

SAFETY DATA SHEET

Revision: 1.0 Date: 15 September 2016


ACCORDING TO EC-REGULATIONS 1907/2006 (REACH),
1272/2008 (CLP) & 2015/830

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

- 1.1 Product identifier**
Product Name M-Flux AR-2
- 1.2 Relevant identified uses of the substance or mixture and uses advised against**
Identified Use(s) Soldering Flux. Welding and soldering products
Uses Advised Against Anything other than the above.
- 1.3 Details of the supplier of the safety data sheet**
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 telephone number**
Emergency Phone No. (00-1) 703-527-3887 CHEMTREC (24 hours)
Languages spoken All official European languages.

SECTION 2: HAZARDS IDENTIFICATION

- 2.1 Classification of the substance or mixture**
- 2.1.1 Regulation (EC) No. 1272/2008 (CLP)**
Flam. Liq. 2; H225
Eye Irrit. 2; H319
STOT SE 3; H336
- 2.2 Label elements**
Product Name M-Flux AR-2
Contains: Propan-2-ol
- Hazard Pictogram(s)

- Signal Word(s) DANGER
- Hazard Statement(s)
H225: Highly flammable liquid and vapour.
H319: Causes serious eye irritation.
H336: May cause drowsiness or dizziness.
- Precautionary Statement(s)
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261: Avoid breathing mist/vapours/spray.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313: If eye irritation persists: Get medical advice/attention.
P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P403+P235: Store in a well-ventilated place. Keep cool.

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2.3 Other hazards Can form explosive mixture with air.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances Not applicable

3.2 Mixtures

EC Classification Regulation (EC) No. 1272/2008 (CLP)

| Chemical identity of the substance | %W/W | CAS No. | EC No. | REACH Registration No. | Hazard Statement(s) |
|------------------------------------|---------|----------|-----------|--------------------------------------|--|
| Propan-2-ol | 55 - 70 | 67-63-0 | 200-661-7 | Not yet assigned in the supply chain | Flam. Liq. 2; H225 Eye Irrit. 2; H319 STOT SE 3; H336 |
| Benzyl alcohol | 3 - 5 | 100-51-6 | 202-859-9 | Not yet assigned in the supply chain | Acute Tox. 4; H302 Acute Tox. 4; H332 Eye Irrit. 2; H315 |

For full text of H/P Statements see section 16.

SECTION 4: FIRST AID MEASURES



4.1 Description of first aid measures

Self-protection of the first aider

Inhalation

Skin Contact

Eye Contact

Ingestion

Use personal protective equipment as required. Wear appropriate personal protective equipment, avoid direct contact. Ensure adequate ventilation. Avoid breathing vapours. Avoid contact with skin, eyes or clothing.
IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Apply artificial respiration if breathing has ceased or shows signs of failing. Get medical advice/attention if you feel unwell.
After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of soap and water. If irritation (redness, rash, blistering) develops, get medical attention.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation develops and persists, get medical attention.
Immediately call a POISON CENTER/doctor. Do NOT induce vomiting. If vomiting occurs turn patient on side. Do not give milk or alcoholic beverages. Rinse mouth with water but do not swallow. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

Causes serious eye irritation. May cause drowsiness or dizziness.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable Extinguishing Media

As appropriate for surrounding fire. Extinguish preferably with foam, carbon dioxide or dry chemical.

Unsuitable extinguishing Media

Do not use water jet. Direct water jet may spread the fire.

5.2 Special hazards arising from the substance or mixture

Highly flammable liquid and vapour. May decompose in a fire giving off toxic fumes. Combustion products: Carbon monoxide, Carbon dioxide Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback. In confined spaces, sewers, etc., the vapours may collect to form explosive mixtures with air.

