

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

# Hydrogen Chloride 2M in Diethyl Ether



Version number: 3  
Issued: 2024-02-09  
Replaces SDS: 2019-01-11

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

### 1.1. Product identifier

**Trade name**

Hydrogen Chloride 2M in Diethyl Ether

**Article No.**

90026303

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

**Relevant identified uses**

Research and development. Laboratory Chemicals. Manufacture of substances.

**Not suitable for use in**

Not suitable for human consumption or veterinary purposes.

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

**Supplier**

Molekula Group

Address

Molekula Ltd, Lingfield Way, Darlington,  
DL1 4XX Darlington  
United Kingdom

Telephone

+44 (0) 3302 000 333

Email

info@molekula.com

Web site

www.molekula.com

**Contact person**

Kevin Banks

**Email**

+44 (0) 7769276927

### 1.4. Emergency telephone number

**Poison center/Additional emergency number**

0344 892 0111 - National Poisons Information Service (Newcastle Centre)

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## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

#### Classification

Flammable liquids, hazard category 1

Acute toxicity, oral, hazard category 4

Serious eye damage, hazard category 1

Specific Target Organ Toxicity — Single exposure, hazard category 3 - narcosis

Carcinogenicity, hazard category 2

#### Hazard statements

H224, H302, H318, H336, H351

#### Supplemental hazard statements

EUH019, EUH066

### 2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008

#### Hazard pictograms



#### Signal word

Danger

#### Hazard statements

H224 Extremely flammable liquid and vapour.

H302 Harmful if swallowed.

H318 Causes serious eye damage.

H336 May cause drowsiness or dizziness.

H351 Suspected of causing cancer.

#### Supplemental hazard statements

EUH019 May form explosive peroxides.

EUH066 Repeated exposure may cause skin dryness or cracking.

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## Precautionary statements

P201 Obtain special instructions before use.  
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P260 Do not breathe dust/fumes/gas/mist/vapours/spray.  
P262 Do not get in eyes, on skin, or on clothing.  
P264 Wash skin thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P271 Use only outdoors or in a well-ventilated area.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P308 + P313 IF exposed or concerned: Get medical advice/attention.  
P314 Get medical advice/attention if you feel unwell.  
P337 + P313 If eye irritation persists: Get medical advice/attention.  
P362 + P364 Take off contaminated clothing and wash it before reuse.  
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.  
P501 Dispose of contents/container to local regulations.

## 2.3. Other hazards

No data available

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

Chemical name	CAS No. EC No. REACH No. Index No.	Concentration	Classification	H-phrased M factor acute M factor chronic	Note
diethyl ether; ether	60-29-7 200-467-2 01-2119535785-29 603-022-00-4	92 - 95%	Flam. Liq. 1, Acute Tox. 4 - oral, Eye Irrit. 2, STOT SE 3 - nar- cosis, Carc. 2	H224, H302, H319, H336, H351, EUH019, EUH066 - -	-
Hydrochloric acid	7647-01-0 231-595-7 - -	5 - 8%	Met. Corr. 1, Skin Corr. 1B, Eye Dam. 1, STOT SE 3	H290, H314, H318, H335 - -	-

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## **Substance additional information**

For the complete text of H- / EUH-statements mentioned in this section, see section 16.

## **SECTION 4: First aid measures**

### **4.1. Description of first aid measures**

IF exposed or concerned: Get medical advice/attention. First aiders/ medical personnel need to protect themselves. Show this Safety Data Sheet (SDS) to medical personnel.

#### **Inhalation**

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor. If breathing stops, provide artificial respiration. For breathing difficulties oxygen may be necessary.

#### **Skin contact**

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. Immediately call a POISON CENTER/doctor.

#### **Eye contact**

Remove contact lenses if present. Rinse eyes with water. Continue to rinse for at least 15 minutes and seek medical attention.

#### **Ingestion**

IF SWALLOWED: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only if the persons are fully conscious and awake). Administer activated charcoal (20 - 40g in a 10% slurry) and consult a doctor as quickly as possible. Do not attempt to neutralise.

#### **Information for doctors**

No data available.

### **4.2. Most important symptoms and effects, both acute and delayed**

The severity of the symptoms described will vary dependant of the concentration and the length of exposure. Causes burns by all exposure routes.

