SECTION 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Mixture identification: Cyclopentyl methyl ether (CPME) / Hydrogen chloride (HCl) 3M

Trade name: Cyclopentyl methyl ether (CPME) / Hydrogen chloride (HCl) 3M

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

Recommended use:

Nonaqueous Acid Solvent

Uses advised against:

None has been described

1.3. Details of the supplier of the safety data sheet

Company:

Gases Research Innovation & Technology SLU.

C/ Consell de Cent, 419 Principal 1 y 2 - 08009 (Barcelona)

Tel: 93/272.14.00 Fax: 93/215.38.08

Competent person responsible for the safety data sheet:

gmartin@grit.es

1.4. Emergency telephone number

+ 34 630 215 910 (24h)

SECTION 2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

EC regulation criteria 1272/2008 (CLP)

Danger, Flam. Liq. 2, Highly flammable liquid and vapour.

Warning, Acute Tox. 4, Harmful if swallowed.

Danger, Skin Corr. 1A, Causes severe skin burns and eye damage.

Danger, Eye Dam. 1, Causes serious eye damage.

Warning, Met. Corr. 1, May be corrosive to metals.

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

Hazard pictograms:

Danger

Hazard statements:

H225 Highly flammable liquid and vapour.
H290 May be corrosive to metals.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.

Precautionary statements:

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 Do not breathe vapours.
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 or 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.
P310 Immediately call a POISON CENTER/doctor.
P370+P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403+P235 Store in a well-ventilated place. Keep cool.

Special Provisions:

EUH019 May form explosive peroxides

Contains
Cyclopentyl methyl ether
hydrogen chloride
Special provisions in accordance with Annex XVII of REACH and its successive amendments:
No

2.3. Other hazards
vPvB substances: None - PBT substances: None
Other Hazards:
No other hazards

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances
N.A.

3.2. Mixtures
Hazardous components within the meaning of the CLP regulation and related classification:

Qty	Name	Ident. Number	Classification
>= 84% - < 92%	Cyclopentyl methyl ether	CAS: 5614-37-9 EC: 445-090-6 REACH No.: 01-0000018796-55	2.6/2 Flam. Liq. 2 H225 3.1/4/Oral Acute Tox. 4 H302 3.3/2 Eye Irrit. 2 H319 3.2/2 Skin Irrit. 2 H315 EUH019
>= 7% - < 16%	hydrogen chloride	Index number: 017-002-00-2 CAS: 7647-01-0 EC: 231-595-7 REACH No.: 01-2119484862-27	2.5 Press. Gas H280 3.2/1A Skin Corr. 1A H314 3.1/3/Inhal Acute Tox. 3 H331 EUH071

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures
In case of skin contact:
Immediately take off all contaminated clothing.
OBTAIN IMMEDIATE MEDICAL ATTENTION.
Remove contaminated clothing immediately and dispose off safely.
After contact with skin, wash immediately with soap and plenty of water.
In case of eyes contact:
After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an opthalmologist immediately.
Protect uninjured eye.
In case of Ingestion:
Do NOT induce vomiting.
Give nothing to eat or drink.
In case of Inhalation:
Remove casualty to fresh air and keep warm and at rest.
4.2. Most important symptoms and effects, both acute and delayed
None
4.3. Indication of any immediate medical attention and special treatment needed
In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).
Treatment: Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media
Suitable extinguishing media:
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
Extinguishing media which must not be used for safety reasons:
DO NOT use a direct water jet to extinguish.
5.2. Special hazards arising from the substance or mixture
Do not inhale explosion and combustion gases.
Burning produces heavy smoke.

5.3. Advice for firefighters

Use suitable breathing apparatus .
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Move undamaged containers from immediate hazard area if it can be done safely.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Wear personal protection equipment.
Remove all sources of ignition.
Remove persons to safety.
See protective measures under point 7 and 8.

6.2. Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.
Retain contaminated washing water and dispose it.
In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.
Suitable material for taking up: absorbing material, organic, sand

6.3. Methods and material for containment and cleaning up

Wash with plenty of water.

