SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name: DuraCal Buffer ORP 475 mV

This safety data sheet pertains to the following products:
238227 = DuraCal Buffer ORP 475 mV, 500 mL
238322 = DuraCal Buffer ORP 475 mV, 250 mL

UFI: 2C80-80QV-300S-0885

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

General use: Buffer solution
For industrial purposes only.

1.3 Details of the supplier of the safety data sheet

Company name: Hamilton Germany GmbH
Street/POB-No.: Lochhamer Schlag 11
Postcode, city: 82166 Gräfelfing
Germany
WWW: www.hamiltoncompany.com
Department responsible for information:
After-sales service
E-mail: techsupport.pa.ch@hamilton.ch

Compliance
Qualisys GmbH, Germany
E-mail: hamilton@qualisys.eu

Additional information: Manufacturer
Hamilton AG
Via Crusch 8
7402 Bonaduz, Switzerland

1.4 Emergency telephone number

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

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to EC regulation 1272/2008 (CLP)

Met. Corr. 1; H290 May be corrosive to metals.
Eye Dam. 1; H318 Causes serious eye damage.

2.2 Label elements

Labelling (CLP)



Signal word: **Danger**

Hazard statements:

H290	May be corrosive to metals.
H318	Causes serious eye damage.

Precautionary statements:

P234	Keep only in original packaging.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.
P390	Absorb spillage to prevent material damage.

Special labelling

Text for labelling: Contains Ammonium iron bis(sulphate)-12-hydrate

2.3 Other hazards

A corrosive effect cannot be ruled out because of the pH value.
Special danger of slipping by leaking/spilling product.

Endocrine disrupting properties, Results of PBT and vPvB assessment:

The product contains no components classified as PBT or as vPvB at concentrations of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances: not applicable

3.2 Mixtures

Chemical characterisation: Dilute water solution of the listed ingredients.

Hazardous ingredients:

Identifiers	Designation Classification	Content
EC No. 233-382-4 CAS 7783-83-7	Ammonium iron bis(sulphate)-12-hydrate Eye Dam. 1; H318.	1 - 5 %
list no. 616-518-0 CAS 7783-85-9	Diammonium iron bis(sulphate)-6-hydrate Skin Irrit. 2; H315. Eye Irrit. 2; H319. STOT SE 3; H335.	0.5 - 1.5 %
REACH 01-2119484862-27-xxxx EC No. 231-595-7 CAS 7647-01-0	Hydrochloric acid Met. Corr. 1; H290. Skin Corr. 1A; H314. Eye Dam. 1; H318. STOT SE 3; H335.	< 0.5 %

Full text of H- and EUH-statements: see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information: First aider: Pay attention to self-protection!
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: 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. Seek the attention of an ophthalmologist immediately.

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.

4.2 Most important symptoms and effects, both acute and delayed

Causes serious eye damage.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:

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

5.2 Special hazards arising from the substance or mixture

Fires in the immediate vicinity may cause the development of dangerous vapours.
Can be released in case of fire: Hydrogen chloride.

5.3 Advice for firefighters

Special protective equipment for firefighters:

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

Additional information: Use fine water spray to cool endangered containers.
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.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Do not breathe mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Avoid contact with the substance.
If possible, eliminate leakage. Provide adequate ventilation.
Wear appropriate protective equipment. Take off immediately all contaminated clothing and wash it before reuse.
Keep unprotected people away.

6.2 Environmental precautions

Do not allow to penetrate into soil, waterbodies or drains.
If necessary, notify appropriate authorities.

6.3 Methods and material for containment and cleaning up

Soak up with absorbent materials such as sand, siliceus 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.

6.4 Reference to other sections

Refer additionally to section 8 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advices on safe handling: Provide adequate ventilation, and local exhaust as needed. Do not breathe mist/vapours/spray. Do not get in eyes, on skin, or on clothing. 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.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storerooms and containers:

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

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values:

CAS No.	Designation	Type	Limit value
7647-01-0	Hydrochloric acid	Europe: IOELV: STEL Europe: IOELV: TWA Ireland: 15 minutes Ireland: 8 hours	15 mg/m³; 10 ppm 8 mg/m³; 5 ppm 15 mg/m³; 10 ppm 8 mg/m³; 5 ppm

8.2 Exposure controls

Provide for good ventilation or exhaust system or work with completely self-contained equipment.

Personal protection equipment

Occupational exposure controls

Respiratory protection: In case of inadequate ventilation wear respiratory protection. Respiratory protection must be worn whenever the WEL levels have been exceeded.
Combination filter/Use filter type E-P2 according to EN 14387.
The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product.

Hand protection: Protective gloves according to I.S. EN ISO 374-1.
Glove material: nitrile rubber-Layer thickness: 0.11 mm.
Breakthrough time: > 480 min.
Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

Eye protection: Tightly sealed goggles according to I.S. EN ISO 16321-1.

Body protection: Wear suitable protective clothing.

