

# SAFETY DATA SHEET

Version: 02  
Date of Issue: 24 October 2016  
Date of First Issue: 19 September 2016

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ACCORDING TO OSHA HCS (29 CFR 1910.1200)

## SECTION 1: IDENTIFICATION

### Product identifier used on the label

Product Name M-Flux AR-2

Other means of identification None

### Recommended use of the chemical and restrictions on use

Recommended use Soldering Flux. Welding and soldering products  
Restrictions on use Anything other than the above.

### Details of the supplier of the safety data sheet

Supplier VISHAY MEASUREMENTS GROUP, INC.  
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Emergency telephone number 1-800-424-9300 (U.S.) CHEMTREC (24 hours)

## SECTION 2: HAZARD(S) IDENTIFICATION

### Classification of the substance or mixture in accordance with paragraph (d) of 29 CFR 1910.1200

Physical hazards Not classified  
Health hazards Flammable Liquid, Category 2  
Eye Irritation, Category 2  
Specific target organ toxicity — single exposure, Category 3  
Environmental hazards Not classified

Hazard Symbol



Signal Word(s) DANGER

Hazard Statement(s) Highly flammable liquid and vapour.  
Causes serious eye irritation.  
May cause drowsiness or dizziness.

Precautionary Statement(s) Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Avoid breathing mist/vapours/spray.  
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.  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
Store in a well-ventilated place. Keep cool.  
Can form explosive mixture with air.

Other hazards None  
Percent of the mixture consists of ingredient(s) of unknown acute toxicity: None

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## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

**Substances** Not applicable

**Mixtures** Substances in preparations / mixtures

Chemical identity of the substance	%W/W	CAS No.	EC No.	Hazard classification
Propan-2-ol	70	67-63-0	200-661-7	Flammable Liquid, Category 2 Eye Irritation, Category 2 Specific target organ toxicity — single exposure, Category 3 – Respiratory Irritation
Benzyl alcohol	5	100-51-6	202-859-9	Acute toxicity, Category 4 - Oral Acute toxicity, Category 4 - Inhalation Eye Irritation, Category 2

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

## SECTION 4: FIRST AID MEASURES



### Description of first aid measures

Inhalation

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.

Skin Contact

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.

Eye Contact

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.

Ingestion

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.

**Most important symptoms and effects, both acute and delayed**

Causes serious eye irritation. May cause drowsiness or dizziness.

**Indication of any immediate medical attention and special treatment needed**

Treat symptomatically.

## SECTION 5: FIRE-FIGHTING MEASURES

### 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.

**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.

**Special protective equipment and precautions 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.

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## SECTION 6: ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

Use personal protective equipment as required. Wear appropriate personal protective equipment, avoid direct contact. See Section: 8 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.

Large spillages:

Evacuate the area and keep personnel upwind.

### Methods and material for containment and cleaning up

Allow small spillages to evaporate provided there is adequate ventilation.

Large spillages:

Contain spillages with sand, earth or any suitable adsorbent material. Transfer to a container for disposal or recovery.

Evacuate the area and keep personnel upwind. Notify police and fire brigade as soon as possible.

## SECTION 7: HANDLING AND STORAGE

### 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.

### 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.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Occupational Exposure Limits

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m <sup>3</sup> )	STEL (ppm)	STEL (mg/m <sup>3</sup> )	Note
Propan-2-ol	67-63-0	400	980	500	1225	NIOSH
		400	980	-	-	OSHA
		200	-	400	-	ACGIH
Rosin-based solder flux fume	8050-09-7	-	-	-	-	ACGIH, Sen

Note: OSHA PELs 1910.1000 TABLE Z-1/2/3 (delete as appropriate)/ NIOSH RELs / ACGIH TLVs  
Sen: Capable of causing respiratory sensitisation

### Biological exposure indices

SUBSTANCE	CAS No.	Determinant	Biological Exposure Indices	Sampling Time	Note
Propan-2-ol	67-63-0	Acetone in Urine	40 mg/l	End of shift at end of workweek	ACGIH (B, Ns)

Source: 2015 ACGIH Biological Exposure Indices (BEIs) B: Background. Ns: Nonspecific.

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## Appropriate engineering controls

Ensure adequate ventilation. Store in a cool/low-temperature, well-ventilated (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.

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

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.

### Eye/face protection



Wear protective eye glasses for protection against liquid splashes. Eye protection with side protection.

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

### Skin protection



#### Hand protection:

Wear impervious gloves. 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 may be appropriate.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

Appearance	Amber Liquid
Odor	Alcohol-like.
Odor 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 <sup>3</sup>
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.

