



SAFETY DATA SHEET

HYDROCHLORIC ACID >25%

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

1.1. Product identifier

Product name	HYDROCHLORIC ACID >25%
Product number	22884
Synonyms; trade names	HYDROGEN CHLORIDE SOLUTION, MURIATIC ACID, HYDROCHLORIC ACID HG 37% SOL, HYDROCHLORIC ACID 30% SOL, HYDROCHLORIC ACID 30% SOL BSF, HYDROCHLORIC ACID 32% SOL, HYDROCHLORIC ACID 33% SOL, HYDROCHLORIC ACID FG 36% SOL, HYDROCHLORIC ACID HG 36% SOL, HYDROCHLORIC ACID 25%, HYDROCHLORIC ACID PTM, HYDROCHLORIC ACID 33% PPA, HYDROCHLORIC ACID 34%, HYDROCHLORIC ACID 37% SOL, HYDROCHLORIC ACID 32% UNI 939:2004, HYDROCHLORIC ACID 28%, HYDROCHLORIC ACID HG 36% SOL CABB, HCL 36% AR, HCL 36% BP, HYDROCHLORIC ACID 36%, HYDROCHLORIC ACID 36% CZ, HYDROCHLORIC ACID 30% FCC ED.7, HYDROCHLORIC ACID 36% FCC ED.7, HYDROCHLORIC ACID 33% FCC ED.7, HYDROCHLORIC ACID 30% AD, HYDROCHLORIC ACID 33% SOL O&G, HYDROCHLORIC ACID HG36%SOL CABB, HYDROCHLORIC ACID 33 % SOL, HYDROCHLORIC ACID MIN. 32%, HYDROCHLORIC ACID 33% HG SOL, HYDROCHLORIC ACID 35% SOL, HYDROCHLORIC ACID HG 28% SOL, HYDROCHLORIC ACID AR 30% SOL, HYDROCHLORIC ACID HG 32% SOL, HYDROCHLORIC ACID MIN. 33%, HYDROCHLORIC ACID 30-32 %, HYDROCHLORIC ACID HG 34% SOL, HCL ACID 35% SOL HG, HYDROCHLORIC ACID 33.5% Z SOL, HYDROCHLORIC ACID TG 32% CABB
REACH registration number	01-2119484862-27-XXXX
CAS number	7647-01-0
EU index number	017-002-01-X
EC number	231-595-7

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

Identified uses	Chemical Intermediate pH control Chemicals used in the synthesis and / or formulation of industrial products Industrial application
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1.3. Details of the supplier of the safety data sheet

Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com
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1.4. Emergency telephone number

Emergency telephone	SGS - +32 (0)3 575 55 55 (24h)
Sds No.	22884

HYDROCHLORIC ACID >25%

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards	Met. Corr. 1 - H290
Health hazards	Skin Corr. 1A - H314 Eye Dam. 1 - H318 STOT SE 3 - H335
Environmental hazards	Not Classified

2.2. Label elements

EC number 231-595-7

Hazard pictograms



Signal word Danger

Hazard statements
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.

Precautionary statements
P260 Do not breathe vapour/ spray.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P501 Dispose of contents/ container in accordance with national regulations.

2.3. Other hazards

This substance is not classified as PBT or vPvB according to current EU criteria.

SECTION 3: Composition/information on ingredients

3.1. Substances

Product name	HYDROCHLORIC ACID >25%
REACH registration number	01-2119484862-27-XXXX
EU index number	017-002-01-X
CAS number	7647-01-0
EC number	231-595-7
Composition comments	The data shown are in accordance with the latest EC Directives.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	Move affected person to fresh air at once. Get medical attention immediately.
Ingestion	Rinse mouth thoroughly with water. Give plenty of water to drink. Do not induce vomiting unless under the direction of medical personnel. Get medical attention immediately.
Skin contact	Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention immediately.

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Eye contact Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention immediately. Continue to rinse.

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

Inhalation May cause respiratory system irritation.

Ingestion May cause chemical burns in mouth, oesophagus and stomach.

Skin contact Causes severe burns.

Eye contact Causes serious eye damage. May cause permanent damage if eye is not immediately irrigated.

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

Notes for the doctor Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

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. Hydrogen chloride (HCl).

5.3. Advice for firefighters

Protective actions during firefighting Contain and collect extinguishing water. Avoid the spillage or runoff entering drains, sewers or watercourses.