5.3 Advice for fire-fighters

Fire fighters should wear complete protective clothing including self-contained

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breathing apparatus. Do not breathe fumes. Keep containers cool by spraying with water if exposed to fire. Avoid run off to waterways and sewers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

- | | | |
|-----|--|---|
| 6.1 | Personal precautions, protective equipment and emergency procedures | Use personal protective equipment as required. Wear appropriate personal protective equipment, avoid direct contact. Contaminated clothing should be laundered before reuse. Ensure adequate ventilation. Avoid breathing vapours. Avoid contact with skin, eyes or clothing. Remove all ignition sources. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Isolate the area and allow vapours to disperse. In confined spaces, sewers, etc., the vapours may collect to form explosive mixtures with air. Evacuate the area and keep personnel upwind. |
| 6.2 | Large spillages: Environmental precautions | Avoid release to the environment. 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. Contain spillages with sand, earth or any suitable adsorbent material. Transfer to a container for disposal or recovery. |
| | Large spillages: | Evacuate the area and keep personnel upwind. Notify police and fire brigade as soon as possible. |
| 6.4 | Reference to other sections | See Section: 8, 13 |

SECTION 7: HANDLING AND STORAGE

- | | | |
|-----|---|---|
| 7.1 | Precautions for safe handling | Ensure operatives are trained to minimise exposures. Ensure adequate ventilation. Avoid breathing vapours. Wear appropriate personal protective equipment, avoid direct contact. Keep away from: Elevated temperature. Keep good industrial hygiene. Wash hands thoroughly after handling. Contaminated clothing should be thoroughly cleaned. Do not eat, drink or smoke at the work place. Keep from direct sunlight. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. |
| 7.2 | Conditions for safe storage, including any incompatibilities | Keep only in original container. Store in a cool/low-temperature, well-ventilated (dry) place away from heat and ignition sources. Ground/bond container and receiving equipment. |
| | Storage temperature Incompatible materials | Store at ambient temperature. Strong oxidising agents, Strong acids and alkali., Iron, Aluminium, Air, Halogens, Peroxides. |
| 7.3 | Specific end use(s) | See Section: 1.2. |

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

- 8.1 **Control parameters**
8.1.1 **Occupational Exposure Limits**

| SUBSTANCE | CAS No. | LTEL (8 hr TWA ppm) | LTEL (8 hr TWA mg/m ³) | STEL (ppm) | STEL (mg/m ³) | Note |
|------------------------------|-----------|---------------------|------------------------------------|------------|---------------------------|----------|
| Propan-2-ol | 67-63-0 | 400 | 999 | 500 | 1250 | WEL |
| Rosin-based solder flux fume | 8050-09-7 | - | 0.05 | - | 0.15 | WEL, Sen |

Source: WEL: Workplace Exposure Limit (UK HSE EH40).

Note: Sen: Capable of causing respiratory sensitisation

- | | | |
|-------|---|---|
| 8.1.2 | Biological limit value | Not established. |
| 8.1.3 | PNECs and DNELs | Not established. |
| 8.2 | Exposure controls | |
| 8.2.1 | Appropriate engineering controls | Ensure adequate ventilation. Store in a cool/low-temperature, well-ventilated |

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

Eye/face protection



(dry) place away from heat and ignition sources. Atmospheric levels should be controlled in compliance with the occupational exposure limit. In confined spaces, sewers, etc., the vapours may collect to form explosive mixtures with air.

Keep good industrial hygiene. Wear appropriate personal protective equipment, avoid direct contact. Avoid breathing vapours. Avoid contact with skin, eyes or clothing. IF exposed: Wash immediately with water. Wash contaminated clothing before reuse. Do not eat, drink or smoke at the work place.

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

Refilling: Full face shield, Goggles giving complete protection to eyes.

Skin protection



Hand protection:

Wear impervious gloves (EN374). Protective index 6, corresponding > 480 minutes of permeation time according to EN 374 Gloves should be changed regularly to avoid permeation problems. Breakthrough time of the glove material: refer to the information provided by the gloves' producer.

