



Safety Data Sheet

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LOCTITE HYDX-20 known as FLUX HYDRO X20 20L

SDS No. : 182774

V001.3

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Section 1. Identification of the substance/preparation and of the company/undertaking

Product name: LOCTITE HYDX-20 known as FLUX HYDRO X20 20L

Other means of identification: LOCTITE HYDX-20 20L

Product code: IDH322453

Recommended use of the chemical and restrictions on use

Intended use: Liquid Flux

Identification of manufacturer, importer or distributor

Importer: Henkel Singapore Pte Ltd 401 Commonwealth Drive, #03-01/02, Haw Par Technocentre, Singapore. 149598

Phone : +65 62660100 Fax : +65 62661161

E-mail address of person responsible for Safety Data Sheet: ap-ua-psra.sea@henkel.com

Emergency information: FOR EMERGENCIES ONLY (Spill, major leak, Fire, Exposure, or Accident). Call CHEMTREC: +1 703-741-5970

Section 2. Hazards identification

GHS Classification:

<u>Hazard Class</u>	<u>Hazard Category</u>	<u>Target organ</u>
Flammable liquids	Category 2	
Serious eye damage/eye irritation	Category 2	
Specific target organ toxicity - single exposure	Category 3	Central Nervous System

GHS label elements:

Hazard pictogram:



Signal word:

Danger

Hazard statement: H225 Highly flammable liquid and vapor.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

Precaution:

Prevention: P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 Wash hands thoroughly after handling.
P280 Wear protective gloves, eye protection, and face protection.

Response: P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P304+P340+P312 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.
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.
P370+P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage: P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P403+P235 Store in a well-ventilated place. Keep cool.

Disposal: P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Section 3. Composition / information on ingredients

Substance or Mixture:
Mixture

Declaration of hazardous chemical:

Hazard component CAS-No.	Content	GHS Classification
Propan-2-ol 67-63-0	60- 100 %	Flammable liquids 2 H225 Serious eye damage/eye irritation 2 H319 Target Organ Systemic Toxicant - Single exposure 3 H336
Glycerol 56-81-5	10- 30 %	
Citric acid 77-92-9	1- 10 %	Serious eye damage/eye irritation 2 H319
Ammonium chloride 12125-02-9	1- 10 %	Acute toxicity 4; Oral H302 Serious eye damage/eye irritation 2 H319

Section 4. First aid measures

Inhalation:	Move to fresh air. If symptoms persist, seek medical advice.
Skin contact:	Rinse with running water and soap. Obtain medical attention if irritation persists.
Eye contact:	Rinse immediately with plenty of running water (for 10 minutes). Seek medical attention if necessary.
Ingestion:	Rinse mouth, drink 1-2 glasses of water, do not induce vomiting, consult a doctor.
Indication of immediate medical attention and special treatment needed:	See section: Description of first aid measures

Section 5. Fire fighting measures

Suitable extinguishing media:	Carbon dioxide. Alcohol-resistant foam. Dry powder.
Specific hazards arising from the chemical:	Can form explosive gas/air mixtures.
Special protection equipment and precautions for firefighters:	Wear self-contained breathing apparatus.
Hazardous combustion products:	Thermal decomposition can lead to release of irritating gases and vapors. Oxides of carbon.
Additional fire fighting advice:	Cool endangered containers with water spray jet.

Section 6. Accidental release measures

Personal precautions:	Avoid contact with skin and eyes. Wear protective equipment.
Environmental precautions:	Do not let product enter drains. Prevent further leakage or spillage if safe to do so.
Clean-up methods:	Remove all sources of ignition. For small spills wipe up with paper towel and place in container for disposal. For large spills absorb onto inert absorbent material and place in sealed container for disposal.

Section 7. Handling and storage

Handling:	Use only in well-ventilated areas. Keep away from sources of ignition - no smoking. Avoid skin and eye contact. Take measures to prevent the build-up of electrostatic charges. Avoid breathing fumes given out during soldering. Keep out of the reach of children.
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Storage:

Store in a cool, well-ventilated place.
Keep away from sources of ignition.

