

SAFETY DATA SHEET

Revision: 1.2 Date: 04.12.2015

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH),
1272/2008 (CLP) & 453/2010

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

1.1 Product identifier

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

1.2 Recommended use of the chemical and restrictions on use

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

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

Flam. Liq. 2; H225
Skin Sens. 1; H317
Eye Irrit. 2; H319
STOT SE 3; H335
STOT SE 3; H336

2.1.2 Directive 67/548/EEC & Directive 1999/45/EC

F; R11: Highly flammable.
R43: May cause sensitization by skin contact
Xi; R36/37: Irritating to eyes and respiratory system.
R67: Vapours may cause drowsiness and dizziness.

2.2 Label elements

Product Name	According to Regulation (EC) No. 1272/2008 (CLP) M-Flux AR
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Hazard Pictogram(s)



Signal Word(s)

Danger

Contains:

Rosin, 2-Butanol and 2-Propanol

Hazard Statement(s)

H225: Highly flammable liquid and vapour.
H317: May cause an allergic skin reaction.
H319: Causes serious eye irritation.

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Precautionary Statement(s)	H335: May cause respiratory irritation. H336: May cause drowsiness or dizziness.
	P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P280: Wear protective gloves/protective clothing/eye protection/face protection. P363: Wash contaminated clothing before reuse. P333+P313: If skin irritation or rash occurs: Get medical advice/attention. P337+P313: If eye irritation persists: Get medical advice/attention. P312: Call a POISON CENTER or doctor/physician if you feel unwell.
Additional Information	None.
2.3 Other hazards	None.

3. SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

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)
Rosin	25-50	8050-09-7	232-475-7	None assigned	Skin Sens. 1; H317
Ethanol	10-25	64-17-5	200-578-6	None assigned	Flam. Liq. 2; H225 Eye Irrit. 2; H319 (SCL \geq 50%)
2-Butanol	10-25	78-92-2	201-158-5	None assigned	Flam. Liq. 3; H226 Eye Irrit. 2; H319 STOT SE 3; H335 STOT SE 3; H336
2-Propanol	< 2.5	67-63-0	200-661-7	None assigned	Flam. Liq. 2; H225 Eye Irrit. 2; H319 STOT SE 3; H336
Methanol	< 2.5	67-56-1	200-659-6	None assigned	Flam. Liq. 2; H225 Acute Tox. 3; H301 Acute Tox. 3; H311 Acute Tox. 3; H331 STOT SE 1; H370 (SCL \geq 10%)
Dimethylammonium chloride	< 2.5	506-59-2	208-046-5	None assigned	Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Irrit. 2; H319

H225: Highly flammable liquid and vapour. H226: Flammable liquid and vapour. H301: Toxic if swallowed. H302: Harmful if swallowed. H311: Toxic in contact with skin. H315: Causes skin irritation. H317: May cause an allergic skin reaction. H319: Causes serious eye irritation. H331: Toxic if inhaled. H335: May cause respiratory irritation. H336: May cause drowsiness or dizziness. H370: Causes damage to organs. SCL: Specific Concentration Limit.

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Directive 67/548/EEC & Directive 1999/45/EC

Chemical identity of the substance	%W/W	CAS No.	EC No.	REACH Registration No.	EC Classification and Risk Phrases
Rosin	25-50	8050-09-7	232-475-7	None assigned	R43
Ethanol	10-25	64-17-5	200-578-6	None assigned	F; R11 Xi; R36
2-Butanol	10-25	78-92-2	201-158-5	None assigned	R10 Xi; R36 Xi; R37 R67
2-Propanol	< 2.5	67-63-0	200-661-7	None assigned	F; R11 Xi; R36 R67
Methanol	< 2.5	67-56-1	200-659-6	None assigned	F; R11 T; R25 T; R24 T; R23 T; R39
Dimethylammonium chloride	< 2.5	506-59-2	208-046-5	None assigned	Xn; R22 Xi; R38 Xi; R36

F; Flammable, Xi; Irritant, Xn; Harmful. T; Toxic. R10: Flammable. R11: Highly flammable. R22: Harmful if swallowed. R23: Toxic by inhalation. R24: Toxic in contact with skin. R25: Toxic if swallowed. R36: Irritating to eyes. R37: Irritating to respiratory system. R38: Irritating to skin. R39: Danger of very serious irreversible effects. R43: May cause sensitization by skin contact. R67: Vapours may cause drowsiness and dizziness.