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Follow precautions for safe handling described in this safety data sheet. Avoid inhalation of spray mist and contact with skin and eyes. Provide adequate ventilation.

6.2. Environmental precautions

Environmental precautions Avoid discharge into water courses or onto the ground. Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Absorb spillage with inert, damp, non-combustible material. Large spills, dilute, then neutralise with caustic solution. Flush contaminated area with plenty of water. Collect and place in suitable waste disposal containers and seal securely. For waste disposal, see Section 13.

6.4. Reference to other sections

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

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Usage precautions	Avoid inhalation of vapours/spray and contact with skin and eyes. Eye wash facilities and emergency shower must be available when handling this product. Provide adequate ventilation.
Advice on general occupational hygiene	Eye wash facilities and emergency shower must be available when handling this product. Do not eat, drink or smoke when using this product. Wash after use and before eating, smoking and using the toilet. Take off immediately all contaminated clothing and wash it before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions	Store in tightly-closed, original container in a dry, cool and well-ventilated place. Avoid contact with the following materials: Strong alkalis. Strong oxidising agents. Common metals.
Storage class	Corrosive storage.

7.3. Specific end use(s)

Specific end use(s)	The identified uses for this product are detailed in Section 1.2.
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SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Occupational exposure limits

Long-term exposure limit (8-hour TWA): WEL 1 ppm 2 mg/m³ gas and aerosol mists

Short-term exposure limit (15-minute): WEL 5 ppm 8 mg/m³ gas and aerosol mists

WEL = Workplace Exposure Limit.

Ingredient comments	WEL = Workplace Exposure Limits
DNEL	Workers - Inhalation; Long term local effects: 8 mg/m ³ Workers - Inhalation; Short term local effects: 15 mg/m ³
PNEC	- Fresh water; 36 mg/l - marine water; 36 mg/l - Intermittent release; 45 mg/l - STP; 36

8.2. Exposure controls

Protective equipment



Appropriate engineering controls	Provide adequate ventilation. Provide eyewash station and safety shower.
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Eye/face protection	Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Unless the assessment indicates a higher degree of protection is required, the following protection should be worn: Wear tight-fitting, chemical splash goggles or face shield. Personal protective equipment for eye and face protection should comply with European Standard EN166.
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Hand protection	Wear protective gloves. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. Nitrile rubber (0.38 - 0.425mm, Breakthrough time 4 - 8h), Butyl rubber (0.3 - 0.5mm, Breakthrough time >8h), Viton (0.7mm, Breakthrough time >8h). To protect hands from chemicals, gloves should comply with European Standard EN374.
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Other skin and body protection	Wear appropriate clothing to prevent any possibility of skin contact.
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Hygiene measures	Wash at the end of each work shift and before eating, smoking and using the toilet.
Respiratory protection	If ventilation is inadequate, suitable respiratory protection must be worn. Gas filter, type E. EN 136/140/141/145/143/149

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Fuming liquid. Liquid.
Colour	Colourless to pale yellow.
Odour	Acidic.
Odour threshold	No information available.
pH	pH (concentrated solution): 1
Melting point	~ -68 @ 25% ~ -25 @ 38% °C
Initial boiling point and range	No information available.
Flash point	No information available.
Evaporation rate	No information available.
Evaporation factor	No information available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	No information available.
Other flammability	No information available.
Vapour pressure	No information available.
Vapour density	No information available.
Relative density	1.127 - 1.190 @ 20°C
Bulk density	No information available.
Solubility(ies)	Soluble in water.
Partition coefficient	log Kow: -2.65
Auto-ignition temperature	No information available.
Decomposition Temperature	No information available.
Viscosity	No information available.
Explosive properties	No information available.
Explosive under the influence of a flame	No information available.
Oxidising properties	No information available.

9.2. Other information

Other information	Not determined.
Refractive index	No information available.
Particle size	No information available.
Molecular weight	No information available.

