Safety Data Sheet according to (EC) No 1907/2006

sds no. : 182774
V004.1

HYDRO-X/20 LIQUID FLUX

Revision: 17.05.2012
printing date: 12.09.2013

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
HYDRO-X/20 LIQUID FLUX

1.2. Relevant identified uses of the substance or mixture and uses advised against
Intended use:
Liquid Flux

1.3. Details of the supplier of the safety data sheet
Henkel Ireland
Operations and Research Limited
Tallaght Business Park
Dublin 24

Ireland

Phone: +353 (14046444)
Fax-no.: +353 (14519926)

ua-productsafety.uk@uk.henkel.com

1.4. Emergency telephone number
24 Hours Emergency Tel: +44 (0)1442 278497

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (DPD):
F - Highly flammable
R11 Highly flammable.
Xi - Irritant
R36 Irritating to eyes.
R67 Vapours may cause drowsiness and dizziness.

2.2. Label elements

Label elements (DPD):

F - Highly flammable Xi - Irritant

Risk phrases:
R11 Highly flammable.
R36 Irritating to eyes.
R67 Vapours may cause drowsiness and dizziness.

Safety phrases:
S16 Keep away from sources of ignition - No smoking.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S51 Use only in well-ventilated areas.

2.3. Other hazards
Fumes evolved at soldering temperatures will irritate the nose, throat and lungs. Prolonged or repeated exposure to flux fumes may result in sensitisation in sensitive workers.

SECTION 3: Composition/information on ingredients

Declaration of the ingredients according to CLP (EC) No 1272/2008:

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Propan-2-ol 67-63-0	200-661-7 01-2119457558-25	70- 80 %	Flammable liquids 2 H225 Serious eye irritation 2 H319 Specific target organ toxicity - single exposure 3 H336
Citric acid 77-92-9	201-069-1 01-2119457026-42	1- 5 %	Serious eye irritation 2 H319
Ammonium chloride 12125-02-9	235-186-4	1- 5 %	Acute toxicity 4; Oral H302 Serious eye irritation 2 H319

For full text of the H - statements and other abbreviations see section 16 "Other information".
Substances without classification may have community workplace exposure limits available.

Declaration of ingredients according to DPD (EC) No 1999/45:

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Propan-2-ol 67-63-0	200-661-7 01-2119457558-25	70 - 80 %	Xi - Irritant; R36 F - Highly flammable; R11 R67
Citric acid 77-92-9	201-069-1 01-2119457026-42	1 - 5 %	Xi - Irritant; R36
Ammonium chloride 12125-02-9	235-186-4	1 - 5 %	Xn - Harmful; R22 Xi - Irritant; R36

For full text of the R-Phrases indicated by codes see section 16 'Other Information'.
Substances without classification may have community workplace exposure limits available.

SECTION 4: First aid measures

4.1. Description of 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:
Do not induce vomiting.
Seek medical advice.

4.2. Most important symptoms and effects, both acute and delayed
EYE: Irritation, conjunctivitis.

Vapors may cause drowsiness and dizziness.

4.3. Indication of any immediate medical attention and special treatment needed
See section: Description of first aid measures

SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media:
Carbon dioxide.
Alcohol-resistant foam.
Dry powder.

Extinguishing media which must not be used for safety reasons:
High pressure waterjet

5.2. Special hazards arising from the substance or mixture
Can form explosive gas/air mixtures.
Thermal decomposition can lead to release of irritating gases and vapors.
Oxides of carbon.

5.3. Advice for firefighters
Wear self-contained breathing apparatus.

Additional information:
Cool endangered containers with water spray jet.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Avoid contact with skin and eyes.
Wear protective equipment.

6.2. Environmental precautions
Do not let product enter drains.
Prevent further leakage or spillage if safe to do so.

6.3. Methods and material for containment and cleaning up
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.

6.4. Reference to other sections
See advice in chapter 8

SECTION 7: Handling and storage

7.1. Precautions for safe 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.

Hygiene measures:
Wash hands before work breaks and after finishing work.
Do not eat, drink or smoke while working.
Good industrial hygiene practices should be observed.

7.2. Conditions for safe storage, including any incompatibilities
Store in a cool, well-ventilated place.
Keep away from sources of ignition.

7.3. Specific end use(s)
Liquid Flux

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
Valid for
Great Britain

Ingredient	ppm	mg/m^3	Type	Category	Remarks
PROPAN-2-OL 67-63-0	500	1.250	Short Term Exposure Limit (STEL):		EH40 WEL
PROPAN-2-OL 67-63-0	400	999	Time Weighted Average (TWA):		EH40 WEL
GLYCEROL, MIST 56-81-5		10	Time Weighted Average (TWA):		EH40 WEL
AMMONIUM CHLORIDE, FUME 12125-02-9		10	Time Weighted Average (TWA):		EH40 WEL
AMMONIUM CHLORIDE, FUME 12125-02-9		20	Short Term Exposure Limit (STEL):		EH40 WEL

