SAFETY DATA SHEET

1. Product and Company Identification

1.1 PRODUCT NAME: VULKEM 350 R

1.2 USE OF PRODUCT: Thixotropic Polyurethane bodycoat for vertical detailing in association with pedestrian traffic and vehicular 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

1.5 DATE OF PREPARATION: 20 November 2018

2. Hazards Identification

2.1 Statement of Hazardous Nature:
Classified as hazardous according to New Zealand Hazardous Substances (Minimum degrees of hazard) Regulations 2007.

2.2 HSNO Group Standard:
Surface Coatings and Colourants (Flammable)

2.3 Substance Classification:
3.1C, 6.1E, 6.3A, 6.4A, 6.5A, 6.5B, 6.8B, 6.9A, 9.1D
2.4 Hazard Statements:
H226 Flammable liquid and vapour.
H313 May be harmful in contact with skin.
H333 May be harmful if inhaled.
H305 May be harmful if swallowed and enters airways.
H315 Causes skin irritation.
H320 Causes eye irritation.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317 May cause an allergic skin reaction.
H361 Suspected of damaging fertility or the unborn child
H372 Causes damage to organs through prolonged or repeated exposure.
H413 May cause long lasting harmful effects to aquatic life.

2.5 Prevention Statements:
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.
P241 Use explosion-proof electrical/ventilating/lighting equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P260 Do not breathe fumes.
P264 Wash thoroughly after handling.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection.
P281 Use personal protective equipment as required.
P285 In case of inadequate ventilation wear respiratory protection.

2.6 Response Statements:
P101 If medical advice is needed, have product container or label at hand.
P312 Call a POISON CENTER or doctor/physician if you feel unwell.
P314 Get medical advice/attention if you feel unwell
P331 Do NOT induce vomiting.
P362 Take off contaminated clothing and wash before re-use.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P341 IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing.
P308 + P313 IF exposed or concerned: Get medical advice/attention
P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.
P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
P337 + P313 If eye irritation persists: Get medical advice/attention.
P370 + P378 In case of fire: Use carbon dioxide, dry chemical or foam
P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

2.7 Storage Statement:
P403 + P235 Store in a well-ventilated place. Keep cool.
### 3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>CAS NO.</th>
<th>COMPONENT</th>
<th>PROPORTION (% Weight)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NJ TSRN 51271300-5270P</td>
<td>Aromatic Polyisocyanate Resin</td>
<td>30.0-60.0</td>
</tr>
<tr>
<td>64742-95-6</td>
<td>Aromatic Petroleum Distillates</td>
<td>10.0-30.0</td>
</tr>
<tr>
<td>1332-58-7</td>
<td>Clay</td>
<td>10.0-30.0</td>
</tr>
<tr>
<td>1317-65-3</td>
<td>Calcium Carbonate (Limestone)</td>
<td>10.0-30.0</td>
</tr>
<tr>
<td>NJ TSRN 51721300-5272P</td>
<td>Tackifier</td>
<td>7.0-13.0</td>
</tr>
<tr>
<td>95-63-6</td>
<td>1,2,4-Trimethylbenzene</td>
<td>7.0-13.0</td>
</tr>
<tr>
<td>13463-67-7</td>
<td>Titanium Dioxide</td>
<td>3.0-7.0</td>
</tr>
<tr>
<td>108-67-8</td>
<td>1,3,5-Trimethylbenzene</td>
<td>1.0-5.0</td>
</tr>
<tr>
<td>25551-13-7</td>
<td>Trimethylbenzene (mixed isomers)</td>
<td>1.0-5.0</td>
</tr>
<tr>
<td>85-68-7</td>
<td>Butyl Benzene Phthlate</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>14808-60-7</td>
<td>Crystalline Silica (Quartz) Silica Sand</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>584-84-9</td>
<td>2,4-Toluene Disocyanate</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>91-08-7</td>
<td>Toluene 2,-6-Diisocyanate</td>
<td>&lt;0.1</td>
</tr>
</tbody>
</table>

### 4. First Aid Measures

#### 4.1 After Inhalation:

If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. If required, artificial respiration or administration of oxygen can be performed by trained personnel. If symptoms persist, seek medical attention.

#### 4.2 After Skin Contact:

Remove/take off all contaminated clothing. Wash area of contact thoroughly with plenty of soap and water. If irritation, rash or other disorders develop, seek medical attention immediately. Wash contaminated clothing before re-use.

#### 4.3 After Eye Contact:

Rinse cautiously with water for at least 15 minutes while holding eye lids apart. Remove contact lenses if present and easy to do. Continue rinsing. If irritation persists, seek medical advice/attention.

#### 4.4 After Ingestion:

Immediately call Poison Centre or Doctor/Physician.

#### 4.5 General:

Get immediate medical attention for any significant over exposure.

#### 4.6 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). Water may be used to cool containers to minimise pressure build-up.

#### 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.

5.5 **Fire & Explosion Conditions:**
Product may ignite if heated in excess of its flashpoint. Vapours may travel to source of ignition and flashback. Closed container may burst when exposed to extreme heat. Containers may contain ignitable vapours.

5.6 **Additional Information:**
Flashpoint = 48°C (Setaflash closed Cup), Hazchem Code 3[Y].

