1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier
Product name  HARDENER HV 998
Synonym(s)  
NSN: 8040-12-176-2333
998 HV HARDENER • HARDENER COMPONENT FOR ARALDITE KIT K138 • HV 998 HARDENER

1.2 Uses and uses advised against
Use(s)  CURING AGENT • HARDENER • HARDENER FOR EPOXY RESIN SYSTEM • TWO COMPONENT EPOXY SYSTEM

1.3 Details of the supplier of the safety data sheet
Supplier name  HUNTSMAN ADVANCED MATERIALS (AUSTRALIA)
Address  Gate 3, 765 Ballarat Rd, Deer Park, Victoria, Australia, 3023
Telephone  (03) 9933 6691
Fax  (03) 9361 6066
Email  Global_Product_EHS_AdMat@huntsman.com
Website  http://www.huntsman.com

1.4 Emergency telephone number(s)
Emergency  1800 786 152
Emergency (NZ only)  0800 441 216

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA
GHS Classification(s)  Skin Corrosion/Irritation: Category 2
                      Skin Sensitisation: Category 1
                      Serious Eye Damage / Eye Irritation: Category 1
                      Acute Toxicity: Inhalation: Category 3

2.2 Label elements
Signal word  DANGER
Pictograms
Hazard statement(s)
H315  Causes skin irritation.
H317  May cause an allergic skin reaction.
H318  Causes serious eye damage.
H331  Toxic if inhaled.

Prevention statement(s)
P261  Avoid breathing dust/fume/gas/mist/vapours/spray.
P264  Wash thoroughly after handling.
P271  Use only outdoors or in a well-ventilated area.
P272  Contaminated work clothing should not be allowed out of the workplace.
P280  Wear protective gloves/protective clothing/eye protection/face protection.

Response statement(s)
P302 + P352  IF ON SKIN: Wash with plenty of soap and water.
P304 + P340  IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338  IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to
Product name: HARDENER HV 998

P310
Immediately call a POISON CENTER or doctor/physician.

P321
Specific treatment is advised - see first aid instructions.

P333 + P313
If skin irritation or rash occurs: Get medical advice/attention.

P362
Take off contaminated clothing and wash before re-use.

Storage statement(s)
P403 + P233
Store in a well-ventilated place. Keep container tightly closed.

P405
Store locked up.

Disposal statement(s)
P501
Dispose of contents/container in accordance with relevant regulations.

2.3 Other Hazards
No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS number</th>
<th>EC number</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>BISPHENOL A</td>
<td>80-05-7</td>
<td>201-245-8</td>
<td>&lt;10%</td>
</tr>
<tr>
<td>DIETHYLENETRIAMINE</td>
<td>111-40-0</td>
<td>203-865-4</td>
<td>&lt;10%</td>
</tr>
<tr>
<td>N-DIMETHYL-DIPROPYLENE-TRIAMINE</td>
<td>10563-29-8</td>
<td>234-148-4</td>
<td>&lt;10%</td>
</tr>
<tr>
<td>TRIETHYLENETETRAMINE (TETA)</td>
<td>112-24-3</td>
<td>203-950-6</td>
<td>&lt;10%</td>
</tr>
<tr>
<td>NON HAZARDOUS INGREDIENTS</td>
<td>Not Available</td>
<td>Not Available</td>
<td>remainder</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

4.1 Description of 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.

First aid facilities
No information provided.

4.2 Most important symptoms and effects, both acute and delayed
No information provided.

4.3 Immediate medical attention and special treatment needed
Treat symptomatically.

5. FIREFIGHTING MEASURES

5.1 Extinguishing media
Dry agent, carbon dioxide or foam. Prevent contamination of drains and waterways.

5.2 Special hazards arising from the substance or mixture
Combustible. May evolve toxic gases (carbon/ nitrogen oxides, amines, ammonia, hydrocarbons) when heated to decomposition. May evolve sulphur oxides when heated to decomposition.

5.3 Advice for firefighters
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.
6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Clear area of all unprotected personnel. Ventilate area where possible. Contact emergency services where appropriate.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
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 sources of ignition.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe 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.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use. Store as a Class C2 Combustible Liquid (AS1940). Store between 2°C and 40°C.