See section 11 for more detailed information on health effects and symptoms.

#### **Inhalation**

Single exposure may cause the following adverse effects: Causes severe burns. Difficulty in breathing. Unconsciousness, possibly death.

#### **Skin contact**

Single exposure may cause the following adverse effects: Causes severe burns. Blistering may occur. May be absorbed in the body and cause dizziness, nausea and vomiting. Unconsciousness, death.

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## **Eye contact**

Single exposure may cause the following adverse effects: Causes serious eye damage. Unconsciousness, possibly death.

## **Ingestion**

Single exposure may cause the following adverse effects: Severe abdominal pain. May cause severe internal injury. Unconsciousness, possibly death.

## **4.3. Indication of any immediate medical attention and special treatment needed**

Treat symptomatically. Immediately call a POISON CENTER/doctor.

## **SECTION 5: Firefighting measures**

### **5.1. Extinguishing media**

#### **Suitable extinguishing media**

Use foam, carbon dioxide or dry powder to extinguish.

#### **Unsuitable extinguishing media**

No specific fire fighting procedure given.

### **5.2. Special hazards arising from the substance or mixture**

Specific hazards:

Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

Hydrogen Chloride gas

Peroxides

Mixture with combustible ingredients.

Pay attention to flashback.

Vapours are heavier than air and may spread near ground to sources of ignition.

Development of hazardous combustion gases or vapours possible in the event of fire.

Forms explosive mixtures with air.

### **5.3. Advice for firefighters**

#### **Special protective equipment for fire-fighters**

Evacuate area. Avoid breathing gas, fume, vapours or spray. Prevent skin contact by maintaining a safe distance and by wearing suitable protective equipment/ clothing. Cool containers exposed to heat with water spray and remove container, if no risk is involved.

## **SECTION 6: Accidental release measures**

### **6.1. Personal precautions, protective equipment and emergency procedures**

Do not breathe vapour/spray. Avoid contact with skin and eyes. For personal protection, see section 8.

In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.

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## 6.2. Environmental precautions

Avoid discharge into drains, water courses or onto the ground. Risk of explosion.

## 6.3. Methods and material for containment and cleaning up

Collect with absorbent, non-combustible material into suitable containers.

## 6.4. Reference to other sections

For personal protection, see section 8. For waste disposal, see section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

#### Preventive handling precautions

For precautions see section 2.2. Work under hood. Take action to prevent static discharges. Wear protective clothing, gloves, eye and face protection. Avoid contact with skin and eyes. Avoid ingestion and inhalation.

#### General hygiene

Observe good chemical hygiene practices. Keep away from food, drink and animal feeding stuffs. Wash contaminated skin thoroughly after handling. Do not eat, drink or smoke when using this product. Remove contaminated clothing and launder thoroughly before re-use.

### 7.2. Conditions for safe storage, including any incompatibilities

Store in a dry place. Store in a closed container.

Recommended storage temperature: 2 to 8°C (35.6 to 46.4°F )

No metal containers.

Keep away from heat and sources of ignition.

Handle and store contents under inert gas.

Refrigerate before opening.

Test for peroxide formation periodically and before distillation.

### 7.3. Specific end use(s)

No specific usage precautions noted.

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## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Exposure limits

##### DIETHYL ETHER

TWA. 100ppm. 308mg/m<sup>3</sup>. Europe Directive: 2000/39/EC

STEL: 200ppm. 616mg/m<sup>3</sup>. Europe Directive: 2000/39/EC

TWA. 100ppm. 310mg/m<sup>3</sup>. UK. EH40. WEL = Workplace Exposure Limit.

STEL: 200ppm. 620mg/m<sup>3</sup>. UK. EH40. WEL = Workplace Exposure Limit.

##### HYDROCHLORIC ACID

TWA. 5ppm. 8mg/m<sup>3</sup>. Europe Directive: 2000/39/EC

STEL: 10ppm. 15mg/m<sup>3</sup>. Europe Directive: 2000/39/EC

TWA. 1ppm. 22mg/m<sup>3</sup>. Gas and aerosol mists. UK. EH40. WEL = Workplace Exposure Limit.

TWA: 10mg/m<sup>3</sup>. UK. EH40 WEL = Workplace Exposure Limit.

### 8.2. Exposure controls

#### Personal Protective Equipment Symbols



#### Eye / face protection

Wear eye protection.