Suitable materials: Nitrile rubber (Minimum thickness: 0.33 mm)

Body protection:

Wear impervious protective clothing, including boots, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection



In case of inadequate ventilation wear respiratory protection. Open system(s): Wear suitable respiratory protective equipment. A suitable mask with filter type A (EN141 or EN405) may be appropriate.

Thermal hazards

Not applicable

8.2.3 Environmental Exposure Controls

Avoid release to the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

| | |
|--|---|
| Appearance | Amber Liquid |
| Odour | Alcohol-like. |
| Odour threshold | Not established. |
| pH | Not established. |
| Melting point/freezing point | Not established. |
| Initial boiling point and boiling range | 82 °C |
| Flash point | 18 °C |
| Evaporation rate | Not established. |
| Flammability (solid, gas) | Not applicable |
| Upper/lower flammability or explosive limits | UEL: 12.0 Vol% LEL: 2.0 Vol% |
| Vapour pressure | 43 hPa |
| Vapour density | Not established. |
| Relative density | 0.88 g/cm ³ |
| Solubility(ies) | Partly soluble in water. |
| Partition coefficient: n-octanol/water | Not established. |
| Auto-ignition temperature | 425 °C |
| Decomposition Temperature | Not established. |
| Viscosity | Not established. |
| Explosive properties | Not explosive. Can form explosive mixture with air. |
| Oxidising properties | Not established. |

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9.2 Other information None known.

SECTION 10: STABILITY AND REACTIVITY

| | | |
|------|------------------------------------|---|
| 10.1 | Reactivity | Stable under normal conditions. |
| 10.2 | Chemical stability | Stable under normal conditions. Hazardous polymerisation will not occur. |
| 10.3 | Possibility of hazardous reactions | No data for the mixture as a whole. |
| 10.4 | Conditions to avoid | Heat and ignition sources. |
| 10.5 | Incompatible materials | Strong oxidising agents, Strong acids and alkali., Iron, Aluminium, Air, Halogens, Peroxides. |
| 10.6 | Hazardous decomposition product(s) | Air: Benzaldehyde (Benzyl alcohol) Combustion products: Carbon monoxide, Carbon dioxide |

SECTION 11: TOXICOLOGICAL INFORMATION

| | | |
|------|--------------------------------------|---|
| 11.1 | Information on toxicological effects | All test data taken from existing ECHA registrations for the substances mentioned. |
| | Acute toxicity - Ingestion | Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 30,000 mg/kg bw/day. |
| | Benzyl alcohol: | LD50 (oral) mg/kg: 1570 (Procter and Gamble Standard Procedure No. 1 for toxicological evaluation (1977-11-04)) |
| | Acute toxicity - Inhalation | Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 >200 mg/l. NOAEC: 3297 mg/m ³ (OECD 403) |
| | Benzyl alcohol: | |
| | Acute toxicity - Skin Contact | Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 2000 mg/kg bw/day. |
| | Skin corrosion/irritation | Eye Irrit. 2; Causes serious eye irritation. |
| | Propan-2-ol: | Test Result: Irritating to eyes. (OECD 405) |
| | Benzyl alcohol: | Test Result: Irritating to eyes. (OECD 405) |
| | Serious eye damage/irritation | Based upon the available data, the classification criteria are not met. |
| | Respiratory or skin sensitization | Based upon the available data, the classification criteria are not met. |
| | Germ cell mutagenicity | Based upon the available data, the classification criteria are not met. |
| | Carcinogenicity | Based upon the available data, the classification criteria are not met. |
| | Reproductive toxicity | Based upon the available data, the classification criteria are not met. |
| | STOT - single exposure | STOT SE 3; May cause drowsiness or dizziness. |
| | Propan-2-ol: | Test Result: Higher concentrations can produce central nervous system depression, narcosis, and unconsciousness. (OECD 403) |
| | STOT - repeated exposure | Based upon the available data, the classification criteria are not met. |
| | Aspiration hazard | Based upon the available data, the classification criteria are not met. |
| 11.2 | Other information | None known. |