6.4. Reference to other sections

See also section 8 and 13

SECTION 7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Avoid contact with skin and eyes, inhalation of vapours and mists.
Use localized ventilation system.
Don't use empty container before they have been cleaned.
Before making transfer operations, assure that there aren't any incompatible material residuals in the containers.
See also section 8 for recommended protective equipment.
Advice on general occupational hygiene:
Contamined clothing should be changed before entering eating areas.
Do not eat or drink while working.
Vapors can form explosive mixtures with air.

7.2. Conditions for safe storage, including any incompatibilities

Always keep in a well ventilated place.
Store at temperatures below 20°C. Keep away from unguarded flame, sparks, and heat sources. Avoid direct exposure to sunlight.
Keep away from food, drink and feed.
Incompatible materials:
None in particular.
Instructions as regards storage premises:
Cool and adequately ventilated.

7.3. Specific end use(s)

None in particular

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

hydrogen chloride - CAS: 7647-01-0

EU - TWA(8h): 8 mg/m3, 5 ppm - STEL: 15 mg/m3, 10 ppm
ACGIH - STEL: Ceiling 2 ppm - Notes: A4 - URT irr

DNEL Exposure Limit Values

Cyclopentyl methyl ether - CAS: 5614-37-9

Worker Professional: 40 mg/kg bw/day - Exposure: Human Dermal - Frequency: Short Term, local effects
Worker Professional: 0.5 mg/kg bw/day - Exposure: Human Dermal - Frequency: Long Term, systemic effects
Worker Professional: 28.2 mg/m3 - Exposure: Human Inhalation - Frequency: Short Term, local effects
Worker Professional: 16.9 mg/m3 - Exposure: Human Inhalation - Frequency: Long Term, systemic effects

Hydrogen chloride - CAS: 7647-01-0

Worker Professional: 15 mg/m3 - Exposure: Human inhalation - Frequency: Short-term (acute)
Worker Professional: 8 mg/m3 - Exposure: Human inhalation - Frequency: Long-term local effects

Limit values for exposure to PNEC

Cyclopentyl methyl ether - CAS: 5614-37-9
Target: Fresh water - value: 35 µg/l
Target: Seawater - value: 3.5 µg/l
Target: Freshwater sediments - value: 0.117 mg/kg
Target: Seawater sediments - value: 0.012 mg/kg
Target: Treatment of wastewater from the plant - value: 100 mg/l
Target: Sun (agricultural) - value: 0.077 mg/kg
Hydrogen chloride - CAS: 7647-01-0
Target: Plant wastewater treatment - value: 0.036 mg/l
Target: intermittent / sporadic - value: 0.045 mg/l
Target: Fresh water - value: 0.036 mg/l
Target: Seawater - value: 0.036 mg/l

8.2. Exposure controls

Eye protection:
Eye glasses with side protection.

Protection for skin:
Chemical protection clothing.

Protection for hands:
Chloroprene: thickness:> 0.7 mm Time perforation:> 180 mm (EN 374)

Respiratory protection:
Use adequate protective respiratory equipment.

Thermal Hazards:
None

Environmental exposure controls:
None

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Properties	Value	Method:	Notes:
Appearance and colour:	Colorless liquid	--	--
Odour:	Characteristic	--	--
Odour threshold:	N.A.	--	--
pH:	N.A.	--	--
Melting point / freezing point:	N.A.	--	--
Initial boiling point and boiling range:	107 ºC (CPME)	--	--
Flash point:	< 3° C (CPME)	--	--
Evaporation rate:	N.A.	--	--
Solid/gas flammability:	N.A.	--	--
Upper/lower flammability or explosive limits:	Inf. 2% Sup 12 %(vol) (CPME)	--	--
Vapour pressure:	N.A.	--	--
Vapour density:	N.A.	--	--
Relative density:	0.89-0.90 Kg/L	--	--
Solubility in water:	Hardly soluble 12.5 g / L 20º C (CPME)	--	--
Solubility in oil:	N.A.	--	--
Partition coefficient (n-octanol/water):	3.0 - 3.4	--	--
Auto-ignition temperature:	180ºC (CPME)	--	--
Decomposition temperature:	N.A.	--	--
Viscosity:	N.A.	--	--
Explosive properties:	N.A.	--	--
Oxidizing properties:	N.A.	--	--

