



Version 1.2  
REVISION DATE: 1/07/07

PRINT DATE 1/07/07

## MATERIAL SAFETY DATA SHEET

MSDS 325

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### 1. Product and Company Identification

- 1.1 PRODUCT NAME:** VULKEM 345
- 1.2 USE OF PRODUCT** Polyurethane bodycoat for all traffic membrane systems.
- 1.3 SUPPLIER:** Equus Industries Ltd  
Sheffield Street  
Riverlands Industrial Estate  
Blenheim, Marlborough, New Zealand  
Telephone: +64 3 578 0214  
Fax: +64 3 578 0919
- 1.4 EMERGENCY CONTACT:** **National Poison Centre**  
**Telephone: 0800 764 766**

Information about Safety Data Sheet: Telephone: +64 3 578 0214 8:00am – 6:00pm Mon - Fri

### 2. Hazards Identification

- 2.1 Classification:**  
Dangerous Goods – classification according to New Zealand Dangerous Goods Code.
- 2.2 Risk & Safety Phrases:**  
R10,20,36-37-38,40,42,43,51-53,61,65  
S16,23,24,26,37,38

The full text of each R & S phrases are listed in Section 16.

### 3. Composition/Information on Ingredients

- 3.1 Chemical Characterization (Preparation):**  
Polyurethane coating.



### 3.2 Hazardous Ingredients:

CAS NO.	COMPONENT	CONCENTRATION %	CLASSIFICATION
64742-95-6	Solvent naphtha	10.0 – 20.0%	R10/20/21/36/37/38/ 51/53/65
1330-20-7	Xylene	1.0 – 3.0%	R10/20/21/38
100-41-4	Ethyl benzene	0.1 – 0.5%	R11/20/36/37/38
101-68-8	4,4'-Methylene bis(phenylisocyanate)	0.1 – 0.5%	R20/22/36/37/38/42
9016-87-9	Polymethylene polyphenyl isocyanate	0.1 – 0.5%	R20/36/37/38/42/43
26471-62-5	Toluene Diisocyanate (mixed isomers)	0.1 – 0.5%	R26/36/37/38/40/42/43/ 52/53

3.3 Only ingredients, additives and impurities which are classified and contribute to the classification of the product are included in this section.

## 4. First Aid Measures

### 4.1 After Inhalation:

Leave area to breathe fresh air. Should be observed by a doctor if over exposure is severe.

### 4.2 After Skin Contact:

Wash area thoroughly with hand cleaner followed by soap and water. If irritation, rash or other disorders develop, seek medical attention immediately.

### 4.3 After Eye Contact:

Flush immediately with running water for 15 minutes, lifting the upper and lower lids occasionally. Get medical attention immediately.

### 4.4 After Ingestion:

Get medical attention immediately.

### 4.5 Advice to Doctor:

Treat symptomatically.

## 5. Fire Fighting Measures

### 5.1 Suitable Extinguishing Media:

If water fog is ineffective, use carbon dioxide, dry chemical or foam.

### 5.2 Protective Equipment:

Use accepted fire fighting techniques. Wear full fire fighting protective clothing, including self contained breathing apparatus (SCBA).



**5.3 Specific Hazards:**

Product may ignite if heated in excess of its flash point. Closed container may burst when exposed to extreme heat. Empty containers may contain ignitable vapours. Vapours may travel to sources of ignition and flash back.

**5.4 Combustion Products:**

Carbon monoxide and carbon dioxide can form. Smoke, fumes. Hydrocyanic acid and oxides of nitrogen can form.

<b>6. Accidental Release Measures</b>
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**6.1 Preliminary Action and Precautions:**

- 6.1.1 Eliminate every possible source of ignition.
- 6.1.2 Evacuate all personnel immediately and ventilate area.
- 6.1.3 Ventilate area to reduce the airborne contaminant concentration below the exposure limit(s) in section 8.
- 6.1.4 Avoid breathing vapour and contact with skin, eyes and clothing.
- 6.1.5 Wear recommended personal protective equipment.
- 6.1.6 Shut off leaks if possible without risk.
- 6.1.7 Dike in the spilled product as much as possible with inert material (i.e. sand, earth).
- 6.1.8 Prevent entry of product into sewers, storm water drains and open bodies of water.
- 6.1.9 Collect the spillage in closable, suitable disposal containers.
- 6.1.10 Clean up all spills as soon as possible, using an inert absorbent material and dispose of as hazardous waste.

