Safety Data Sheet

1. Product and Company Identification

1.1	**Product name**	**Total Bilirubin Reagent (R1 + R2)**
	Substance/mixture	Mixture
	CAS #	Mixture
	Kit number	MD-101109
1.2	**Recommended product use**	
	Mixture's intended use	Diagnostic reagent for IN VITRO quantitative measurement of total bilirubin in urine.
	Product restrictions	None known
1.3	**Details of the supplier of the safety data sheet**	
	Manufacturer information	
	Corporate Headquarters	Diamond Diagnostics Inc. 333 Fiske St., Holliston, MA 01746 United States of America www.diamonddiagnostics.com
	Telephone	+1 (508) 429-0450
	Email	support@diamonddiagnostics.com
	Distributor information	
	Distributor Headquarters	Mission Diagnostics LLC 1 Burton Dr., Meridith, NH 03246 United States of America
	Telephone	+1 (508) 429-0450
	Email	support@diamonddiagnostics.com
1.4	**Emergency Telephone**	
	Emergency Phone #	+1 (508) 429-0450

2. Hazards Identification

GHS- Classification

Classification Skin Irritant, Eye Irritant

2.1	**Substance or mixture classification**	
	Physical state	Liquid
	Appearance	Clear/colorless
	Emergency overview	Health injuries are not known or expected under normal use.
2.2	**Label Elements**	
	Signal word	Danger
	Hazardous substances	Hydrogen chloride
	OSHA regulatory status	This product is not hazardous according to OSHA 29CFR 1910.1200.

2.3 Potential health effects

Routes of exposure	Skin contact. Eye contact.
Eyes	May cause eye irritation or serious eye damage.
Skin	May cause skin irritation or skin burns.
Inhalation	In high concentrations, vapors may be irritating to the upper respiratory tract leading to chemical pneumonitis and pulmonary edema.
Ingestion	If swallowed, may cause discomfort and lead to gastrointestinal tract burns.
Target organs	Eyes, lungs and skin.
Chronic effects	Repeated skin contact may cause dermatitis.
Signs and symptoms	Direct contact with skin and eyes may cause irritation.

2.4 Potential environmental effects

No data

Hazard Statements

H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage.

Precautionary Statements

P260	Do not breathe dust/fume/gas/mist/vapours/spray
P264	Wash skin thoroughly after handling.
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/shower.
P363	Wash contaminated clothing before reuse.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing
P310	Immediately call a PISON CENTER or doctor/physician
P305+P351+P338	IF IN EYES: Rinse cautiously
P405	Store locked up
P501	Dispose of contents/container to an approved waste disposal plant.

3. Composition/Information on ingredients

Components:

Chemical name	CAS-No.	Classification	Concentration (% w/w)
Hydrogen Chloride	7647-01-0	Skin Corr. 1A; H314 Acute Tox. 3 (Inh); H331 Press. Gas, Compressed; H280 STOT SE 3 (RI); H335 Eye Dam. 1; H318 Specific concentration limit(s): Skin Corr. 1B; H314: C ≥25% Skin Irrit. 2; H315: 10%≤ C <25% Eye Irrit. 2; H319: 10%≤ C <25% STOT SE 3 (RI); H335: C ≥10%	1.4

4. First Aid Measures

4.1 Description of First Aid Measures

Eye Contact In case of eye contact, immediately flush eyes with fresh water for at least 15 minutes while holding eyelids open. Remove contact lenses immediately if worn by the affected person. Seek immediate medical attention, preferably from an ophthalmologist.

Skin Contact Treatment is urgent. Seek emergency medical treatment. Remove contaminated clothing and shoes. Rinse skin with copious amounts of water [shower] for several minutes. Launder contaminated clothing before reuse.

Inhalation If inhaled, remove person to fresh air and place in a position comfortable for breathing. Keep person at rest. If breathing is difficult, administer oxygen. If breathing has stopped, provide artificial respiration. If experiencing respiratory symptoms, seek medical advice/attention.

