

1. Product and company identification

Product identifier

Trade name: Redox Buffer 475 mV

This safety data sheet pertains to the following products:

Article number: 238227, 238322, 242316

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

General 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 10 10
Department responsible for information:
After-sales service
E-mail: techsupport.pa.ch@hamilton.ch

Emergency phone number

GIZ-Nord, Göttingen, Germany,
Telephone: +49 551-19240

2. Hazards identification

Emergency overview

Appearance: Physical state at 68 °F and 101.3 kPa: 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).

Hazards not otherwise classified

A corrosive effect cannot be ruled out because of the pH value.
Special danger of slipping by leaking/spilling product.
see section 11: Toxicological information

3. Composition / Information on ingredients

Chemical characterization: Dilute water solution of the listed ingredients.

Relevant ingredients:

CAS No.	Designation	Concentration	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.
CAS 7647-01-0	Hydrochloric acid	< 0.5 %	Corrosive to Metals - Category 1. Skin Corrosion - Category 1A. Eye Damage - Category 1. Specific Target Organ Toxicity (Single Exposure) - Category 3.

4. First aid measures

General information:	If medical advice is needed, have product container or label at hand. Take off immediately all contaminated clothing and wash it before reuse.
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. Remove contact lenses, if present and easy to do. Continue rinsing. Subsequently consult an ophthalmologist.
After swallowing:	Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Do not induce vomiting. Seek medical attention.

Most important symptoms/effects, acute and delayed

In case of ingestion:
Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.
After eye contact: Upon direct contact with eyes may cause burning, tearing, redness.

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.
Additional information:	Cool exposed containers with water spray. Do not allow water used to extinguish fire to enter drains, ground or waterways. Fire residuals and contaminated extinguishing water must be disposed of in accordance with the regulations of the local authorities.

6. Accidental release measures

Personal precautions:	Provide adequate ventilation. Avoid contact with the substance. Do not breathe vapors. Wear appropriate protective equipment. Take off immediately all contaminated clothing and wash it before reuse.
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Environmental precautions: Do not allow to penetrate into soil, waterbodies or drains.
If necessary notify appropriate authorities.

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.

Additional information: Special danger of slipping by leaking/spilling product.

7. Handling and storage

Handling

Advices on safe handling: Provide adequate ventilation, and local exhaust as needed. Avoid contact with skin and eyes. Do not breathe vapors. Wear appropriate protective equipment. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Take off immediately all contaminated clothing and wash it before reuse.
Work place should be equipped with a shower and an eye rinsing apparatus.

Storage

Requirements for storerooms and containers:
Keep containers tightly closed and at a temperature between 59 °F and 77 °F.
Protect from heat and direct sunlight.
Keep only in the original container.
Unsuitable materials: Metals, metal alloys.
Store containers in upright position.

Hints on joint storage: Keep away from food, drink and animal feedingstuffs.

8. Exposure controls / personal protection

Exposure guidelines

Occupational exposure limit values:

CAS No.	Designation	Type	Limit value
7647-01-0	Hydrochloric acid	USA: ACGIH: Ceiling	2.98 mg/m ³ ; 2 ppm (A4)
		USA: IDLH: TWA	50 ppm
		USA: NIOSH: Ceiling	7 mg/m ³ ; 5 ppm
		USA: OSHA: Ceiling	7 mg/m ³ ; 5 ppm

Engineering controls

Provide adequate ventilation, and local exhaust as needed.
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: In case of inadequate ventilation wear 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 Do not breathe vapors. Avoid contact with skin and eyes. Take off immediately all contaminated clothing and wash it before reuse.
Wash hands before breaks and after work. Do not eat, drink or smoke when using this product.
Work place should be equipped with a shower and an eye rinsing apparatus.

Environmental exposure controls

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

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance:	Physical state at 68 °F and 101.3 kPa: liquid Color: Yellowish
Odor:	Odorless
Odor threshold:	No data available
pH:	at 68 °F: 1.1
Melting point/freezing point:	No data available
Initial boiling point and boiling range:	approx. 212 °F
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 68 °F: approx. 1.1 g/mL
Water solubility:	at 68 °F: 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:	Stable under recommended 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:	No decomposition when used properly.
Thermal decomposition:	No data available

11. Toxicological information

Toxicological tests

Toxicological effects: The statements are derived from the properties of the single components. No toxicological data is available for the product as such.

Acute toxicity (oral): Lack of data.

Acute toxicity (dermal): Lack of data.

Acute toxicity (inhalative): Lack of data.

Skin corrosion/irritation: Lack of data.