Predicted No-Effect Concentration (PNEC):

Name on list	Environmental Compartment	Exposure period	Value				Remarks
			mg/l	ppm	mg/kg	others	
Propan-2-ol 67-63-0	aqua (freshwater)					140,9 mg/L	
Propan-2-ol 67-63-0	aqua (marine water)					140,9 mg/L	
Propan-2-ol 67-63-0	sediment (freshwater)				552 mg/kg		
Propan-2-ol 67-63-0	sediment (marine water)				552 mg/kg		
Propan-2-ol 67-63-0	soil				28 mg/kg		
Propan-2-ol 67-63-0	aqua (intermittent releases)					140,9 mg/L	
Propan-2-ol 67-63-0	STP					2251 mg/L	
Citric acid 77-92-9	aqua (freshwater)					0,44 mg/L	
Citric acid 77-92-9	aqua (marine water)					0,44 mg/L	
Citric acid 77-92-9	STP					1000 mg/L	
Citric acid 77-92-9	sediment (freshwater)				34,6 mg/kg		
Citric acid 77-92-9	sediment (marine water)				3,46 mg/kg		
Citric acid 77-92-9	soil				33,1 mg/kg		

Derived No-Effect Level (DNEL):

Name on list	Application Area	Route of Exposure	Health Effect	Exposure Time	Value	Remarks
Propan-2-ol 67-63-0	worker	dermal	Long term exposure - systemic effects		888 mg/kg bw/day	
Propan-2-ol 67-63-0	worker	inhalation	Long term exposure - systemic effects		500 mg/m3	
Propan-2-ol 67-63-0	general population	dermal	Long term exposure - systemic effects		319 mg/kg bw/day	
Propan-2-ol 67-63-0	general population	inhalation	Long term exposure - systemic effects		89 mg/m3	
Propan-2-ol 67-63-0	general population	oral	Long term exposure - systemic effects		26 mg/kg	

8.2. Exposure controls:

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.

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment.

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.

Skin protection:
Suitable protective clothing

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	liquid liquid green
Odor	alcohol-like
pH	not applicable
Initial boiling point	82 °C (179.6 °F)
Flash point	12 °C (53.6 °F); None
Decomposition temperature	No data available / Not applicable
Vapour pressure (25 °C (77 °F))	6,6000000 kPa
Density (25 °C (77 °F))	0,826 g/cm3
Bulk density	No data available / Not applicable
Viscosity	No data available / Not applicable
Viscosity (kinematic)	No data available / Not applicable
Explosive properties	No data available / Not applicable
Solubility (qualitative) (Solvent: Water)	Miscible
Solidification temperature	No data available / Not applicable
Melting point	No data available / Not applicable
Flammability	No data available / Not applicable
Auto-ignition temperature	399 °C (750.2 °F)
Explosive limits	
lower	2 %(V)
upper	12 %(V)
Partition coefficient: n-octanol/water	Not determined
Evaporation rate	No data available / Not applicable
Vapor density	Heavier than air
Oxidising properties	No data available / Not applicable

9.2. Other information

No data available / Not applicable

SECTION 10: Stability and reactivity

10.1. Reactivity
Dissolves aluminium and zinc slowly with formation of hydrogen.
Reacts with strong oxidants.

10.2. Chemical stability
Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions
See section reactivity

10.4. Conditions to avoid
None if used for intended purpose.

10.5. Incompatible materials
None if used properly.

10.6. Hazardous decomposition products
Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

General toxicological information:
The preparation is classified based on the conventional method outlined in Article 6(1)(a) of Directive 1999/45/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

Inhalative toxicity:
Fumes evolved at soldering temperatures will irritate the nose, throat and lungs.
Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

Eye irritation:
Irritating to eyes.
Liquid may cause conjunctival irritation.

Acute toxicity:

Hazardous components CAS-No.	Value type	Value	Route of application	Exposure time	Species	Method
Propan-2-ol 67-63-0	LD50 LC50 LD50	5.338 mg/kg 72,6 mg/l 12.870 mg/kg	oral inhalation dermal	 4 h	rat rat rabbit	
Citric acid 77-92-9	LD50	4.500 mg/kg	oral		mouse	
Ammonium chloride 12125-02-9	LD50	1.410 mg/kg	oral		rat	

Skin corrosion/irritation:

Hazardous components CAS-No.	Result	Exposure time	Species	Method
Propan-2-ol 67-63-0	slightly irritating	4 h	rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
Citric acid 77-92-9	slightly irritating		rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
Ammonium chloride 12125-02-9	not irritating		rabbit	

Serious eye damage/irritation:

Hazardous components CAS-No.	Result	Exposure time	Species	Method
Propan-2-ol 67-63-0	moderately irritating		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
Citric acid 77-92-9	highly irritating		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
Ammonium chloride 12125-02-9	irritating		rabbit	

Respiratory or skin sensitization:

