

**BIL D DCA 330\_R1**

Creation date	23rd October 2015	Version	4.0
Revision date	31st January 2024		

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

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Substance / mixture

mixture

Number

XSYS0086

Other mixture names

BILIRUBIN DIRECT DCA

**1.2. Relevant identified uses of the substance or mixture and uses advised against****Mixture's intended use**

Diagnostic reagent for quantitative in vitro determination of Bilirubin Direct in human serum and plasma.

**Main intended use**

PC-MED-OTH

Other medical devices

**Secondary uses**

PC-TEC-19

Reagents and laboratory chemicals

**The use descriptors**

PC 21

Laboratory chemicals

**Mixture uses advised against**

not available

**1.3. Details of the supplier of the safety data sheet****Manufacturer**

Name or trade name

Erba Lachema s.r.o.

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Karásek 2219/1d , Brno, 62100

Czech Republic

Identification number (CRN)

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**Competent person responsible for the safety data sheet**

Name

Erba Lachema s.r.o.

E-mail

msds@erba.com

**1.4. Emergency telephone number**

European emergency number: 112 112

**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture****Classification of the mixture in accordance with Regulation (EC) No 1272/2008**

The mixture is not classified as dangerous according to Regulation (EC) No 1272/2008.

**2.2. Label elements**

none

**2.3. Other hazards**

The mixture does not contain substances with endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605. Mixture does not contain any substance meet the criteria for PBT or vPvB in accordance with Annex XIII of Regulation (EC) No. 1907/2006 (REACH) as amended.

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## SECTION 3: Composition/information on ingredients

## 3.2. Mixtures

## Chemical characterization

Mixture of substances and additives specified below. Aqueous solution containing organic and inorganic substances.

**Mixture contains these hazardous substances and substances with the highest permissible concentration in the working environment**

Identification numbers	Substance name	Content in % weight	Classification according to Regulation (EC) No 1272/2008	Note
Index: 017-002-01-X CAS: 7647-01-0 EC: 231-595-7	Hydrochloric acid 35%	0,1-5	Met. Corr. 1, H290 Skin Corr. 1B, H314 STOT SE 3, H335 Specific concentration limit: Skin Corr. 1B, H314: C ≥ 25 % Skin Irrit. 2, H315; Eye Irrit. 2, H319: 10 % ≤ C < 25 % STOT SE 3, H335: C ≥ 10 %	1

## Notes

1 A substance for which exposure limits are set.

Full text of all classifications and hazard statements is given in the section 16.

## SECTION 4: First aid measures

## 4.1. Description of first aid measures

Take care of your own safety. If any health problems are manifested or if in doubt, inform a doctor and show him information from this safety data sheet.

**If inhaled**

Terminate the exposure immediately; move the affected person to fresh air.

**If on skin**

Remove contaminated clothes and shoes. Wash affected area with soap or mild detergent and plenty of water until the removal of the mixture. Call a doctor if you feel unwell.

**If in eyes**

Rinse eyes immediately with a flow of running water, open the eyelids (also using force if needed); remove contact lenses immediately if worn by the affected person. Call a doctor if you feel unwell.

**If swallowed**

If swallowed rinse mouth with plenty of water provided person is conscious. Call a doctor if you feel unwell. Do NOT induce vomiting.

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

**If inhaled**

May cause respiratory irritation.

**If on skin**

Possible irritation.

**If in eyes**

Mild irritant.

**If swallowed**

Irritation of GIT, nausea.

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

Symptomatic treatment.

## SECTION 5: Firefighting measures

## 5.1. Extinguishing media

**Suitable extinguishing media**

Water spray or regular foam, CO<sub>2</sub>, dry powder. Accommodate extinguishing components to the location of fire.

**Unsuitable extinguishing media**

Not known.

## 5.2. Special hazards arising from the substance or mixture

Thermal decomposition or combustion may generate toxic and hazardous fumes.

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**5.3. Advice for firefighters**

Self-Contained Breathing Apparatus (SCBA) with chemical resistant gloves. Use a self-contained breathing apparatus and full-body protective clothing. Do not allow run-off of contaminated fire extinguishing material to enter drains or surface and ground water.

