

SAFETY DATA SHEET

Version: 3.0
Date of issue: 18-Feb-2021
Date of First Issue: 22-Mar-2013




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ACCORDING TO OSHA HCS (29 CFR 1910.1200)

SECTION 1: IDENTIFICATION

Product identifier used on the label	M-Line Rosin Solvent
Other means of identification	
Chemical Name	Mixture
CAS No.	Mixture
EINECS No.	Mixture
Recommended use of the chemical and restrictions on use	
Recommended use	Welding and soldering products (with flux coatings or flux cores), flux products
Restrictions on use	Anything other than the above.
Details of the supplier of the safety data sheet	
Supplier	VISHAY MEASUREMENTS GROUP, INC.
Address of Supplier	Post Office Box 27777 Raleigh, NC 27611 USA
Telephone	+1 919-365-3800
Fax	+1 919-365-3945
E-Mail (competent person)	mm.us@vpgsensors.com
Emergency telephone number	1-800-424-9300 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	Flammable Liquid, Category 2
Health hazards	Aspiration hazard, Category 1 Skin corrosion/irritation, Category 2 Eye Irritation, Category 2 Reproductive toxicity, Category 2 (Developmental toxicity) Specific target organ toxicity — single exposure, Category 3 (Narcotic effects) Specific target organ toxicity — repeated exposure, Category 2
Environmental hazards	Hazardous to the aquatic environment – Chronic, Category 3
Hazard Symbol	  
Signal Word(s)	DANGER
Hazard Statement(s)	Highly flammable liquid and vapour. May be fatal if swallowed and enters airways. Causes skin irritation Causes serious eye irritation. Suspected of damaging the unborn child. May cause drowsiness or dizziness. (Exposure route: Oral and Inhalation) May cause damage to organs through prolonged or repeated exposure. (Affected Organs: Central Nervous System) Harmful to aquatic life with long lasting effects.
Precautionary Statement(s)	Obtain special instructions before use.

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Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Keep container tightly closed.
Do not breathe vapour.
Wash hands and exposed skin thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.
Do not breathe dust/fume/gas/mist/vapours/spray.
Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
Do NOT induce vomiting.
Call a POISON CENTER/doctor if you feel unwell.
Store in a well-ventilated place. Keep cool.
Dispose of contents in accordance with local, state or national legislation.
Avoid release to the environment.

Other hazards None.

Percent of the mixture consists of ingredient(s) of unknown acute toxicity: 0%

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
Toluene	45 - 55	108-88-3	203-625-9	Flammable Liquid, Category 2 Aspiration hazard, Category 1 Eye Irritation, Category 2 Reproductive toxicity, Category 2 (Developmental toxicity) Specific target organ toxicity — single exposure, Category 3 (Narcotic Effects) Specific target organ toxicity — repeated exposure, Category 2 (Affected Organs: Central Nervous System) Hazardous to the aquatic environment – Chronic, Category 3
2-Propanol	45 - 55	67-63-0	200-661-7	Flammable Liquid, Category 2 Eye Irritation, Category 2 Specific target organ toxicity — single exposure, Category 3 (Narcotic Effects)

SECTION 4: FIRST AID MEASURES



Description of first aid measures

Self-protection of the first aider

Use personal protective equipment as required. Wear appropriate personal protective equipment, avoid direct contact. Avoid all contact. Avoid breathing vapours. Ensure adequate ventilation. Wear suitable respiratory protective

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Inhalation	equipment if exposure to high levels of material are likely. Do not use mouth-to-mouth resuscitation. Contaminated clothing should be laundered before reuse. 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. IF exposed or concerned: Get medical advice/attention.
Skin Contact	IF ON SKIN: Remove contaminated clothing and wash all affected areas with plenty of water. Contaminated clothing should be thoroughly cleaned. If skin irritation occurs: Get medical advice/attention. IF exposed or concerned: 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. Get medical attention if eye irritation develops or persists.
Ingestion	IF SWALLOWED: Do NOT induce vomiting. Immediately call a POISON CENTER/doctor. Immediately call a POISON CENTER/doctor. Rinse mouth. Drink two glasses of water. Do not give milk or alcoholic beverages. Do not give anything by mouth to an unconscious person.
Most important symptoms and effects, both acute and delayed	May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye irritation. May cause drowsiness or dizziness. Suspected of damaging the unborn child. May cause damage to organs through prolonged or repeated exposure: Central nervous system.
Indication of any immediate medical attention and special treatment needed	Treat symptomatically
Notes to a physician:	IF SWALLOWED: Do NOT induce vomiting, if vomiting does occur, have victim lean forward to reduce risk of aspiration. Latency of several hours is possible. Give a slurry of activated charcoal in water to drink. (240mL Water / 30 g Activated charcoal).