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Volatility	No information available.
Saturation concentration	No information available.
Critical temperature	No information available.
Volatile organic compound	No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	No test data specifically related to reactivity available for this product or its ingredients.
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10.2. Chemical stability

Stability	Stable at normal ambient temperatures and when used as recommended.
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10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	Reactions with the following materials may generate heat: Alkalis.
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10.4. Conditions to avoid

Conditions to avoid	Avoid excessive heat for prolonged periods of time.
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10.5. Incompatible materials

Materials to avoid	Strong alkalis. Strong oxidising agents. Common metals.
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10.6. Hazardous decomposition products

Hazardous decomposition products	Hydrogen chloride (HCl).
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SECTION 11: Toxicological information

11.1. Information on toxicological effects

Skin corrosion/irritation

Animal data	Corrosive.
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Serious eye damage/irritation

Serious eye damage/irritation	Causes serious eye damage.
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Respiratory sensitisation

Respiratory sensitisation	No information available.
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Skin sensitisation

Skin sensitisation	No information available.
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Germ cell mutagenicity

Genotoxicity - in vitro	Negative.
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Genotoxicity - in vivo	Negative.
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Carcinogenicity

IARC carcinogenicity	IARC Group 3 Not classifiable as to its carcinogenicity to humans.
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Reproductive toxicity

Reproductive toxicity - fertility	No information available.
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Specific target organ toxicity - single exposure

STOT - single exposure	May cause respiratory irritation.
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Specific target organ toxicity - repeated exposure

STOT - repeated exposure No information available.

Aspiration hazard

Aspiration hazard No information available.

Inhalation May cause respiratory system irritation.

Ingestion May cause chemical burns in mouth, oesophagus and stomach.

Skin contact Causes severe burns.

Eye contact Causes serious eye damage.

SECTION 12: Ecological information

Ecotoxicity The product components are not classified as environmentally hazardous. However, large or frequent spills may have hazardous effects on the environment.

12.1. Toxicity

Toxicity Not considered toxic to fish.

Acute aquatic toxicity

Acute toxicity - fish LC₅₀, 96 hours: 20.5 mg/l, *Lepomis macrochirus* (Bluegill)

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 0.45 mg/l, *Daphnia magna*

Acute toxicity - aquatic plants EC₅₀, 72 hours: 0.73 mg/l, Freshwater algae

12.2. Persistence and degradability

Persistence and degradability The product is expected to be biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential The product does not contain any substances expected to be bioaccumulating.

Partition coefficient log Kow: -2.65

12.4. Mobility in soil

Mobility The product is soluble in water.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current EU criteria.

12.6. Other adverse effects

Other adverse effects Not determined.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information Waste is classified as hazardous waste. Do not puncture or incinerate, even when empty.

Disposal methods Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

SECTION 14: Transport information

General Wear protective clothing as described in Section 8 of this safety data sheet.

HYDROCHLORIC ACID >25%**14.1. UN number**

UN No. (ADR/RID)	1789
UN No. (IMDG)	1789
UN No. (ICAO)	1789
UN No. (ADN)	1789

14.2. UN proper shipping name

Proper shipping name (ADR/RID)	HYDROCHLORIC ACID
Proper shipping name (IMDG)	HYDROCHLORIC ACID
Proper shipping name (ICAO)	HYDROCHLORIC ACID
Proper shipping name (ADN)	HYDROCHLORIC ACID

14.3. Transport hazard class(es)

ADR/RID class	8
ADR/RID classification code	C1
ADR/RID label	8
IMDG class	8
ICAO class/division	8
ADN class	8

Transport labels**14.4. Packing group**

ADR/RID packing group	II
IMDG packing group	II
ICAO packing group	II
ADN packing group	II

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant
No.

14.6. Special precautions for user

EmS	F-A, S-B
ADR transport category	2
Emergency Action Code	2R
Hazard Identification Number (ADR/RID)	80
Tunnel restriction code	(E)

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14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Not applicable.

Annex II of MARPOL 73/78
and the IBC Code

SECTION 15: Regulatory information

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

EU legislation

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended).

Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

Commission Regulation (EU) No 2015/830 of 28 May 2015.

Restrictions (Annex XVII Regulation 1907/2006)

This product is/contains a substance that is included in REGULATION (EC) No 1907/2006 (REACH) ANNEX XVII - RESTRICTIONS ON THE MANUFACTURE, PLACING ON THE MARKET AND USE OF CERTAIN DANGEROUS SUBSTANCES, MIXTURES AND ARTICLES. Entry number: 3

15.2. Chemical safety assessment

A chemical safety assessment has been carried out.

Inventories

EU - EINECS/ELINCS

All the ingredients are listed or exempt.