4. SECTION 4: FIRST AID MEASURES



4.1 Description of first aid measures

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Call a POISON CENTER/doctor if you feel unwell.

Skin Contact

IF ON SKIN: Remove contaminated clothing and wash all affected areas with plenty of water. Contaminated clothing should be thoroughly cleaned. If irritation (redness, rash, blistering) develops, get medical attention.

Eye Contact

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

Ingestion

Do not induce vomiting. Obtain medical attention if symptoms appear or if large quantities have been ingested.

4.2 Most important symptoms and effects, both acute and delayed

May cause an allergic skin reaction. Causes serious eye irritation. May cause respiratory irritation. May cause drowsiness or dizziness. Smoke produced during soldering will contain rosin which is an allergen and can cause pulmonary irritation and damage.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

5. SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable Extinguishing media

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

Unsuitable extinguishing media

Do not use water.

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- 5.2 Special hazards arising from the substance or mixture** Highly flammable liquid and vapour. May decompose in a fire giving off toxic fumes. Oxides of carbon. When heated to soldering temperatures, the solvents are evaporated and rosin may be thermally degraded to liberate aliphatic aldehydes and acids. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback.
- 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** Ensure adequate ventilation. Stop leak if safe to do so. Eliminate all ignition sources if safe to do so. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use personal protective equipment as required. See Section: 8. Avoid breathing vapours.
- 6.2 Environmental precautions** Avoid release to the environment. Do not allow to enter drains, sewers or watercourses. Spillages or uncontrolled discharges into watercourses must be alerted to the Environment Agency or other appropriate regulatory body.
- 6.3 Methods and material for containment and cleaning up** 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. Ventilate the area and wash spill site after material pick-up is complete. Dispose of this material and its container as hazardous waste (2008/98/EEC).
- 6.4 Reference to other sections** See Section: 8, 13

7. SECTION 7: HANDLING AND STORAGE

- 7.1 Precautions for safe handling** Avoid contact with skin, eyes or clothing. Do not breathe vapour. Avoid breathing smoke fumes during soldering. Ensure adequate ventilation. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use personal protective equipment as required. See Section: 8. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work.
- 7.2 Conditions for safe storage, including any incompatibilities** Ground/bond container and receiving equipment. Protect against electrostatic charges. Store in a well-ventilated place. Keep container tightly closed. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep away from direct sunlight. Ambient.
Stable under normal conditions.
Strong oxidising agents and Acids.
- 7.3 Specific end use(s)** PC38 Welding and soldering products (with flux coatings or flux cores.), flux products. See Section: 1.2
- Storage temperature
Storage life
Incompatible materials

8. 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
Rosin-based solder flux fume	8050-09-7	-	0.05	-	0.15	WEL
Ethanol	64-17-5	1000	1920	-	-	WEL
Butan-2-ol	78-92-2	100	308	150	462	WEL
Propan-2-ol	67-63-0	400	999	500	1250	WEL
Methanol	67-56-1	200	266	250	333	WEL




Note: WEL: Workplace Exposure Limit (UK HSE EH40)

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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. or Use appropriate containment. Atmospheric levels should be controlled in compliance with the occupational exposure limit. General hygiene measures for the handling of chemicals are applicable. Avoid contact with skin, eyes or clothing. Do not breathe vapour. Avoid breathing smoke fumes during soldering. Wash hands before breaks and after work. Keep work clothes separately. Contaminated clothing should be thoroughly cleaned. Do not eat, drink or smoke at the work place.
8.2.2	Individual protection measures, such as personal protective equipment (PPE)	
	Eye/ face protection	Wear protective eye glasses for protection against liquid splashes. Wear eye protection with side protection (EN166).
		
	Skin protection	Hand protection: Wear impervious gloves (EN374). Gloves should be changed regularly to avoid permeation problems. Breakthrough time of the glove material: refer to the information provided by the gloves' producer. Neoprene or rubber gloves are recommended.
		
	Respiratory protection	Body protection: Wear impervious protective clothing, including boots, lab coat, apron or coveralls, as appropriate, to prevent skin contact.
		In case of inadequate ventilation wear respiratory protection. Open system(s): Wear suitable respiratory protective equipment.
8.2.3	Thermal hazards	Not applicable.
8.2.3	Environmental Exposure Controls	Avoid release to the environment.

9. SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1	Information on basic physical and chemical properties	
	Appearance	Dark Amber Coloured liquid.
	Odour	Alcohol-like Odour
	Odour threshold	Not available.
	pH	Not established.
	Melting point/freezing point	Not available.
	Initial boiling point and boiling range	78°C
	Flash point	18°C [Open cup]
	Evaporation rate	1.9 (BuAc = 1)
	Flammability (solid, gas)	Not applicable - Liquid
	Upper/lower flammability or explosive limits	Flammable Limits (Lower) (%v/v): 1.7 Flammable Limits (Upper) (%v/v): 15
	Vapour pressure	40 @ 20°C (mmHg)
	Vapour density	0.926 g/cm (Air = 1)
	Relative density	0.89 (H2O = 1)
	Solubility(ies)	Slightly soluble (Water)
	Partition coefficient: n-octanol/water	Not available.
	Auto-ignition temperature	Not available.
	Decomposition Temperature	Not available.
	Viscosity	Not available.
	Explosive properties	Not explosive.
	Oxidising properties	Not oxidising.

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9.2 Other information

VOC: 567 g/liter (70%)

10. SECTION 10: STABILITY AND REACTIVITY

10.1	Stability and reactivity	Stable under normal conditions.
10.2	Chemical stability	Stable under normal conditions.
10.3	Possibility of hazardous reactions	Highly flammable liquid and vapour. Hazardous polymerisation will not occur.
10.4	Conditions to avoid	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep away from direct sunlight.
10.5	Incompatible materials	Strong oxidising agents and Acids.
10.6	Hazardous decomposition product(s)	May decompose in a fire giving off toxic fumes. Oxides of carbon. When heated to soldering temperatures, the solvents are evaporated and rosin may be thermally degraded to liberate aliphatic aldehydes and acids.

11. SECTION 11: TOXICOLOGICAL INFORMATION

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

Acute toxicity

Ingestion

Based upon the available data, the classification criteria are not met.
Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 2000 mg/kg bw/day.

Inhalation

Based upon the available data, the classification criteria are not met.
Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 20.0 mg/l.

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

Based upon the available data, the classification criteria are not met.

Serious eye damage/irritation

Eye Irrit. 2: Causes serious eye irritation.

Respiratory or skin sensitization

Skin Sens. 1: May cause an allergic skin reaction.

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 respiratory irritation.

STOT SE 3: May cause drowsiness or dizziness.

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.

12. 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	Part of the components are poorly biodegradable.
12.3	Bioaccumulative potential	The product has low potential for bioaccumulation.
12.4	Mobility in soil	The product is predicted to have low mobility in soil. (Slightly soluble Water)
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 (2008/98/EEC). Send after pre-treatment to a appropriate hazardous waste incinerator facility according to legislation.
13.2	Additional Information	Dispose of contents in accordance with local, state or national legislation.

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14. SECTION 14: TRANSPORT INFORMATION

	ADR/RID / IMDG / IATA
14.1 UN number	UN 1993
14.2 Proper Shipping Name	FLAMMABLE LIQUIDS, N.O.S (2-Butanol, Ethanol)
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 MARPOL 73/78 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 SVHCs	None
15.1.2 National regulations Germany	Water hazard class: 1
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), Harmonised Classification(s) for Rosin (CAS# 8050-09-7), Ethanol (CAS# 64-17-5), 2-Butanol (CAS# 78-92-2), 2-Propanol (CAS# 67-63-0) and Methanol (CAS# 67-56-1). Existing ECHA registration(s) for Rosin (CAS# 8050-09-7), Ethanol (CAS# 64-17-5), 2-Butanol (CAS# 78-92-2), 2-Propanol (CAS# 67-63-0), Methanol (CAS# 67-56-1) and Dimethylammonium chloride (CAS# 506-59-2).

Classification of the substance or mixture According to Regulation (EC) No. 1272/2008 (CLP)	Classification Procedure
Flam. Liq. 2; H225	Flash Point [Open cup] Test Result/ Boiling Point (°C)
Skin Sens. 1; H317	Threshold Calculation
Eye Irrit. 2; H319	Threshold Calculation
STOT SE 3; H335	Threshold Calculation
STOT SE 3; H336	Threshold Calculation

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
vPvB	very Persistent and very Bioaccumulative

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.