Section 8. Exposure controls / personal protection

Components with specific control parameters for workplace:

2-PROPANOL 67-63-0	Value type	Time Weighted Average (TWA):
	ppm	200
	Remarks	ACGIH
ISOPROPYL ALCOHOL 67-63-0	Value type	Time Weighted Average (TWA):
	ppm	400
	mg/m³	983
	Remarks	SG PEL
2-PROPANOL 67-63-0	Value type	Short Term Exposure Limit (STEL):
	ppm	400
	Remarks	ACGIH
ISOPROPYL ALCOHOL 67-63-0	Value type	Short Term Exposure Limit (STEL):
	ppm	500
	mg/m³	1,230
	Remarks	SG PEL
GLYCERIN MIST 56-81-5	Value type	Time Weighted Average (TWA):
	mg/m³	10
	Remarks	SG PEL
AMMONIUM CHLORIDE FUME 12125-02-9	Value type	Short Term Exposure Limit (STEL):
	mg/m³	20
	Remarks	ACGIH
AMMONIUM CHLORIDE FUME 12125-02-9	Value type	Time Weighted Average (TWA):
	mg/m³	10
	Remarks	SG PEL
AMMONIUM CHLORIDE FUME 12125-02-9	Value type	Time Weighted Average (TWA):
	mg/m³	10
	Remarks	ACGIH
AMMONIUM CHLORIDE FUME 12125-02-9	Value type	Short Term Exposure Limit (STEL):
	mg/m³	20
	Remarks	SG PEL

Respiratory protection:

Ensure adequate ventilation.

An approved mask or respirator fitted with an organic vapour cartridge should be worn if the product is used in a poorly ventilated area
Filter type: A (EN 14387)

Hand protection:

Chemical-resistant protective gloves (EN 374).

Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374):
nitrile rubber (NBR; >= 0.4 mm thickness)

Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374):
nitrile rubber (NBR; >= 0.4 mm thickness)

This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.

Eye protection:

Safety glasses with sideshields or chemical safety goggles should be worn if there is a risk of splashing.

	Protective eye equipment should conform to EN166.
Body protection:	Wear suitable protective clothing. Protective clothing should conform to EN 14605 for liquid splashes or to EN 13982 for dusts.
Engineering controls:	Ensure adequate ventilation, especially in confined areas. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. Extraction is necessary to remove fumes evolved during reflow.
Hygienic measures:	After handling solder wash hands with soap and water before eating, drinking or smoking. Do not eat, drink or smoke while working. Good industrial hygiene practices should be observed.

Section 9. Physical and chemical properties

Appearance:	green liquid
Odor:	alcohol-like
Odor threshold (CA):	No data available.
pH:	Not applicable
Melting point / freezing point:	No data available.
Specific gravity:	No data available.
Boiling point:	82 °C (179.6 °F)
Flash point:	12 °C (53.6 °F)
	(None)
Evaporation rate:	No data available.
Flammability (solid, gas):	No data available.
Lower explosive limit:	2 %(V)
Upper explosive limit:	12 %(V)
Vapor pressure:	6.6000000 kPa
	(; 25 °C (77 °F))
Vapor density:	Heavier than air
Density:	0.826 g/cm ³
Solubility:	No data available.
Partition coefficient: n-octanol/water:	Not determined
Auto ignition:	No data available.
Decomposition temperature:	No data available.
Viscosity:	No data available.
VOC content:	80 - 90 %
	(2010/75/EC)

Section 10. Stability and reactivity

Reactivity/Incompatible materials:	Dissolves aluminium and zinc slowly with formation of hydrogen. Reacts with strong oxidants.
Chemical stability:	Stable under recommended storage conditions.
Conditions to avoid:	No decomposition if used according to specifications.
Hazardous decomposition	Thermal decomposition can lead to release of irritating gases and vapors.

products:

Section 11. Toxicological information

Oral toxicity: Acute toxicity estimate (ATE) : > 2,000 mg/kg
Method: Calculation method

Symptoms of Overexposure: Flux fumes may irritate the nose, throat and lungs and may after prolonged/repeated exposure give an allergic reaction (asthma).
Vapors may cause drowsiness and dizziness.
EYE: Irritation, conjunctivitis.

