Product Name    ARMAFLEX 520 ADHESIVE

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Supplier Name    ARMACELL AUSTRALIA PTY LTD
Address    13 - 17 Nathan Road, Dandenong, Victoria, AUSTRALIA, 3175
Telephone    (03) 8710 5999
Fax    (03) 8710 5900
Emergency    (03) 8710 5999

Synonym(s)    ARMACELL ARMAFLEX 520

Use(s)    ADHESIVE

SDS Date    01 Jun 2010

2. HAZARDS IDENTIFICATION

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

RISK PHRASES
R11    Highly flammable.
R36/38    Irritating to eyes and skin.
R48/20    Harmful: danger of serious damage to health by prolonged exposure through inhalation.
R62    Possible risk of impaired fertility.
R63    Possible risk of harm to the unborn child.
R65    Harmful: May cause lung damage if swallowed.

SAFETY PHRASES
S2    Keep out of reach of children.
S9    Keep container in a well ventilated place.
S16    Keep away from sources of ignition - No smoking.
S36/37    Wear suitable protective clothing and gloves.
S46    If swallowed, contact a doctor or Poisons Information Centre immediately and show container or label.
S62    If swallowed, do not induce vomiting; seek medical advice immediately and show this container or label.

CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

UN No.    1133
DG Class    3
Subsidiary Risk(s)    None Allocated
Packing Group    II
Hazchem Code    3YE

3. COMPOSITION/ INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Formula</th>
<th>CAS No.</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-HEXANE</td>
<td>C6-H14</td>
<td>110-54-3</td>
<td>30-40%</td>
</tr>
<tr>
<td>ACETONE</td>
<td>C3-H6-O</td>
<td>67-64-1</td>
<td>20-30%</td>
</tr>
<tr>
<td>TOLUENE</td>
<td>C7-H8</td>
<td>108-88-3</td>
<td>10-20%</td>
</tr>
</tbody>
</table>
4. FIRST AID MEASURES

**Eye**
If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

**Inhalation**
If inhaled, remove from contaminated area. To protect rescuer, use a Type A (Organic vapour) respirator or an Air-line respirator (in poorly ventilated areas). Apply artificial respiration if not breathing.

**Skin**
If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

**Ingestion**
For advice, contact a Poison Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting.

**Advice to Doctor**
Treat symptomatically.

5. FIRE FIGHTING MEASURES

**Flammability**
Highly flammable. May evolve toxic gases (carbon oxides, hydrocarbons) when heated to decomposition. Vapour may form explosive mixtures with air. Eliminate all ignition sources, including cigarettes, open flames, spark producing switches/tools, heaters, pilot lights, mobile phones etc when handling. Earth containers when dispensing fluids.

**Fire and Explosion**
Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

**Extinguishing**
Dry agent, carbon dioxide or foam. Prevent contamination of drains or waterways.

**Hazchem Code**
3YE

6. ACCIDENTAL RELEASE MEASURES

**Spillage**
Contact emergency services where appropriate. Use personal protective equipment. Clear area of all unprotected personnel. Ventilate area where possible. Contain spillage, then cover / absorb spill with non-combustible absorbent material (vermiculite, sand, or similar), collect and place in suitable containers for disposal. Eliminate all ignition sources. Prevent spill entering drains or waterways.

7. STORAGE AND HANDLING

**Storage**
Store in a cool, dry, well ventilated area, preferably flammables store, removed from direct sunlight, heat or ignition sources, oxidising agents, acids and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use. Large storage areas should have appropriate fire protection and ventilation systems.

**Handling**
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

**Exposure Stds**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Reference</th>
<th>TWA</th>
<th>STEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone</td>
<td>ASCC (AUS)</td>
<td>500 ppm</td>
<td>1185 mg/m3</td>
</tr>
<tr>
<td>n-Hexane</td>
<td>ASCC (AUS)</td>
<td>20 ppm</td>
<td>72 mg/m3</td>
</tr>
<tr>
<td>Toluene</td>
<td>ASCC (AUS)</td>
<td>50 ppm</td>
<td>191 mg/m3</td>
</tr>
</tbody>
</table>

