

Redox Buffer 475

Material number 238227/238322

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1. Product and company identification**Product identifier**

Trade name: Redox Buffer 475

Relevant identified uses of the substance or mixture and uses advised againstGeneral use: buffer solution
For industrial purposes only.**Details of the supplier of the safety data sheet**Company name: Hamilton Bonaduz AG
Street/POB-No.: Via Crusch 8
Postal Code, city: 7402 Bonaduz
Switzerland
WWW: www.hamiltoncompany.com
Telephone: +41 58 610 12 76
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Susanne Näf-Rüdiger,
Telephone: +41 58 610 12 76, E-mail SNaef@hamilton.ch**Emergency phone number****GIZ-Nord, Germany, Telephone: +49 (0)551-19240****2. Hazards identification****Emergency overview**Appearance: Form: liquid
Color: yellowish
Odor: odorless
Classification: Corrosive to Metals - Category 1;
Hazard symbols:Signal word: **Warning**
Hazard statements: May be corrosive to metals.
Precautionary statements:
Keep only in original container.
Absorb spillage to prevent material damage.**Regulatory status**

This material is considered hazardous by the U.S. OSHA Hazard Communication Standard (29 CFR 1910.1200) and SIMDUT in Canada.

Hazards not otherwise classifiedA corrosive effect cannot be ruled out because of the pH value.
see section 11: Toxicological information

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3. Composition / Information on ingredients

Chemical characterization: Aqueous solution

Hazardous ingredients:

CAS No.	Designation	Content	Classification
CAS 7783-85-9	Diammonium iron bis(sulphate) -6-hydrate	< 2 %	Skin Irritation - Category 2. Eye Irritation - Category 2A. Specific Target Organ Toxicity (Single Exposure) - Category 3.
	Hydrochloric acid	< 0.5 %	Corrosive to Metals - Category 1. Skin Corrosion - Category 1B. Specific Target Organ Toxicity (Single Exposure) - Category 3.

4. First aid measures

In case of inhalation: Provide fresh air. In case of respiratory difficulties seek medical attention.

Following skin contact: Change contaminated clothing. Wash with plenty of water. In case of skin reactions, consult a physician.

After eye contact: Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Subsequently consult an ophthalmologist.

After swallowing: Rinse mouth immediately and drink plenty of water. Consult physician.

Most important symptoms/effects, acute and delayed

In case of ingestion:

Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Information to physician

Treat symptomatically.

5. Fire fighting measures

Flash point/flash point range:

no data available

Auto-ignition temperature: no data available

Suitable extinguishing media:

Product is non-combustible. Extinguishing materials should therefore be selected according to surroundings.

Specific hazards arising from the chemical

Fires in the immediate vicinity may cause the development of dangerous vapors.

Can be released in case of fire: Hydrogen chloride.

Protective equipment and precautions for firefighters:

In case of surrounding fires: Wear a self-contained breathing apparatus and chemical protective clothing.

6. Accidental release measures

Personal precautions: Avoid contact with the substance. Do not breathe vapors. Wear suitable protective clothing.

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Environmental precautions:

Do not allow to penetrate into soil, waterbodies or drains.

Methods for clean-up:

Soak up with absorbent materials such as sand, siliceous earth, acid- or universal binder. Store in special closed containers and dispose of according to ordinance. Wash spill area with plenty of water.

Render harmless: Treat with diluted sodium hydroxide solution, lime, lime sand or sodium carbonate.

7. Handling and storage**Handling**

Advices on safe handling: Avoid contact with skin and eyes. Do not breathe vapors. Wear suitable protective clothing.

Storage

Requirements for storerooms and containers:

Keep containers tightly closed and at a temperature between 15 °C and 25 °C.

Unsuitable materials: Metals, metal alloys.

