



Revision Number: 005.0

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1. PRODUCT AND COMPANY IDENTIFICATION

Product name:	LOCTITE MF R301 known as MFR301	IDH number:	511498
	1 GALLON		
Product type:	Liquid Flux	Item number:	M00472
Restriction of Use:	None identified	Region:	United States
Company address:	Contact information:		
Henkel Electronic Materials LLC	Telephone: +1 (888) 943-6535		
14000 Jamboree Road	MEDICAL EMERGENCY Phone: Poison Control Center		
Irvine, CA 92606	1-877-671-4608 (toll free) or 1-303-592-1711		
	TRANSPORT EMERGENCY Phone: CHEMTREC		
	1-800-424-9300 (toll free) or 1-703-527-3887		
	Internet: www.henkel.com/electronics		

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER: HIGHLY FLAMMABLE LIQUID AND VAPOR.
 MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS.
 CAUSES SKIN IRRITATION.
 MAY CAUSE AN ALLERGIC SKIN REACTION.
 CAUSES SERIOUS EYE IRRITATION.
 MAY CAUSE ALLERGY OR ASTHMA SYMPTOMS OR BREATHING
 DIFFICULTIES IF INHALED.
 MAY CAUSE DROWSINESS OR DIZZINESS.

HAZARD CLASS	HAZARD CATEGORY
FLAMMABLE LIQUID	2
SKIN IRRITATION	2
EYE IRRITATION	2A
RESPIRATORY SENSITIZATION	1
SKIN SENSITIZATION	1
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE	3
ASPIRATION HAZARD	1

PICTOGRAM(S)



Precautionary Statements

Prevention: Keep away from heat, sparks, open flames, hot surfaces - no smoking. Keep container tightly closed. No release into water. Use explosion-proof equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing vapors, mist, or spray. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves, eye protection, and face protection. In case of inadequate ventilation wear respiratory protection.

Response: IF SWALLOWED: Immediately call a physician or poison control center. If on skin (or hair): Take off immediately all contaminated clothing. IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if

present and easy to remove. Continue rinsing. Do NOT induce vomiting. If skin irritation or rash occurs: Get medical attention. If eye irritation persists: Get medical attention. If experiencing respiratory symptoms: Call a poison center or physician. Take off contaminated clothing. In case of fire: Use foam, dry chemical or carbon dioxide to extinguish.

Storage:

Store in a well-ventilated place. Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up.

Disposal:

Dispose of contents and/or container according to Federal, State/Provincial and local governmental regulations.

Classification complies with OSHA Hazard Communication Standard (29 CFR 1910.1200) and is consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Component(s)	CAS Number	Percentage*
2-Propanol	67-63-0	60 - 100
Hydrocarbon aliphatic aromatic naphthenic C9-12	64742-88-7	10 - 30
Rosin	8050-09-7	1 - 5
Adipic acid	124-04-9	1 - 5

* Exact percentage is a trade secret. Concentration range is provided to assist users in providing appropriate protections.

4. FIRST AID MEASURES

Inhalation:	Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. If symptoms develop and persist, get medical attention.
Skin contact:	Immediately flush skin with plenty of water (using soap, if available). Remove contaminated clothing and footwear. Wash clothing before reuse. Thoroughly clean shoes before reuse. If symptoms develop and persist, get medical attention.
Eye contact:	Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Ingestion:	DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.
Symptoms:	See Section 11.
Notes to physician:	Aspiration may cause pulmonary edema or aspiration pneumonia.

5. FIRE FIGHTING MEASURES

Extinguishing media:	Water spray (fog), foam, dry chemical or carbon dioxide.
Special firefighting procedures:	Wear a self-contained breathing apparatus with a full face piece operated in pressure-demand or other positive pressure mode.
Unusual fire or explosion hazards:	Vapors may form explosive mixtures with air.

Hazardous combustion products:

Oxides of carbon. Thermal decomposition can lead to release of irritating gases and vapors.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions:

Do not allow product to enter sewer or waterways.

Clean-up methods:

Ventilate area. Remove all sources of ignition. Evacuate personnel to safe areas. Wear suitable protective clothing, gloves and eye/face protection. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Store in a partly filled, closed container until disposal. Spilled liquid is combustible and can be ignited by heat, flames, sparks, or other sources of ignition.

7. HANDLING AND STORAGE

Handling:

Keep away from heat, spark and flame. Keep container closed. Use only with adequate ventilation. Empty containers retain product residue, so obey hazard warnings and handle empty containers as if they were full.

Storage:

For safe storage, store between 15 °C (59°F) and 30 °C (86°F)
Store away from ignition sources. Keep away from heat, spark and flame.
Store in original container until ready to use.

For information on product shelf life, please review labels on container or check the Technical Data Sheet.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous Component(s)	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
2-Propanol	200 ppm TWA 400 ppm STEL	400 ppm (980 mg/m3) PEL	None	None
Hydrocarbon aliphatic aromatic naphthenic C9-12	100 ppm TWA	500 ppm (2,900 mg/m3) TWA	None	None
Rosin	Exposure by all routes should be carefully controlled to levels as low as possible. Included in the regulation but with no data values. See regulation for further details (Respiratory sensitization) (Dermal sensitization)	None	None	None
Adipic acid	5 mg/m3 TWA	None	None	None

Engineering controls:

Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment.

Respiratory protection:

Use a NIOSH approved air-purifying respirator if the potential to exceed established exposure limits exists.