Ingestion If swallowed, DO NOT induce vomiting unless told to do so by a physician or poison control center. Rinse mouth with water. Never give anything by mouth to an unconscious person. If spontaneous vomiting occurs, place on the left side with head down to prevent aspiration of liquid into the lungs. Seek immediate medical attention.

Notes to Physician Provide general supportive measures and treat symptomatically.

General Advice If you feel unwell, seek medical advice.

4.2 Most important symptoms and effects, both acute and delayed

Eye Contact Causes serious eye damage

Skin Contact Causes skin irritation

Inhalation Causes corrosion of the breathing system

Ingestion Causes corrosion of the digestion system

Acute symptoms and effects:

Exposure to skin may result in redness, pain, burning, inflammation and tissue damage. Exposure to eyes may result in irritation, redness, pain, inflammation, itching, burning, tearing, corneal damage and loss of vision. Exposure via inhalation may result in cough, sore throat, burning sensation and shortness of breath. Exposure via ingestion may result in burns of the mouth and throat, abdominal pain, burning sensation in the throat and chest, nausea, vomiting, shock or collapse.

Eye contact may result in irritation, redness, pain, inflammation, itching, burning, tearing, corneal damage and loss of vision.

Delayed symptoms and effects:

Effects are dependent on exposure (dose, concentration, contact time).

5. Fire-Fighting Measures

5.1 Flammable properties This product is not flammable.

5.2 Extinguishing media

Suitable extinguishing media

Extinguish with water spray, carbon dioxide (CO_2), dry chemical or material appropriate for the surrounding fire.

Unsuitable extinguishing media

No not use water jet

5.3 Protection of firefighters

Specific hazards arising from the chemical

Thermal decomposition may produce irritating/toxic fumes/gas

Protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Avoid contact with skin, eyes, hair and clothing. Do not breathe fumes/gas/mists/aerosols/vapors/dusts. Move containers from fire area if safe to do so. Use water spray/fog for cooling fire exposed containers. Avoid unnecessary run-off of extinguishing media which may cause pollution.

Firefighting equipment/instructions

Use standard firefighting procedures and consider the hazards of other involved materials. Avoid contaminating surface water with fire extinguishing water.

Hazardous combustion Products

Hazardous combustion gases or vapors may develop in the event of fire.

6. Accidental Release Measures

6.1 Personal precautions

Keep unnecessary personnel away. Ventilate area. Extinguish any sources of ignition. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid contact with skin, eyes, and clothing. Avoid breathing mist, vapor, dust, fume, and spray. Do not walk through spilled material. Wash thoroughly after handling.

6.2 Environmental precautions

Avoid contamination to enter drains, sewers or watercourses. Prevent further leakage or spillage if safe to do so. Discharge into the environment must be avoided.

6.3 Methods for containment and cleaning up

Do not touch damaged containers or spilled material unless wearing appropriate personal protective clothing. Stop leak if you can do it without risk. Contain and collect spillage and place in suitable container for future disposal. Dispose of in accordance with all applicable regulations (see Section 13).

6.4 Other information

Clean up in accordance with all applicable regulations.

7. Handling and Storage

7.1 Safe Handling

Use appropriate personal protective equipment (see Section 8). Prevent skin contact. Do not get in eyes. Use only with adequate ventilation. Do not add water to the corrosive product. If it is necessary to mix a corrosive product with water, do so slowly adding the corrosive to cold water, in small amounts, and stir frequently. Avoid breathing mist/vapor/spray/dust. Do not eat, drink, smoke, or use personal products when handling chemical substances. Wash affected areas thoroughly after handling. Keep away from incompatible materials (See Section 10). Keep containers tightly closed when not in use. Keep only in original packaging. Normal precautions for handling chemicals and potentially infectious materials must be observed.