### 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 used 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, and do not use 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:

<table>
<thead>
<tr>
<th>CHEMICAL NAME</th>
<th>CAS NUMBER</th>
<th>REGULATION</th>
<th>LIMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2,4-Trimethylbenzene</td>
<td>95-63-6</td>
<td>WES – TWA</td>
<td>25ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>123mg/m³</td>
</tr>
<tr>
<td>1,3,5-Trimethylbenzene</td>
<td>108-67-8</td>
<td>WES – TWA</td>
<td>25ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>123mg/m³</td>
</tr>
<tr>
<td>Trimethyl Benzene (Mixed Isomers)</td>
<td>25551-13-7</td>
<td>WES – TWA</td>
<td>25ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>123mg/m³</td>
</tr>
<tr>
<td>2,4-Toluene Diisocyanate</td>
<td>584-84-9</td>
<td>WES – TWA</td>
<td>0.02mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WES – STEL</td>
<td>0.07mg/m³</td>
</tr>
<tr>
<td>Toluene-2-6-Diisocyanate</td>
<td>91-08-7</td>
<td>WES – TWA</td>
<td>0.02mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WES – STEL</td>
<td>0.07mg/m³</td>
</tr>
<tr>
<td>Aromatic Polyisocyanate Resin</td>
<td>NJTSRN 51721300-527P</td>
<td>WES – TWA</td>
<td>0.02mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WES – STEL</td>
<td>0.07mg/m³</td>
</tr>
</tbody>
</table>

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 for isocyanates, (TC 19c or equivalent).

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.

Protective Measures – Use professional judgment in the selection, care, and use.
9. Physical and Chemical Properties

9.1 General Information:

<table>
<thead>
<tr>
<th>Physical State/Form</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>Grey</td>
</tr>
<tr>
<td>Odour</td>
<td>Solvent</td>
</tr>
<tr>
<td>pH</td>
<td>Not available</td>
</tr>
<tr>
<td>Water Solubility/Miscibility</td>
<td>Negligible</td>
</tr>
<tr>
<td>Flash Point</td>
<td>48°C (Setaflash closed cup)</td>
</tr>
<tr>
<td>Boiling Point/range</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapour Pressure</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapour Density</td>
<td>Heavier than air</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.177</td>
</tr>
<tr>
<td>Melting Point</td>
<td>Not available</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not available</td>
</tr>
<tr>
<td>%Volatile Weight</td>
<td>26%</td>
</tr>
<tr>
<td>VOC (less water and exempt solvent)</td>
<td>314g/l</td>
</tr>
</tbody>
</table>

10. Stability and Reaction

10.1 General Information:
This material is stable when properly handled and stored.

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.

10.5 Hazardous Polymerisation:
Will not occur under normal conditions.

11. Toxicological Information

11.1 Health Effects/Symptoms of Exposure:
Vapour and/or mist may irritate nose and throat. Leave area to breathe fresh air. Avoid further over exposure. If symptoms persist, seek medical attention.

11.2 Acute toxicity:
Trimethyl benzene (mixed isomers), CAS-No. 25551-13-7
   Acute toxicity (LD50 oral) 8,970 mg/kg (rat)
Butyl benzyl phthalate, CAS-No. 85-68-7
   Acute oral toxicity (LD50 oral) 13,500 mg/kg (Rat)
2,4-IToluene diisocyanate, CAS-No. 584-84-9
   Acute oral toxicity (LD50 oral 5,800 mg/kg (Rat)
   Acute inhalation toxicity (LC50) 14 mg/l for 4h (Rat 10 mg/l for 4h (Mouse)
   13mg/l for 4h (Guinea Pig) 11mg/l for 4h (Rabbit)

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 distillates may cause defatting, drying and irritation of the skin, dermatitis, and central nervous system (CNS) effects. 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. May cause allergic skin and respiratory sensitization. Fillers are encapsulated and not expected to be released from product under normal conditions of use.

12. **Ecological Information**

12.3 **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 **Disposal Methods:**
Subject to hazardous waste treatment, storage and disposal requirements. Recycle or incinerate waste at approved facility or dispose of in compliance with national/regional/local, waste disposal regulations. DO NOT EMPTY INTO DRAINS, SEWERS OR WATERWAYS.

14. **Transport Information**
Regulated under NZS 5433 for land transport.

`UN Number` 1263

`Proper Shipping Name` Paint Related

`Class` 3

`Packing Group` III

`Hazchem Code` 3[Y]

15. **Regulatory Information**
15.1 **HSNO Approval:**
- Approval Code: HSR 002662
- HSNO Group Standard: Surface Coatings and Colourants (Flammable)

15.2 **HSNO Controls:**
- Approved Handler: Not required

### 16. Other Information

#### 16.1 Hazard Classifications:
- **3.1C** Flammable Liquid – medium hazard.
- **6.1E** Substances that are acutely toxic. May be harmful. Aspiration hazard.
- **6.3A** Substances that are irritating to the skin.
- **6.4A** Substances that are irritating to the eye.
- **6.5A** Substances that are respiratory sensitzers.
- **6.5B** Substances that are contact sensitzers.
- **6.8B** Substances that are suspected human reproductive or developmental toxicants.
- **6.9A** Substances that are toxic to human target organs or systems.
- **9.1D** Substances that are slightly harmful to the aquatic environment or are otherwise designed for biocidal action.

#### 16.2 Abbreviations/Terminology:
- **HSNO** Hazardous Substances and New Organisms Act
- **CAS** Chemical Abstract Service
- **NJTSRN** New Jersey Trade Secret Registry Number
- **LD50, LC50** Lethal dose/Lethal Concentration – Dose or concentration required to produce the specified effect in 50% of the sample studied.
- **WES** Workplace Exposure Standard (NZ Department of Business, Innovation and Employment)
- **TWA** Time weighted average exposure level designed to protect from the effects of long-term exposure.
- **STEL** Short-term Exposure Level (15 minutes)
- **VOC** Volatile Organic Compound

#### 16.3 Issue Information:
- Date of Preparation: 20 November 2018
- Reasons: Update
- Replaces: 10 April 2013

#### 16.4 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.