9.2. Other information

Properties	Value	Method:	Notes:
Miscibility:	N.A.	--	--
Fat Solubility:	N.A.	--	--
Conductivity:	N.A.	--	--
Substance Groups relevant properties	N.A.	--	--

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity
Stable under normal conditions
10.2. Chemical stability
Stable under normal conditions
10.3. Possibility of hazardous reactions
It may catch fire on contact with oxidising mineral acids, and powerful oxidising agents.
Possibility of formation of peroxides.
Formation of explosive gases/vapors.
10.4. Conditions to avoid
Stable under normal conditions.
10.5. Incompatible materials
Strong acids.
Strong oxidizing agents
10.6. Hazardous decomposition products
None.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects
Toxicological information of the product:
Cyclopentyl methyl ether (CPME) Chloridric acid (HCl) 3 M
(a) acute toxicity
The product is classified: Acute Tox. 4 H302
ETAmélange - Oral 563.162 mg/kg bw
ETAmélange - Inhalation (Vapours) 26.7486 mg/l
b) skin corrosion/irritation
The product is classified: Skin Corr. 1A H314
c) serious eye damage/eye irritation
The product is classified: Eye Dam.1 H318
(d) respiratory or skin sensitisation
Uncategorized
Based on the available data, the classification criteria are not met.
(e) germ cell mutagenicity
Uncategorized
Based on the available data, the classification criteria are not met.
(f) carcinogenicity
Uncategorized
Based on the available data, the classification criteria are not met.
(g) reproductive toxicity
Uncategorized
Based on the available data, the classification criteria are not met.
(h) STOT-single exposure
Uncategorized
Based on the available data, the classification criteria are not met.
(i) STOT-repeated exposure
Uncategorized
Based on the available data, the classification criteria are not met.
(j) aspiration hazard
Uncategorized
Based on the available data, the classification criteria are not met.
Toxicological information of the main substances found in the product:
Cyclopentyl methyl ether - CAS: 5614-37-9
a) acute toxicity:
Test: LD50 - Route: Skin - Species: Rabbit > 2000 mg/kg
Test: LD50 - Route: Oral - Species: Rat 300-2000 mg/kg
Test: LC50 - Route: Inhalation Vapour - Species: Rat > 21.5 mg/l - Duration: 4h
Test: NOAEC - Route: Inhalation Mist - Species: Rat 201 ppm - Duration: 90 days
Test: NOAEC - Route: Inhalation Vapour - Species: Mouse 208 ppm - Duration: 90 days
Test: NOAEC - Route: Oral - Species: Rat 32 mg/kg - Duration: 90 days
Test: NOAEC - Route: Oral - Species: Rat 150 mg/kg - Duration: 28 days
b) skin corrosion/irritation:
Test: Skin Irritant - Route: Skin Positive - Notes: (OECD 404)
c) serious eye damage/irritation:
Test: Eye Irritant - Route: Eyes Positive - Notes: (OECD 405)

d) respiratory or skin sensitisation:
Test: Skin Sensitization Negative - Notes: (OECD 429)
e) germ cell mutagenicity:
Test: Ames test Negative
hydrogen chloride - CAS: 7647-01-0
a) acute toxicity:
Test: LC50 - Route: Inhalation Vapour - Species: Rat 2810 mg/kg - Duration: 1h
Test: LD50 - Route: Oral - Species: Rat 915 mg/kg
b) skin corrosion/irritation:
Test: Skin Corrosive - Route: Skin Positive - Notes: extremadamente corrosivo y destructivo para los tejidos