SECTION 16: Other information

HYDROCHLORIC ACID >25%

Abbreviations and acronyms used in the safety data sheet

ATE: Acute Toxicity Estimate.
 ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
 ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
 CAS: Chemical Abstracts Service.
 DNEL: Derived No Effect Level.
 IATA: International Air Transport Association.
 IMDG: International Maritime Dangerous Goods.
 Kow: Octanol-water partition coefficient.
 LC₅₀: Lethal Concentration to 50 % of a test population.
 LD₅₀: Lethal Dose to 50% of a test population (Median Lethal Dose).
 PBT: Persistent, Bioaccumulative and Toxic substance.
 PNEC: Predicted No Effect Concentration.
 REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006.
 RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
 vPvB: Very Persistent and Very Bioaccumulative.
 IARC: International Agency for Research on Cancer.
 MARPOL 73/78: International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978.
 cATpE: Converted Acute Toxicity Point Estimate.
 BCF: Bioconcentration Factor.
 BOD: Biochemical Oxygen Demand.
 EC₅₀: 50% of maximal Effective Concentration.
 LOAEC: Lowest Observed Adverse Effect Concentration.
 LOAEL: Lowest Observed Adverse Effect Level.
 NOAEC: No Observed Adverse Effect Concentration.
 NOAEL: No Observed Adverse Effect Level.
 NOEC: No Observed Effect Concentration.
 LOEC: Lowest Observed Effect Concentration.
 DMEL: Derived Minimal Effect Level.
 EL50: Exposure Limit 50
 hPa: Hectopascal
 LL50: Lethal Loading fifty
 OECD: Organisation for Economic Co-operation and Development
 POW: Octanol-water partition coefficient
 SCBA: self-contained breathing apparatus
 STP: Sewage Treatment Plant
 VOC: Volatile Organic Compounds

Classification abbreviations and acronyms

Acute Tox. = Acute toxicity
 Aquatic Acute = Hazardous to the aquatic environment (acute)
 Aquatic Chronic = Hazardous to the aquatic environment (chronic)

Key literature references and sources for data

Supplier's information.

Revision comments

NOTE: Lines within the margin indicate significant changes from the previous revision.

Revision date

13/05/2022

Version number

3.007

Supersedes date

04/05/2021

SDS number

22884

HYDROCHLORIC ACID >25%

SDS status	Approved.
Hazard statements in full	H290 May be corrosive to metals. H314 Causes severe skin burns and eye damage. H318 Causes serious eye damage. H335 May cause respiratory irritation.
Signature	Jitendra Panchal

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.



Exposure scenario Industrial Use

Identification

Product name	Hydrochloric Acid
REACH registration number	01-2119484862-27-XXXX
CAS number	7647-01-0
EC number	231-595-7
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Industrial Use
Process scope	Manufacture of the substance or use as a process chemical or extraction agent within closed or contained systems. Includes incidental exposures during recycling/recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).
Main sector	SU3 Industrial uses
Sector of use	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals

Environment

Environmental release category	ERC1 Manufacture of the substance ERC2 Formulation into mixture
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Worker

Industrial Use

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Control of environmental exposure

Environmental release category	ERC1 Manufacture of the substance ERC2 Formulation into mixture
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Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP.
Concentration details	Covers concentrations up to 40 %.

Frequency and duration of use

Emission days: 360 days/year

Risk management measures

Good practice	Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases. Prevent leaks and prevent soil/water pollution caused by leaks. Retain drain-downs in sealed storage pending disposal or for subsequent recycle.
Technical measures	Drain down and flush system prior to equipment break-in or maintenance. Clear spills immediately.

Conditions and measures related to external treatment of waste for disposal

Waste treatment	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration details	Covers concentrations up to 40 %. Unless otherwise stated.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.
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Technical conditions and measures at process level (source) to prevent release

Industrial Use

Technical protective measures General exposures (closed systems) Handle substance within a closed system. Clear transfer lines prior to de-coupling. Ensure material transfers are under containment or extract ventilation. Drain down and flush system prior to equipment break-in or maintenance. General exposures (open systems) Use bulk or semi-bulk handling systems. Use drum pumps. Provide extract ventilation to points where emissions occur. Fill containers/cans at dedicated fill points supplied with local extract ventilation. Laboratory activities Handle in a fume cupboard or under extract ventilation.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented. Ensure operatives are trained to minimise exposures. Avoid carrying out activities involving exposure for more than 4 hours.

Risk management measures

Wear suitable gloves (tested to EN374) and eye protection.

3. Exposure estimation (Health 1)

Assessment method Used ECETOC TRA model.