Serious 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.
After eye contact: Upon direct contact with eyes may cause burning, tearing, redness.

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.

Package

Recommendation: Dispose of waste according to applicable legislation.
Non-contaminated packages may be recycled.
Handle contaminated packages in the same way as the substance itself.

14. Transport information

14.2 UN proper shipping name

ADR/RID, IMDG, IATA-DGR: UN 3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Hydrochloric acid)

Transport hazard class(es)

ADR/RID: Class 8, Code: C1
IMDG: Class 8, Subrisk -
IATA-DGR: Class 8



Packing group

ADR/RID: III

Environmental hazards

Marine pollutant: no

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

No data available

USA: Department of Transportation (DOT)

Identification number: UN3264
Proper shipping name: UN 3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Hydrochloric acid)
Hazard class or Division: 8
Labels: 8
Symbols: G
Special Provisions: IB3, T7, TP1, TP28
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: A
Vessel stowage – Other: 40, 53, 58



Sea transport (IMDG)

UN number: UN 3264
Proper shipping name: UN 3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Hydrochloric acid)
Class or division, Subsidiary risk: Class 8, Subrisk -
EmS: F-A, S-B
Special Provisions: 223 274
Limited quantities: 5 L
Excepted quantities: E1
Package - Instructions: P001, LP01
Package - Provisions: -
IBC - Instructions: IBC03
IBC - Provisions: -
Tank instructions - IMO: -
Tank instructions - UN: T7
Tank instructions - Provisions: TP1, TP28
Stowage and handling: Category A. SW2
Segregation: SG36 SG49
Properties and observations: Causes burns to skin, eyes and mucous membranes.
Marine pollutant: no
Segregation group: 1

Air transport (IATA)

UN/ID number:	UN 3264
Proper shipping name:	UN 3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Hydrochloric acid)
Class or division, Subsidiary risk:	Class 8
Hazard label:	Corrosive
Excepted Quantity Code:	E1
Passenger and Cargo Aircraft: Ltd.Qty.:	Pack.Instr. Y841 - Max. Net Qty/Pkg. 1 L
Passenger and Cargo Aircraft:	Pack.Instr. 852 - Max. Net Qty/Pkg. 5 L
Cargo Aircraft only:	Pack.Instr. 856 - Max. Net Qty/Pkg. 60 L
Special Provisions:	A3 A803
Emergency Response Guide-Code (ERG):	8L

15. Regulatory information

National regulations - 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

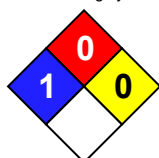
National regulations - Great Britain

Hazchem-Code: 2X

16. Other information

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

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

SAFETY DATA SHEET

according to 29 CFR 1910.1200 and ANSI standard Z400.1-2010

Redox Buffer 475 mV

Material number 475

Revision date: 8/24/2021
Version: 15.0
Language: en-US
Date of print: 2/16/2023

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Abbreviations and acronyms:

- ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- AS/NZS: Australian Standards/New Zealand Standards
- CAS: Chemical Abstracts Service
- CFR: Code of Federal Regulations
- CLP: Classification, Labelling and Packaging
- Corrosive to Metals: Corrosive to metals
- DMEL: Derived minimal effect level
- DNEL: Derived no-effect level
- EC: European Community
- EN: European Standard
- EQ: Excepted quantities
- Eye Damage: Eye damage
- Eye Irritation: Eye irritation
- IATA: International Air Transport Association
- IATA-DGR: International Air Transport Association – Dangerous Goods Regulations
- IBC Code: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
- IMDG Code: International Maritime Dangerous Goods Code
- MARPOL: Maritime Pollution: The International Convention for the Prevention of Pollution from Ships
- OEL: Occupational Exposure Limit Value
- OSHA: Occupational Safety and Health Administration
- PBT: Persistent, bioaccumulative and toxic
- PNEC: Predicted no-effect concentration
- RID: Regulations Concerning the International Carriage of Dangerous Goods by Rail
- Skin Corrosion: Skin corrosion
- Skin Irritation: Skin irritation
- STOT SE: Specific target organ toxicity - single exposure
- TLV: Threshold Limit Value
- TRGS: Technical Rules for Hazardous Substances
- UN: United Nations
- vPvB: Very persistent and very bioaccumulative
- WEL: Workplace Exposure Limit

Reason of change: Changes in section 1: Department responsible for information
Date of first version: 12/14/2010

Department issuing data sheet

Contact person: see section 1: Department 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.

Most recent product information is available at
<http://sumdat.net/r0kngqp8>

