M-Flux AR-2

1. SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier
Product Name: M-Flux AR-2
Chemical Name: Mixture
CAS No.: Mixture
EINECS No.: Mixture
REACH Registration No.: None assigned.

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified Use(s): PC38 Welding and soldering products (with flux coatings or flux cores.), flux products
Uses Advised Against: None known.

1.3 Supplier's details
Company Identification: VISHAY MEASUREMENTS GROUP UK LTD
Stroudley Road
Basingstoke
Hampshire
RG24 8FW
United Kingdom
Telephone: +44 (0) 1256 462131
Fax: +44 (0) 1256 471441
E-Mail (competent person): mm.uk@vishaypg.com

1.4 Emergency Phone No.
(00-1) 703-527-3887
CHEMTREC

2. SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
F; R11
Xn; R22
Xi; R36
R43
R67

2.2 Label elements
Product Name: M-Flux AR-2

Hazard Symbol

Risk Phrases
F; R11: Highly flammable.
Xn; R22: Harmful if swallowed.
Xi; R36: Irritating to eyes.
R43: May cause sensitization by skin contact.
R67: Vapours may cause drowsiness and dizziness.

Safety Phrases
S16: Keep away from sources of ignition - No smoking.
S23: Do not breathe vapour.
SAFETY DATA SHEET

Revision: 1.0 Date: 24.10.2012


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S24/25: Avoid contact with skin and eyes.
S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S37/39: Wear suitable gloves and eye/face protection.
S46: If swallowed, seek medical advice immediately and show this container or label.

2.3 Other hazards

None.

3. SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances Substances in preparations / mixtures

3.2 Mixtures

<table>
<thead>
<tr>
<th>Chemical identity of the substance</th>
<th>%W/W</th>
<th>CAS No.</th>
<th>EC No.</th>
<th>Hazard Statement(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modified Rosin Acid</td>
<td>10 - 30</td>
<td>Proprietary</td>
<td>Proprietary</td>
<td>Acute Tox. 4; H302</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Skin Sens. 1; H317</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Acute Tox. 4; H332</td>
</tr>
<tr>
<td>Hydrogenated Rosin</td>
<td>10 - 30</td>
<td>65997-06-0</td>
<td>266-041-3</td>
<td>Not classified</td>
</tr>
<tr>
<td>Isopropyl Alcohol</td>
<td>60 - 100</td>
<td>67-63-0</td>
<td>200-661-7</td>
<td>Flam. Liq. 2; H225</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Eye Irrit. 2; H319</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>STOT SE 3; H336</td>
</tr>
<tr>
<td>Benzyl Alcohol</td>
<td>1 - 5</td>
<td>100-51-6</td>
<td>202-859-9</td>
<td>Acute Tox. 4; H302</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Acute Tox. 4; H332</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Chemical identity of the substance</th>
<th>%W/W</th>
<th>CAS No.</th>
<th>EC No.</th>
<th>EC Classification and Risk Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modified Rosin Acid</td>
<td>10 - 30</td>
<td>Proprietary</td>
<td>Proprietary</td>
<td>Xn; R20/22: Harmful by inhalation and if swallowed. R43: May cause sensitization by skin contact.</td>
</tr>
<tr>
<td>Hydrogenated Rosin</td>
<td>10 - 30</td>
<td>65997-06-0</td>
<td>266-041-3</td>
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<td>1 - 5</td>
<td>100-51-6</td>
<td>202-859-9</td>
<td>Xn; R20/22: Harmful by inhalation and if swallowed.</td>
</tr>
</tbody>
</table>

4. SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin Contact

IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash before reuse. If skin irritation occurs, get medical advice/attention.

Eye Contact

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion

If swallowed, rinse mouth with water (only if the person is conscious). Do not induce vomiting. Obtain medical attention. If vomiting occurs spontaneously, keep head below hips to prevent aspiration.

4.2 Most important symptoms and effects, both acute and delayed

May cause sensitization by skin contact. May cause drowsiness or dizziness. Central nervous depression. Causes eye irritation.

4.3 Indication of any immediate medical attention and special treatment needed

Unlikely to be required but if necessary treat symptomatically.

5. SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Extinguish with carbon dioxide, dry chemical, foam or waterspray.

Suitable Extinguishing Media

Unsuitable extinguishing Media

Do not use water jet.