SECTION 12: ECOLOGICAL INFORMATION

| | | |
|------|------------------------------------|---|
| 12.1 | Toxicity | Based upon the available data, the classification criteria are not met. Estimated Mixture LC50 >100 mg/l (Fish) |
| 12.2 | Persistence and degradability | Not expected to be readily biodegradable. Some of the components are poorly biodegradable. |
| 12.3 | Bioaccumulative potential | The product has no potential for bioaccumulation. |
| 12.4 | Mobility in soil | The product has moderate mobility in soil. Partly soluble in water. |
| 12.5 | Results of PBT and VPVB assessment | Not classified as PBT or vPvB. |
| 12.6 | Other adverse effects | None known. |

SECTION 13: DISPOSAL CONSIDERATIONS

| | | |
|------|-------------------------|---|
| 13.1 | Waste treatment methods | Dispose of this material and its container as hazardous waste. Send after pre-treatment to a appropriate hazardous waste incinerator facility according to legislation. |
|------|-------------------------|---|

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13.2 Additional Information

Dispose of contents in accordance with local, state or national legislation.

SECTION 14: TRANSPORT INFORMATION

| | ADR/RID | IMDG | IATA/ICAO |
|---|---|--|---|
| 14.1 UN number | UN 1219 | UN 1219 | UN 1219 |
| 14.2 UN proper shipping name | ISOPROPANOL (ISOPROPYL ALCOHOL) mixture | ISOPROPANOL (ISOPROPYL ALCOHOL) mixture | ISOPROPANOL (ISOPROPYL ALCOHOL) mixture |
| 14.3 Transport hazard class(es) | 3 | 3 | 3 |
| 14.4 Packing group | II | II | II |
| 14.5 Environmental hazards | Not classified | Not classified / Not classified as a Marine Pollutant. | Not classified |
| 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 | | |

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 | Not restricted |
| 15.1.2 National regulations | None |
| 15.2 Chemical Safety Assessment | A chemical safety assessment is not required under REACH. |

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: Not applicable - V1.0

References:

Existing Safety Data Sheet (SDS), Harmonised Classification(s) for Propan-2-ol (CAS No. 67-63-0) and Benzyl alcohol (CAS No. 100-51-6). Existing ECHA registration(s) for Propan-2-ol (CAS No. 67-63-0), Rosin, modified (CAS No. 65997-06-0) and Benzyl alcohol (CAS No. 100-51-6).

EU Classification: This Safety Data Sheet was prepared in accordance with EC Regulation (EC) 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830.

| Classification of the substance or mixture According to Regulation (EC) No. 1272/2008 (CLP) | Classification Procedure |
|--|--|
| Flam. Liq. 2; H225 | On basis of test data [Flash Point (°C) 18; Boiling Point (°C) 82 [Closed cup]] |
| Eye Irrit. 2; H319 | Threshold Calculation |
| STOT SE 3; H336 | Threshold Calculation |

LEGEND

LTEL: Long Term Exposure Limit

DNEL: Derived No Effect Level

PBT: PBT: Persistent, Bioaccumulative and Toxic

Sen: Capable of causing respiratory sensitisation

STEL: Short Term Exposure Limit

PNEC: Predicted No Effect Concentration

vPvB: very Persistent and very Bioaccumulative

Hazard classification / Classification code:

Flam. Liq. 2; Flammable Liquid Category 2

Eye Irrit. 2; Eye Irritation Category 2

STOT SE 3; Specific target organ toxicity — single exposure Category 3

Acute Tox. 4; Acute toxicity, Category 4

Hazard Statement(s)

H225: Highly flammable liquid and vapour.

H319: Causes serious eye irritation.

H336: May cause drowsiness or dizziness.

H302: Harmful if swallowed.

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Acute Tox. 4; Acute toxicity, Category 4

H332: Harmful if inhaled.

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