
- Use spark-free tools when handling.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.

### SUITABLE CONTAINER

- Metal can or drum
- Packaging as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

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## Section 7 - HANDLING AND STORAGE ...

### STORAGE INCOMPATIBILITY

Segregate from strong oxidisers, amines and acids.

- Avoid contamination with water, alkalies and detergent solutions.
- Material reacts with water and generates gas, pressurises containers with even drum rupture resulting.
- DO NOT reseal container if contamination is suspected.
- Open all containers with care.

### STORAGE REQUIREMENTS

- Store in original containers in approved flammable liquid storage area.
- DO NOT store in pits, depressions, basements or areas where vapours may be trapped.
- No smoking, naked lights, heat or ignition sources.
- Keep containers securely sealed.
- Store away from incompatible materials in a cool, dry, well-ventilated area.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE CONTROLS

None assigned. Refer to individual constituents.

### ODOUR SAFETY FACTOR (OSF)

OSF=0.029 ("2,4-TOLUENEDIISOCYANATE")

Exposed individuals are NOT reasonably expected to be warned, by smell, that the Exposure Standard is being exceeded.

Odour Safety Factor (OSF) is determined to fall into either Class C, D or E.

The Odour Safety Factor (OSF) is defined as:

OSF= Exposure Standard (TWA) ppm/ Odour Threshold Value (OTV) ppm

Classification into classes follows:

Class	OSF	Description
A	550	Over 90% of exposed individuals are aware by smell that the Exposure Standard (TLV-TWA for example) is being reached, even when distracted by working activities
B	26-550	As "A" for 50-90% of persons being distracted
C	1-26	As "A" for less than 50% of persons being distracted
D	0.18-1	10-50% of persons aware of being tested perceive by smell that the Exposure Standard is being reached
E	<0.18	As "D" for less than 10% of persons aware of being tested

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## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION ...

### EXPOSURE STANDARDS FOR MIXTURE

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

Composite Exposure Standard for Mixture (TWA) (mg/m<sup>3</sup>): 2.147 mg/m<sup>3</sup>

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/m<sup>3</sup> Mixture Conc: (%)

Component	Breathing zone (ppm)	Breathing Zone (mg/m <sup>3</sup> )	Mixture Conc (%)
toluene-2,4-diisocyanate	0.00	0.0358	1.0
xylene	0.48	2.1112	59.0

Operations which produce a spray/mist or fume/dust, introduce particulates to the breathing zone.

If the breathing zone concentration of ANY of the components listed below is exceeded, "Worst Case" considerations deem the individual to be overexposed.

At the "Composite Exposure Standard for Mixture" (TWA) (mg/m<sup>3</sup>): 60 mg/m<sup>3</sup>

### INGREDIENT DATA

#### XYLENE:

TLV TWA: 100 ppm A4;BEI [ACGIH]

TLV STEL: 150 ppm A4;BEI [ACGIH]

PEL TWA: 100 ppm, 435 mg/m<sup>3</sup> [OSHA Z1]

TLV TWA: 100 ppm, 434 mg/m<sup>3</sup>; STEL: 150 ppm, 651 mg/m<sup>3</sup> A4

NOTE: This substance has been classified by the ACGIH as A4 NOT classifiable as causing Cancer in humans

ES TWA: 80 ppm, 350 mg/m<sup>3</sup>; STEL: 150 ppm, 655 mg/m<sup>3</sup> (Under review)

OES TWA: 100 ppm, 441 mg/m<sup>3</sup>; STEL: 150 ppm, 662 mg/m<sup>3</sup> skin

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.

IDLH Level: 900 ppm

Odour Threshold Value: 20 ppm (detection), 40 ppm (recognition)

NOTE: Detector tubes for o-xylene, measuring in excess of 10 ppm, are available commercially. (m-xylene and p-xylene give almost the same response)

Xylene vapour is an irritant to the eyes, mucous membranes and skin and causes narcosis at high concentrations. Exposure to doses sufficiently high to produce intoxication and unconsciousness also produces transient liver and kidney toxicity. Neurologic impairment is NOT evident amongst volunteers inhaling up to 400 ppm though complaints of ocular and upper respiratory tract irritation occur at 200 ppm for 3 to 5 minutes. Exposure to xylene at or below the recommended TLV-TWA and STEL is thought to minimise the risk of irritant effects and to produce neither significant narcosis or chronic injury. An earlier skin notation was deleted because percutaneous absorption is gradual and protracted and does not substantially contribute to the dose received by inhalation.