Acute oral toxicity:

Propan-2-ol 67-63-0	Value type	LD50
	Value	5,840 mg/kg
	Species	rat
	Method	OECD Guideline 401 (Acute Oral Toxicity)
Glycerol 56-81-5	Value type	LD50
	Value	27,200 mg/kg
	Species	rat
	Method	not specified
Citric acid 77-92-9	Value type	LD50
	Value	5,400 mg/kg
	Species	mouse
	Method	OECD Guideline 401 (Acute Oral Toxicity)
Ammonium chloride 12125-02-9	Value type	LD50
	Value	1,410 mg/kg
	Species	rat
	Method	OECD Guideline 401 (Acute Oral Toxicity)

Acute inhalative toxicity:

Propan-2-ol 67-63-0	Value type	LC50
	Value	72.6 mg/l
	Exposure time	4 h
	Species	rat
	Method	not specified

Acute dermal toxicity:

Propan-2-ol 67-63-0	Value type	LD50
	Value	12,870 mg/kg
	Species	rabbit
	Method	OECD Guideline 402 (Acute Dermal Toxicity)
Glycerol 56-81-5	Value type	LD50
	Value	56,750 mg/kg
	Species	guinea pig
	Method	not specified
Citric acid 77-92-9	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rat
	Method	OECD Guideline 402 (Acute Dermal Toxicity)
Ammonium chloride 12125-02-9	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rat
	Method	EU Method B.3 (Acute Toxicity (Dermal))

Skin corrosion/irritation:

Propan-2-ol 67-63-0	Result	slightly irritating
	Exposure time	4 h
	Species	rabbit
	Method	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
Glycerol 56-81-5	Result	not irritating
	Exposure time	24 h
	Species	rabbit
	Method	Expert judgement
Citric acid 77-92-9	Result	not irritating
	Exposure time	4 h
	Species	rabbit
	Method	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
Ammonium chloride 12125-02-9	Result	not irritating
	Exposure time	
	Species	rabbit
	Method	BASF Test

Serious eye damage/irritation:

Propan-2-ol 67-63-0	Result	moderately irritating
	Exposure time	
	Species	rabbit
	Method	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
Glycerol 56-81-5	Result	not irritating
	Exposure time	
	Species	rabbit
	Method	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
Citric acid 77-92-9	Result	highly irritating
	Exposure time	
	Species	rabbit
	Method	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
Ammonium chloride 12125-02-9	Result	irritating
	Exposure time	
	Species	rabbit
	Method	BASF Test

Respiratory or skin sensitization:

Propan-2-ol 67-63-0	Result	not sensitising
	Test type	Buehler test
	Species	guinea pig
	Method	OECD Guideline 406 (Skin Sensitisation)
Ammonium chloride 12125-02-9	Result	not sensitising
	Test type	Guinea pig maximisation test
	Species	guinea pig
	Method	not specified

		Micronucleus Test)
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Repeated dose toxicity:

Propan-2-ol 67-63-0	Result	
	Route of application	inhalation: vapour
	Exposure time / Frequency of treatment	at least 104 w6 h/d, 5 d/w
	Species	rat
Glycerol 56-81-5	Method	not specified
	Result	NOAEL=> 8,000 mg/kg
	Route of application	oral: feed
	Exposure time / Frequency of treatment	2 ydaily
Citric acid 77-92-9	Species	rat
	Method	not specified
	Result	NOAEL=4,000 mg/kg
	Route of application	oral: gavage
Ammonium chloride 12125-02-9	Exposure time / Frequency of treatment	5 ddaily
	Species	rat
	Method	not specified
	Result	NOAEL=1,696 mg/kg
	Route of application	oral: feed
	Exposure time / Frequency of treatment	13 wdaily
	Species	rat
	Method	OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)

Section 12. Ecological information

Ecotoxicity:

Do not empty into drains / surface water / ground water.

Toxicity:

Propan-2-ol 67-63-0	Value type	LC50
	Value	> 9,640 - 10,000 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Pimephales promelas
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
Propan-2-ol 67-63-0	Value type	EC50
	Value	> 1,000 mg/l
	Acute Toxicity Study	Algae
	Exposure time	96 h
	Species	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
	Value type	NOEC
	Value	1,000 mg/l
	Acute Toxicity Study	Algae
	Exposure time	96 h
	Species	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
Propan-2-ol 67-63-0	Value type	EC50
	Value	> 1,000 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	3 h
	Species	activated sludge
	Method	OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test)
Glycerol 56-81-5	Value type	LC50
	Value	> 44,000 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Pimephales promelas
	Method	not specified
Glycerol 56-81-5	Value type	EC50
	Value	> 10,000 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	24 h
	Species	Daphnia magna
	Method	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)