**Biological Limits**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Reference</th>
<th>Determinant</th>
<th>Sampling Time</th>
<th>BEI</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACETONE</td>
<td>ACGIH BEI</td>
<td>Acetone in urine</td>
<td>End of shift</td>
<td>50 mg/L</td>
</tr>
<tr>
<td>N-HEXANE</td>
<td>ACGIH BEI</td>
<td>2,5-Hexanedione in urine</td>
<td>End of shift at end of workweek</td>
<td>0.4 mg/L</td>
</tr>
<tr>
<td>TOLUENE</td>
<td>ACGIH BEI</td>
<td>o-Cresol in urine</td>
<td>End of shift</td>
<td>0.5 mg/L</td>
</tr>
<tr>
<td></td>
<td>ACGIH BEI</td>
<td>Hippuric acid in urine</td>
<td>End of shift</td>
<td>1.6 g/g creatinine</td>
</tr>
</tbody>
</table>
ARMAFLEX 520 ADHESIVE

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Reference</th>
<th>Determinant</th>
<th>Sampling Time</th>
<th>BEI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ACGIH BEI</td>
<td>Toluene in blood</td>
<td>Prior to last shift of workweek</td>
<td>0.05 mg/L</td>
</tr>
</tbody>
</table>

Engineering Controls

Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical explosion proof extraction ventilation is recommended. Flammable/explosive vapours may accumulate in poorly ventilated or confined areas. Vapours are heavier than air and may travel some distance to an ignition source and flash back. Maintain vapour levels below the recommended standard.

PPE

Wear splash-proof goggles, viton (R) or PVA gloves and coveralls. Where an inhalation risk exists, wear: a Type A (Organic vapour) respirator. At high vapour levels, wear: an Air-line respirator. If spraying, wear: a Type A-Class P1 (Organic gases/vapours and Particulate) respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Appearance</th>
<th>YELLOW LIQUID</th>
<th>Solubility (water)</th>
<th>INSOLUBLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odour</td>
<td>SOLVENT ODOUR</td>
<td>Specific Gravity</td>
<td>0.82</td>
</tr>
<tr>
<td>pH</td>
<td>NOT AVAILABLE</td>
<td>% Volatiles</td>
<td>&gt; 60 %</td>
</tr>
<tr>
<td>Vapour Pressure</td>
<td>180 mm Hg @ 20°C</td>
<td>Flammability</td>
<td>HIGHLY FLAMMABLE</td>
</tr>
<tr>
<td>Vapour Density</td>
<td>&gt; 1 (Air = 1)</td>
<td>Flash Point</td>
<td>-20°C (Acetone)</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>&gt; 66°C</td>
<td>Upper Explosion Limit</td>
<td>13 % (based on hexane and acetone)</td>
</tr>
<tr>
<td>Melting Point</td>
<td>NOT AVAILABLE</td>
<td>Lower Explosion Limit</td>
<td>1.1 % (based on hexane and acetone)</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>NOT AVAILABLE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viscosity</td>
<td>155 cps to 195 cps</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Chemical Stability

Stable under recommended conditions of storage.

Conditions to Avoid

Avoid shock, friction, heavy impact, heat, sparks, open flames and other ignition sources.

Material to Avoid

Incompatible with oxidising agents (eg. hypochlorites), acids (eg. nitric acid), heat and ignition sources.

Hazardous Decomposition Products

May evolve toxic gases (carbon oxides, hydrocarbons) when heated to decomposition.

Hazardous Reactions

Polymerization is not expected to occur.

11. TOXICOLOGICAL INFORMATION

Health Hazard Summary

Toxic - irritant. This product has the potential to cause adverse health effects. Use safe work practices to avoid eye or skin contact and inhalation. Over exposure may result in anaemia, loss of appetite, tremors and blood, liver and kidney damage. Occupational exposure to n-hexane may result in peripheral neuropathy (nerve damage) in workers, with numbness or tingling in extremities. Recovery from effects on the peripheral nervous system is not immediate upon cessation of exposure, and effects may progress 2-3 months.

Eye

Irritant. Contact may result in irritation, lacrimation, pain, redness and conjunctivitis. May result in burns with prolonged contact.

Inhalation

Irritant - toxic. Over exposure may result in irritation of the nose and throat, coughing, nausea, headache, fatigue, loss of appetite and vomiting. High level exposure may result in dizziness, breathing difficulties, pulmonary oedema and unconsciousness. Chronic exposure may result in kidney, liver and CNS damage.

Skin

Irritant. Contact may result in drying and defatting of the skin, rash and dermatitis. May be absorbed through skin with harmful effects.

Ingestion

Toxic. Ingestion may result in nausea, vomiting, abdominal pain, dizziness, fatigue and diarrhoea. Ingestion of large quantities may result in liver and kidney damage, and unconsciousness. Aspiration may result in chemical pneumonitis and pulmonary oedema.