Exposure

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
Worker - inhalation: Exposure 0.02 mg/m³, DNEL 8 mg/m³, RCR 0.0

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
Worker - inhalation: Exposure 1.5 mg/m³, DNEL 8 mg/m³, RCR 0.2

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
Worker - inhalation: Exposure 3.75 mg/m³, DNEL 8 mg/m³, RCR 0.5

PROC4 Chemical production where opportunity for exposure arises
PROC15 Use as laboratory reagent.
Worker - inhalation: Exposure 3.0 mg/m³, DNEL 8 mg/m³, RCR 0.4

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
Worker - inhalation: Exposure 7.5 mg/m³, DNEL 8 mg/m³, RCR 0.9



Exposure scenario

Industrial use as an intermediate

Identification

Product name	Hydrochloric Acid
REACH registration number	01-2119484862-27-XXXX
CAS number	7647-01-0
EC number	231-595-7
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Industrial use as an intermediate
Process scope	Use of substance as an intermediate (not related to Strictly Controlled Conditions). Includes recycling/recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).
Main sector	SU3 Industrial uses
Sector of use	SU4 Manufacture of food products SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals SU11 Manufacture of rubber products SU12 Manufacture of plastics products, including compounding and conversion SU13 Manufacture of other non-metallic mineral products SU19 Building and construction work

Environment

Environmental release category	ERC6a Use of intermediate
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Worker

Industrial use as an intermediate

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Concentration details Covers concentrations up to 40 %.

Frequency and duration of use

Continuous release.
Emission days: 360 days/year

Risk management measures

Good practice Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases. Prevent leaks and prevent soil/water pollution caused by leaks.

Conditions and measures related to external treatment of waste for disposal

Waste treatment All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Liquid

Vapour pressure Vapour pressure 0.5 - 10 kPa at STP.

Concentration details Covers concentrations up to 40 %.

Frequency and duration of use

Covers frequency up to 360 days/year, , .

Other given operational conditions affecting workers exposure

Temperature Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures General exposures (closed systems) Handle substance within a closed system. Clear transfer lines prior to de-coupling. Ensure material transfers are provided with suitable arrangements for vapour capture or venting. Drain down and flush system prior to equipment break-in or maintenance. General exposures (open systems) Use bulk or semi-bulk handling systems. Use drum pumps. Drain down and flush system prior to equipment break-in or maintenance. Fill containers/cans at dedicated fill points supplied with local extract ventilation. Provide extract ventilation to points where emissions occur. Laboratory activities Handle in a fume cupboard or under extract ventilation. Carry out in a vented booth or extracted enclosure.

Organisational measures to prevent/limit releases, dispersion and exposure

Industrial use as an intermediate

Organisational measures Ensure operatives are trained to minimise exposures. Avoid carrying out activities involving exposure for more than 4 hours. Assumes a good basic standard of occupational hygiene is implemented.

Risk management measures

Wear suitable gloves (tested to EN374), coverall and eye protection.

3. Exposure estimation (Health 1)

Assessment method Used ECETOC TRA model.

Exposure

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
: Exposure 0.02 mg/m³, DNEL 8 mg/m³, RCR 0.0

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
: Exposure 1.5 mg/m³, DNEL 8 mg/m³, RCR 0.2

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
: Exposure 3.75 mg/m³, DNEL 8 mg/m³, RCR 0.5

PROC4 Chemical production where opportunity for exposure arises

PROC15 Use as laboratory reagent.
: Exposure 3.0 mg/m³, DNEL 8 mg/m³, RCR 0.4

PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
: Exposure 7.5 mg/m³, DNEL 8 mg/m³, RCR 0.9



Exposure scenario

Formulation & (Re)Packaging of the substance and its formulations by industry and by professionals

Identification

Product name	Hydrochloric Acid
REACH registration number	01-2119484862-27-XXXX
CAS number	7647-01-0
EC number	231-595-7
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Formulation & (Re)Packaging of the substance and its formulations by industry and by professionals
Main sector	SU3 Industrial uses
Sector of use	SU10 Formulation [mixing] of preparations and/or re-packaging

Environment

Environmental release category	ERC2 Formulation into mixture
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Formulation & (Re)Packaging of the substance and its formulations by industry and by professionals

Concentration details Concentration of substance in product: 20% Unless otherwise stated.