Hazardous components CAS-No.	Result	Test type	Species	Method
Propan-2-ol 67-63-0	not sensitising	Buehler test	guinea pig	
Ammonium chloride 12125-02-9	not sensitising	Guinea pig maximisation test	guinea pig	

Germ cell mutagenicity:

Hazardous components CAS-No.	Result	Type of study / Route of administration	Metabolic activation / Exposure time	Species	Method
Propan-2-ol 67-63-0	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		
Citric acid 77-92-9	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		
Ammonium chloride 12125-02-9	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		

Repeated dose toxicity

Hazardous components CAS-No.	Result	Route of application	Exposure time / Frequency of treatment	Species	Method
Propan-2-ol 67-63-0	NOAEL=1500	inhalation	13 weeks 6 hours/day, 5 days/week	mouse	

SECTION 12: Ecological information

General ecological information:
The preparation is classified based on the conventional method outlined in Article 6(1)(a) of Directive 1999/45/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

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

Mobility:
The product evaporates readily.

Persistence and Biodegradability:
The product is not biodegradable.

Bioaccumulative potential:
No data available.

Bioaccumulative potential:
Octanol/Water distribution coefficient: Not determined

12.1. Toxicity

Hazardous components CAS-No.	Value type	Value	Acute Toxicity Study	Exposure time	Species	Method
Propan-2-ol 67-63-0	LC50	9.640 mg/l	Fish	96 h	Pimephales promelas	OECD Guideline 203 (Fish, Acute Toxicity Test)
Propan-2-ol 67-63-0	EC50	13.299 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Propan-2-ol 67-63-0	EC50	> 1.000 mg/l	Algae	96 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	OECD Guideline 201 (Alga, Growth Inhibition Test)
Citric acid 77-92-9	LC50	> 250 mg/l	Fish	48 h	Leuciscus idus	
Citric acid 77-92-9	EC50	275 mg/l	Daphnia	24 h	Daphnia magna	
Citric acid 77-92-9	EC50	> 640 mg/l	Algae	7 d	Scenedesmus quadricauda	OECD Guideline 201 (Alga, Growth Inhibition Test)
Ammonium chloride 12125-02-9	LC50	3,44 mg/l	Fish	96 h	Pimephales promelas	OECD Guideline 203 (Fish, Acute Toxicity Test)
	NOEC	0,21 mg/l	Fish	28 d	Pimephales promelas	OECD Guideline 204 (Fish, Prolonged Toxicity Test: 14-day Study)
Ammonium chloride 12125-02-9	EC50	3,7 mg/l	Daphnia	48 h	Daphnia pulicaria	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)

12.2. Persistence and degradability

Hazardous components CAS-No.	Result	Route of application	Degradability	Method
Propan-2-ol 67-63-0	readily biodegradable	aerobic	95 %	OECD Guideline 301 E (Ready biodegradability: Modified OECD Screening Test)
Citric acid 77-92-9	readily biodegradable	aerobic	79 %	EU Method C.4-E (Determination of the "Ready" BiodegradabilityClosed Bottle Test)

12.3. Bioaccumulative potential / 12.4. Mobility in soil

Hazardous components CAS-No.	LogKow	Bioconcentration factor (BCF)	Exposure time	Species	Temperature	Method
Propan-2-ol 67-63-0	0,05					OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)
Citric acid 77-92-9	-1,72				20 °C	EU Method A.8 (Partition Coefficient)

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product disposal:

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

Disposal of uncleaned packages:

Dispose of as unused product.

Waste code

14 06 03 - other solvents and solvent mixtures

SECTION 14: Transport information

Road transport ADR:

Class:	3
Packaging group:	II
Classification code:	F1
Hazard ident. number:	33
UN no.:	1219
Label:	3
Technical name:	ISOPROPANOL (solution)
Tunnelcode:	(D/E)

Railroad transport RID:

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

Inland water transport ADN:

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

Marine transport IMDG:

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

Air transport IATA:

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

SECTION 15: Regulatory information

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

VOC content (1999/13/EC)	80 - 90 %

National regulations/information (Great Britain):

Remarks	The Health & Safety at Work Act 1974. The Control of Substances Hazardous to Health Regulations. L5:General Approved Code of Practice to the COSHH Regulations. HS(G)97:A Step by Step Guide to the COSHH Regulations. HS(G)193:COSHH essentials: Easy steps to control chemicals. HS(G)51:The Storage of Highly Flammable Liquids in Containers. HS(G)140:The Safe Use and Handling of Highly Flammable Liquids EH9:The Spraying of Highly Flammable Liquids.

SECTION 16: Other information

The labelling of the product is indicated in Section 2. The full text of all abbreviations indicated by codes in this safety data sheet are as follows:

R11 Highly flammable.
R22 Harmful if swallowed.
R36 Irritating to eyes.
R67 Vapours may cause drowsiness and dizziness.
H225 Highly flammable liquid and vapour.
H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

Further information:

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.

This safety data sheet was prepared in accordance with Council Directive 67/548/EEC and it's subsequent amendments, and Commission Directive 1999/45/EC.