**SECTION 6: Accidental release measures****6.1. Personal precautions, protective equipment and emergency procedures**

Remove the ignition and heat sources, provide sufficient ventilation and evacuate the area. Respiratory protection: is not required. Where risk assessment shows air-purifying respirators are appropriate, use masks with approved filter. Wear suitable protective clothing, rubber or polythene gloves, rubber shoes, safety glasses. Wear suitable personal protection equipment to minimize exposure to the product (see SECTION 8).

**6.2. Environmental precautions**

Rinse with plenty of water after collecting the product. Do not let the product enter drainage system, surface and ground-water or soil. Contact local authorities in case of environmental release. Do not empty into drains.

**6.3. Methods and material for containment and cleaning up**

Collect spilled material in containers. Where appropriate, moisten to prevent the dispersion of dust, absorb with inert materials and wash the area with plenty of water. Ensure adequate ventilation. Dispose of the contaminated material according to SECTION 13.

**6.4. Reference to other sections**

See the Section 7, 8 and 13.

**SECTION 7: Handling and storage****7.1. Precautions for safe handling**

Use personal protective equipment as per Section 8. Observe valid legal regulations on safety and health protection. Observe the principles of safety work in chemical laboratories. Handle in a well ventilated place, and away from ignition sources, heat or flames. Keep the mixture away from drains, surface or ground waters. Do not eat, drink and smoke in the working areas. Wash hands with soap and water after handling the mixture. Remove contaminated clothing and protective equipment before entering dining areas.

**7.2. Conditions for safe storage, including any incompatibilities**

Store in a well-ventilated place. Store the product away from light and heat sources. Keep containers tightly closed and labelled with the name of the product. Avoid environmental release. Keep away from food and drinks. Keep away from contamination with heavy metals.

Storage temperature

min 2 °C, max 8 °C

**7.3. Specific end use(s)**

The kit is designed for in vitro diagnostic devices.

**SECTION 8: Exposure controls/personal protection****8.1. Control parameters****Czech Republic****Government Regulation 330/2023 Coll.**

Substance name (component)	Type	Value	Note
Hydrochloric acid 35% (CAS: 7647-01-0)	PEL	8 mg/m <sup>3</sup>	irritating to mucous membranes (eyes, respiratory system) and skin
	PEL	5 ppm	
	NPK-P	15 mg/m <sup>3</sup>	
	NPK-P	10 ppm	

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## European Union

## Commission Directive 2000/39/EC

Substance name (component)	Type	Value	Note
Hydrochloric acid 35% (CAS: 7647-01-0)	OEL 8 hours	8 mg/m <sup>3</sup>	
	OEL 8 hours	5 ppm	
	OEL 15 minutes	15 mg/m <sup>3</sup>	
	OEL 15 minutes	10 ppm	

## DNEL

Hydrochloric acid 35%					
Workers / consumers	Route of exposure	Value	Effect	Value determination	Source
Workers	Inhalation	15.0 mg/m <sup>3</sup>	Acute effects local		
Workers	Inhalation	8.0 mg/m <sup>3</sup>	Chronic effects local		
Consumers	Inhalation	8.0 mg/m <sup>3</sup>	Chronic effects local		
Consumers	Inhalation	15 mg/m <sup>3</sup>	Acute effects local		

## Other information of limit values

The buffering capacity, the pH and its fluctuation are very specific for a certain ecosystem then a PNEC has not been defined.

## 8.2. Exposure controls

Do not eat, drink and smoke during work. Wash your hands thoroughly with water and soap after work and before breaks for a meal and rest.

## Eye/face protection

Safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

## Skin protection

Handle with rubber or polyethylene gloves. Gloves must be inspected prior to use. Use proper gloves removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and Good Laboratory Practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

## Respiratory protection

Under good ventilation/ exhaustion at the workplace, the use of these products should not require respiratory protection.

## Thermal hazard

Not available.

## Environmental exposure controls

To eliminate the emergency conditions, have pre-prepared a decontamination mixture and appropriate collection vessels for reaction residues. Dispose of reaction residues and decontaminated mixtures as hazardous waste water in accordance with relevant legal regulations.

