

Section 1. Identification

Product name : ABX Pentra Bilirubin Direct CP - R1 // Yumizen C1200 Direct Bilirubin - R1
Product type : Liquid.
SAP Code : 1220001635 // 1300023834
Product is part of kit : A11A01635 // 1300023834
Product description : 24 mL // 6 X 16 mL

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

Diagnostic reagent for quantitative *in vitro* determination of Direct Bilirubin in serum or plasma by colorimetry.

Supplier's details : HORIBA ABX SAS
Parc Euromédecine - Rue du Caducée
BP 7290
34184 MONTPELLIER CEDEX 4 - FRANCE
Tel: +33 (0) 4 67 14 15 16
Fax: +33 (0) 4 67 14 15 17

e-mail address of person responsible for this SDS : documentation.med@horiba.com

National advisory body/Poison Center

Emergency telephone number : +1 800 424 9300 (CHEMTREC®)

Supplier

Telephone number : + 800 67 14 15 16

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : CORROSIVE TO METALS - Category 1

GHS label elements**Hazard pictograms**

Signal word : Warning

Hazard statements : May be corrosive to metals.

Precautionary statements

Prevention : Keep only in original container.

Response : Absorb spillage to prevent material damage.

Storage : Store in a corrosion resistant container with a resistant inner liner.

Disposal : Not applicable.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	%	CAS number
sulphamidic acid	<1	5329-14-6

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : No specific data.
- Skin contact** : No specific data.
- Ingestion** : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Section 4. First aid measures

- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : No specific data.

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Remark : In a fire, decomposition may produce toxic gases/fumes.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Absorb spillage to prevent material damage. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Absorb spillage to prevent material damage. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). The spilled material may be neutralized with sodium carbonate, sodium bicarbonate or sodium hydroxide. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose

Section 6. Accidental release measures

the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from alkalis. Empty containers retain product residue and can be hazardous. Do not reuse container. Absorb spillage to prevent material damage.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store between the following temperatures: 2 to 8°C (35,6 to 46,4°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store in a corrosion resistant container with a resistant inner liner. Separate from alkalis. Keep away from metals. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Other information : Store away from light.

Section 8. Exposure controls/personal protection

The information in this section contains generic advice and guidance. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker exposure or environmental releases.

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
sulphamidic acid	None.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 8. Exposure controls/personal protection

- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. Recommended: Tightly sealed goggles according to EN 166.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. > 8 hours (breakthrough time): Protective gloves according to EN 374 nitrile rubber.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended: Combination filtering device (DIN EN 141).

Personal protective equipment (Pictograms) :



Section 9. Physical and chemical properties

Appearance

- Physical state** : Liquid. [Clear.]
- Color** : Colorless.
- Odor** : Odorless.
- Odor threshold** : Not available.
- pH** : 0,6 to 1,6
- Melting point** : Not available.
- Boiling point** : Not available.
- Flash point** : Not applicable.
- Evaporation rate** : Not available.
- Flammability** : Non-flammable.
In a fire, decomposition may produce toxic gases/fumes.
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : Not available.
- Vapor density** : Not available.
- Relative density** : 1,0103 g/cm³ [20°C (68°F)]
- Solubility** : Easily soluble in the following materials: cold water and hot water.
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : Not applicable.

Section 9. Physical and chemical properties

Decomposition temperature : Not available.

Viscosity : Not available.

Explosive properties : Not available.

Oxidizing properties : Not available.

Aerosol product

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air.
Reactive or incompatible with the following materials:
alkalis
metals

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
sulphamidic acid	LD50 Oral	Rat	3160 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
sulphamidic acid	Eyes - Moderate irritant	Rabbit	-	20 milligrams	-
	Eyes - Severe irritant	Rabbit	-	24 hours 250 Micrograms	-
	Skin - Mild irritant	Human	-	120 hours 4 Percent Intermittent	-
	Skin - Severe irritant	Rabbit	-	24 hours 500 milligrams	-

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Section 11. Toxicological information

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : No specific data.
- Inhalation** : No specific data.
- Skin contact** : No specific data.
- Ingestion** : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Potential chronic health effects

- General** : No known significant effects or critical hazards.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 11. Toxicological information

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
sulphamidic acid	Acute LC50 14200 µg/l Fresh water	Fish - Pimephales promelas	96 hours

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
sulphamidic acid	0,101	-	low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.







Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	ADR/RID	IMDG	IATA
UN number	3264	3264	3264	3264	3264	3264
UN proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (sulphamidic acid)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (sulphamidic acid)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (sulphamidic acid)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (sulphamidic acid)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (sulphamidic acid)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (sulphamidic acid)

Date of issue/Date of revision : 19/03/2018

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Section 14. Transport information

Transport hazard class(es)	8 	8 	8 	8 	8 	8 
Packing group	III	III	III	III	III	III
Environmental hazards	No.	No.	No.	No.	No.	No.

Additional information

- TDG Classification** : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.40-2.42 (Class 8).
- ADR/RID** : **Remarks** Limited quantity
- IMDG** : **Remarks** Limited quantity
- IATA** : **Remarks** Excepted quantities

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

U.S. Federal regulations : TSCA 8(a) CDR Exempt/Partial exemption: Not determined

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Reactive

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
sulphamidic acid	<1	No.	No.	No.	Yes.	No.