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. Oxides of carbon. 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.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Caution - spillages may be slippery. Ensure operatives are trained to minimise exposures. Ensure suitable personal protection during removal of spillages. 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. Take precautionary measures against static discharge. Use personal protective equipment as required. See Section: 8. Avoid breathing vapours. Avoid release to the environment.
Methods and material for containment and cleaning up	Provided it is safe to do so, isolate the source of the leak. 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. Allow small spillages to evaporate provided there is adequate ventilation.

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SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Ensure operatives are trained to minimise exposures. Avoid all contact. Avoid breathing vapours. Do not ingest. Ensure adequate ventilation. In case of inadequate ventilation wear respiratory protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharge. Wear protective gloves/eye protection. Use personal protective equipment as required. See Section: 8. This product should be kept away from naked flames and other sources of ignition. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work.

Conditions for safe storage, including any incompatibilities

Ground/bond container and receiving equipment. Bund storage facilities to prevent soil and water pollution in the event of spillage. 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. Store locked up.

Storage temperature
 Incompatible materials

Ambient. Keep at temperature not exceeding (°C): 25
 Strong oxidising agents, Acids (Nitric acid and Sulphuric acid), Halogens and halogenated compounds.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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
Toluene	108-88-3	100	375	150*	560*	NIOSH
		200	-	300	-	OSHA
		20	-	-	-	ACGIH, A4
Propan-2-ol	67-63-0	400	980	500*	1225*	NIOSH
		400	980	-	-	OSHA
		200	-	400	-	ACGIH, A4

Note: OSHA PELs 1910.1000 TABLE Z-1, Z-2 / NIOSH RELs / ACGIH TLVs

*NIOSH 15 minutes average value

A4: Not Classifiable as a Human Carcinogen: Agents which cause concern that they could be carcinogenic for humans but which cannot be assessed conclusively because of the lack of data. In vitro or animal studies do not provide indications of carcinogenicity which are sufficient to classify the agent into one of the other categories.

Biological Exposure Indices

SUBSTANCE	CAS No.	Determinant	Biological Exposure Indices	Sampling Time	Note
Toluene	108-88-3	Toluene in blood	0.02 mg/l	Prior to last shift of workweek	-
		Toluene in urine	0.03 mg/l	End of shift	-
		o-Cresol in urine with hydrolysis	0.3 mg/g creatinine	End of shift	B
Propan-2-ol	67-63-0	Acetone in urine	-	End of shift at end of workweek	Nq

Source: 2015 ACGIH Biological Exposure Indices (BEIs)

B - Background

Nq: Nonquantative

Appropriate engineering controls

Ensure operatives are trained to minimise exposures. Ensure adequate ventilation. Atmospheric levels should be controlled in compliance with the occupational exposure limit.

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

General hygiene measures for the handling of chemicals are applicable. Keep good industrial hygiene. Avoid all contact. Avoid breathing vapours. Wash hands before breaks and after work. Keep work clothes separately. Do not eat, drink or smoke at the work place. IF exposed: Flush with fresh water if contact with skin or eyes.

Eye/face protection



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

Skin protection



Hand protection:

Wear impervious gloves. At least protective index 2, corresponding > 30 minutes of permeation time. Gloves should be changed regularly to avoid permeation problems. Breakthrough time of the glove material: refer to the information provided by the gloves' producer.

Recommended: Nitrile rubber (Minimum thickness 0.38mm, breakthrough time >240 min), PVC (Minimum thickness 1.3mm, breakthrough time >60 min)

Respiratory protection



Body protection:

Wear suitable coveralls to prevent exposure to the skin.