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity
Adopt good working practices, so that the product is not released into the environment.
Cyclopentyl methyl ether (CPME) / Hydrogen Chloride (HCl) 3M
Based on the available data, the classification criteria are not met.
Cyclopentyl methyl ether - CAS: 5614-37-9
a) Aquatic acute toxicity:
Endpoint: LC50 - Species: Fish > 220 mg/l - Duration h: 96
Endpoint: EC50 - Species: Algae > 100 mg/l - Duration h: 72
Endpoint: EC50 - Species: Daphnia 35 mg/l - Duration h: 48
b) Aquatic chronic toxicity:
Endpoint: NOEC - Species: Daphnia 1.24 mg/l - Duration h: 504
Endpoint: NOEC - Species: Fish 50.7 mg/l - Duration h: 672
hydrogen chloride - CAS: 7647-01-0
(a) Acute aquatic toxicity:
Endpoint: LC50 - Species: Fish 282 mg/l - Duration h: 96
Endpoint: EC50 - Species: Daphnia < 56 mg/l - Duration h: 72
12.2. Persistence and degradability
Not available
12.3. Bioaccumulative potential
Cyclopentyl methyl ether - CAS: 5614-37-9

Bioaccumulation	Test		Duration	Notes
Low Bioaccumulative potential	Kow - Partition coefficient	1.59	N.A.	N.A.

hydrogen chloride - CAS: 7647-01-0

Bioaccumulation	Test		Duration	Notes
Not bioaccumulative	N.A.	N.A.	N.A.	N.A.

12.4. Mobility in soil
Cyclopentyl methyl ether - CAS: 5614-37-9
Mobility in soil: N.A.Test: Koc 118.04 - Duration: N.A. - Notes: N.A.
Chlorure d'hydrogène - CAS: 7647-01-0
Bioaccumulation: Pas bioaccumulable - Test: Kow - Coefficient de partition 0.25 - Remarques: QSAR
12.5. Results of PBT and vPvB assessment
vPvB Substances: None - PBT Substances: None
12.6. Other adverse effects
None

SECTION 13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods
Recover, if possible. Send to authorised disposal plants or for incineration under controlled conditions.
In so doing, comply with the local and national regulations currently in force.

SECTION 14. TRANSPORT INFORMATION

14.1. UN number

ADR-UN Number:	2924
IATA-UN Number:	2924
IMDG-UN Number:	2924

14.2. UN proper shipping name

ADR-Shipping Name:	FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Cyclopentyl methyl ether, hydrogen chloride)
IATA-Shipping Name:	FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Cyclopentyl methyl ether, hydrogen chloride)
IMDG-Shipping Name:	FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Cyclopentyl methyl ether, hydrogen chloride)

14.3. Transport hazard class(es)

ADR-Class:	3
ADR - Hazard identification number:	338
IATA-Class:	3
IATA-Label:	3 + 8
IMDG-Class:	3

14.4. Packing group

ADR-Packing Group:	I
IATA-Packing group:	I
IMDG-Packing group:	I

14.5. Environmental hazards

ADR-Enviromental Pollutant:	No
IMDG-Marine pollutant:	No

14.6. Special precautions for user

ADR-Subsidiary risks:	8
ADR-S.P.:	274
ADR-Transport category (Tunnel restriction code):	1 (C/E)
IATA-Passenger Aircraft:	350
IATA-Subsidiary risks:	8
IATA-Cargo Aircraft:	360
IATA-S.P.:	A3 A803
IATA-ERG:	3CH
IMDG-EmS:	F-E , S-C
IMDG-Subsidiary risks:	8
IMDG-Stowage and handling:	Category E SW2
IMDG-Segregation:	-

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

N.A.

SECTION 15: REGULATORY INFORMATION

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

Dir. 98/24/EC (Risks related to chemical agents at work)
Dir. 2000/39/EC (Occupational exposure limit values)
Regulation (EC) n. 1907/2006 (REACH)
Regulation (EC) n. 1272/2008 (CLP)
Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013
Regulation (EU) n. 2015/830
Regulation (EU) n. 286/2011 (ATP 2 CLP)
Regulation (EU) n. 618/2012 (ATP 3 CLP)
Regulation (EU) n. 487/2013 (ATP 4 CLP)
Regulation (EU) n. 944/2013 (ATP 5 CLP)
Regulation (EU) n. 605/2014 (ATP 6 CLP)
Regulation (EU) n. 2015/1221 (ATP 7 CLP)
Regulation (EU) n. 2016/918 (ATP 8 CLP)
Regulation (EU) n. 2016/1179 (ATP 9 CLP)
Regulation (EU) n. 2017/776 (ATP 10 CLP)
Regulation (EU) n. 2018/669 (ATP 11 CLP)
Regulation (EU) n. 2018/1480 (ATP 13 CLP)

Regulation (EU) n. 2019/521 (ATP 12 CLP)

Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:

Restrictions related to the product:

Restriction 3

Restriction 40

Restrictions related to the substances contained:

No restriction.