State regulations

Date of issue/Date of revision : 19/03/2018

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Section 15. Regulatory information

- Massachusetts** : None of the components are listed.
- New York** : None of the components are listed.
- New Jersey** : None of the components are listed.
- Pennsylvania** : None of the components are listed.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

- Australia** : All components are listed or exempted.
- Canada** : All components are listed or exempted.
- China** : All components are listed or exempted.
- Europe** : All components are listed or exempted.
- Japan** : **Japan inventory (ENCS)**: All components are listed or exempted.
Japan inventory (ISHL): Not determined.
- Malaysia** : Not determined.
- New Zealand** : All components are listed or exempted.
- Philippines** : All components are listed or exempted.
- Republic of Korea** : All components are listed or exempted.
- Taiwan** : All components are listed or exempted.
- Thailand** : Not determined.
- Turkey** : All components are listed or exempted.
- United States** : All components are listed or exempted.
- Viet Nam** : Not determined.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	/	0
Flammability		0
Physical hazards		4

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

Section 16. Other information

[National Fire Protection Association \(U.S.A.\)](#)



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

[Procedure used to derive the classification](#)

Classification	Justification
CORROSIVE TO METALS - Category 1	Expert judgment

[History](#)

Date of printing : 19/03/2018

Date of issue/Date of revision : 19/03/2018

Version : 4

[Key to abbreviations](#)

: ATE = Acute Toxicity Estimate
 BCF = Bioconcentration Factor
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 IATA = International Air Transport Association
 IBC = Intermediate Bulk Container
 IMDG = International Maritime Dangerous Goods
 LogPow = logarithm of the octanol/water partition coefficient
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 UN = United Nations

References : Not available.

Revision comments : New MSDS form.

☑ Indicates information that has changed from previously issued version.

[Notice to reader](#)

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Section 1. Identification

Product name : ABX Pentra Bilirubin Direct CP - R2 // Yumizen C1200 Direct Bilirubin - R2
Product type : Liquid.
SAP Code : 1220001635 // 1300023834
Product is part of kit : A11A01635 // 1300023834
Product description : 7 mL // 6 X 6 mL

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

Diagnostic reagent for quantitative *in vitro* determination of Direct Bilirubin in serum or plasma by colorimetry.

Supplier's details : HORIBA ABX SAS
Parc Euromédecine - Rue du Caducée
BP 7290
34184 MONTPELLIER CEDEX 4 - FRANCE
Tel: +33 (0) 4 67 14 15 16
Fax: +33 (0) 4 67 14 15 17

e-mail address of person responsible for this SDS : documentation.med@horiba.com

National advisory body/Poison Center

Emergency telephone number : +1 800 424 9300 (CHEMTREC®)

Supplier

Telephone number : + 800 67 14 15 16

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Classification of the substance or mixture : CORROSIVE TO METALS - Category 1

GHS label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : May be corrosive to metals.

Precautionary statements

Prevention : Keep only in original container.

Response : Absorb spillage to prevent material damage.

Storage : Store in a corrosion resistant container with a resistant inner liner.

Disposal : Not applicable.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	%	CAS number
Hydrochloric acid	≤5	7647-01-0

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

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Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

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Over-exposure signs/symptoms

- Eye contact** : No specific data.
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- Skin contact** : No specific data.
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Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Section 4. First aid measures

- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : Decomposition products may include the following materials: halogenated compounds

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Remark : In a fire, decomposition may produce toxic gases/fumes.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Absorb spillage to prevent material damage. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Absorb spillage to prevent material damage. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). The spilled material may be neutralized with sodium carbonate, sodium bicarbonate or sodium hydroxide. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose

Section 6. Accidental release measures

the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from alkalis. Empty containers retain product residue and can be hazardous. Do not reuse container. Absorb spillage to prevent material damage.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store between the following temperatures: 2 to 8°C (35,6 to 46,4°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store in a corrosion resistant container with a resistant inner liner. Separate from alkalis. Keep away from metals. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Other information : Store away from light.

Section 8. Exposure controls/personal protection

The information in this section contains generic advice and guidance. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker exposure or environmental releases.

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Hydrochloric acid	ACGIH TLV (United States, 3/2017). C: 2 ppm OSHA PEL 1989 (United States, 3/1989). CEIL: 5 ppm CEIL: 7 mg/m ³ NIOSH REL (United States, 10/2016). CEIL: 5 ppm CEIL: 7 mg/m ³ OSHA PEL (United States, 6/2016). CEIL: 5 ppm CEIL: 7 mg/m ³

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Section 8. Exposure controls/personal protection

Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. Recommended: Tightly sealed goggles according to EN 166.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. > 8 hours (breakthrough time): Protective gloves according to EN 374 nitrile rubber.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended: Combination filtering device (DIN EN 141).
- Personal protective equipment (Pictograms)** :



Section 9. Physical and chemical properties

Appearance

- Physical state** : Liquid. [Clear.]
- Color** : Colorless.
- Odor** : Odorless.
- Odor threshold** : Not available.
- pH** : 0 to 1
- Melting point** : Not available.
- Boiling point** : Not available.
- Flash point** : Not applicable.
- Evaporation rate** : Not available.
- Flammability** : Non-flammable.
In a fire, decomposition may produce toxic gases/fumes.
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : Not available.
- Vapor density** : Not available.

