

SECTION 1: Identification

1.1. Identification

Product form	: Substance
Substance name	: Hydrochloric Acid, concentrated
CAS No.	: 7647-01-0
Product code	: 3400-16
Formula	: HCl
Synonyms	: hydrochloric acid, conc 37%, aqueous solution; muriatic acid

1.2. Recommended use and restrictions on use

Use of the substance/mixture	: Laboratory chemical
Recommended use	: Laboratory chemicals
Restrictions on use	: Not for food, drug or household use

1.3. Supplier

Astral Diagnostics Inc.
Logan Township NJ 08085 - United States
T +1 856 224 0900
800-441-0366 Technical Service; Monday-Friday: 8:00AM-5:00 PM, Eastern US Time
www.ethosbiosciences.com

1.4. Emergency telephone number

Emergency number : 800-424-9300 CHEMTREC (USA) -- 24 Hours/Day, 7 Days/Week

SECTION 2: Hazard(s) identification


2.1. Classification of the substance or mixture

GHS US classification

Acute toxicity (oral) Category 4	H302	Harmful if swallowed
Skin corrosion/irritation Category 1B	H314	Causes severe skin burns and eye damage
Serious eye damage/eye irritation Category 1	H318	Causes serious eye damage
Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation	H335	May cause respiratory irritation
Hazardous to the aquatic environment - Acute Hazard Category 3	H402	Harmful to aquatic life
Full text of H statements : see section 16		

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US)	:	
Signal word (GHS US)	:	Danger
Hazard statements (GHS US)	:	H302 - Harmful if swallowed H314 - Causes severe skin burns and eye damage H335 - May cause respiratory irritation H402 - Harmful to aquatic life
Precautionary statements (GHS US)	:	P260 - Do not breathe mist, spray, vapors. P264 - Wash exposed skin thoroughly after handling.

Hydrochloric Acid, concentrated

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P280 - Wear eye protection, face protection, protective clothing, protective gloves.
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
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 or doctor/physician.
P363 - Wash contaminated clothing before reuse.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.
P501 - Dispose of contents/container to comply with local, state and federal regulations.

2.3. Other hazards which do not result in classification

Other hazards not contributing to the classification : None under normal conditions.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Substance type : Mixture
Name : Hydrochloric Acid, concentrated
CAS-No. : 7647-01-0

Name	Product identifier	%	GHS US classification
Water	CAS-No.: 7732-18-5	63	Not classified
Hydrochloric Acid	CAS-No.: 7647-01-0	37	Press. Gas (Comp.), H280 Acute Tox. 3 (Inhalation), H331 Skin Corr. 1A, H314

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with labored breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.

First-aid measures after inhalation : Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

First-aid measures after skin contact : Wash immediately with water. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Consult a doctor/medical service. If burned surface > 10%: take victim to hospital.

Hydrochloric Acid, concentrated

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

First-aid measures after eye contact	: Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply (chemical) neutralizing agents without medical advice.
First-aid measures after ingestion	: Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Immediately consult a doctor/medical service. Call Poison Control (800) 222-1222 (US only). Take the container/vomit to the doctor/hospital. Do not give chemical antidote. Ingestion of large quantities: immediately to hospital.

4.2. Most important symptoms and effects (acute and delayed)

Potential Adverse human health effects and symptoms	: Causes severe skin burns. May cause respiratory irritation. Causes serious eye damage.
Symptoms/effects after inhalation	: Dry/sore throat. Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes. EXPOSURE TO HIGH CONCENTRATIONS: Respiratory difficulties. Possible laryngeal spasm/edema. Corrosion of the upper respiratory tract. FOLLOWING SYMPTOMS MAY APPEAR LATER: Risk of pneumonia. Risk of lung edema.
Symptoms/effects after skin contact	: Caustic burns/corrosion of the skin.
Symptoms/effects after eye contact	: Corrosion of the eye tissue. Permanent eye damage.
Symptoms/effects after ingestion	: Burns to the gastric/intestinal mucosa. Blood in vomit. Possible esophageal perforation. Shock.