Frequency and duration of use

Continuous use/release.
Emission days: 360 days/year

Risk management measures

Good practice Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases. Prevent leaks and prevent soil/water pollution caused by leaks.

Conditions and measures related to external treatment of waste for disposal

Waste treatment All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Liquid
Vapour pressure Vapour pressure 0.5 - 10 kPa at STP.
Concentration details Covers concentrations up to 20 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Temperature Operation is carried out at elevated temperature (> 20°C above ambient temperature).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures General exposures (closed systems) Handle substance within a closed system. Clear transfer lines prior to de-coupling. Ensure material transfers are under containment or extract ventilation. Drain down and flush system prior to equipment break-in or maintenance. General exposures (open systems) Use bulk or semi-bulk handling systems. Provide extract ventilation to points where emissions occur. Fill containers/cans at dedicated fill points supplied with local extract ventilation.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented.

Risk management measures

Wear suitable gloves (tested to EN374), coverall and eye protection.

Additional advice Clear spills immediately.

3. Exposure estimation (Health 1)

Assessment method Used ECETOC TRA model.

Formulation & (Re)Packaging of the substance and its formulations by industry and by professionals

Exposure

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions

: Exposure 0.02 mg/m³, DNEL 8 mg/m³, RCR 0.0

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

: Exposure 1.5 mg/m³, DNEL 8 mg/m³, RCR 0.2

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

: Exposure 3.75 mg/m³, DNEL 8 mg/m³, RCR 0.5

PROC4 Chemical production where opportunity for exposure arises

: Exposure 3.00 mg/m³, DNEL 8 mg/m³, RCR 0.4

PROC5 Mixing or blending in batch processes

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

: Exposure 7.5 mg/m³, DNEL 8 mg/m³, RCR 0.9



Exposure scenario

Industrial use of substance and formulations

Identification

Product name	Hydrochloric Acid
REACH registration number	01-2119484862-27-XXXX
CAS number	7647-01-0
EC number	231-595-7
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Industrial use of substance and formulations
Main sector	SU3 Industrial uses
Sector of use	SU2a Mining (without offshore industries) SU2b Offshore industries SU5 Manufacture of textiles, leather, fur SU14 Manufacture of basic metals, including alloys SU15 Manufacture of fabricated metal products, except machinery and equipment SU16 Manufacture of computer, electronic and optical products, electrical equipment

Environment

Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article) ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article)
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. PROC15 Use as laboratory reagent. PROC19 Manual activities involving hand contact
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Industrial use of substance and formulations

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Concentration details Covers concentrations up to 40 %.

Frequency and duration of use

Continuous release.
Emission days: 360 days/year

Risk management measures

Good practice Prevent leaks and prevent soil/water pollution caused by leaks. Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases.

Conditions and measures related to external treatment of waste for disposal

Waste treatment All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Liquid

Concentration details Covers concentrations up to 40 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Temperature Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures General exposures (closed systems) Handle substance within a closed system. Ensure material transfers are under containment or extract ventilation. Clear transfer lines prior to de-coupling. General exposures (open systems) Drain down and flush system prior to equipment break-in or maintenance. Ensure material transfers are under containment or extract ventilation. Use bulk or semi-bulk handling systems. Fill containers/cans at dedicated fill points supplied with local extract ventilation. Use drum pumps. Provide extract ventilation to material transfer points and other openings. Automate activity where possible. Laboratory activities Handle in a fume cupboard or under extract ventilation. Avoid carrying out operation for more than 4 hours. Avoid carrying out activities involving exposure for more than 1 hour.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented. Ensure operatives are trained to minimise exposures.

Risk management measures

Wear suitable gloves tested to EN374.
Wear a respirator conforming to EN140 with Type A filter or better.

3. Exposure estimation (Health 1)

Assessment method Used ECETOC TRA model.

Industrial use of substance and formulations

Exposure

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions

: Exposure 0.02 mg/m³, DNEL 8 mg/m³, RCR 0.0

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

: Exposure 1.5 mg/m³, DNEL 8 mg/m³, RCR 0.2

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

: Exposure 3.75 mg/m³, DNEL 8 mg/m³, RCR 0.5

PROC4 Chemical production where opportunity for exposure arises

: Exposure 3 mg/m³, DNEL 8 mg/m³, RCR 0.4

PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

PROC10 Roller application or brushing

PROC13 Treatment of articles by dipping and pouring.