Section 9. Physical and chemical properties

Relative density	: 1,0142 g/cm ³ [20°C (68°F)]
Solubility	: Easily soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	: Not available.
Auto-ignition temperature	: Not applicable.
Decomposition temperature	: Not available.
Viscosity	: Not available.
Explosive properties	: Not available.
Oxidizing properties	: Not available.
Aerosol product	

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: No specific data.
Incompatible materials	: Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air. Reactive or incompatible with the following materials: alkalis metals
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

No known significant effects or critical hazards.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
hydrochloric acid	Eyes - Mild irritant	Rabbit	-	0,5 minutes 5 milligrams 24 hours 4 Percent	-
	Skin - Mild irritant	Human	-		-

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Classification

Section 11. Toxicological information

Product/ingredient name	OSHA	IARC	NTP
Hydrochloric acid	-	3	-

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
hydrochloric acid	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : No specific data.
- Inhalation** : No specific data.
- Skin contact** : No specific data.
- Ingestion** : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Potential chronic health effects

- General** : No known significant effects or critical hazards.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.

Section 11. Toxicological information

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
hydrochloric acid	Acute LC50 240000 µg/l Marine water	Crustaceans - Carcinus maenas - Adult	48 hours
	Acute LC50 282 ppm Fresh water	Fish - Gambusia affinis - Adult	96 hours

Persistence and degradability

Not available.

Bioaccumulative potential

Not available.

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.







Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	ADR/RID	IMDG	IATA
UN number	3264	3264	3264	3264	3264	3264
UN proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Hydrochloric acid, mixture)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Hydrochloric acid, mixture)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Hydrochloric acid, mixture)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Hydrochloric acid, mixture)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Hydrochloric acid, mixture)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Hydrochloric acid, mixture)
Transport hazard class(es)	8 	8 	8 	8 	8 	8 
Packing group	III	III	III	III	III	III
Environmental hazards	No.	No.	No.	No.	No.	No.

Additional information

- TDG Classification** : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.40-2.42 (Class 8).
- ADR/RID** : **Remarks** Limited quantity
- IMDG** : **Remarks** Limited quantity
- IATA** : **Remarks** Excepted quantities

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

- U.S. Federal regulations** : **TSCA 8(a) CDR Exempt/Partial exemption:** Not determined
Clean Water Act (CWA) 311: Hydrochloric acid
Clean Air Act (CAA) 112 regulated toxic substances: Hydrochloric acid
- Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Listed
- Clean Air Act Section 602 Class I Substances** : Not listed
- Clean Air Act Section 602 Class II Substances** : Not listed
- DEA List I Chemicals (Precursor Chemicals)** : Not listed
- DEA List II Chemicals (Essential Chemicals)** : Listed

SARA 302/304

Composition/information on ingredients

Date of issue/Date of revision : 19/03/2018

9/12

Section 15. Regulatory information

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
hydrochloric acid	≤5	Yes.	500	-	5000	-

SARA 304 RQ : 152439 lbs / 69207,3 kg [18026,7 gal / 68238,3 L]

SARA 311/312

Classification : Reactive

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
hydrochloric acid	≤5	No.	No.	Yes.	Yes.	No.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	Hydrochloric acid	7647-01-0	≤5
Supplier notification	Hydrochloric acid	7647-01-0	≤5

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

- Massachusetts** : The following components are listed: HYDROGEN CHLORIDE; HYDROCHLORIC ACID
- New York** : The following components are listed: Hydrochloric acid
- New Jersey** : The following components are listed: HYDROGEN CHLORIDE; HYDROCHLORIC ACID
- Pennsylvania** : The following components are listed: HYDROCHLORIC ACID

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

- Australia** : All components are listed or exempted.
- Canada** : All components are listed or exempted.
- China** : All components are listed or exempted.
- Europe** : All components are listed or exempted.
- Japan** : **Japan inventory (ENCS)**: All components are listed or exempted.
Japan inventory (ISHL): All components are listed or exempted.
- Malaysia** : Not determined.

Section 15. Regulatory information

New Zealand	: All components are listed or exempted.
Philippines	: All components are listed or exempted.
Republic of Korea	: All components are listed or exempted.
Taiwan	: All components are listed or exempted.
Thailand	: Not determined.
Turkey	: All components are listed or exempted.
United States	: All components are listed or exempted.
Viet Nam	: Not determined.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	/	0
Flammability		0
Physical hazards		4

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)



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Procedure used to derive the classification

Classification	Justification
CORROSIVE TO METALS - Category 1	Expert judgment

History

Date of printing	: 19/03/2018
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Version	: 4

Section 16. Other information

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References : Not available.

Revision comments : New MSDS form.

✔ Indicates information that has changed from previously issued version.

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