4.3. Immediate medical attention and special treatment, if necessary

Obtain medical assistance.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media	: Adapt extinguishing media to the environment for surrounding fires.
------------------------------	---

5.2. Specific hazards arising from the chemical

Fire hazard	: DIRECT FIRE HAZARD. Non combustible. INDIRECT FIRE HAZARD. Reactions involving a fire hazard: see "Reactivity Hazard".
Explosion hazard	: INDIRECT EXPLOSION HAZARD. Reactions with explosion hazards: see "Reactivity Hazard".

5.3. Special protective equipment and precautions for fire-fighters

Precautionary measures fire	: Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: seal off low-lying areas. Exposure to fire/heat: have neighborhood close doors and windows.
Firefighting instructions	: Dilute toxic gases with water spray. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.
Protection during firefighting	: Heat/fire exposure: self-contained breathing apparatus (EN 136 + EN 137).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Dike and contain spill.
------------------	---------------------------

6.1.1. For non-emergency personnel

Protective equipment	: Gloves. Eye protection (splash goggles or safety glasses + face shield. Corrosion-proof suit. Large spills/in enclosed spaces: self-contained breathing apparatus. Large spills/in enclosed spaces: gas-tight suit. Reactivity hazard: self-contained breathing apparatus. Reactivity hazard: gas-tight suit.
Emergency procedures	: Mark the danger area. No naked flames. In case of hazardous reactions: keep upwind. In case of reactivity hazard: consider evacuation. Large spills/in confined spaces: consider evacuation. Wash contaminated clothes.

Hydrochloric Acid, concentrated

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.
Emergency procedures : Stop leak if safe to do so. Ventilate area.

6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

For containment : Contain released substance, pump into suitable containers. Plug the leak, cut off the supply. Dam up the liquid spill. Hazardous reaction: measure explosive gas-air mixture. If reacting: dilute combustible/toxic gases/vapors. Take account of toxic/corrosive precipitation water. Heat exposure: dilute toxic gas/vapor with water spray.

Methods for cleaning up : Liquid spill: neutralize with soda (sodium carbonate). Neutralized substance: take up in absorbent material. Scoop absorbed substance into closing containers. Damaged/cooled tanks must be emptied. Carefully collect the spill/leftovers. Take collected spill to manufacturer/competent authority. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Keep away from naked flames/heat. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Keep container tightly closed.

Hygiene measures : Do not eat, drink, or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and when leaving work. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in original container.

Incompatible materials : Strong bases, metals, metal oxides, hydroxides, amines, carbonates, cyanides, sulfides, sulfites, formaldehyde, organic acids, aldehydes, phosphides, alcohols, carbides, epoxides

Storage temperature : 2 – 25 °C

Heat-ignition : KEEP SUBSTANCE AWAY FROM: Heat sources.

Prohibitions on mixed storage : KEEP SUBSTANCE AWAY FROM: Oxidizing agents. (Strong) bases. Metals. Amines.

Storage area : Ventilation at floor level. Keep locked up. Provide for a tub to collect spills. Meet the legal requirements.

Special rules on packaging : SPECIAL REQUIREMENTS: closing. corrosion-proof. clean. correctly labeled. Meet the legal requirements. Secure fragile packagings in solid containers.