#### TOLUENE-2,4-DIISOCYANATE:

TLV TWA: 0.005 ppm A4 [ACGIH]

TLV STEL: 0.02 ppm A4 [ACGIH]

continued...

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## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION ...

### NOTICE OF INTENDED CHANGE

TLV TWA: 0.005 ppm (SEN;A4) [ACGIH]

TLV STEL: NOTICE OF INTENDED CHANGE 0.02 ppm (SEN;A4) [ACGIH]

PEL Ceiling: 0.02 ppm, 0.14 mg/m<sup>3</sup> [OSHA Z1] [OSHA Z1]

TLV TWA: 0.005 ppm, 0.036 mg/m<sup>3</sup>; STEL: 0.02ppm, 0.14 mg/m<sup>3</sup> A4

NOTE: This substance has been classified by the ACGIH as A4 NOT classifiable as causing Cancer in humans

### NOTICE OF INTENDED CHANGE

Sensitiser (ACGIH 1998)

isocyanates, all as NCO (Mol.Wt: 42.00)

ES TWA: 0.02 mg/m<sup>3</sup>; STEL: 0.07 mg/m<sup>3</sup> sensitiser

MEL TWA: 0.02 mg/m<sup>3</sup>; STEL: 0.07 mg/m<sup>3</sup> sensitiser

Some jurisdictions require that health surveillance be conducted on occupationally exposed workers. This should emphasise:

- demography, occupational and medical history and health advice
- completion of a standardised respiratory questionnaire
- physical examination of the respiratory system and skin
- standardised respiratory function tests such as FEV1, FVC and FEV1/FVC

IDLH Level: 2.5 ppm

NOTE: Detector tubes for toluene diisocyanate, measuring in excess of 0.02 ppm, are commercially available.

The odour recognition threshold, 0.05-0.4 ppm in air, is not reliable and being above exposure standard, gives no warning of exposure.

A substantial proportion of the working population (4.3% to 25%) can be sensitised to TDI at the ES-TWA. Such sensitisation was not limited to highly susceptible individuals and workers often developed symptoms early. Preplacement exams have been unsuccessful in identifying those who may develop sensitisation. Allergy, bronchial asthma and chronic bronchitis sufferers should be excluded from exposure to TDI. Chronic low level exposures below 0.02 ppm have been reported to cause sensitisation. Workers complained of cough, phlegm production, breathlessness and wheezing 2 to 17 years after the last exposure and it is reported that several workers developed chronic bronchitis 40 months after removal from exposure. Effects of TDI appear to be dose-related and there is a threshold (0.005 ppm) below which no respiratory effects are produced by at least the isomer 2,4-TDI. It should be noted that some polyurethane production facilities also emit amines which are the most important cause of respiratory symptoms and occupational asthma.

## PERSONAL PROTECTION



### EYE

- Safety glasses with side shields; or as required,
- Chemical goggles.
- Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them.

### HANDS/FEET

DO NOT use skin cream unless necessary and then use only minimum amount. Isocyanate vapour may be absorbed into skin cream and this increases hazard. Nitrile rubber gloves or Neoprene rubber gloves or Butyl rubber gloves.

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## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION ...

Safety footwear

### OTHER

- Overalls.
- PVC Apron.
- PVC protective suit may be required if exposure severe.
- Eyewash unit.
- Ensure there is ready access to a safety shower.

### ENGINEERING CONTROLS

Use in a well-ventilated area.

General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in specific circumstances. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. 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:	Air Speed:
solvent, vapours, degreasing etc., evaporating from tank (in still air).	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.)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	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

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## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION ...

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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.

In confined spaces where there is inadequate ventilation, wear full-face air supplied breathing apparatus

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## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

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### APPEARANCE

Clear amber flammable liquid with a solvent odour; does not mix with water.

### PHYSICAL PROPERTIES

Liquid.

Does not mix with water.

Sinks in water.