## SECTION 9: Physical and chemical properties

## 9.1. Information on basic physical and chemical properties

Physical state	liquid
Colour	colourless
Odour	odourless without fragrance
Melting point/freezing point	0 °C
Boiling point or initial boiling point and boiling range	>90 °C
Flammability	The product is non-flammable.
Lower and upper explosion limit	data not available
Flash point	data not available

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Auto-ignition temperature	data not available
Decomposition temperature	data not available
pH	1 (undiluted at 20 °C)
Kinematic viscosity	data not available
Solubility in water	data not available
Partition coefficient n-octanol/water (log value)	data not available
Vapour pressure	data not available
Density and/or relative density	
Density	1.00562 g/cm <sup>3</sup>
Relative vapour density	data not available
Particle characteristics	data not available
Form	Colorless aqueous solution

**9.2. Other information**

Oxidising properties	The product has no oxidizing properties.
Explosive properties	The product does not have explosive properties.

**SECTION 10: Stability and reactivity****10.1. Reactivity**

This mixture is stable under the normal conditions of use.

**10.2. Chemical stability**

The product is stable until the expiration date shown on the box and on the labels when stored at 2-8°C.

**10.3. Possibility of hazardous reactions**

Under the normal conditions of storage and usage, hazardous reactions are not expected.

**10.4. Conditions to avoid**

Keep out from heat and light.

**10.5. Incompatible materials**

Strong oxidizing agents, acids, bases, heavy metals and their salts.

**10.6. Hazardous decomposition products**

Thermal decomposition or combustion may include toxic and hazardous fumes.

**SECTION 11: Toxicological information****11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**

Inhalation of solvent vapors above values exceeding exposure limits for working environment may result in acute inhalation poisoning, depending on the level of concentration and exposure time. No toxicological data is available for the mixture.

**Acute toxicity**

Based on available data the classification criteria are not met.

Hydrochloric acid:

Acute oral toxicity:

Following oral administration, the hydrochloric acid often causes vomiting. The damaging effect is determined mainly by the concentration. High concentrations can cause serious damage resulting danger to life (glottis edema, perforation/stenosis of the esophagus and stomach) and other cardiovascular and respiratory disorders. The ingestion of 5 - 20 ml of 33% hydrochloric acid can be lethal. For very diluted acid, the risk is reduced. For concentrations of hydrochloric acid at 3.3% it was identified an oral LD50 of 238-277 mg/kg for rats.

Acute skin toxicity: LD50 > 5.01 mg/kg - Rabbit

Acute inhalation toxicity:

LC50 values found in tests on rodents following inhalation of the vapors of hydrochloric acid were 8.3 mg/l for 30 minutes and 16.5 mg/l for 5 min in rats and 3.2 mg/l for 30 min in mice. However, for humans has been found that short-term inhalation (500-1000 ppm of gas of hydrochloric acid) can cause glottic spasms or respiratory and cardiac arrest.

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**Skin corrosion/irritation**

Based on available data the classification criteria are not met.

Hydrochloric acid:

Tests carried out on human skin show that 4% hydrochloric acid aqueous solutions cause a mild irritation, 10% solutions are instead irritating to the skin. Tests on rabbits' skin revealed phenomena of corrosion for concentrations of hydrochloric acid at 17% (0.5 ml, 4 h). After 1 hour of contact with 37% solutions there are already serious damage from corrosion.

**Serious eye damage/irritation**

Based on available data the classification criteria are not met.

Hydrochloric acid:

In tests on rabbits' eyes, 3.3% hydrochloric acid aqueous solutions (0.1 ml) cause mild irritation, 5% solutions (0.03 ml) give severe irritation and even slight corrosion. 10% solutions (0.1 ml) cause damage to the cornea that could cause permanent visual disturbances.

**Respiratory or skin sensitisation**

No data are available for either the mixture or the components. Based on the available data, the criteria for classification of the mixture are not met.

**Germ cell mutagenicity**

No data are available for either the mixture or the components. Based on the available data, the criteria for classification of the mixture are not met.