Packaging materials : MATERIAL TO AVOID: Steel. Metal.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Hydrochloric Acid, concentrated

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Hydrochloric Acid, concentrated (7647-01-0)	
USA - ACGIH - Occupational Exposure Limits	
ACGIH Ceiling (mg/m ³)	2.98 mg/m ³
ACGIH Ceiling (ppm)	2 ppm
USA - OSHA - Occupational Exposure Limits	
OSHA PEL (Ceiling)	7 mg/m ³
OSHA PEL C [ppm]	5 ppm
USA - IDLH - Occupational Exposure Limits	
IDLH [ppm]	50 ppm
USA - NIOSH - Occupational Exposure Limits	
NIOSH REL (Ceiling)	7 mg/m ³
NIOSH REL C [ppm]	5 ppm
Hydrochloric Acid (7647-01-0)	
USA - ACGIH - Occupational Exposure Limits	
ACGIH Ceiling (mg/m ³)	2.98 mg/m ³
ACGIH Ceiling (ppm)	2 ppm
USA - OSHA - Occupational Exposure Limits	
OSHA PEL (Ceiling)	7 mg/m ³
OSHA PEL C [ppm]	5 ppm
USA - IDLH - Occupational Exposure Limits	
IDLH [ppm]	50 ppm
USA - NIOSH - Occupational Exposure Limits	
NIOSH REL (Ceiling)	7 mg/m ³
NIOSH REL C [ppm]	5 ppm
Water (7732-18-5)	
No additional information available	

8.2. Appropriate engineering controls

Appropriate engineering controls : Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Material should be handled in a laboratory hood whenever possible.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Eye protection (chemical splash goggles). Gloves. Chemical resistant apron.

Materials for protective clothing:

GIVE GOOD RESISTANCE: natural rubber. nitrile rubber

Hand protection:

Gloves

Hydrochloric Acid, concentrated

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Eye protection:

Face shield (EN 166)

Skin and body protection:

Corrosion-proof clothing (EN 14605)

Respiratory protection:

Full face mask with filter type B. Full face mask with filter type E. High vapor/gas concentration: self-contained breathing apparatus (EN 136 + EN 137)

Personal protective equipment symbol(s):



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquid.
Color	: Colorless
Odor	: Irritating/pungent odor
Odor threshold	: No data available
pH	: < 1
Melting point	: No data available
Freezing point	: -30 °C
Boiling point	: No data available
Flash point	: Not applicable
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: 17.2 kPa
Vapor pressure at 50 °C	: 50.7 kPa
Relative vapor density at 20 °C	: No data available
Particle size	: Not applicable (liquid)
Relative density	: 1.2
Density	: 1190 kg/m ³
Molecular mass	: 36.46 g/mol
Solubility	: Soluble in water. Water: complete
Log Pow	: 0.25 (QSAR)
Auto-ignition temperature	: Not applicable
Decomposition temperature	: No data available
Viscosity, kinematic	: 1.933 mm ² /s
Viscosity, dynamic	: 2.3 mPa·s (15 °C)
Explosion limits	: No data available
Explosive properties	: Not applicable.
Oxidizing properties	: None.

9.2. Other information

Minimum ignition energy	: Not applicable
VOC content	: 0 %
Other properties	: Gas/vapor heavier than air at 20°C. Producing fumes/mist. Substance has acid reaction.

Hydrochloric Acid, concentrated

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 10: Stability and reactivity

10.1. Reactivity

On exposure to air: release of corrosive mist. Reacts violently with (some) bases. Reacts exothermically with many compounds.

10.2. Chemical stability

No additional information available

10.3. Possibility of hazardous reactions

Reacts violently with (some) bases: release of heat.

10.4. Conditions to avoid

Incompatible materials.

10.5. Incompatible materials

Oxidizing agents, reducing agents, strong bases, metals, metal oxides, hydroxides, amines, carbonates, cyanides, sulfides, sulfites, formaldehyde, organic acids, aldehydes, phosphides, alcohols, carbides, epoxides

10.6. Hazardous decomposition products

Hydrogen chloride.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Harmful if swallowed.
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

Hydrochloric Acid, concentrated (7647-01-0)

LD50 oral rat	700 mg/kg
LD50 dermal rabbit	5010 mg/kg
ATE US (oral)	700 mg/kg body weight
ATE US (dermal)	5010 mg/kg body weight

Hydrochloric Acid (7647-01-0)

ATE US (gases)	700 ppm/4h
----------------	------------

Water (7732-18-5)