Eye/face protection:

Safety goggles or safety glasses with side shields.

Skin protection:

Chemical resistant, impermeable gloves.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Liquid
Color:	Pale yellow
Odor:	Alcoholic
Odor threshold:	Not available.
pH:	Not determined
Vapor pressure:	6.6 kPa (25 °C (77°F))
Boiling point/range:	82 °C (179.6 °F)
Melting point/ range:	Not determined
Specific gravity:	0.801
Vapor density:	Heavier than air.
Flash point:	14 °C (57.2 °F)
Flammable/Explosive limits - lower:	Not available.
Flammable/Explosive limits - upper:	Not available.
Autoignition temperature:	Not available.
Evaporation rate:	2.93 (Butyl acetate = 1)
Solubility in water:	Soluble
Partition coefficient (n-octanol/water):	Not determined
VOC content:	93 %; 744 g/l
Viscosity:	Not available.
Decomposition temperature:	Not available.

10. STABILITY AND REACTIVITY

Stability:	Stable under recommended storage conditions.
Hazardous reactions:	Will not occur.
Hazardous decomposition products:	Oxides of carbon. Irritating fumes. Formaldehyde.
Incompatible materials:	Incompatible with oxidising agents. Dissolves aluminium and zinc slowly with formation of hydrogen.
Reactivity:	Not available.
Conditions to avoid:	Keep away from open flames, hot surfaces and sources of ignition.

11. TOXICOLOGICAL INFORMATION

Relevant routes of exposure:	Skin, Inhalation, Eyes, Ingestion
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Potential Health Effects/Symptoms

Inhalation: Inhalation of vapors or mists of the product may be irritating to the respiratory system. May cause allergic respiratory reaction. Vapor overexposure may cause drowsiness. Dizziness.

Skin contact: Causes skin irritation. May cause allergic skin reaction.

Eye contact: Causes serious eye irritation.

Ingestion: Toxic if swallowed. Aspiration may occur during swallowing or vomiting, resulting in lung damage.

Hazardous Component(s)	LD50s and LC50s	Immediate and Delayed Health Effects
2-Propanol	Oral LD50 (RAT) = 5,045 mg/kg Oral LD50 (RABBIT) = 6,410 mg/kg Oral LD50 (RAT) = 4.7 g/kg Oral LD50 (RABBIT) = 8.0 g/kg Oral LD50 (RABBIT) = 5.03 g/kg Dermal LD50 (RABBIT) = 12,800 mg/kg	Allergen, Blood, Brain, Central nervous system, Irritant, Kidney, Liver, Spleen
Hydrocarbon aliphatic aromatic naphthenic C9-12	None	Central nervous system, Irritant
Rosin	None	Allergen, Irritant, Respiratory
Adipic acid	Oral LD50 (RABBIT) = > 11,000 mg/kg Oral LD50 (RAT) = > 11,000 mg/kg	Irritant, Kidney, Liver, Nervous System, Respiratory

Hazardous Component(s)	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
2-Propanol	No	No	No
Hydrocarbon aliphatic aromatic naphthenic C9-12	No	No	No
Rosin	No	No	No
Adipic acid	No	No	No

12. ECOLOGICAL INFORMATION

Ecological information:

No specific studies have been conducted by Henkel on the ecotoxicity or environmental fate of this material; however, commonly available data on the material indicate that uncontrolled releases to soil, ground water, or surface waters could entail acute and/or chronic ecological effects, depending on the quantity and concentration of such releases. Releases of volatile components to the atmosphere are not believed to entail significant ecological consequences provided such releases are within the exposure levels set forth in this document. Accordingly, all appropriate measures should be taken to avoid uncontrolled releases to the environment, and any spills or other uncontrolled releases which may occur should be contained and cleaned up immediately in accordance with Section 6.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Follow all local, state, federal and provincial regulations for disposal.

Hazardous waste number: D001: Ignitable.

14. TRANSPORT INFORMATION

The transport information provided in this section only applies to the material/formulation itself, and is not specific to any package/configuration.

U.S. Department of Transportation Ground (49 CFR)

Proper shipping name: Flammable liquids, n.o.s. (Isopropanol, Naphtha)
Hazard class or division: 3
Identification number: UN 1993
Packing group: II

International Air Transportation (ICAO/IATA)

Proper shipping name: Flammable liquid, n.o.s. (Isopropanol, Naphtha)
Hazard class or division: 3
Identification number: UN 1993
Packing group: II

Water Transportation (IMO/IMDG)

Proper shipping name: FLAMMABLE LIQUID, N.O.S. (Isopropanol, Naphtha)
Hazard class or division: 3
Identification number: UN 1993
Packing group: II

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.

TSCA 12 (b) Export Notification: None above reporting de minimis

CERCLA/SARA Section 302 EHS: None above reporting de minimis
CERCLA/SARA Section 311/312: Immediate Health, Delayed Health, Fire

CERCLA/SARA Section 313: None above reporting de minimis
CERCLA Reportable quantity: 2-Propanol (CAS# 67-63-0) 100 lbs. (45.4 kg)

California Proposition 65: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Canada Regulatory Information

CEPA DSL/NDL Status: All components are listed on or are exempt from listing on the Canadian Domestic Substances List.

16. OTHER INFORMATION

This safety data sheet contains changes from the previous version in sections: New Safety Data Sheet format.

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