5.2 Special hazards arising from the substance or mixture

May decompose in a fire giving off toxic fumes. Carbon monoxide, Carbon dioxide. Prevent liquid entering sewers, basements and workpits; vapour may create explosive atmosphere.

5.3 Advice for fire-fighters

Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Do not breathe fumes. Keep containers cool by spraying with water if exposed to fire. Avoid run off to waterways and sewers.

6. SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures


6.2 Environmental precautions

Do not allow to enter drains, sewers or watercourses.

6.3 Methods and material for containment and cleaning up

Allow small spillages to evaporate provided there is adequate ventilation. Use non-sparking equipment when picking up flammable spill. Adsorb spillages onto sand, earth or any suitable adsorbent material. Transfer to a container for disposal. Dispose of this material and its container as hazardous waste. Allow to evaporate.

6.4 Reference to other sections

See Section: 8, 13

7. SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Ensure adequate ventilation. Do not breathe vapour. In case of inadequate ventilation wear respiratory protection. Wear protective gloves/protective clothing/eye protection/face protection. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product.

7.2 Conditions for safe storage, including any incompatibilities

Ground/bond container and receiving equipment. The electrical system should be spark-free. Store in a well-ventilated place. Keep container tightly closed. Keep away from heat, sources of ignition and direct sunlight.

7.3 Specific end use(s)

PC38 Welding and soldering products (with flux coatings or flux cores.), flux products

8. SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Occupational Exposure Limits

<table>
<thead>
<tr>
<th>SUBSTANCE</th>
<th>CAS No.</th>
<th>LTEL (8 hr TWA ppm)</th>
<th>LTEL (8 hr TWA mg/m³)</th>
<th>STEL (ppm)</th>
<th>STEL (mg/m³)</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propan-2-ol</td>
<td>67-63-0</td>
<td>400</td>
<td>999</td>
<td>500</td>
<td>1250</td>
<td>WEL</td>
</tr>
</tbody>
</table>
Note: WEL: Workplace Exposure Limit (UK HSE EH40).

8.1.2 Biological limit value

Not established.

8.1.3 PNECs and DNELs

<table>
<thead>
<tr>
<th>DNEL (Propan-2-ol)</th>
<th>Oral</th>
<th>Inhalation</th>
<th>Dermal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry - Long Term - Systemic effects</td>
<td>-</td>
<td>500 mg/m³</td>
<td>888 mg/kg bw/day</td>
</tr>
<tr>
<td>Consumer - Long Term - Systemic effects</td>
<td>26 mg/kg bw/day</td>
<td>89 mg/m³</td>
<td>319 mg/kg bw/day</td>
</tr>
</tbody>
</table>

| PNEC                      | PNEC aqua (freshwater / marine water / intermittent releases) 140.9 mg/L  
|                          | PNEC STP 2251 mg/L  
|                          | PNEC sediment (freshwater/marine water) 552 mg/kg sediment dw  
|                          | PNEC oral 160 mg/kg food  |
| Aquatic Compartment      | PNEC soil 28 mg/kg soil dw  |

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Ensure adequate ventilation. Atmospheric levels should be controlled in compliance with the occupational exposure limit.

8.2.2 Individual protection measures, such as personal protective equipment (PPE)

Use personal protective equipment as required. Wash contaminated clothing before reuse. Avoid contact with skin and eyes.

Eye/face protection

Wear protective eye glasses for protection against liquid splashes. Wear eye protection with side protection (EN166).

Skin protection

Wear impervious gloves (EN374). Nitrile rubber/nitrile latex Breakthrough time of the glove material: refer to the information provided by the gloves’ producer. (>= 480 min). Unsuitable gloves materials: Natural rubber / PVC.

Respiratory protection

Normally no personal respiratory protection is necessary. In case of inadequate ventilation wear respiratory protection. A suitable mask with filter type A (EN141 or EN405) may be appropriate.

8.2.3 Environmental Exposure Controls

Not applicable.

Avoid release to the environment.