#### Hand protection

Wear protective gloves. Recommended gloves:

Always inspect gloves before use. If signs of wear and tear are noticed then the gloves should be replaced.

No specific hygiene procedures noted, but good personal hygiene practices are always advisable, especially when working with chemicals. Wash contaminated skin thoroughly after handling. Nitrile.

#### Other skin protection

Wash skin thoroughly after handling.

#### Respiratory protection

Provide adequate ventilation. If ventilation is insufficient, suitable respiratory protection must be provided.

#### Environmental exposure controls

Avoid discharge into drains.

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## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

#### Physical state

Liquid

#### Colour

Colourless.

#### Odour

No data available

#### Melting point / freezing point

No data available

#### Boiling point or initial boiling point and boiling range

34.6 °C

#### Flammability

No data available

#### Lower and upper explosion limit

No data available

#### Flash point

-34 °C

#### Auto-ignition temperature

No data available

#### Decomposition temperature

No data available

#### pH

No data available

#### Kinematic viscosity

No data available

#### Solubility

No data available

#### Partition coefficient n-octanol/water

No data available

#### Vapour pressure

No data available



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## Density and/or relative density

0.747 g/cm<sup>3</sup>

## Relative vapour density

No data available

## Particle characteristics

No data available

## 9.2. Other information

No data available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Formation of peroxides possible.

Solvent vapours may form explosive mixtures with air.

### 10.2. Chemical stability

Stable under the prescribed storage conditions.

### 10.3. Possibility of hazardous reactions

No data available

### 10.4. Conditions to avoid

Warming.

Moisture.

### 10.5. Incompatible materials

Strong oxidising agents. Strong bases Metals.

### 10.6. Hazardous decomposition products

See section 5.

## SECTION 11: Toxicological information

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### Acute toxicity

Product / Substance name CAS / EC no.	Dose descriptor	Value / Dose	Duration of exposure	Test animals	Remarks
diethyl ether; ether 60-29-7 / 200-467-2	Acute Toxicity (Oral LD50):	1,211mg/kg	-	Rat	(RTECS)

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Product / Substance name CAS / EC no.	Dose descriptor	Value / Dose	Duration of exposure	Test animals	Remarks
diethyl ether; ether 60-29-7 / 200-467-2	Acute Toxicity (Dermal LD50):	> 20,000mg/kg	-	Rabbit	(ECHA)
diethyl ether; ether 60-29-7 / 200-467-2	Acute Toxicity (Inhalation LC50):	97.5mg/l	4 hours	Mouse	(RTECS)

## Skin corrosion/irritation

Product / Substance name CAS / EC no.	Result	Species
Hydrochloric acid 7647-01-0 / 231-595-7	CAUSES BURNS.	-
Hydrochloric acid 7647-01-0 / 231-595-7	Corrosive.	reconstructed human epidermis (RhE)

## Serious eye damage/irritation

Product / Substance name CAS / EC no.	Result	Species
Hydrochloric acid 7647-01-0 / 231-595-7	Causes serious eye damage.	-
Hydrochloric acid 7647-01-0 / 231-595-7	Risk of: Blindness.	-
Hydrochloric acid 7647-01-0 / 231-595-7	Corrosive.	Bovine cornea

## Respiratory or skin sensitisation

Product / Substance name CAS / EC no.	Result	Species	Method / Guideline
Hydrochloric acid 7647-01-0 / 231-595-7	Negative.	Guinea Pig	Guinea pig maximization test (GPMT):

## Germ cell mutagenicity

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Product / Substance name CAS / EC no.	Result
Hydrochloric acid 7647-01-0 / 231-595-7	Conflicting results have been seen in different studies.

## Carcinogenicity

Product / Substance name CAS / EC no.	Other
Hydrochloric acid 7647-01-0 / 231-595-7	No evidence of carcinogenicity in animal studies

## STOT-single exposure

Product / Substance name CAS / EC no.	Result
Hydrochloric acid 7647-01-0 / 231-595-7	May cause respiratory irritation.

## Aspiration hazard

Based on available data, the classification criteria are not met.