**Carcinogenicity**

Based on available data the classification criteria are not met.

Hydrochloric acid:

No pre-neoplastic or neoplastic nasal injury was observed in male rats during a study long 128 weeks consisting in inhalation of 10 ppm of hydrochloric acid (gas). No evidence of carcinogenicity was observed in other animal studies of administration by inhalation, orally and by skin. In humans, there was no association between exposure to hydrochloric acid and cancer.

**Reproductive toxicity**

No data are available for either the mixture or the components. Based on the available data, the criteria for classification of the mixture are not met.

**Toxicity for specific target organ - single exposure**

Based on available data the classification criteria are not met.

Hydrochloric acid:

Following exposure to acid vapors there is a severe irritation of the upper respiratory tract. The effects match those of hydrochloric acid gas because it immediately reacts with moisture in the air to form mists of hydrochloric acid.

Considering the concentration of the acid hydrochloric acid in the air, specific limits dose-effect can be drawn:

2-3 ppm: still no irritation of the mucous membranes, but initial minor ailments;

5-7 ppm (7.6 - 10.6 mg/m<sup>3</sup>): slight irritation of the mucous membranes;

17-22 ppm (about 26.5-33.5 mg/m<sup>3</sup>): inrespirable, difficulty in breathing even for short term exposure. Based on studies carried out in the workplace has been detected an IDLH value (immediately dangerous to life or health) of 50 ppm.

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**Toxicity for specific target organ - repeated exposure**

Based on available data the classification criteria are not met.

**Hydrochloric acid:**

After repeated contact with skin, hydrochloric acid, even when diluted, may cause skin damage (redness, drying, fissures, dermatitis). The main effect following exposure to repeated inhalation is irritation of the respiratory tract. By professional experience, it is shown that long term inhalation exposure to vapors of hydrochloric acid may lead to increase the incidence of respiratory diseases (chronic bronchitis). In the old reports, chronic exposure (but apparently still tolerable) led not only to airway irritation, but also to the onset of gastrointestinal diseases and typical damage to the teeth linked to inhalation of acid. A study long 2 years on rats, by administering 10 ppm of hydrochloric acid, led to the hyperplasia of the larynx and trachea. From these results, it was estimated that at exposures up to 2 ppm (even in unfavorable conditions) no effects are expected. The NOAEL for systemic toxicity was determined to 20 ppm in rats and mice.

**Aspiration hazard**

No data are available for either the mixture or the components. Based on the available data, the criteria for classification of the mixture are not met.

**11.2. Information on other hazards**

The mixture does not contain substances with endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

**SECTION 12: Ecological information****12.1. Toxicity**

It is accepted that the aquatic toxicity of hydrochloric acid results if sufficient acid is present to produce a very low pH (i.e. pH 3-5). Given that the environmental exposure assessment shows insignificant perturbation of aquatic pH levels from the formulation of the product and its proposed use, it is considered that there is no long-term risk to aquatic organisms and therefore chronic fish and invertebrate effects data are not required.

**Acute toxicity**

Hydrochloric acid 35%				
Parameter	Value	Exposure time	Species	Environment
LC <sub>50</sub>	20.5 mg/l	96 hours	Fish	

**12.2. Persistence and degradability**

The physicochemical properties indicate that the hydrogen chloride released into the environment is distributed both in air than in water. The hydrochloric acid is dissociated in the water into hydronium ion and chloride ion.

**12.3. Bioaccumulative potential**

Considering the great water solubility of hydrogen chloride a significant bioconcentration in organisms is not expected.

**12.4. Mobility in soil**

No data are available for either the mixture or the components.

**12.5. Results of PBT and vPvB assessment**

Product does not contain any substance meeting the criteria for PBT or vPvB in accordance with the Annex XIII of Regulation (EC) No 1907/2006 (REACH) as amended.

**12.6. Endocrine disrupting properties**

The mixture does not contain substances with endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

**12.7. Other adverse effects**

Hydrochloric acid solution may cause adverse environmental effects due to decreasing pH. The pH of the receiving water depends on its buffer and on the amount of hydrochloric acid entered. In general, the mortality can be observed at pH values lower than 5.