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## SECTION 10: STABILITY AND REACTIVITY

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

## SECTION 11: TOXICOLOGICAL INFORMATION

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

<b>Acute toxicity</b>	
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))
Inhalation	Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 >200 mg/l.
Benzyl alcohol:	NOAEC: 3297 mg/m <sup>3</sup> (OECD 403)
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.
<b>Skin corrosion/irritation</b>	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)
<b>Serious eye damage/irritation</b>	Based upon the available data, the classification criteria are not met.
<b>Respiratory or skin sensitization</b>	Based upon the available data, the classification criteria are not met.
<b>Germ cell mutagenicity</b>	Based upon the available data, the classification criteria are not met.
<b>Carcinogenicity</b>	Based upon the available data, the classification criteria are not met.
<b>Reproductive toxicity</b>	Based upon the available data, the classification criteria are not met.
<b>STOT - single exposure</b>	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)
<b>STOT - repeated exposure</b>	Based upon the available data, the classification criteria are not met.
<b>Aspiration hazard</b>	Based upon the available data, the classification criteria are not met.

### Information on likely routes of exposure

Inhalation	Possible – accidental exposure
Ingestion	Unlikely – accidental exposure
Skin Contact	Possible – accidental exposure
Eye Contact	Possible – accidental exposure

### Early onset symptoms related to exposure

Breathing vapors can result in headache, dizziness, narcosis and irritation of mucous membranes. Causes serious eye irritation.

### Delayed health effects from exposure

None known.

### Other information

NTP Report on Carcinogens	Not listed
IARC Monographs	Not listed
OSHA Designated Carcinogen	Not listed

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## SECTION 12: ECOLOGICAL INFORMATION

<b>Ecotoxicity</b>	Based upon the available data, the classification criteria are not met. Estimated Mixture LC50 >100 mg/l (Fish)
<b>Persistence and degradability</b>	Not expected to be readily biodegradable. Some of the components are poorly biodegradable.
<b>Bioaccumulative potential</b>	The product has no potential for bioaccumulation.
<b>Mobility in soil</b>	The product has moderate mobility in soil. Partly soluble in water.
<b>Other adverse effects</b>	None known.

## SECTION 13: DISPOSAL CONSIDERATIONS

<b>Waste treatment methods</b>	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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## SECTION 14: TRANSPORT INFORMATION

	<b>ADR/RID</b>	<b>IMDG</b>	<b>IATA/ICAO</b>
<b>UN number</b>	UN 1219	UN 1219	UN 1219
<b>UN proper shipping name</b>	ISOPROPANOL (ISOPROPYL ALCOHOL) mixture	ISOPROPANOL (ISOPROPYL ALCOHOL) mixture	ISOPROPANOL (ISOPROPYL ALCOHOL) mixture
<b>Transport hazard class(es)</b>	3	3	3
<b>Packing group</b>	II	II	II
<b>Environmental hazards</b>	Not classified	Not classified / Not classified as a Marine Pollutant.	Not classified
<b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b>	Not applicable		
<b>Special precautions for user</b>	Not applicable		

## SECTION 15: REGULATORY INFORMATION

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

<b>US Federal Regulations</b>	
TSCA (Toxic Substance Control Act)	Not listed
<b>US State Regulations</b>	
Proposition 65 (California)	Not listed

## SECTION 16: OTHER INFORMATION

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

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### 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).

<b>GHS Classification of the substance or mixture</b>	<b>Classification Procedure</b>
Flammable Liquid, Category 2	On basis of test data [Flash Point (°C) 18; Boiling Point (°C) 82 [Closed cup]]
Eye Irritation, Category 2	Threshold Calculation
Specific target organ toxicity — single exposure, Category 3	Threshold Calculation

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## LEGEND

ACGIH: American Conference of Governmental Industrial Hygienists  
IARC: International Agency for Research on Cancer  
NIOSH: National Institute of Occupational Safety and Health  
NTP: National Toxicology Program  
OSHA: The Occupational Safety & Health Administration  
PBT: Persistent, Bioaccumulative and Toxic  
PEL: Permissible exposure limit

REL: Recommended exposure limit  
STEL: Short Term Exposure Limit  
TLV: Threshold Limit value  
TWA: Time Weighted Average  
TSCA: Toxic Substance Control Act  
vPvB: very Persistent and very Bioaccumulative  
Sen: Capable of causing respiratory sensitisation

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.

## Disclaimers

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