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	Clear Colourless Liquid
Odor	Benzene-like Odour
Odor Threshold	Not available.
pH	Not established.
Melting Point/Freezing Point	Not established.
Initial boiling point and boiling range	82°C
Flash Point	4°C [Closed cup]
Evaporation rate (Butyl acetate = 1)	2.8 (BuAC = 1)
Flammability (solid, gas)	Not applicable - Liquid
Upper/lower flammability or explosive limits	Flammable Limits (Lower) (%v/v): 1.2 Flammable Limits (Upper) (%v/v): 7.1
Vapour pressure	36 mmHg @ 30°C
Vapour density	3 (Air = 1)
Relative density	0.8 (H2O = 1)
Solubility(ies)	Not established.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Not available.
Decomposition Temperature	Not available.
Viscosity	Not available.

Other information

VOC: 825 g/l

SECTION 10: STABILITY AND REACTIVITY

Reactivity

Stable under normal conditions.

Chemical stability

Stable under normal conditions.

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Possibility of hazardous reactions	Highly flammable liquid and vapour. Danger of flashback. Hazardous polymerisation will not occur.
Conditions to avoid	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep away from direct sunlight. Keep at temperature not exceeding (°C): 25
Incompatible materials	Strong oxidising agents, Acids (Nitric acid and Sulphuric acid), Halogens and halogenated compounds.
Hazardous decomposition product(s)	May decompose in a fire giving off toxic fumes. Oxides of carbon.

SECTION 11: TOXICOLOGICAL INFORMATION

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.
Acute toxicity - Inhalation	Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 >20.0 mg/l.
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 Toluene	Skin corrosion/irritation, Category 2: Causes skin irritation. Skin corrosion/irritation - Category 2 Irritating to skin. (rabbit) (EU Method B.4)
Serious eye damage/irritation 2-Propanol	Eye Irritation, Category 2: Causes serious eye irritation. Eye Irritation - Category 2 Irritating to eyes. (rabbit) (OECD 405)
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 Toluene	Reproductive toxicity, Category 2: Suspected of damaging the unborn child. Reproductive toxicity - Category 2 NOAEC 600 ppm (Ono, 1996)
STOT - single exposure Toluene	Specific target organ toxicity — single exposure, Category 3: May cause drowsiness or dizziness. (Exposure route: Oral and Inhalation) Specific target organ toxicity — single exposure, Category 3 Narcosis (rat) (OECD 403)
2-Propanol	Specific target organ toxicity — single exposure, Category 3 Narcosis (rat) (OECD 403)
STOT - repeated exposure Toluene	Specific target organ toxicity — repeated exposure, Category 2: May cause damage to organs through prolonged or repeated exposure. Affected Organs: Central nervous system. Specific target organ toxicity — repeated exposure, Category 2 Oral: NOAEL 625 mg/kg bw/day (EU Method B.26) Inhalation: NOAEC 1131 mg/m ³ (rabbit) (OECD 453) Dermal: No data
Aspiration hazard Toluene	Aspiration hazard, Category 1: May be fatal if swallowed and enters airways. Aspiration hazard, Category 1 Hydrocarbon. Kinematic Viscosity 0.59 mm ² /S
Information on likely routes of exposure Inhalation Ingestion Skin Contact Eye Contact	Possible – accidental exposure Unlikely – accidental exposure Possible – accidental exposure Unlikely – accidental exposure
Early onset symptoms related to exposure	Causes skin irritation. Causes serious eye irritation. May cause drowsiness or dizziness. If inhalation occurs, signs and symptoms may include coughing,

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choking, wheezing, difficulty in breathing, chest congestion, shortness of breath and may cause transient central nervous system (CNS) depression.

Delayed health effects from exposure

May be fatal if swallowed and enters airways. Suspected of damaging the unborn child. May cause damage to organs through prolonged or repeated exposure. (Affected Organs: Central Nervous System)

Other information

NTP Report on Carcinogens
IARC Monographs

Not Listed
Toluene – Listed; Group 3
2-Propanol – Listed; Group 3
Not Listed

OSHA Designated Carcinogen

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity	Hazardous to the aquatic environment – Chronic, Category 3 Estimated Mixture LC50 > 10 - ≤100 mg/l. (Fish)
Toluene	Hazardous to the aquatic environment – Chronic, Category 3 Acute: LC50 (fish) mg/l 5.5 (96 hour) (Moles A et al, 1981) Chronic: NOEC (Fish) mg/l 1.4 (40 days) (Moles A et al, 1981)
Persistence and degradability	Part of the components are poorly biodegradable.
Bioaccumulative potential	The product has low potential for bioaccumulation.
Mobility in soil	The product is predicted to have high mobility in soil. May evaporate quickly.
Other adverse effects	None known.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods	Dispose of this material and its container as hazardous waste. Containers of this material may be hazardous when empty since they retain product residue. Send after pre-treatment to a appropriate hazardous waste incinerator facility according to legislation.
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SECTION 14: TRANSPORT INFORMATION