Hygiene Measures

Wash exposed skin thoroughly after handling

7.2 Storage

Store at 2-8°C. Store in cool, dry, well-ventilated location out of direct sunlight and away from exit paths. Store in a corrosion-resistant container with a resistant inner liner. Inspect containers and storage area regularly for signs of leak and damage. Store containers at a convenient height for handling, below eye level if possible. High shelving increases the risk of dropping containers, personal injury and exposure. Ensure that appropriate fire fighting and spill-clean up equipment is readily available. Keep away from food and beverages. Protect from freezing and physical damage. Store away from heat, open flames and other sources of ignition. Store separately. Keep container tightly sealed. Store away from incompatible materials (See Section 10).

7.3 Specific use

See section 1 – Recommended Use

8. Exposure Controls / Personnel

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Hydrogen Chloride 7647-01-0	2 ppm	5 ppm	45 ppm (67 mg/m3)

8.1 Occupational exposure limits

See above table

Exposure guidelines Follow standard monitoring procedures.

Engineering controls Emergency eye wash stations and safety showers should be available in the immediate vicinity of use or handling. Provide adequate ventilation to maintain the airborne concentrations of vapor, mists, and/or dusts below the applicable workplace exposure limits, while observing recognized national standards (or equivalent).

8.2 Personal protective equipment

Eye / face protection Wear appropriate safety glasses, goggles or face shields.

Skin protection Wear lab coat or other protective garments. Wear protective gloves. Remove any contaminated clothing promptly.

Respiratory protection If engineering controls do not maintain airborne concentrations below the applicable workplace exposure limits, or to an acceptable level (if exposure limits have not been established), a respirator approved by recognized national standards (or equivalent) must be worn.

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

Other information Do NOT eat, drink or smoke during use.

Environment Exposure Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance Liquid

Physical state Liquid

Form Liquid

Color No data available

Odor No data available

Odor threshold No data available

pH <2

Vapor pressure No data available

Vapor density No data available

Boiling point No data available

Viscosity (mm^2/s) No data available

Melting/Freezing point No data available

Solubility (water) No data available

Specific gravity No data available

Flash point No data available

Flammability limits in air, upper, % by volume

No data available

Flammability limits in air, lower, % by volume

No data available

Decomposition temperature	No data available
Auto-ignition temperature	No data available
Evaporation rate	No data available
Relative Density	No data available
Partition coefficient:	No data available
(n-octanol/water)	
Explosive properties	No data available
Oxidizing properties	No data available

10. Stability and Reactivity

10.1	**Reactivity**	Not reactive under recommended handling and storage conditions.
10.2	**Chemical stability**	Material is stable under normal conditions.
10.3	**Possibility of hazardous Reactions**	
		Hazardous reactions are not anticipated under recommended conditions of handling and storage.
10.4	**Conditions to avoid**	Avoid generation of aerosols and mists, extreme heat, open flames, hot surfaces, sparks, ignition sources and incompatible materials. Extreme heat, open flames, hot surfaces, sparks, ignition sources and incompatible materials.
10.5	**Incompatible materials**	None known
10.6	**Hazardous polymerization**	No data available
10.7	**Hazardous decomposition Products**	
		Under normal conditions of storage and use, hazardous decomposition products should not be produced

11. Toxicological Information

Information on hazard classes as defined in Regulation (EC) No 1272/2008 Acute toxicity

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

Product data: No data available.

Substance data:

Name	Route	Result
Hydrogen chloride	oral	LD50 Rat: 238 mg/kg
	dermal	LD50 Rabbit: >5010 mg/kg
	inhalation	LC50 Rat: 1562 ppmV (4h [Gas])

Skin corrosion/irritation

Assessment: Causes severe skin burns and eye damage.

Product data: No data available.

Substance data:

Name	Result
Hydrogen chloride	Causes severe skin burns.

Serious eye damage/irritation

Assessment: Causes serious eye damage.

Product data: No data available.

Substance data:

Name	Result
Hydrogen chloride	Causes serious eye damage.

Respiratory or skin sensitization

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

Product data: No data available.

Substance data: No data available.

Carcinogenicity

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

Product data: No data available.

Substance data: No data available.

International Agency for Research on Cancer (IARC):

Name	Classification
Hydrogen chloride	Group 3
	Group 3

Germ cell mutagenicity

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

Product data: No data available.