Where applicable, refer to the following regulatory provisions :

Directive 2012/18/EU (Seveso III)

Regulation (EC) nr 648/2004 (detergents).

Dir. 2004/42/EC (VOC directive)

Provisions related to directive EU 2012/18 (Seveso III):

Seveso III category according to Annex 1, part 1

Product belongs to category: P5c

15.2. Chemical safety assessment

A Chemical safety assessment has been carried out for the substances that compounds the mixture.

SECTION 16: OTHER INFORMATION

Full text of phrases referred to in Section 3:

H225 Highly flammable liquid and vapour.
H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H315 Causes skin irritation.
H280 Contains gas under pressure; may explode if heated.
H314 Causes severe skin burns and eye damage.
H331 Toxic if inhaled.
EUH019 May form explosive peroxides
EUH071 Corrosive to the respiratory tract.

Hazard class and hazard category	Code	Description
Press. Gas	2.5	Gases under pressure
Flam. Liq. 2	2.6/2	Flammable liquid, Category 2
Acute Tox. 3	3.1/3/Inhal	Acute toxicity (inhalation), Category 3
Acute Tox. 4	3.1/4/Oral	Acute toxicity (oral), Category 4
Skin Corr. 1A	3.2/1A	Skin corrosion, Category 1A
Skin Irrit. 2	3.2/2	Skin irritation, Category 2
Eye Dam. 1	3.3/1	Serious eye damage, Category 1
Eye Irrit. 2	3.3/2	Eye irritation, Category 2

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Classification according to Regulation (EC) Nr. 1272/2008	Classification procedure
Flam. Liq. 2, H225	On basis of test data
Met. Corr. 1, H290	Calculation method
Acute Tox. 4, H302	Calculation method
Skin Corr. 1A, H314	Calculation method
Eye Dam. 1, H318	Calculation method

Paragraphs modified from the previous revision:

SECTION 2. Hazards identification
SECTION 3: Composition/information on ingredients
SECTION 7. Handling and storage
SECTION 10. stability and reactivity
SECTION 12: Ecological information
SECTION 16: Other information

This document was prepared by a competent person who has received appropriate training.

Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities

SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.
It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

This MSDS cancels and replaces any preceding release.

ADR:	European Agreement concerning the International Carriage of Dangerous Goods by Road.
CAS:	Chemical Abstracts Service (division of the American Chemical Society).
CLP:	Classification, Labeling, Packaging.
DNEL:	Derived No Effect Level.
EINECS:	European Inventory of Existing Commercial Chemical Substances.
GefStoffVO:	Ordinance on Hazardous Substances, Germany.
GHS:	Globally Harmonized System of Classification and Labeling of Chemicals.
IATA:	International Air Transport Association.
IATA-DGR:	Dangerous Goods Regulation by the "International Air Transport Association" (IATA).
ICAO:	International Civil Aviation Organization.
ICAO-TI:	Technical Instructions by the "International Civil Aviation Organization" (ICAO).
IMDG:	International Maritime Code for Dangerous Goods.
INCI:	International Nomenclature of Cosmetic Ingredients.
KSt:	Explosion coefficient.
LC50:	Lethal concentration, for 50 percent of test population.
LD50:	Lethal dose, for 50 percent of test population.
PNEC:	Predicted No Effect Concentration.
RID:	Regulation Concerning the International Transport of Dangerous Goods by Rail.
STEL:	Short Term Exposure limit.
STOT:	Specific Target Organ Toxicity.
TLV:	Threshold Limiting Value.
TWA:	Time-weighted average
WGK:	German Water Hazard Class.