Toxicity Data

N-HEXANE (110-54-3)
ARMAFLEX 520 ADHESIVE

LC50 (Inhalation): 48000 ppm/4 hours (rat)
LD50 (Ingestion): 25 g/kg (rat)
LD50 (Skin): 3000 mg/kg (rabbit)

ACETONE (67-64-1)
LC50 (Inhalation): 44000 mg/m3/4 hours (mouse)
LCLo (Inhalation): 1600 ppm/4 hours (rat)
LD50 (Ingestion): 8000 mg/kg (dog)
LDLo (Intraperitoneal): 500 mg/kg (rat)
LDLo (Intravenous): 1576 mg/kg (rabbit)
LDLo (Skin): 20 mL/kg (rabbit)
LDLo (Subcutaneous): 5000 mg/kg (guinea pig/dog)
TCLo (Inhalation): 500 ppm (human)
TDLo (Ingestion): 2857 mg/kg (man)

TOLUENE (108-88-3)
LC50 (Inhalation): 400 ppm/24 hours (mouse)
LCLo (Inhalation): 1600 ppm (guinea pig)
LD50 (Ingestion): 636 mg/kg (rat)
LD50 (Skin): 14100 uL/kg (rabbit)
LDLo (Ingestion): 50 mg/kg (human)
TCLo (Inhalation): 50 ppm (man)
TDLo (Ingestion): 400 mg/kg (rat)

12. ECOLOGICAL INFORMATION
Environment
Limited ecotoxicity data was available for this product at the time this report was prepared. Ensure appropriate measures are taken to prevent this product from entering the environment.

13. DISPOSAL CONSIDERATIONS
Waste Disposal
Wearing the protective equipment outlined, ensure all ignition sources are extinguished. For small quantities, absorb on paper, sand or similar and evaporate under a fume cupboard or open area. For large volumes, atomise into incinerator (mixing with more flammable solvent if required) or recycle by gravimetric separation, distilling & reusing. Contact the manufacturer for additional information if required.

Legislation
Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

Shipping Name
ADHESIVES containing flammable liquid

UN No. 1133
DG Class 3
Packing Group II

Subsidiary Risk(s) None Allocated
Hazchem Code 3YE
GTEPG 3A1

IATA
Shipping Name ADHESIVES containing flammable liquid
UN No. 1133
DG Class 3
Packing Group II

Subsidiary Risk(s) None Allocated

IMDG
Shipping Name ADHESIVES containing flammable liquid
UN No. 1133
DG Class 3
Packing Group II

Subsidiary Risk(s) None Allocated
15. REGULATORY INFORMATION

Poison Schedule
- Classified as a Schedule 5 (S5) Poison using the criteria in the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

AICS
- All chemicals listed on the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

Additional Information
- SYNERGISM - ANTAGONISM: Ingredients in this product may act together to aggravate or reduce adverse effects. Accordingly the time weighted average concentration (TWA) provided for single ingredients should be considered as a guide only and all due care exercised when handling.

- WORK PRACTICES - SOLVENTS: Organic solvents may present both a health and flammability hazard. It is recommended that engineering controls should be adopted to reduce exposure where practicable (for example, if using indoors, ensure explosion proof extraction ventilation is available). Flammable or combustible liquids with explosive limits have the potential for ignition from static discharge. Refer to AS 1020 (The control of undesirable static electricity) and AS 1940 (The storage and handling of flammable and combustible liquids) for control procedures.

ABBREVIATIONS:
- ADB - Air-Dry Basis.
- BEI - Biological Exposure Indice(s)
- CAS# - Chemical Abstract Service number - used to uniquely identify chemical compounds.
- CNS - Central Nervous System.
- EC No - European Community Number.
- IARC - International Agency for Research on Cancer.
- M - moles per litre, a unit of concentration.
- mg/m3 - Milligrams per cubic metre.
- NOS - Not Otherwise Specified.
- NTP - National Toxicology Program.
- OSHA - Occupational Safety and Health Administration.
- pH - relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
- ppm - Parts Per Million.
- RTECS - Registry of Toxic Effects of Chemical Substances.
- TWA/ES - Time Weighted Average or Exposure Standard.

HEALTH EFFECTS FROM EXPOSURE:
- It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a Chem Alert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
- The recommendation for protective equipment contained within this Chem Alert report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

Report Status
- This document has been compiled by RMT on behalf of the manufacturer of the product and serves as the manufacturer's Safety Data Sheet ('SDS').

- It is based on information concerning the product which has been provided to RMT by the manufacturer or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer.

- While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

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ARMAFLEX 520 ADHESIVE

SDS Date 01 Jun 2010

End of Report