Substance data: No data available.

Reproductive Toxicity

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

Product data: No data available.

Substance data: No data available.

Specific target organ toxicity (single exposure)

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

Product data: No data available.

Substance data:

Name	Result
Hydrogen chloride	May cause respiratory irritation.

Specific target organ toxicity (repeated exposure)

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

Product data: No data available.

Substance data: No data available.

Aspiration toxicity

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

Product data: No data available.

Substance data: No data available.

Information on likely routes of exposure:

No data available.

Symptoms related to the physical, chemical and toxicological characteristics:

No data available.

Information on other hazards Endocrine disrupting properties:

Substance data: No data available.

Other information: No data available.

12. Ecological Information

Toxicity

Acute (short-term) toxicity

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

Product data: No data available.

Substance data:

Name	Result
Hydrogen chloride	Fish LC50 Lepomis macrochirus: 24.6 mg/L (96 hr)

Chronic (long-term) toxicity

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

Product data: No data available.

Substance data: No data available.

Persistence and degradability

Product data: No data available.

Substance data:

Name	Result
Hydrogen chloride	Substance is non degradable and persistent in the aquatic and terrestrial environment.

Bioaccumulative potential

Product data: No data available.

Substance data:

Name	Result
Hydrogen chloride	Not expected to bioaccumulate (log Kow = -2.65).

Mobility in soil

Product data: No data available.

Substance data: No data available.

Results of PBT and vPvB assessment Product data:

PBT assessment: This product does not contain any substances that are assessed to be a PBT.

vPvB assessment: This product does not contain any substances that are assessed to be a vPvB.

Substance data:

PBT assessment:

Hydrogen chloride	This substance is not PBT.

vPvB assessment:

Hydrogen chloride	This substance is not vPvB.

Endocrine disrupting properties

Substance data: No data available.

Other adverse effects: No data available.

Hazard to the ozone layer

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

Product data: No data available.

Substance data: No data available.

13. Disposal Considerations

13.1 Disposal methods

Disposal instructions Contaminated instruments and surfaces should be disinfected in accordance with your employer's chemical-specific and universal/standard precautions.

Waste from residues / unused products

Dispose in accordance with all applicable local and national regulations. Avoid releasing unused products into drainage systems and/or into the environment.

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport Information

DOT Not regulated as a hazardous material by DOT.

DOR Not regulated as dangerous goods.

IATA Not regulated as dangerous goods.

IMDG Not regulated as dangerous goods.

TDG Not regulated as dangerous goods.

15. Regulatory Information

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

Inventory listing (EINECS): All ingredients are listed or exempt.

REACH SVHC candidate list: None of the ingredients are listed.

REACH SVHC Authorizations: None of the ingredients are listed.

REACH Restriction: None of the ingredients are listed.

Water hazard class (WGK) (Product): Not determined.

Water hazard class (WGK) (Substance):

Ingredient Name	CAS	Class
Hydrogen chloride	7647-01-0	Water hazard class 1: slightly hazardous to water

Additional information: Not determined.

Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

16. Other Information

Abbreviations and Acronyms: None

Classification procedure:

Classification according to Regulation (EC) No. 1272/2008 (CLP)	Method Used
Skin corrosion, category 1A	Expert judgement
Serious eye damage, category 1	Expert judgement

Summary of classification(s) in section 3:

Skin Corr. 1A	Skin corrosion, category 1A
Acute Tox. 3 (Inh)	Acute toxicity (inhalation), category 3
Press. Gas, Compressed	Compressed gases
STOT SE 3 (RI)	Specific target organ toxicity - single exposure, category 3, respiratory tract irritation
Eye Dam. 1	Serious eye damage, category 1

Summary of hazard statements in section 3:

H314	Causes severe skin burns and eye damage
H331	Toxic if inhaled
H280	Contains gas under pressure; may explode if heated
H335	May cause respiratory irritation
H318	Causes serious eye damage

Disclaimer

The information provided on this SDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in text.