ANNEX I: EXPOSURE ESCENARIOUS

Identification of the substance	
Chemical name	CYCLOPENTIL METHYL ETHER
CAS No.	5614-37-9
EC No.	445-090-6
Registration number(s)	01-0000018796-55

EE Number: 1	**Use in industrial plants; Several sectors**
Description of the stage	
Use as a solvent in the preparation of refined chemicals and pharmaceuticals	
List of usage descriptors	
Use sector [SU]	**SU**9: Manufacture of refined chemicals **SU24:** Scientific research and development
Product category [PC]	**PC 19:** Intermediate substances.
Process Categories [PROC]	**PROC1:** Use in closed processes, unlikely exposure -**PROC3**: Use in closed batch processes (synthesis or formulation) -**PROC8b**: Transfer of substancesor preparations (load/discharge) from or to ships or large containers in specialized facilities -**PROC15**: Use as a laboratory reagent
Description of emission categories to the environment [ERC]	**ERC4**: Use as a solvent in the preparation of refined chemicals and pharmaceuticals
2. Working conditions and risk management measures	
2.1. Environmental exposure control	
Characteristic overview: Daily quantity per plant < s 0.5 tons/day Annual quantity per plant < 125.0 tons/year Disposal of waste from used products or packaging in accordance with local regulations. Effluent discharge flow from budget floor >- 2000 m3/day Received surface water flow > s 18000 m3/day	
2.2 Worker exposure control	
Contributory scenarios	
PROC1: Worker exposure control: Use of CPME in closed systems	

Covers concentrations up to 100.0%
Covers usage up to a maximum of 8.0 h/day
Supply of a basic level of general ventilation (1 to 3 air changes per hour).
It assumes that the activities are carried out with appropriate and well-maintained equipment, making use of trained personnel who work under supervision.
Assume a process temperature of up to a maximum of 107.0oC
Indoor use

PROC3: Worker exposure control: Short sporadic exposure due to sampling, cleaning, maintenance, etc.

Covers concentrations up to 100.0%
Covers usage up to a maximum of 4.0 h/day
Supply of a good basic level of controlled ventilation (5 to 10 air changes per hour).
It assumes that the activities are carried out with appropriate and well-maintained equipment, making use of trained personnel who work under supervision.
Use of chemical resistant gloves (tested in accordance with EN374) together with "basic" employee training. If skin contamination is expected to spread to other parts of the body, these parts should also be protected with protective clothing equivalent to that described for the hands. For additional specifications, see section 8 of the Safety Data Sheet (SDF).
Use of adequate respiratory protection. Inhalation with minimum efficiency of 90.0%. For additional specifications, see section 8 of the Safety Data Sheet (SDF).
Assume a process temperature of up to a maximum of 40.0oC
Indoor use

PROC8b: Worker exposure control: Loading process lines of large vessels or tanks, etc.

Covers concentrations up to 100.0%
Covers usage up to a maximum of 1.0 h/day
Supply of a good basic level of controlled ventilation (5 to 10 air changes per hour).
It assumes that the activities are carried out with appropriate and well-maintained equipment, making use of trained personnel who work under supervision.
Use of chemical resistant gloves (tested in accordance with EN374) together with specific training for this activity.
If skin contamination is expected to spread to other parts of the body, these parts should also be protected with protective clothing equivalent to that described for the hands. For additional specifications, see section 8 of the Safety Data Sheet (SDF).
Use of adequate respiratory protection. Inhalation with minimum efficiency of 90.0%. For additional specifications, see section 8 of the Safety Data Sheet (SDF).
Assume a process temperature of up to a maximum of 35.0oC
Indoor use

PROC15: Worker exposure control: Use of CPME in laboratory

Covers concentrations up to 100.0%
Covers usage up to a maximum of 8.0 h/day
Local exhaust ventilation; Inhalation: minimum efficiency of 90.0 %
Supply of a good basic level of controlled ventilation (5 to 10 air changes per hour).
It assumes that the activities are carried out with appropriate and well-maintained equipment, making use of trained personnel who work under supervision.
Use of chemical resistant gloves (tested in accordance with EN374) together with "basic" employee training. If skin contamination is expected to spread to other parts of the body, these parts should also be protected with protective clothing equivalent to that described for the hands. For additional specifications, see section 8 of the Safety Data Sheet (SDF).
Assume a process temperature of up to a maximum of 40.0oC
Indoor use