<b>7. Handling and Storage</b>
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**7.1 Handling:**

- 7.1.1 Prevent inhalation of vapour, ingestion and contact with skin, eyes and clothing.
- 7.1.2 Keep container closed when not in use. Precautions also apply to emptied containers.
- 7.1.3 Change soiled work clothes frequently.
- 7.1.4 Clean hands thoroughly after handling.
- 7.1.5 Do not smoke, weld, generate sparks, or use flame near container.
- 7.1.6 To prevent generation of static discharges, use bonding/grounding connection when pouring liquid.



7.1.7 Extinguish all ignition sources including pilot lights, non-explosion proof motors and electrical equipment until vapours dissipate.

**7.2 Storage:**

7.2.1 Store under dry warehouse conditions.

7.2.2 Store away from sources of ignition, (i.e. sparks, open flames, heat etc.)

7.2.3 Store away from strong acids, strong bases, amines, water or moisture, and alcohols.

7.2.4 Keep containers tightly closed at all times.

**8. Exposure Controls and Personal Protection Equipment**

**8.1 Exposure Limits:**

Solvent naphtha (petroleum)	Cas – 64742-95-6	TLV/TWA (ACGIH): 19ppm (100mg/m <sup>3</sup> )
Xylene	Cas – 1330-20-7	TLV/TWA (ACGIH): 100ppm (435mg/m <sup>3</sup> ) STEL (ACGIH): 150ppm (650mg/m <sup>3</sup> )
Ethylbenzene	Cas – 100-41-4	TLV/TWA (ACGIH): 100ppm STEL (ACGIH): 125ppm
4,4'-Methylene bis(phenylisocyanate)	Cas – 101-68-8	TLV/TWA (ACGIH): 0.005ppm
Polymethylene polyphenyl isocyanate	Cas – 9016-87-9	TLV/TWA (ACGIH): 0.005ppm
Toluene Diisocyanate	Cas – 26471-62-5	TLV/TWA (ACGIH): 0.005ppm STEL (ACGIH): 0.020ppm

**8.2 Exposure Controls:**

**8.2.1 Exposure Controls in the Work Place:**

Use local exhaust when the general ventilation is not sufficient to keep the airborne contaminant concentration below the exposure limit.

**8.2.2 Personal Protection Equipment**

Respiratory Protection – Wear appropriate, properly fitted NIOSH/MSHA, approved respirator when airborne contaminant level(s) are expected to exceed exposure limits indicated on the MSDS. Select positive pressure supplied air respirator for isocyanates, (TC 19c or equivalent).

Hand Protection – Use suitable impervious nitril or neoprene gloves and protective apparel to reduce exposure.

Eye Protection – Wear appropriate eye protection. Wear chemical safety goggles and/or face shield to prevent eye contact. Do not wear contact lenses. Do not touch eyes with contaminated body parts or materials. Have eye washing facilities readily available.

Skin/Body Protection - Prevent contact with shoes and clothing. Prevent skin contact.



## 9. Physical and Chemical Properties

<b>9.1 General Information:</b>	
<b>Physical State/Form</b>	Liquid
<b>Colour</b>	Grey
<b>Odour</b>	Solvent
<b>pH</b>	Not available
<b>Water Solubility/Miscibility</b>	Negligible
<b>Flash Point</b>	40 <sup>o</sup> C (Seta)
<b>Boiling Point/range</b>	137 <sup>o</sup> C
<b>Vapour Pressure</b>	Not established
<b>Vapour Density &gt;1 (Air = 1)</b>	
<b>Specific Gravity</b>	1.344
<b>Melting Point</b>	Not established
<b>Freezing Point</b>	Not established
<b>%Volatile Weight</b>	20%
<b>VOC</b>	270 g/l

## 10. Stability and Reaction

- 10.1 General Information:**  
This material is stable when properly handled and stored. No hazardous reactions are known.
- 10.2 Conditions to Avoid:**  
High temperatures, open flames, sparks.
- 10.3 Material to Avoid:**  
Water, amines, bases, oxidizers, alcohols.
- 10.4 Hazardous Decomposition Products:**  
None expected when material properly handled and stored. For thermal decomposition see Section 5.