Molecular Weight: Not applicable

Melting Range (°C): Not available

Solubility in water (g/L): Immiscible

pH (1% solution): Not applicable

Volatile Component (%vol): 65-70

Relative Vapour Density (air=1): 3.7

Lower Explosive Limit (%): 1.1 xylene

Autoignition Temp (°C): Not available

State: Liquid

Boiling Range (°C): 137-143

Specific Gravity (water=1): 1.03-1.08

pH (as supplied): Not applicable

Vapour Pressure (kPa): 0.665 @ 20 C.

Evaporation Rate: 0.7 BuAc=1

Flash Point (°C): 27 xylene

Upper Explosive Limit (%): 7.7 xylene

Decomposition Temp (°C):

log Kow (Prager 1995): 3.12-3.20

log Kow : 0.21

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## Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

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### CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

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## Section 11 - TOXICOLOGICAL INFORMATION

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### POTENTIAL HEALTH EFFECTS

#### ACUTE HEALTH EFFECTS SWALLOWED

Considered an unlikely route of entry in commercial/industrial environments The liquid may produce considerable gastrointestinal discomfort and may be harmful or toxic if swallowed. Ingestion may result in nausea, pain and vomiting. Vomit entering the lungs by aspiration may cause potentially lethal chemical pneumonitis

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## Section 11 - TOXICOLOGICAL INFORMATION ...

### EYE

The liquid produces a high level of eye discomfort and is capable of causing pain and severe conjunctivitis. Corneal injury may develop, with possible permanent impairment of vision, if not promptly and adequately treated. The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

### SKIN

The liquid may produce skin discomfort following prolonged contact. Defatting and/or drying of the skin may lead to dermatitis and may cause in some cases, sensitisation.  
Toxic effects may result from skin absorption.  
The material may accentuate any pre-existing skin condition.  
Bare unprotected skin should not be exposed to this material.  
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 the epidermis.  
Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.

### INHALED

The vapour/mist may be highly irritating to the upper respiratory tract and lungs; the response may be severe enough to produce bronchitis and pulmonary oedema. Possible neurological symptoms arising from isocyanate exposure include headache, insomnia, euphoria, ataxia, anxiety neurosis, depression and paranoia. Gastrointestinal disturbances are characterised by nausea and vomiting. Pulmonary sensitisation may produce asthmatic reactions ranging from minor breathing difficulties to severe allergic attacks; this may occur following a single acute exposure or may develop without warning for several hours after exposure. Sensitized people can react to very low doses, and should not be allowed to work in situations allowing exposure to this material. Continued exposure of sensitised persons may lead to possible long term respiratory impairment.  
Inhalation hazard is increased at higher temperatures.  
Respiratory sensitisation may result in allergic/asthma like responses; from coughing and minor breathing difficulties to bronchitis with wheezing, gasping. Sensitisation reactions may appear suddenly after repeated symptom free exposures.  
Acute effects from inhalation of high concentrations of vapour are pulmonary irritation, including coughing, with nausea; central nervous system depression - characterised by headache and dizziness, increased reaction time, fatigue and loss of co-ordination.  
If exposure to highly concentrated solvent atmosphere is prolonged this may lead to narcosis, unconsciousness, even coma and possible death.  
Inhalation of vapour may aggravate a pre-existing respiratory condition such as asthma, bronchitis, emphysema

### CHRONIC HEALTH EFFECTS

Principal routes of exposure are usually by inhalation of vapour, inhalation of vapour from the curing material and skin contact with the material. Prolonged or continuous skin contact with the liquid may cause defatting with drying, cracking, irritation and dermatitis following. Chronic solvent inhalation exposures may result in nervous system impairment and liver and blood changes. [PATTYS]. As with any chemical product, contact with unprotected bare skin; inhalation of vapour, mist or dust in work place atmosphere; or ingestion in any form, should be avoided by observing good occupational work practice.

continued...

# LUSTRESEAL POLYURETHANE M20

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## Section 11 - TOXICOLOGICAL INFORMATION ...

### Lustreseal Polyurethane M20

Not available. Refer to individual constituents.

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

#### XYLENE:

##### TOXICITY

##### IRRITATION

Oral (human) LDLo: 50 mg/kg

Skin (rabbit):500 mg/24h moderate irritant

Eye (human): 200 ppm irrita

Eye (rabbit): 87 mg mild

Eye (rabbit): 5 mg/24h SEVERE

Reproductive effector in rats

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.