LD50 oral rat	≥ 90000 mg/kg
ATE US (oral)	90000 mg/kg body weight

Skin corrosion/irritation : Causes severe skin burns.
pH: < 1
Serious eye damage/irritation : Causes serious eye damage.
pH: < 1
Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

Hydrochloric Acid (7647-01-0)

IARC group	3 - Not classifiable
------------	----------------------

Hydrochloric Acid, concentrated

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Reproductive toxicity	: Not classified
STOT-single exposure	: May cause respiratory irritation.
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
Viscosity, kinematic	: 1.933 mm ² /s
Likely routes of exposure	: Inhalation. Skin and eye contact.
Potential Adverse human health effects and symptoms	: Causes severe skin burns. May cause respiratory irritation. Causes serious eye damage.
Symptoms/effects after inhalation	: Dry/sore throat. Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes. EXPOSURE TO HIGH CONCENTRATIONS: Respiratory difficulties. Possible laryngeal spasm/edema. Corrosion of the upper respiratory tract. FOLLOWING SYMPTOMS MAY APPEAR LATER: Risk of pneumonia. Risk of lung edema.
Symptoms/effects after skin contact	: Caustic burns/corrosion of the skin.
Symptoms/effects after eye contact	: Corrosion of the eye tissue. Permanent eye damage.
Symptoms/effects after ingestion	: Burns to the gastric/intestinal mucosa. Blood in vomit. Possible esophageal perforation. Shock.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008.
Ecology - air	: Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).
Ecology - water	: Slightly harmful to fishes. Groundwater pollutant. Mild water pollutant (surface water). pH shift. Toxic to plankton.

Hydrochloric Acid, concentrated (7647-01-0)

LC50 fish 1	282 mg/l (96 h, <i>Gambusia affinis</i> , Pure substance)
EC50 Daphnia 1	< 56 mg/l (72 h, <i>Daphnia magna</i> , Pure substance)

12.2. Persistence and degradability

Hydrochloric Acid, concentrated (7647-01-0)

Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

Water (7732-18-5)

Persistence and degradability	Not established.
-------------------------------	------------------

12.3. Bioaccumulative potential

Hydrochloric Acid, concentrated (7647-01-0)

Log Pow	0.25 (QSAR)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

Water (7732-18-5)

Bioaccumulative potential	Not established.
---------------------------	------------------

Hydrochloric Acid, concentrated

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

12.4. Mobility in soil

Hydrochloric Acid, concentrated (7647-01-0)

Ecology - soil

No (test) data on mobility of the component(s) available. May be harmful to plant growth, blooming and fruit formation.

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste disposal recommendations : Treat using the best available techniques before discharge into drains or the aquatic environment. Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle by distillation. Remove to an authorized dump (Class I). Dehydrate/make insoluble. Immobilize the toxic or harmful components.

SECTION 14: Transport information

14.1. UN number

DOT NA No : UN1789
UN No. (IMDG) : 1789
UN No. (IATA) : 1789

14.2. UN proper shipping name

Proper Shipping Name (DOT) : Hydrochloric acid
Proper Shipping Name (TDG) : Hydrochloric acid
Proper Shipping Name (IMDG) : hydrochloric acid
Proper Shipping Name (IATA) : hydrochloric acid

14.3. Transport hazard class(es)

DOT

Transport hazard class(es) (DOT) : 8
Hazard labels (DOT) : 8

IMDG

Transport hazard class(es) (IMDG) : 8
Hazard labels (IMDG) : 8



IATA

Transport hazard class(es) (IATA) : 8

Hydrochloric Acid, concentrated

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Hazard labels (IATA) : 8



14.4. Packing group

Packing group (DOT) : II
Packing group (IMDG) : II
Packing group (IATA) : II

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Special precautions for user