## 11. Toxicological Information

- 11.1 Emergency Overview:**  
Can cause headache, irritation, nausea, drowsiness, stupor, coughing spell and allergic respiratory sensitization. Leave area to breathe fresh air. Should be observed by a doctor immediately if over exposure is severe.
- 11.2 Skin Contact:**  
Can cause irritation, sensitization, dermatitis. Can be absorbed through the skin.
- 11.3 Eye Contact:**  
Can cause irritation.
- 11.4 Ingestion:**  
Can cause gastrointestinal irritation.



**11.5 Inhalation:**

Can cause headache, irritation, nausea, drowsiness, stupor, coughing spell and allergic respiratory sensitization.

**11.6 Chronic effects:**

Reports have associated repeated and prolonged occupational over exposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling contents may be harmful or fatal. Prolonged or repeated contact/exposure to xylene may cause defatting, drying and irritation of the skin, dermatitis, CNS effects described above, heart muscle sensitization and arrhythmia, hearing loss, and brain, liver and kidney damage. Prolonged xylene over exposure may affect fetal development. The risk of the effects of xylene should be insignificant in well ventilated areas. Prolonged or repeated exposure to mineral spirits (petroleum naphtha or stoddard solvent) may cause the defatting, irritation, dermatitis, narcotic and CNS effects described above, liver effects and jaundice. Kidney and lung effects have been noted in some animal species. A long term NTP study showed that oral exposure to toluene Diisocyanate (TDI) caused cancer in rats and mice. A lifetime inhalation study sponsored by the International Isocyanate Institute did not show carcinogenic activity in rats. Diphenylmethane Diisocyanate (methylene bisphenyl isocyanate) caused an increased incidence of lung tumors in experimental animals following long term inhalation at concentrations in excess of 100 times the exposure limit. Over exposure to isocyanate can cause a decrease in lung function. Skin and respiratory sensitization is possible.

**12. Ecological Information**

**12.1 Environment Protection:**

Prevent product from entering drains, sewers and waterways.

**12.2 Ecotoxicity:**

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

**12.3 Persistence and degradability:**

Data not available.

**12.4 Bioaccumulative Potential:**

Data not available.

**13. Disposal Consideration**

**13.1 Material**

Dispose of according to regulations by incineration in a special waste incinerator or landfill at a permitted facility in accordance with local/national regulations.

**14. Transport Information**

**14.1 Land Transport:**

**Road:** Dangerous good (Class 3, Haz Chem 3Y, PG III)

**Rail:** Dangerous good (Class 3, Haz Chem 3Y, PG III)



- 14.2 Sea Transport:** Dangerous good (Class 3.3, Haz Chem 3Y, PG III)
- 14.3 Air Transport:** Dangerous good (Class 3, Haz Chem 3Y, PG III)
- 14.4 Postal and Courier Service:** Can not be transported by courier.

## 15. Regulatory Information

This product is hazardous and flammable.

## 16. Other Information

### 16.1 Full Text of R-Phrases Contained in Section 2:

<b>R10</b>	Flammable
<b>R20</b>	Harmful by inhalation
<b>R36/37/38</b>	Irritating to the eyes, respiratory system and skin
<b>R40</b>	Possible risk of cancer
<b>R42/43</b>	May cause sensitization by inhalation and skin contact
<b>R51/53</b>	Toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment.
<b>R61</b>	May cause harm to the unborn child
<b>R65</b>	Harmful: may cause lung damage if swallowed.

### 16.2 Full Text of S-Phrases Contained in Section 2:

<b>S16</b>	Keep away from sources of ignition – no smoking
<b>S23</b>	Do not breath gas/fumes/vapour/spray
<b>S24</b>	Avoid contact with skin
<b>S26</b>	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
<b>S37</b>	Wear suitable gloves
<b>S38</b>	In case of insufficient ventilation, wear suitable respiratory equipment

- 16.3** The information contained in this Data Sheet relates only to the specific material identified. Equus Industries Ltd believes the information to be accurate and reliable as at the date of this Data Sheet. No Warranty, Guarantee or representation is expressed or implied by the Company as to the absolute correctness or completeness of any representation contained in this Data and assumes no legal responsibility in connection therewith. It can not be assumed that all acceptable safety measures are contained in this Data Sheet, or that additional measures may not be required under particular or exceptional circumstances or conditions.