

## ORP Solution +475mV

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

Trade name: Redox potential solution +475mV  
This safety data sheet pertains to the following products:  
Article number (EE)32383153, 51100313, 51100323

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

General use: calibration solution

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

Company name: GIORGIO BORMAC s.r.l.  
Street/POB-No.: via della meccanica, 25  
Postal Code, city: 41012 Carpi MO  
Italia  
WWW: www.giorgiobormac.com  
Telephone: +39 059 653 274  
Telefax: +39 059 653 282  
Dept. responsible for information:  
Massimo Brachi,  
Telefono: +39 059 653 274, e-mail [m.brachi@giorgiobormac.com](mailto:m.brachi@giorgiobormac.com)

**1.4 Emergency telephone number**

Centro Antiveneni: Milano 02/66101029

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture**

Classification according to EC regulation 1272/2008 (CLP)

This mixture is classified as not hazardous.

Classification according to Directive 67/548/EEC or 1999/45/EC

This preparation is classified as not hazardous.

**2.2 Label elements****Labelling (CLP)**

Hazard statements:



.GHS05 Danger, Corrosive

Hazard statements:

H290 May be corrosive to metals.  
H319 Causes serious eye irritation.  
H315 Causes skin irritation.

Precautionary statements:

P234 Keep only in original container  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P302+P352 IF ON SKIN: Wash with plenty of soap and water.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P337+P313 If eye irritation persists: Get medical advice/attention.  
P390 Absorb spillage to prevent material damage.

**2.3 Other hazards**

No risks worthy of mention.

**SECTION 3: Composition / information on ingredients**

3.1 Substances: not applicable

**3.2 Mixtures**

Chemical characterisation: Mixture of inorganic salts in aqueous solution with dyestuff.

Ingredient	Designation	Content	Classification
CAS: 10025-77-1 EINECS: 231-729-4	Iron(III) chloride	1 – 3 %	Acute Tox. 4 H302, Skin Corr. 1B H314
CAS: 7647-01-0 CE: 231-595-7 INDEX: 017-002-01-X Nr. Reg. 01-2119484862-27-XXXX	Hydrochloric acid	0,1 – 0,5 %	Met. Corr. 1 H290, Skin Corr. 1B H314, STOT SE 3 H335, Nota B

**ORP Solution +475mV****SECTION 4: First aid measures****4.1 Description of first aid measures**

In case of inhalation: Move victim to fresh air. In case of respiratory difficulties seek medical attention.  
Following skin contact: Remove residues with water. Remove contaminated clothing.  
In case of skin reactions, consult a physician.  
After eye contact: With eyelids open, wash out eyes for several minutes under flowing water. In case of troubles or persistent symptoms, consult an ophthalmologist.  
After swallowing: Rinse mouth and drink large quantities of water.  
After ingestion of high quantities: Induce vomiting.  
If you feel unwell, seek medical advice.

**4.2 Most important symptoms and effects, both acute and delayed**

no data available

**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.

**5.3 Advice for firefighters**

Special protective equipment for firefighters:

In case of surrounding fires: Cool down with water jets the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.

**EQUIPMENT**

Hardhat with visor, fireproof clothing (fireproof jacket and trousers with straps around arms, legs and waist), work gloves (fireproof, cut proof and dielectric), a depressurised mask with facemask covering the whole of the operator's face or the self (self-protector) in the event of large quantities of foam.

Additional information: Hazchem-Code: -

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

Ventilate the area before working. Remove people not involved and wear proper protective equipment mentioned in item 8.

**6.2 Environmental precautions**

Discharge into the environment must be avoided.

**6.3 Methods and material for containment and cleaning 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.

**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: Avoid contact with skin and eyes.

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

Requirements for storerooms and containers:

Keep container tightly closed. Store at room temperature.

Storage class: 12 = Non-combustible liquids

**7.3 Specific end use(s)**

Buffer solution, calibration solution

**SECTION 8: Exposure controls/personal protection****8.1 Control parameters**

Reference:

EU OEL EU Direttiva 2009/161/UE; Direttiva 2006/15/CE; Direttiva 2004/37/CE; Direttiva 2000/39/CE.

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TLV-ACGIH

ACGIH 2014

**Iron (III) chloride****Limit threshold**

Tipy	Nation	TW A/8h mg/m3	ppm	STEL/15min mg/m3	ppm	
TLV-ACGIH		1				Come Fe

**Hydrochloric acid****Limit threshold**

Tipy	Nation	TW A/8h mg/m3	ppm	STEL/15min mg/m3	ppm	
OEL	EU	8	5	15	10	
TLV-ACGIH				2,9 (C)	2 (C)	A4

**Expected concentration of no effect on the environment - PNEC**

Reference value in fresh water	0,036	mg/l
Reference value in sea water	0,036	mg/l
Reference value for water, intermittent release	0,045	mg/l
Reference value for the terrestrial compartment	0,036	mg/l

**Health - Derived no-effect level - DNEL / DMEL**

Exposition	Effects on consumers			Effects on workers			
	Local acute	Systemic, acute	Local chronic	Local acute	Systemic, acute	Local chronic	
Inhalation				VND	15 mg/m3	VND	8 mg/m3

Sampling methods:

Hydrochloric acid: <http://amcaw.ifa.dguv.de/substance/methoden/093-L-Hydrogen%20chloride.pdf>**8.2 Exposure controls**

Considering that the use of adequate technical measures should always take priority over personal protective equipment, ensure good ventilation in the workplace through effective local aspiration.