8. Exposure controls / personal protection**Exposure guidelines**

Occupational exposure limit values:

CAS No.	Designation	Type	Limit value
	Hydrochloric acid	ACGIH: Ceiling	2.98 mg/m ³ ; 2 ppm (A4)
		NIOSH: Ceiling	7 mg/m ³ ; 5 ppm
		OSHA: Ceiling	7 mg/m ³ ; 5 ppm

Engineering controls

Vapors/aerosols should be extracted by suction directly at point of origin.

See also information in chapter 7, section storage.

Personal protection equipment (PPE)

Eye/face protection: Tightly sealed goggles according to OSHA Standard - 29 CFR: 1910.133 or ANSI Z87.1-2010.

Skin protection: Wear suitable protective clothing.

Protective gloves according to OSHA Standard - 29 CFR: 1910.138.

Glove material: nitrile rubber-Layer thickness: 0,11 mm.

Breakthrough time: >480 min.

Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

Respiratory protection: Respiratory protection must be worn whenever the TLV (WEL) levels have been exceeded. Combination filter/Use filter type E-P2 according to OSHA Standard - 29 CFR: 1910.134 or ANSI Z88.2.

General hygiene considerations:

Change contaminated clothing.

Wash hands before breaks and after work.

Have eye wash bottle or eye rinse ready at work place.

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9. Physical and chemical properties**Information on basic physical and chemical properties**

Appearance:	Form: liquid Color: yellowish
Odor:	odorless
Odor threshold:	no data available
pH value:	at 20 °C: 1.1
Melting point/freezing point:	no data available
Initial boiling point and boiling range:	approx. 100 °C
Flash point/flash point range:	no data available
Evaporation rate:	no data available
Flammability:	no data available
Explosion limits:	no data available
Vapor pressure:	no data available
Vapor density:	no data available
Density:	at 20 °C: approx. 1.1 g/mL
Water solubility:	at 20 °C: soluble
Partition coefficient: n-octanol/water:	no data available
Auto-ignition temperature:	no data available
Thermal decomposition:	no data available
Additional information:	no data available

10. Stability and reactivity

Reactivity:	May be corrosive to metals.
Chemical stability:	Product is stable under normal storage conditions.
Possibility of hazardous reactions	Reacts with metals: Formation of Hydrogen!
Conditions to avoid:	Keep away from heat.
Incompatible materials:	Metals including alloys
Hazardous decomposition products:	Can be released in case of fire: Hydrogen chloride.
Thermal decomposition:	no data available

11. Toxicological information

Toxicological tests

Toxicological effects: Acute toxicity (oral): Lack of data.
Acute toxicity (dermal): Lack of data.
Acute toxicity (inhalative): Lack of data.
Skin corrosion/irritation: Lack of data.
Eye damage/irritation: Lack of data.
Sensitisation to the respiratory tract: Lack of data.
Skin sensitisation: Lack of data.
Germ cell mutagenicity/Genotoxicity: Lack of data.
Carcinogenicity: Lack of data.
Reproductive toxicity: Lack of data.
Effects on or via lactation: Lack of data.
Specific target organ toxicity (single exposure): Lack of data.
Specific target organ toxicity (repeated exposure): Lack of data.
Aspiration hazard: Lack of data.

Symptoms

In case of ingestion:
Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

General remarks

A corrosive effect cannot be ruled out because of the pH value.

12. Ecological information

Ecotoxicity

Aquatic toxicity: Harmful effects on water organisms by modification of pH-value.
Effects in sewage plants: Does not cause biological oxygen deficit.

Mobility in soil

no data available

Persistence and degradability

Further details: no data available

Additional ecological information

General information: Do not allow to enter into ground-water, surface water or drains.

13. Disposal considerations

Product

Recommendation: Special waste. Dispose of waste according to applicable legislation.

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Contaminated packaging

Recommendation: Dispose of waste according to applicable legislation.
Non-contaminated packages may be recycled.