7.3 Specific end use(s)
No information provided.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

8.1 Control parameters

<table>
<thead>
<tr>
<th>Substance</th>
<th>Reference</th>
<th>TWA</th>
<th>STEL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>ppm</td>
<td>mg/m³</td>
</tr>
<tr>
<td>Diethylene triamine</td>
<td>SWA (AUS)</td>
<td>1</td>
<td>4.2</td>
</tr>
</tbody>
</table>

Biological limits
No biological limit values have been entered for this product.

8.2 Exposure controls

Engineering Controls
Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended. Maintain vapour levels below the recommended exposure standard.

PPE

- Eye/Face
  Wear splash-proof goggles.

- Hand
  Wear viton (R) or nitrile gloves.

- Body
  Wear coveralls. If spraying, with prolonged use, or if in confined areas, wear impervious coveralls.

- Respiratory
  Where an inhalation risk exists, wear a Type A (Organic vapour) respirator. If sanding dry product, wear a Class P1 (Particulate) respirator. If spraying, with prolonged use, or if in confined areas, wear an Air-line respirator.
9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>GREY PASTE</td>
</tr>
<tr>
<td>Odour</td>
<td>AMINE ODOR</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Flammability</td>
<td>CLASS C2 COMBUSTIBLE</td>
</tr>
<tr>
<td>Flash Point</td>
<td>245°C (cc)</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>&gt; 200°C</td>
</tr>
<tr>
<td>Melting Point</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>pH</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Solubility (water)</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Vapour Pressure</td>
<td>&lt; 0.095 kPa @ 20°C</td>
</tr>
<tr>
<td>Upper Explosion Limit</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Lower Explosion Limit</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Partition Coefficient</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Autoinignition Temperature</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Viscosity</td>
<td>55000 mPa.s to 80000 mPa.s @ 25°C</td>
</tr>
<tr>
<td>Explosive Properties</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Oxidising Properties</td>
<td>NOT AVAILABLE</td>
</tr>
</tbody>
</table>

9.2 Other information
No information provided.

10. STABILITY AND REACTIVITY

10.1 Reactivity
Carefully review all information in sections 10.2 to 10.6.

10.2 Chemical stability
Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions
Hazardous polymerization is not expected to occur.

10.4 Conditions to avoid
Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials
Incompatible with oxidising agents (e.g. hypochlorites), acids (e.g. nitric acid), alkalis (e.g. sodium hydroxide), heat and ignition sources.

10.6 Hazardous decomposition products
May evolve toxic gases (carbon/ nitrogen oxides, amines, ammonia, hydrocarbons) when heated to decomposition. May evolve sulphur oxides when heated to decomposition.
11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Health Hazard Summary

No information provided.

No information provided.

No information provided.

No information provided.

No information provided.

BISPHENOL A (80-05-7)

LD50 (Ingestion): 2230 mg/kg (rabbit)
LD50 (Intraperitoneal): 150 mg/kg (mouse)
LD50 (Skin): 3 mL/kg (rabbit)
LDLo (Subcutaneous): 2500 mg/kg (mouse)

DIETHYLENETRIAMINE (111-40-0)

LD50 (Ingestion): 1080 mg/kg (rat)
LD50 (Intraperitoneal): 71 mg/kg (mouse)
LD50 (Skin): 0.17 mL/kg (guinea pig)
TDLo (Ingestion): 1820 mg/kg/26 weeks intermittently (rabbit)

N-DIMETHYL-DIPROPYLENE-TRIAMINE (10563-29-8)

LD50 (Ingestion): 1432 mg/kg (mammal).

TRIETHYLENETETRAMINE (TETA) (112-24-3)

LD50 (Ingestion): 1600 mg/kg (mouse)
LD50 (Intraperitoneal): 468 mg/kg (mouse)
LD50 (Intravenous): 350 mg/kg (mouse)
LD50 (Skin): 805 mg/kg (rabbit)

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No information provided.

12.2 Persistence and degradability
No information provided.

12.3 Bioaccumulative potential
No information provided.

12.4 Mobility in soil
No information provided.

12.5 Results of PBT and vPvB assessment
No information provided.

12.6 Other adverse effects
No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal
Mix components together (small amounts), absorb with sand, vermiculite or similar and dispose of to an approved landfill site. Ensure protective equipment is worn when mixing. Do not seal containers/tins until reaction is complete. Contact the manufacturer/supplier for additional information (if required). Prevent contamination of drains and waterways as environmental damage may result.