DOT

UN-No.(DOT) : UN1789
DOT Special Provisions (49 CFR 172.102) : A3 - For combination packaging, if glass inner packaging (including ampoules) are used, they must be packed with absorbent material in tightly closed metal receptacles before packing in outer packaging.
A6 - For combination packaging, if plastic inner packaging are used, they must be packed in tightly closed metal receptacles before packing in outer packaging.
B3 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks and DOT 57 portable tanks are not authorized.
B15 - Packaging must be protected with non-metallic linings impervious to the lading or have a suitable corrosion allowance.
IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized.
N41 - Metal construction materials are not authorized for any part of a packaging which is normally in contact with the hazardous material.
T8 - 4 178.274(d)(2) Normal..... Prohibited
TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.
TP12 - This material is considered highly corrosive to steel.
DOT Packaging Exceptions (49 CFR 173.xxx) : 154
DOT Packaging Non Bulk (49 CFR 173.xxx) : 202
DOT Packaging Bulk (49 CFR 173.xxx) : 242
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 1 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 30 L
DOT Vessel Stowage Location : C - The material must be stowed "on deck only" on a cargo vessel and on a passenger vessel.

IMDG

Transport regulations (IMDG) : Subject to the provisions
EmS-No. (Fire) : F-A - FIRE SCHEDULE Alfa - GENERAL FIRE SCHEDULE
EmS-No. (Spillage) : S-B - SPILLAGE SCHEDULE Bravo - CORROSIVE SUBSTANCES

IATA

Transport regulations (IATA) : Subject to the provisions

Hydrochloric Acid, concentrated

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

Hydrochloric Acid, concentrated (7647-01-0)

Not subject to reporting requirements of the United States SARA Section 313
Subject to reporting requirements of United States SARA Section 313

RQ (Reportable quantity, section 304 of EPA's List of Lists)	5000 lb
RQ (Reportable quantity, section 304 of EPA's List of Lists)	5000 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	500 lb
SARA Section 311/312 Hazard Classes	Health hazard - Acute toxicity (any route of exposure) Health hazard - Skin corrosion or Irritation Health hazard - Serious eye damage or eye irritation Health hazard - Specific target organ toxicity (single or repeated exposure)

All components of this product are present and listed as Active on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

Hydrochloric Acid	CAS-No. 7647-01-0	37%
-------------------	-------------------	-----

Hydrochloric Acid (7647-01-0)

RQ (Reportable quantity, section 304 of EPA's List of Lists)	5000 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	500 lb

15.2. International regulations

CANADA

Water (7732-18-5)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

Hydrochloric Acid, concentrated

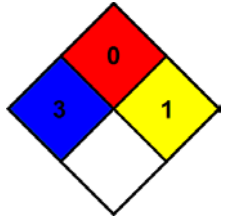
Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 16: Other information

Initial date : 11 DEC 2013
Revision date : 09 NOV 2022

Full text of H-statements:	
H280	Contains gas under pressure; may explode if heated
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H331	Toxic if inhaled
H335	May cause respiratory irritation
H402	Harmful to aquatic life

NFPA health hazard	: 3 - Materials that, under emergency conditions, can cause serious or permanent injury.	
NFPA fire hazard	: 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.	
NFPA reactivity	: 1 - Materials that in themselves are normally stable but can become unstable at elevated temperatures and pressures.	
Hazard Rating		
Health	: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given	
Flammability	: 0 Minimal Hazard - Materials that will not burn	
Physical	: 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.	
Personal protection	: H - Splash goggles, Gloves, Synthetic apron, Vapor respirator	

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
SDS US (GHS HazCom 2012)

Ethos Biosciences/Astral Diagnostics provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. Individuals receiving this information must exercise their independent judgment in determining its appropriateness for a particular purpose. Ethos Biosciences/Astral Diagnostics . makes no representations or warranties, either expressed or implied of merchantability, fitness for particular purposes with respect to the information set forth herein or to which the information refers. Accordingly, Ethos Biosciences/Astral Diagnostics will not be responsible for damages resulting from the use of or reliance upon this information.