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MATERIAL SAFETY DATA SHEET

MSDS 326

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1. Product and Company Identification

- 1.1 PRODUCT NAME:** VULKEM 346
- 1.2 USE OF PRODUCT** Polyurethane topcoat for vehicular traffic membrane systems.
- 1.3 SUPPLIER:** Equus Industries Ltd
Sheffield Street
Riverlands Industrial Estate
Blenheim, Marlborough, New Zealand
Telephone: +64 3 578 0214
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- 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:**
R10,20-21,36-37-38,42,43
S23,24,62

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
1330-20-7	Xylene	15-40%	R10/20/21/38
100-41-4	Ethylbenzene	5.0-10.0%	R11/20/36/37/38
4098-71-9	Isophorone diisocyanate	0.1-1.0%	R23/36/37/38/42/43/ 51/53

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

Get medical attention for any significant over exposure.

4.1 After Inhalation:

Move to fresh air. If required, artificial respiration or administration of oxygen can be performed by trained personnel. Leave area to breathe fresh air. Avoid further over exposure. If symptoms persist, seek medical attention.

4.2 After Skin Contact:

Wash area of contact 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 with water for at least 15 minutes while holding eye lids apart. Get medical attention immediately.

4.4 After Ingestion:

Do not induce vomiting unless advised by a doctor. Call doctor 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 nitrogen oxides can form.

6. **Accidental Release Measures**

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 Avoid breathing vapour and contact with skin, eyes and clothing.
- 6.1.4 Wear recommended personal protective equipment.
- 6.1.5 Shut off leaks if possible without risk.
- 6.1.6 Dike in the spilled product as much as possible with inert material.
- 6.1.7 Prevent entry of product into sewers, storm water drains and open bodies of water.
- 6.1.8 Collect the spillage in closable, suitable disposal containers.
- 6.1.9 Clean up all spills as soon as possible, using an inert absorbent material and dispose of as hazardous waste.

7. **Handling and Storage**

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:

Xylene	Cas – 1330-20-7	TLV/TWA (ACGIH): 100ppm (435mg/m ³) STEL (ACGIH): 150ppm (650mg/m ³)
Ethylbenzene	Cas – 100-14-4	TLV/TWA (ACGIH): 100ppm (435mg/m ³) STEL (ACGIH): 125ppm (540mg/m ³)
Isophorone diisocyanate	Cas – 4098-71-9	TLV/TWA (ACGIH): 0.005ppm

8.2 Exposure Controls:

8.2.1 Exposure Controls in the Work Place:

Use only in well ventilated areas. Provide maximum ventilation in enclosed areas. Use local exhaust when the general ventilation is inadequate.

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 (TC 19c or equivalent) for isocyanates.

Hand Protection – Use suitable impervious nitrile 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

9.1 General Information:	
Physical State/Form	Liquid
Colour	Grey
Odour	Aromatic
pH	Not available
Vapour Pressure	Not available
Vapour Density	Heavier than air
Melting Point/Range	Not available
Freezing Point	Not available
Boiling Point/Range	121°C
Water Solubility/Miscibility	Negligible
Flash Point	27°C (Setaflash closed cup)
Lower Explosion Limit	Not available
Upper Explosion Limit	Not available
Autoignition Temperature	Not available
Evapouration Rate	Not available
Specific Gravity	1.17
% Volatile Weight	27%
VOC	420 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:**
Strong acids, strong bases, amines, water or moisture and 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:**
May cause drowsiness, weakness and fatigue. Vapour and/or mist may irritate nose and throat. May cause moderate irritation to the respiratory system. May cause allergic respiratory sensitization. Move to fresh air. If required, artificial respiration or administration of oxygen can be performed by trained personnel. Leave area to breathe fresh air. Avoid further over exposure. If symptoms persist, seek medical attention.



11.2 Acute toxicity:

Xylene:

Oral LD 50: (Rat) 3,523 - 8,600 mg/kg

Inhalation LC 50: (Rat) 6,350 mg/l

Ethylbenzene:

Oral LD 50: (Rat) 3,500 mg/kg

Dermal LD 50: (Rabbit) 17,800 mg/kg

Isophorone Diisocyanate:

Oral LD 50: (Rat) 1,000 mg/kg

Inhalation LC 50: (Rat) 0,033 mg/l

Dermal LD50: (Rat) 1,060 mg/kg

11.3 Skin Contact:

May cause sensitization resulting in irritation, itching and redness.

11.4 Eye Contact:

Vapours and/or mist may cause eye irritation.

11.5 Ingestion:

May cause irritation to the mouth, throat and stomach. May cause gastrointestinal irritation, nausea, and vomiting.

11.6 Inhalation:

May cause drowsiness, weakness, and fatigue. Vapour and/or mist may irritate nose and throat. May cause moderate irritation to the respiratory system. May cause allergic respiratory sensitization.

11.7 Chronic effects:

Over exposure may cause dermatitis, asthma, skin and respiratory sensitization and decreased lung function. Repeated over exposure to vapours and/or material may injure the liver, kidneys and respiratory system unless suitable engineering controls and/or personal protective equipment are used. Prolonged or repeated exposure to xylene may cause defatting, drying and irritation of the skin, dermatitis, central nervous system (CNS) effects, heart muscle sensitization and arrhythmia, hearing loss and brain, liver, kidney damage. Xylene over exposure may affect fetal development. The International Agency for Research on cancer (IARC) has evaluated Ethylbenzene and classified it as a possible human carcinogen based on sufficient evidence for carcinogenicity in experimental animals, but inadequate evidence for cancer in exposed humans. Fillers are encapsulated and not expected to be released from product under normal conditions of use.

12. Ecological Information

12.1 Environment Protection:

Prevent product from entering drains, sewers and waterways.

12.2 Ecotoxicity:

No data available.

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 be 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:

R10	Flammable
R20/21	Harmful by inhalation and in contact with skin.
R36/37/38	Irritating to the eyes, respiratory system and skin
R42/43	May cause sensitization by inhalation and skin contact

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

S23	Do not breathe gas/fumes/vapour/spray
S24	Avoid contact with skin
S62	If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

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.