Legislation
Dispose of in accordance with relevant local legislation.

CHEMICAL ALERT REPORT
Product name HARDENER HV 998

Reviewed: 29 Feb 2016
Printed: 08 Nov 2016
This report was compiled based on the SDS dated 19 Sep 2013
Product name  HARDENER HV 998

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

<table>
<thead>
<tr>
<th>Land Transport (ADG)</th>
<th>Sea Transport (IMDG/IMO)</th>
<th>Air Transport (IATA/ICAO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.1 UN number</td>
<td>None Allocated</td>
<td>None Allocated</td>
</tr>
<tr>
<td>14.2 UN proper shipping name</td>
<td>None Allocated</td>
<td>None Allocated</td>
</tr>
<tr>
<td>14.3 Transport hazard classes</td>
<td>None Allocated</td>
<td>None Allocated</td>
</tr>
<tr>
<td>DG Class</td>
<td>None Allocated</td>
<td>None Allocated</td>
</tr>
<tr>
<td>Subsidiary risk(s)</td>
<td>None Allocated</td>
<td>None Allocated</td>
</tr>
<tr>
<td>14.4 Packing group</td>
<td>None Allocated</td>
<td>None Allocated</td>
</tr>
<tr>
<td>14.5 Environmental hazards</td>
<td>None Allocated</td>
<td>None Allocated</td>
</tr>
<tr>
<td>14.6 Special precautions for user</td>
<td>None Allocated</td>
<td>None Allocated</td>
</tr>
</tbody>
</table>

Hazchem Code  None Allocated

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule  Classified as a Schedule 5 Poison using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications  T - Toxic
| XI - Irritant |

Risk phrases  R23: Toxic by inhalation.
| R38: Irritating to skin. |
| R41: Risk of serious damage to eyes. |
| R43: May cause sensitisation by skin contact. |

Safety phrases  S24: Avoid contact with skin.
| S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice |
| S36/37/39: Wear suitable protective clothing, gloves and eye/face protection. |
| S45: In case of accident or if you feel unwell seek medical advice immediately (show the label where possible). |
| S61: Avoid release to the environment. Refer to special instructions/safety data sheets. |

Inventory listing(s)  AUSTRALIA: AICS (Australian Inventory of Chemical Substances)

All components are listed on AICS, or are exempt.

15.2 Chemical safety assessment

No information provided.

16. OTHER INFORMATION

Additional information  This is a 2 part product. Please consult the appropriate SDS before use.

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 ChemAlert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.
HARDENER HV 998

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this 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.

Abbreviations

- **ACGIH**: American Conference of Governmental Industrial Hygienists
- **CAS #**: Chemical Abstract Service number - used to uniquely identify chemical compounds
- **CNS**: Central Nervous System
- **EC No.**: EC No - European Community Number
- **EMS**: Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
- **GHS**: Globally Harmonized System
- **GTEPG**: Group Text Emergency Procedure Guide
- **IARC**: International Agency for Research on Cancer
- **LC50**: Lethal Concentration, 50% / Median Lethal Concentration
- **LD50**: Lethal Dose, 50% / Median Lethal Dose
- **mg/m³**: Milligrams per Cubic Metre
- **OEL**: Occupational Exposure Limit
- **pH**: relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
- **ppm**: Parts Per Million
- **STEL**: Short-Term Exposure Limit
- **STOT-RE**: Specific target organ toxicity (repeated exposure)
- **STOT-SE**: Specific target organ toxicity (single exposure)
- **SUSMP**: Standard for the Uniform Scheduling of Medicines and Poisons
- **SWA**: Safe Work Australia
- **TLV**: Threshold Limit Value
- **TWA**: Time Weighted Average

Report Status

This ChemAlert report has been independently compiled by RMT's scientific department utilising the original Safety Data Sheet ("SDS") for the product provided to RMT by the manufacturer. The information is based on the latest chemical and toxicological research 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. It is an independent collation by RMT of information obtained from the original SDS for this product. Its content has not been authorised or verified by the manufacturer / distributor of the chemical to which it relates.

This ChemAlert report does not constitute the manufacturer's original SDS and is not intended to be a replacement for same. It is provided to subscribers of ChemAlert as a reference tool only, is not all-inclusive and does not represent any guarantee as to the properties of the product. 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 ChemAlert report, 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 ChemAlert report.

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End of Report