14. Transport information**USA: Department of Transportation (DOT)**

Identification numbers: UN1789
Proper shipping name: UN 1789, Hydrochloric acid
DOT hazard class or division: 8
PG: III
Label codes: 8
Special provisions: A3, IB3, T4, TP1
Packaging - Exceptions: 154
Packaging - Non-bulk: 203
Packaging - Bulk: 241
Quantity limitations - Passenger aircraft / rail: 5 L
Quantity limitations - Cargo only: 60 L
Vessel stowage - Location: C
Vessel stowage - Other: 8

**Sea transport (IMDG)**

UN number: UN 1789
Proper shipping name: UN 1789, HYDROCHLORIC ACID
IMDG: Class 8, Subrisk -
Packing Group: III
EmS: F-A, S-B
Special provisions: 223
Limited quantities: 5 L
EQ: E1
Contaminated packaging - Instructions: P001, LP01
Contaminated packaging - Provisions: -
IBC - Instructions: IBC03
IBC - Provisions: -
Tank instructions - IMO: -
Tank instructions - UN: T4
Tank instructions - Provisions: TP1
Stowage and handling: Category C.
Properties and observations: Colourless liquid. An aqueous solution of the gas hydrogen chloride. Highly corrosive to most metals. Causes burns to skin eyes and mucous membranes.
Marine pollutant: No
Segregation group: none



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Air transport (IATA)

UN/ID number: UN 1789
Proper shipping name: UN 1789, HYDROCHLORIC ACID
ICAO/IATA: Class 8
PG: III
Hazard: Corrosive
EQ: E1
Passenger Ltd.Qty.: Pack.Instr. Y841 - Max. Net Qty/Pkg. 1 L
Passenger: Pack.Instr. 852 - Max. Net Qty/Pkg. 5 L
Cargo: Pack.Instr. 856 - Max. Net Qty/Pkg. 60 L
Special Provisioning: A3 A803
ERG: 8L

**15. Regulatory information****U.S. Federal Regulations**

Diammonium iron bis(sulphate)-6-hydrate: TSCA: not listed
Diammonium iron bis(sulphate), anhydrous CAS 10045-89-3: listed
Hydrochloric acid: TSCA Inventory: listed; EPA flags T
TSCA HPVC: not listed
Carcinogen Status:
IARC Rating: Group 3
OSHA Carcinogen: not listed
NTP Rating: not listed
Clean Air Act:
Accidental Release Prevention: Threshold 5000 lbs. / Basis for listing = a
Hazardous Air Pollutants: Code X
Clean Water Act:
Hazardous Substances: RQ 5000 lbs.
Other Environmental Laws:
CERCLA: RQ 5000 lbs.
SARA Title III Section 302, EHS: TPQ 500 lbs. / RQ 5000 lbs.
SARA Title III Section 313, Toxic Release: Conc. 1.0% / Threshold Standard
NIOSH Recommendations:
Occupational Health Guideline: 0332
OSHA Process Safety Management: Threshold 5000 lbs.

National regulations - Great Britain

Hazchem-Code: 2R

16. Other information

Text for labeling: Contains < 2 % Diammonium iron bis(sulphate)-6-hydrate, < 0.5 % Hydrochloric acid.
Safety data sheet available on request.

SAFETY DATA SHEET

in accordance with 29 CFR 1910.1200 and ANSI standard Z400.1-2010

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Revision date: 11/2/2015

Version: 8

Language: en-US

Date of print: 11/3/2015

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Hazard rating systems:



NFPA Hazard Rating:

Health: 1 (Slight)

Fire: 0 (Minimal)

Reactivity: 0 (Minimal)

HMIS Version III Rating:

Health: 1 (Slight)

Flammability: 0 (Minimal)

Physical Hazard: 0 (Minimal)

Personal Protection: X = Consult your supervisor

HEALTH	1
FLAMMABILITY	0
PHYSICAL HAZARD	0
	X

Reason of change:

Changes in section 1.2: General use

Changes in section 2: labeling (P-phrases)

Date of first version:

12/14/2010

Department issuing data sheet

Contact person:

see section 1: Dept. responsible for information

The information in this data sheet has been established to our best knowledge and was up-to-date at time of revision. It does not represent a guarantee for the properties of the product described in terms of the legal warranty regulations.