3 Exposure estimation and reference to its source

ERC4 Emissions to the environment and exposure: Use as a solvent in the preparation of refined chemicals and pharmaceuticals

Emission route	Emission rate	Method for estimating emission
Water	0 kg/day	Estimated emission factor
Air	0 kg/day	Estimated emission factor

Soil	0.05 kg/day	Estimated emission factor

Protection target	**Estimated exposure**	**Ier**
Freshwater	3.12E-9 mg/m3 (EUSES 2.1.2)	< 0.01
Sediment (freshwater)	4.8E-8 mg/kg ps (EUSES 2.1.2)	< 0.01
Seawater	2.63E-10 mg/L (EUSES 2.1.2)	< 0.01
Sediment (seawater)	4.04E-9 mg/kg ps (EUSES 2.1.2)	< 0.01
Sewage treatment plant	0 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soils	8.06E-11 mg/kg ps (EUSES 2.1.2)	< 0.01

PROC 1 Worker's exposure: Use of CPME in closed systems

Route of exposure and type of effects	**Estimated exposure**	**Ier**
Inhalation, systemic, long-term	0.042 mg/m3 (TRA 3.0Workers)	< 0.01
Inhalation, systemic, acute	0.167 mg/m3 (TRA 3.0workers)	< 0.01
Dermal, systemic, long-term	0.034 mg/kg pc/day (TRA 3.0 workers)	0,068
Combined, systemic, long-term		0,07

P**ROC3** Worker's exposure: Sporadic brief exposure due to sampling, cleaning, maintenance, etc.

Route of exposure and type of effects	**Estimated exposure**	**Ier**
Inhalation, systemic, long-term	3,756 mg/m3 (TRA 3.0workers)	0,222
Inhalation, systemic, acute	25.04 mg/m3 (TRA 3.0Workers)	0,888
Dermal, systemic, long-term	0.041 mg/kg pc/day (TRA 3.0 workers)	0,083
Combined, systemic, long-term		0,305

PROC8b Worker's exposure: Loading process lines from large vessels or tanks, etc.

Route of exposure and type of effects	**Estimated exposure**	**Ier**
Inhalation, systemic, long-term	0.626 mg/m3 (TRA 3.0workers)	0,037
Inhalation, systemic, acute	12.52 mg/m3 (TRA 3.0workers)	0,444
Dermal, systemic, long-term	0.137 mg/kg pc/day (TRA 3.0 workers)	0,274
Combined, systemic, long-term		0,311

PROC15 Worker's exposure: Use of CPME in the laboratory.

Route of exposure and type of effects	**Estimated exposure**	**Ier**
Inhalation, systemic, long-term	6.26 mg/m3 (TRA 3.0workers)	0,37
Inhalation, systemic, acute	25.04 mg/m3 (TRA 3.0Workers)	0,888
Dermal, systemic, long-term	0.034 mg/kg pc/day (TRA 3.0 workers)	0,068

Combined, systemic, long-term		0,438

4 Guidance on verifying compliance with the assumption exposure for the next user

For a given contributing scenario, several risk management measures can be proposed. It is your responsibility to select the configuration that best corresponds to your activity.

PROC : Process Categories
SU : Sectors of use
PC : Product Categories
ERC : Environmental Release Categories
RCR : Risk characterisation ratios
DNEL : derived no-effect level (DNEL)
PNEC : Predicted No Effect Concentration (PNEC)

Identificación de la sustancia	
Chemical name	HYDROGEN CHLORIDE
CAS No.	7647-01-0
INDEX No.	017-002-01-0
EC No.	231-595-7
Registration number(s)	01-2119484862-27

Number of the ES: 1	**Industrial uses, closed contained conditions**
Scenario description	
Industrial uses, including product transfers and associated laboratory activities within different. closed or contained systems	
List of use descriptors	
Sector of use [SU]	**SU3 :** Industrial uses: Uses of substances as such or in preparations at industrial sites **SU10 :** Formulation
Product categories [PC]	**--**
Process categories [PROC]	**PROC1 :** Use in closed process, no likelihood of exposure **PROC2 :** Use in closed, continuous process with occasional controlled exposure **PROC8b :** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Environmental Release Categories [ERC]	**ERC2 :** Formulation of preparations