## 11.2. Information on other hazards

No data available

## SECTION 12: Ecological information

### 12.1. Toxicity

#### Acute toxicity

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species	Remark
diethyl ether; ether 60-29-7 / 200-467-2	LC50	2,840mg/l	48 hours	Leuciscus idus (Golden orfe)	(ECOTOX Database)

#### Acute fish toxicity

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Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
Hydrochloric acid 7647-01-0 / 231-595-7	LC50	-	48 hours	Leuciscus idus
Hydrochloric acid 7647-01-0 / 231-595-7	LC50	282 mg/l	96 hours	Gambusia affinis (Mosquito fish)

## Acute algae toxicity

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
diethyl ether; ether 60-29-7 / 200-467-2	ErC50	> 100mg/l	72 hours	Desmodesmus subspicatus (green algae)

## Acute crustacean toxicity

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species	Remark
diethyl ether; ether 60-29-7 / 200-467-2	EC50	1,380mg/l	48 hours	Daphnia magna	(IUCLID)
Hydrochloric acid 7647-01-0 / 231-595-7	EC50	56 mg/l	72 hours	Daphnia magna	-

## Micro-/macro organism toxicity

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
diethyl ether; ether 60-29-7 / 200-467-2	EC50	21,000mg/l	3 hours	Activated sludge.
diethyl ether; ether 60-29-7 / 200-467-2	NOEC	42mg/l	3 hours	Activated sludge.

## 12.2. Persistence and degradability

No data available

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## 12.3. Bioaccumulative potential

No data available

## 12.4. Mobility in soil

No data available

## 12.5. Results of PBT and vPvB assessment

No data available

## 12.6. Endocrine disrupting properties

This product does not contain any known or suspected endocrine disruptors.

## 12.7. Other adverse effects

No data available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

#### Disposal considerations

Dispose of contents/container in accordance with local/regional/national/international regulations.

## SECTION 14: Transport information

### 14.1. UN number

1155

### 14.2. UN proper shipping name

#### ADR / RID / ADN proper shipping name

DIETHYL ETHER SOLUTION

#### IMDG proper shipping name

DIETHYL ETHER SOLUTION

#### IATA proper shipping name

DIETHYL ETHER SOLUTION

### 14.3. Transport hazard class(es)

#### Label

DIETHYL ETHER SOLUTION

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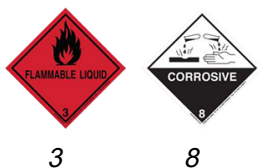
## ADR/RID/ADN



## IMDG



## IATA



## ADR / RID Class

3

## ADR / RID Classification code

F1

## ADR / RID hazard identification number

33

## IMDG Class

3

## IATA Class

3

## ADN Class

3

## ADN Class Code

F1

## 14.4. Packing group

ADR / RID / ADN: I

IMDG: I

IATA: I

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## 14.5. Environmental hazards

Not applicable

## 14.6. Special precautions for user

### Special precautions for user

Tunnel restriction code: D/E

Transport category: 1

### IMDG EmS

F-E, S-D

## 14.7. Maritime transport in bulk according to IMO instruments

IBC Instruction: IBC02

## SECTION 15: Regulatory information

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

#### EU regulations

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

This material safety data sheet complies with the requirements of Regulation (EU) 2020/878.

#### National regulations

Directive: 2012/18/EU

H2 ACUTE TOXIC

P5a FLAMMABLE LIQUIDS

### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

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## SECTION 16: Other information

### Phrase meaning

Flam. Liq. 1 - Flammable liquids, hazard category 1

Acute Tox. 4 - oral - Acute toxicity, oral, hazard category 4

Eye Dam. 1 - Serious eye damage, hazard category 1

STOT SE 3 - narcosis - Specific Target Organ Toxicity — Single exposure, hazard category 3 - narcosis

Carc. 2 - Carcinogenicity, hazard category 2

Eye Irrit. 2 - Eye irritation, hazard category 2

Met. Corr. 1 - Corrosive to metals, hazard category 1

Skin Corr. 1B - Skin corrosion, hazard category 1B

STOT SE 3 - Specific Target Organ Toxicity — Single exposure, hazard category 3

H224 Extremely flammable liquid and vapour.

H290 May be corrosive to metals.

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

H336 May cause drowsiness or dizziness.

H351 Suspected of causing cancer.

EUH019 May form explosive peroxides.

EUH066 Repeated exposure may cause skin dryness or cracking.