General protection and hygiene measures:

Do not breathe mist/vapours/spray. Do not get in eyes, on skin, or on clothing. 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.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state at 20 °C and 101.3 kPa	liquid
Colour:	Yellowish
Odour:	Odourless
Melting point/freezing point:	No data available
Boiling point:	approx. 100 °C
Flammability:	No data available
Lower and upper explosion limit:	No data available

Flash point:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
pH:	at 20 °C: 1.1
Kinematic viscosity:	No data available
Water solubility:	at 20 °C: soluble
Partition coefficient n-octanol/water (log value):	No data available
Vapour pressure:	No data available
Density:	at 20 °C: approx. 1.1 g/mL
Relative vapour density:	No data available
Particle characteristics:	Not applicable

9.2 Other information

Explosive properties:	No data available
Oxidizing characteristics:	No data available
Auto-ignition temperature:	No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

May be corrosive to metals.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Reacts with metals: Formation of Hydrogen!

10.4 Conditions to avoid

Keep away from heat sources, sparks and open flames.
Protect from direct sunlight.
Protect from frost.

10.5 Incompatible materials

Metals, including alloys

10.6 Hazardous decomposition products

No decomposition when used properly.

Thermal decomposition: No data available

SECTION 11: Toxicological information

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

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.
Serious eye damage/irritation: Eye Dam. 1; H318 = Causes serious eye damage.
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.

11.2 Information on other hazards

Endocrine disrupting properties:

No data available

Symptoms

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

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity: Harmful effects on water organisms by modification of pH-value.

12.2 Persistence and degradability

Further details: No data available

Effects in sewage plants: Does not cause biological oxygen deficit.

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water:

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

The product contains no components classified as PBT or as vPvB at concentrations of 0.1% or higher.

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

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

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste key number: 06 03 13* = Solid salts and solutions containing heavy metals
* = Evidence for disposal must be provided.

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

Package

Waste key number: 15 01 02 = Plastic packaging

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.

Section 14. Transport information

14.1 UN number or ID number

ADR/RID, IMDG, IATA-DGR:

UN 3264

14.2 UN proper shipping name

ADR/RID, IMDG, IATA-DGR:

UN 3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Hydrochloric acid)

14.3 Transport hazard class(es)

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



14.4 Packing group

ADR/RID, IMDG, IATA-DGR:

III

14.5 Environmental hazards

Dangerous for the environment:

Substance/mixture is not environmentally hazardous according to the criteria of the UN model regulations.

Marine pollutant: no

14.6 Special precautions for user

Land transport (ADR/RID)

Warning board:	ADR/RID: Hazard identification number 80, UN number UN 3264
Hazard label:	8
Special Provisions:	274
Limited quantities:	5 L
EQ:	E1
Package - Instructions:	P001 IBC03 LP01 R001
Special provisions for packing together:	MP19
Portable tanks - Instructions:	T7
Portable tanks - Special Provisions:	TP1 TP28
Tank coding:	L4BN
Tunnel restriction code:	E

Sea transport (IMDG)

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.
Segregation group:	1

Air transport (IATA)

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

14.7 Maritime transport in bulk according to IMO instruments

No data available

SECTION 15: Regulatory information

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

National regulations - EC member states

Volatile organic compounds (VOC):

0 % by weight / 0 g/L

Labelling of packaging with <= 125mL content



Signal word: **Danger**

Hazard statements:
H318 Causes serious eye damage.

Precautionary statements:
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER/doctor.

Further regulations, limitations and legal requirements:

Product:	Use restriction according to REACH annex XVII, no.: 3, 75
Hydrochloric acid:	Regulation (EC) 273/2004 (Drug precursors): Category 3
	Regulation (EC) 111/2005 (Trade with drug precursors): Category 3

15.2 Chemical Safety Assessment

For this mixture a chemical safety assessment is not required.

SECTION 16: Other information

Classification procedure:
Physical hazards: on basis of test data
Health hazards, environmental hazards: calculation method

Wording of the H-phrases under paragraph 2 and 3:
H290 = May be corrosive to metals.
H318 = Causes serious eye damage.
H315 = Causes skin irritation.
H319 = Causes serious eye irritation.
H335 = May cause respiratory irritation.
H314 = Causes severe skin burns and eye damage.

Reason of change:
Changes in section 1: Details of the supplier of the safety data sheet (Company name or additional information)

Date of first version:
14/12/2010

Department issuing data sheet:
see section 1: Department responsible for information

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
DMEL: Derived minimal effect level
DNEL: Derived no-effect level
EC: European Community
EmS: Emergency Response Procedures for Ships Carrying Dangerous Goods
EN: European Standard
EQ: Excepted quantities
EU: European Union
Eye Dam.: Eye damage
Eye Irrit.: 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
IMO: International Maritime Organization
MARPOL: Maritime Pollution: The International Convention for the Prevention of Pollution from Ships
Met. Corr.: Corrosive to metals
OEL: Occupational Exposure Limit Value
OSHA: Occupational Safety and Health Administration
PBT: Persistent, bioaccumulative and toxic
PNEC: Predicted no-effect concentration
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
RID: Regulations Concerning the International Carriage of Dangerous Goods by Rail
Skin Corr.: Skin corrosion
Skin Irrit.: 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

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:
https://sumdat.net/mrfe86z9