PROC19 Manual activities involving hand contact

: Exposure 7.5 mg/m³, DNEL 8 mg/m³, RCR 0.9

PROC15 Use as laboratory reagent.

: Exposure 1.8 mg/m³, DNEL 8 mg/m³, RCR 0.2



Exposure scenario

Professional use of the substance and formulations

Identification

Product name	Hydrochloric Acid
REACH registration number	01-2119484862-27-XXXX
CAS number	7647-01-0
EC number	231-595-7
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Professional use of the substance and formulations
Main sector	SU22 Professional uses
Sector of use	SU20 Health services SU23 Electricity, steam, gas, water supply and sewage treatment

Environment

Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article) ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article) ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8b Widespread use of reactive processing aid (no inclusion into or onto article, indoor) ERC8e Widespread use of reactive processing aid (no inclusion into or onto article, outdoor)
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Worker

Professional use of the substance and formulations

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC10 Roller application or brushing PROC11 Non industrial spraying PROC13 Treatment of articles by dipping and pouring. PROC15 Use as laboratory reagent. PROC19 Manual activities involving hand contact
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP.
Concentration details	Covers concentrations up to 40 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.
Ventilation rate	Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures	General exposures (closed systems) Clear transfer lines prior to de-coupling. Ensure material transfers are under containment or extract ventilation. General exposures (open systems) Handle substance within a predominantly closed system provided with extract ventilation.
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Assumes a good basic standard of occupational hygiene is implemented. Ensure operatives are trained to minimise exposures. Clear spills immediately.
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Risk management measures

Wear suitable gloves tested to EN374.
Wear a respirator conforming to EN140 with Type A filter or better.

2. Conditions of use affecting exposure (Non-industrial - Environment 1)

Product characteristics

Concentration details	Covers concentrations up to 40 %.
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Frequency and duration of use

Emission days: 360 days/year

Risk management measures

Good practice	Prevent leaks and prevent soil/water pollution caused by leaks.
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Professional use of the substance and formulations

Conditions and measures related to external treatment of waste for disposal

Waste treatment

Ensure all waste water is collected and treated via a WWTP. All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.



Exposure scenario

Consumer end use

Identification

Product name	Hydrochloric Acid
REACH registration number	01-2119484862-27-XXXX
CAS number	7647-01-0
EC number	231-595-7
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Consumer end use
Product category	PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC21 Laboratory chemicals. PC35 Washing and cleaning products PC37 Water treatment chemicals. PC38 Welding and soldering products, flux products
Main sector	SU21 Consumer uses

Environment

Environmental release category	ERC8b Widespread use of reactive processing aid (no inclusion into or onto article, indoor) ERC8e Widespread use of reactive processing aid (no inclusion into or onto article, outdoor)
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP.
Concentration details	Covers concentrations up to 40 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.
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Consumer end use

Ventilation rate Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures General exposures (closed systems) Clear transfer lines prior to de-coupling. Ensure material transfers are under containment or extract ventilation. General exposures (open systems) Handle substance within a predominantly closed system provided with extract ventilation.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented. Ensure operatives are trained to minimise exposures. Clear spills immediately.

Risk management measures

Wear suitable gloves tested to EN374.
Wear a respirator conforming to EN140 with Type A filter or better.

2. Conditions of use affecting exposure (Non-industrial - Environment 1)

Product characteristics

Concentration details Covers concentrations up to 20 %.

Frequency and duration of use

Emission days: 360 days/year

Risk management measures

Good practice Prevent leaks and prevent soil/water pollution caused by leaks.
No other specific measures identified.

Conditions and measures related to external treatment of waste for disposal

Waste treatment Domestic sewage treatment is not assumed.

2. Conditions of use affecting exposure (Non-industrial - Health 1)

Product characteristics

Physical state Liquid

Vapour pressure Vapour pressure < 0.5 kPa at STP.

Concentration details Covers concentrations up to 20 %.

Amounts used

Amount per use: 0.5 litre

Frequency and duration of use

Emission days: 5 days/year

Other given operational conditions affecting Non-industrial exposure

Temperature Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Other given operational conditions affecting Non-industrial exposure

Exposure time Avoid carrying out operation for more than 4 hours.

Consumer information Avoid using without gloves. Use suitable eye protection.

3. Exposure estimation (Environment 1)

Consumer end use

Assessment method Qualitative approach used to conclude safe use.

3. Exposure estimation (Health 1)

Assessment method Qualitative approach used to conclude safe use.

4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.