#### TOLUENE-2,4-DIISOCYANATE:

##### TOXICITY

##### IRRITATION

Inhalation (woman) TCLo: 300ppt/8hr/5d

Skin (rabbit): 500 mg(open)-SEVERE

Inhalation (human) TCLo: 20 ppb/2 yr

Skin (rabbit):500 mg/24hr-moderate

Inhalation (human) TCLo: 80 ppb

Eye (rabbit): 100 mg - SEVERE

Inhalation (human) TCLo: 500 ppb

Oral (rat) LD50: 5800 mg/kg

Inhalation (rat) LC50: 14 ppm/14 hr

Inhalation (rat) LC50: 600 ppm/6 hr

WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.

Tenth Annual Report on Carcinogens: Substance anticipated to be Carcinogen

[National Toxicology Program: U.S. Dep. of Health & Human Services 2002]

## Section 12 - ECOLOGICAL INFORMATION

No data for Lustreseal Polyurethane M20.

Refer to data for ingredients, which follows:

#### XYLENE:

Hazardous Air Pollutant: No

Fish LC50 (96hr.) (mg/l): 13.5

BCF<100: 2.14-2.20

log Kow (Prager 1995): 3.12-3.20

Half-life Soil - High (hours): 672

Half-life Soil - Low (hours): 168

Half-life Air - High (hours): 44

Half-life Air - Low (hours): 2.6

Half-life Surface water - High (hours): 672

Half-life Surface water - Low (hours): 168

Half-life Ground water - High (hours): 8640

Half-life Ground water - Low (hours): 336

Aqueous biodegradation - Aerobic - High (hours): 672

Aqueous biodegradation - Aerobic - Low (hours): 168

Aqueous biodegradation - Anaerobic - High (hours): 8640

Aqueous biodegradation - Anaerobic - Low (hours): 4320

Photolysis maximum light absorption - High (nano-m): 269.5

Photolysis maximum light absorption - Low (nano-m): 265

Photooxidation half-life water - High (hours): 2.70E+08

continued...

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## Section 12 - ECOLOGICAL INFORMATION ...

Photooxidation half-life water - Low (hours): 3.90E+05  
Photooxidation half-life air - High (hours): 44  
Photooxidation half-life air - Low (hours): 2.6

TOLUENE-2,4-DIISOCYANATE:  
Hazardous Air Pollutant: Yes

log Kow : 0.21  
Half-life (hr) air : 3.3  
Toxicity Fish: LC50(96)0.0045-57.68mg/L  
Toxicity invertebrate: cell mult. inhib.26-456mg/L  
Bioaccumulation : low-moderate  
Nitrif. inhib. : inhib at 350mg/L  
Effects on algae and plankton: cell mult. inhib. algae 105->400mg/L  
Degradation Biological: sig  
processes Abiotic: nophotol&hydrol,sig oxid,RxnOH\*

## Section 13 - DISPOSAL CONSIDERATIONS

- DO NOT recycle spilled material.
- Consult State Land Waste Management Authority for disposal.
- Neutralise spill material carefully and decontaminate empty containers and spill residues with 10% ammonia solution plus detergent or a proprietary decontaminant prior to disposal.
- DO NOT seal or stopper drums being decontaminated as CO2 gas is generated and may pressurise containers.
- Puncture containers to prevent re-use.
- Bury or incinerate residues at an approved site.

## Section 14 - TRANSPORTATION INFORMATION



Shipping Name:  
RESIN SOLUTION  
Dangerous Goods Class: 3  
UN/NA Number: 1866  
ADR Number: 30  
Packing Group: III  
Labels Required: flammable liquid  
Additional Shipping Information:  
International Transport Regulations:  
IMO: 3

HAZCHEM

3[Y]

continued...

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## Section 15 - REGULATORY INFORMATION

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### POISONS SCHEDULE

S6

### REGULATIONS

No data available for toluene-2,4-diisocyanate (CAS: 584-84-9).

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## Section 16 - OTHER INFORMATION

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Issue Date: Thu 7-Feb-2002  
Print Date: Mon 16-Aug-2004