Glycerol 56-81-5	Value type	EC50
	Value	> 10,000 mg/l
	Acute Toxicity Study	Algae
	Exposure time	
	Species	Scenedesmus quadricauda
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
	Value type	EC0
	Value	> 10,000 mg/l
	Acute Toxicity Study	Algae
	Exposure time	
	Species	Scenedesmus quadricauda
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
Glycerol 56-81-5	Value type	EC0
	Value	10,000 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	16 h
	Species	
	Method	not specified
Citric acid 77-92-9	Value type	LC50
	Value	> 250 mg/l
	Acute Toxicity Study	Fish
	Exposure time	48 h
	Species	Leuciscus idus
	Method	DIN 38412-15
Citric acid 77-92-9	Value type	EC50
	Value	275 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	24 h
	Species	Daphnia magna
	Method	not specified
Citric acid 77-92-9	Value type	EC50
	Value	> 640 mg/l
	Acute Toxicity Study	Algae
	Exposure time	7 d
	Species	Scenedesmus quadricauda
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
Citric acid 77-92-9	Value type	EC0
	Value	1,000 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	30 min
	Species	
	Method	not specified
Ammonium chloride 12125-02-9	Value type	LC50
	Value	3.44 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Pimephales promelas
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
	Value type	NOEC
	Value	0.21 mg/l
	Acute Toxicity Study	Fish
	Exposure time	28 d
	Species	Pimephales promelas
	Method	OECD Guideline 204 (Fish, Prolonged Toxicity Test: 14-day Study)
Ammonium chloride 12125-02-9	Value type	EC50
	Value	3.7 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia pulicaria
	Method	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)

Persistence and degradability:

Propan-2-ol 67-63-0	Result	readily biodegradable
	Route of application	aerobic
	Degradability	70 - 84 %
	Method	EU Method C.4-E (Determination of the "Ready" Biodegradability Closed Bottle Test)

Glycerol 56-81-5	Result	readily biodegradable
	Route of application	aerobic
	Degradability	90 - 94 %
	Method	EU Method C.4-E (Determination of the "Ready" Biodegradability Closed Bottle Test)
Citric acid 77-92-9	Result	readily biodegradable
	Route of application	aerobic
	Degradability	79 %
	Method	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)

Bioaccumulative potential / Mobility in soil:

Propan-2-ol 67-63-0	LogPow	0.05
	Temperature	
	Method	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)
Glycerol 56-81-5	LogPow	-1.76
	Temperature	
	Method	not specified
Citric acid 77-92-9	LogPow	-1.72
	Temperature	20 °C
	Method	EU Method A.8 (Partition Coefficient)

Section 13. Disposal considerations

Product

Method of disposal: Dispose of as hazardous waste in compliance with local and national regulations. Incineration under controlled conditions is recommended.

Packaging

Disposal of uncleaned packages: Dispose of as unused product.

Section 14. Transport information

Road transport ADR:

Class: 3
Packing group: II
Classification code: F1
Hazard ident. number: 33
UN no.: 1219
Label: 3
Technical name: ISOPROPANOL (solution)

Railroad transport RID:

Class: 3
Packing group: II
Classification code: F1
Hazard ident. number: 33
UN no.: 1219
Label: 3
Technical name: ISOPROPANOL (solution)

Inland water transport ADN:

Class: 3
Packing group: II
Classification code: F1
Hazard ident. number:
UN no.: 1219
Label: 3
Technical name: ISOPROPANOL (solution)

Marine transport IMDG:

Class: 3
Packing group: II
UN no.: 1219
Label: 3
EmS: F-E ,S-D
Seawater pollutant: -
Proper shipping name: ISOPROPANOL (solution)

Air transport IATA:

Class: 3
Packing group: II
Packaging instructions (passenger): 353
Packaging instructions (cargo): 364
UN no.: 1219
Label: 3
Proper shipping name: Isopropanol (solution)

Section 15. Regulatory information

Regulatory Information: Workplace Safety And Health Act (Chapter 354A) Workplace Safety And Health (Approved Codes of Practice) Notification 2013 SS586 Specification for Hazard Communication for hazardous chemicals and dangerous good Part 1,2,3

Global inventory status:

Regulatory list	Notification
TSCA	yes
DSL	yes

Section 16. Other information

Disclaimer: This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.