9. SECTION 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>Amber Coloured liquid</td>
</tr>
<tr>
<td>Odour</td>
<td>Solvent Odour</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>Not available</td>
</tr>
<tr>
<td>pH</td>
<td>Not established.</td>
</tr>
<tr>
<td>Melting Point/Freezing Point</td>
<td>-88.5°C</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>82°C</td>
</tr>
<tr>
<td>Flash point</td>
<td>18°C [Closed cup] (Mixture)</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>1 (BuAc = 1)</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Flam. Liq. 2; Flammable liquid and vapour.</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>LEL: 2.0% UEL: 12.0% (Mixture)</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>6.2 kPa at 25°C</td>
</tr>
</tbody>
</table>
10. SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity
Stable under normal conditions.

10.2 Chemical stability
Stable under normal conditions.

10.3 Possibility of hazardous reactions
Highly flammable liquid and vapour. The vapour may be invisible, heavier than air and spread along ground.

10.4 Conditions to avoid
Keep away from heat, sources of ignition and direct sunlight.

10.5 Incompatible materials
Oxidizing agents, Strong Acids and Alkalis.

10.6 Hazardous decomposition product(s)
May decompose in a fire giving off toxic fumes. Carbon monoxide, Carbon dioxide.

11. SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects (Substances in preparations / mixtures)

Acute toxicity
Ingestion
Harmful if swallowed.
Inhalation
May cause drowsiness and dizziness.
Skin Contact
May cause sensitization by skin contact.
Eye Contact
Causes eye irritation.

Irritation
Causes eye irritation.

Corrosivity
Not classified.

Sensitisation
May cause sensitization by skin contact.

Repeated dose toxicity
Not classified.

Carcinogenicity
No evidence of carcinogenicity.

Mutagenicity
There is no evidence of mutagenic potential.

Toxicity for reproduction
No data.

11.2 Other information
None.

12. SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity
Not classified as a Marine Pollutant.

12.2 Persistence and degradability
Readily biodegradable.

12.3 Bioaccumulative potential
The product has low potential for bioaccumulation.

12.4 Mobility in soil
The product is predicted to have high mobility in soil. Water Soluble.

12.5 Results of PBT and VPVB assessment
Not classified as PBT or vPvB.

12.6 Other adverse effects
None known.

13. SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
This material and its container must be disposed of as hazardous waste. (2001/118EC). Send after pre-treatment to an appropriate hazardous waste incinerator facility according to legislation.

13.2 Additional Information
Dispose of contents in accordance with local, state or national legislation.
14. SECTION 14: TRANSPORT INFORMATION

14.1 UN number
UN 1219

14.2 Proper Shipping Name
ISOPROPNOL MIXTURE (ISOPROPYL ALCOHOL)

14.3 Transport hazard class(es)
3

14.4 Packing group
II

14.5 Environmental hazards
Not classified as a Marine Pollutant.

14.6 Special precautions for user
See Section: 2

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
Not applicable.

14.8 Additional Information
None.

15. SECTION 15: REGULATORY INFORMATION

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

15.1.1 EU regulations
Authorisations and/or Restrictions On Use
None.

15.1.2 National regulations
None known.

15.2 Chemical Safety Assessment
Not available.

16. SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: 1-16.

References: Existing Safety Data Sheet (SDS) and Existing ECHA registration(s) for Isopropyl Alcohol (CAS# 67-63-0), Hydrogenated Rosin (CAS# 65997-06-0) and Benzyl Alcohol (CAS# 100-51-6).

<table>
<thead>
<tr>
<th>Classification of the substance or mixture</th>
<th>Classification Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>F; R11: Highly flammable.</td>
<td>Flash Point Test Result</td>
</tr>
<tr>
<td>Xn, R22: Harmful if swallowed.</td>
<td>Threshold Calculation</td>
</tr>
<tr>
<td>Xi; R36: Irritating to eyes.</td>
<td>Threshold Calculation</td>
</tr>
<tr>
<td>R43: May cause sensitization by skin contact.</td>
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</tr>
<tr>
<td>R67: Vapours may cause drowsiness and dizziness.</td>
<td>Threshold Calculation</td>
</tr>
</tbody>
</table>

LEGEND

LTEL Long Term Exposure Limit
STEL Short Term Exposure Limit
DNEL Derived No Effect Level
PNEC Predicted No Effect Concentration
PBT PBT: Persistent, Bioaccumulative and Toxic
tvPvB tvPvT: very Persistent and very Toxic
OECD Organisation for Economic Cooperation and Development

Training advice: Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.

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Annex to the extended Safety Data Sheet (eSDS)

No information available.