	ADR/RID	IMDG	IATA
UN number	UN 1993	UN 1993	UN 1993
UN proper shipping name	FLAMMABLE LIQUID N.O.S (Toluene / 2-Propanol)	FLAMMABLE LIQUID N.O.S (Toluene / 2-Propanol)	FLAMMABLE LIQUID N.O.S (Toluene / 2-Propanol)
Transport hazard class(es)	3	3	3
Packing group	II	II	II
Environmental hazards	Not classified as a Marine Pollutant.	Not classified as a Marine Pollutant.	Not classified as a Marine Pollutant.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.		
Special precautions for user	See Section: 2		

SECTION 15: REGULATORY INFORMATION

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

US Federal Regulations

TSCA (Toxic Substance Control Act)	Toluene: Subject to 25,000 lb reporting threshold 2-Propanol: Subject to 25,000 lb reporting threshold
EPCRA/SARA Section 302 Extremely Hazardous Substances	Not listed
EPCRA Section 313 Toxics Release Inventory (TRI) Program	Toluene: De Minimis limit: 1% 2-Propanol: De Minimis limit: 1%
NIOSH Occupational Carcinogen List	Not listed

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OSHA List of highly hazardous chemicals, toxics and reactives	Not listed
NTP Report on Carcinogens (RoC) List	Not listed
Poison Prevention Packaging Act	Toluene: Substance requiring special packaging - Solvents for paint or other similar surface-coating material
US State Regulations	
California State, Proposition 65 List	Toluene: Safe harbor level - MADL: 7000 ug/day
California State, Safer Consumer Products Regulations	Toluene: Initial Candidate Chemicals List
	2-Propanol: Candidate Chemicals List
Maine State, Toxic Chemicals in Children's Products Act	Toluene: COC list. CHC list
New Jersey State Worker and Community RTK Act	Toluene: RTKHSL. SHHSL
	2-Propanol: RTKHSL. SHHSL
Pennsylvania State, Worker and Community RTK Act	Toluene: Hazardous Substance List. Environmental Hazard List
	2-Propanol: Hazardous Substance List. Environmental Hazard List
Rhode Island State, Hazardous Substances RTK Act	Toluene: Hazardous Substance List
	2-Propanol: Hazardous Substance List
Non-Regional	
IARC Monographs, List of Classifications	Toluene: Group 3
	2-Propanol: Group 3

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: 2; 3; 6; 7; 10; 11; 16.

Sections indicated with the following have been revised:

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References:

Existing Safety Data Sheet (SDS)
 EU Data: Existing ECHA registration(s) for and Harmonised Classification(s) for Toluene (CAS# 108-88-3) and 2-Propanol (CAS# 67-63-0).

GHS Classification of the substance or mixture	Classification Procedure
Flammable Liquid, Category 2	Flash Point [Closed cup] Test Result/ Boiling Point (°C)
Aspiration hazard, Category 1	Estimated Viscosity / Threshold Calculation
Skin corrosion/irritation, Category 2	Threshold Calculation
Eye Irritation, Category 2	Threshold Calculation
Reproductive toxicity, Category 2	Threshold Calculation
Specific target organ toxicity — single exposure, Category 3	Threshold Calculation
Specific target organ toxicity — repeated exposure, Category 2	Threshold Calculation
Hazardous to the aquatic environment – Chronic, Category 3	Summation Calculation

LEGEND

ACGIH: American Conference of Governmental Industrial Hygienists	REL: Recommended exposure limit
BEI: Biological Exposure Indices (ACGIH)	SCL: Specific Concentration Limit
IARC: International Agency for Research on Cancer	STEL: Short Term Exposure Limit
NIOSH: National Institute of Occupational Safety and Health	TLV: Threshold Limit value
NTP: National Toxicology Program	TSCA: Toxic Substance Control Act
OSHA: The Occupational Safety & Health Administration	TWA: Time Weighted Average
PEL: Permissible exposure limit	

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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