2 Conditions of use affecting exposure

2.1 Control of environmental exposure: Formulation of preparations (ERC2)

Characteristic general information:
Liquid gas
Concentration of substance in the product:
≤ 100%
Amount used, frequency and duration of use (or from service life)
The actual tonnage handled per site is not considered to influence the immissions as such for this scenario as there is practically no release.
Emission Days (days/year)
260 days/yr.
Technical and organisational conditions and measures
Use appropriate air emissions abatement systems (e.g. wet or dry scrubber or local STP) to ensure that the emission levels defined by local regulations are not exceeded
Soil emission controls are not applicable as there is no direct release to soil
Ensure operatives are trained to minimise releases
Conditions and measures related to sewage treatment plant
Substance will dissociate upon contact with water, the only effect is the pH effect, therefore after passing through the STP exposure is considered negligible and with no risk
Conditions and measures related to treatment of waste (including article waste)
No additional information
Other conditions affecting environmental exposure
No additional information

3 Exposure estimation and reference to its source

Worker exposure Use in closed process, no likelihood of exposure (PROC1)

Route of exposure and type of effects	Exposure estimate	Assessment conditions	RCR
Dermal - Long-term - systemic effects		Since the product has corrosive properties, dermal exposure has to be minimised as far as technically feasible. A DNEL for dermal effects has not been derived. Thus, dermal exposure is not assessed in this exposure scenario.	
Dermal - Acute - systemic effects		Since the product has corrosive properties, dermal exposure has to be minimised as far as technically feasible. A DNEL for dermal effects has not been derived. Thus, dermal exposure is not assessed in this exposure scenario.	
Acute - Local - Inhalation	0,03mg/m³		0,002
Long term - Local - Inhalation	0,015mg/m³		0,002
Control of worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)			
Route of exposure and type of effects	**Exposure estimate**	**Assessment conditions**	**RCR**
Dermal - Long-term - systemic effects		Since the product has corrosive properties, dermal exposure has to be minimised as far as technically feasible. A DNEL for dermal effects has not been derived. Thus, dermal exposure is not assessed in this exposure scenario.	
Dermal - Acute - systemic effects		Since the product has corrosive properties, dermal exposure has to be minimised as far as technically feasible. A DNEL for dermal effects has not been derived. Thus, dermal exposure is not assessed in this exposure scenario.	
Acute - Local - Inhalation	13,69mg/m³	Indoor use LEV90%	0,913
Long term - Local - Inhalation	4,11mg/m³	Indoor use LEV90%	0,514
Worker exposure Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities (PROC8b)			
Route of exposure and type of effects	**Exposure estimate**	**Assessment conditions**	**RCR**
Dermal - Long-term - systemic effects		Since the product has corrosive properties, dermal exposure has to be minimised as far as technically feasible. A DNEL for dermal effects has not been derived. Thus, dermal exposure is not assessed in this exposure scenario.	

Dermal - Acute - systemic effects		Since the product has corrosive properties, dermal exposure has to be minimised as far as technically feasible. A DNEL for dermal effects has not been derived. Thus, dermal exposure is not assessed in this exposure scenario.	
Acute - Local - Inhalation	13,69mg/m³	Indoor use LEV90%	0,913
Long term - Local - Inhalation	4,11mg/m³	Indoor use LEV90%	0,514

Environmental release and exposure Formulation of preparations (ERC2)

Environment
Qualitative approach used to conclude safe use.

4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Health
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. For scaling see : . http://www.ecetoc.org/tra

Environment
Check that RMMs and OCs are as described above or of equivalent efficiency

PROC : Process Categories
SU : Sectors of use
PC : Product Categories
ERC : Environmental Release Categories
RCR : Risk characterisation ratios
DNEL : derived no-effect level (DNEL)
PNEC : Predicted No Effect Concentration (PNEC)