**SECTION 13: Disposal considerations**

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**13.1. Waste treatment methods**

Hazard of environmental contamination; dispose of the waste in accordance with the local and/or national regulations. Proceed in accordance with valid regulations on waste disposal. Any unused product and contaminated packaging should be put in labelled containers for waste collection and submitted for disposal to a person authorised for waste removal (a specialized company) that is entitled for such activity. Do not empty unused product in drainage systems. The product must not be disposed of with municipal waste. Empty containers may be used at waste incinerators to produce energy or deposited in a dump with appropriate classification. Perfectly cleaned containers can be submitted for recycling.

**Waste management legislation**

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste, as amended. Decision 2000/532/EC establishing a list of wastes, as amended.

**SECTION 14: Transport information****14.1. UN number or ID number**

not subject to transport regulations

**14.2. UN proper shipping name**

not relevant

**14.3. Transport hazard class(es)**

not relevant

**14.4. Packing group**

not relevant

**14.5. Environmental hazards**

not relevant

**14.6. Special precautions for user**

Reference in the Sections 4 to 8.

**14.7. Maritime transport in bulk according to IMO instruments**

not relevant

**SECTION 15: Regulatory information****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18th December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing the European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No. 793/93 and Commission Regulation (EC) No. 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, as amended. REGULATION (EC) No. 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL as amended. Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of 16th December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No. 1907/2006, as amended. Commission Regulation (EU) 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

**15.2. Chemical safety assessment**

not available

**SECTION 16: Other information****A list of standard risk phrases used in the safety data sheet**

H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

**Other important information about human health protection**

The product must not be - unless specifically approved by the manufacturer/importer - used for purposes other than as per the Section 1. The user is responsible for adherence to all related health protection regulations.



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**Key to abbreviations and acronyms used in the safety data sheet**

ADR	European agreement concerning the international carriage of dangerous goods by road
BCF	Bioconcentration Factor
CAS	Chemical Abstracts Service
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substance and mixtures
EC	Identification code for each substance listed in EINECS
EINECS	European Inventory of Existing Commercial Chemical Substances
EmS	Emergency plan
EU	European Union
EuPCS	European Product Categorisation System
IATA	International Air Transport Association
IBC	International Code For The Construction And Equipment of Ships Carrying Dangerous Chemicals
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
INCI	International Nomenclature of Cosmetic Ingredients
ISO	International Organization for Standardization
IUPAC	International Union of Pure and Applied Chemistry
LC <sub>50</sub>	Lethal concentration of a substance in which it can be expected death of 50% of the population
log K <sub>ow</sub>	Octanol-water partition coefficient
NPK	Maximum admissible concentration
OEL	Occupational Exposure Limits
PBT	Persistent, Bioaccumulative and Toxic
PEL	Permissible Exposure Limit
ppm	Parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Agreement on the transport of dangerous goods by rail
UN	Four-figure identification number of the substance or article taken from the UN Model Regulations
UVCB	Substances of unknown or variable composition, complex reaction products or biological materials
VOC	Volatile organic compounds
vPvB	Very Persistent and very Bioaccumulative
Met. Corr.	Corrosive to metals
Skin Corr.	Skin corrosion
STOT SE	Specific target organ toxicity - single exposure

**Training guidelines**

Inform the personnel about the recommended ways of use, mandatory protective equipment, first aid and prohibited ways of handling the product.

**Recommended restrictions of use**

not available

**Information about data sources used to compile the Safety Data Sheet**

REGULATION (EC) No. 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL (REACH) as amended.  
REGULATION (EC) No. 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL as amended. Data from the manufacturer of the substance / mixture, if available - information from registration dossiers.

**The changes (which information has been added, deleted or modified)**

The version 4.0 replaces the SDS version from 17 August 2021. Changes were made in sections 2, 11, 15 and 16.

**Statement**

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The safety data sheet provides information aimed at ensuring safety and health protection at work and environmental protection. The provided information corresponds to the current status of knowledge and experience and complies with valid legal regulations. The information should not be understood as guaranteeing the suitability and usability of the product for a particular application.