For the selection of personal protective equipment, if necessary ask your chemical suppliers for advice.

The individual protection devices must bear the CE marking which certifies their compliance with the regulations in force.

Provide emergency shower with visocular basin.

**Personal protection equipment****Occupational exposure controls**

Respiratory protection:

If the threshold value (eg TLV-TWA) of the substance or one or more of the substances present in the product is exceeded, it is advisable to wear a mask with type B filter whose class (1, 2 or 3) must be chosen in relation to the limit concentration of use. (see standard EN 14387). If there are gases or vapors of a different nature and / or gases or vapors with particles (aerosols, fumes, mists, etc.), combined filters must be provided.

The use of means of protection of the respiratory tract is necessary if the technical measures adopted are not sufficient to limit the exposure of the worker to the threshold values taken into consideration. However, the protection offered by the masks is limited.

In the event that the substance considered is odorless or its olfactory threshold is higher than the relative TLV-TWA and in the event of an emergency, wear an open circuit compressed air breathing apparatus (see standard EN 137) or a breathing apparatus outdoor air (see standard EN 138). For the correct choice of the respiratory protection device, refer to the EN 529 standard.

Hand protection:

Protect hands with category III work gloves (see standard EN 374).

The following must be considered for the final choice of the work glove material: compatibility, degradation, break time and permeation.

In the case of preparations, the resistance of work gloves to chemical agents must be checked before use as unpredictable. The gloves have a wear time that depends on the duration and the mode of use.

Eye protection:

It is advisable to wear a hood visor or protective visor combined with airtight goggles (see standard EN 166).

Body protection:

Wear work clothes with long sleeves and safety footwear for professional use in category II (see Directive 89/686 / EEC and EN ISO 20344). Wash with soap and water after removing protective clothing..

Environmental exposure controls:

Le emissioni da processi produttivi, comprese quelle da apparecchiature di ventilazione dovrebbero essere controllate ai fini del rispetto della normativa di tutela ambientale.

**SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties**

Appearance:	Form: liquid Colour: yellow/brown
Odour:	characteristic
Odour threshold:	no data available
pH value:	at 20°C:1.5
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

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Explosion limits:	no data available
Vapour pressure:	no data available
Vapour density:	no data available
Density:	at 20 °C: approx. 1.0 g/mL
Water solubility:	at 20 °C: completely miscible
Partition coefficient:	n-octanol/water: no data available
Auto-ignition temperature:	no data available
Thermal decomposition:	no data available
Viscosity, kinematic:	no data available
Explosive properties:	no data available
Oxidizing characteristics:	no data available

**9.2 Other information**

Additional information: no data available

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

There are no particular risks of reaction with other substances in normal conditions of use

**10.2 Chemical stability**

Product is stable under normal storage conditions.

**10.3 Possibility of hazardous reactions**

Unusual reactions are not expected under normal use and storage conditions.

HYDROCHLORIC ACID

Reacts violently with bases and oxidants, developing toxic gaseous chlorine..

**10.4 Conditions to avoid**

HYDROCHLORIC ACID

Heating

**10.5 Incompatible materials**

HYDROCHLORIC ACID

Alkalis, organic substances, strong oxidants and metals

**10.6 Hazardous decomposition products**

In case of fire in the surroundings possible emissions of dangerous vapors

Thermal decomposition: no data available

**SECTION 11: Toxicological information****11.1 Information on toxicological effects**

Toxicological effects:

In the absence of experimental toxicological data on the product itself, the possible dangers of the product for health have been evaluated on the basis of the properties of the substances contained, according to the criteria provided for by the reference standard for classification. Consider therefore the concentration of the individual hazardous substances mentioned in section 3, to evaluate the toxicological effects deriving from exposure to the product.

The product causes serious eye damage and can cause cornea opacity, iris lesion, irreversible staining of the eye.

Acute effects: in contact with skin, irritation occurs with erythema, edema, dryness and chapping.

Ingestion can cause health problems, which include abdominal pain with burning, nausea and vomiting.

Hydrochloric acid

LD50 (Oral) .900 mg / kg rabbit

LC50 (Inhalation) .3124 ppm / 1h rat

hydrated iron trichloride

LD50 (Oral) .316 mg / kg rat

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

Hydrochloric acid

LC50 - Fish. 3.25 mg / l / 96h (3.25 - 3.5) Bluegill (Lepomis macrochirus)

hydrated iron trichloride

LC50 - Fish. 22 mg / l / 96h Pimephales promelas (American chub) - anhydrous substance - ECOTOX

EC50 - Crustaceans. 9.6 mg / l / 48h Daphnia magna (large water flea) - anhydrous substance - ECOTOX

**12.2. Persistence and degradability**

HYDROCHLORIC ACID

In water it dissociates.

The substance is not photodegradable

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**12.3 Bioaccumulative potential**

## HYDROCHLORIC ACID

Bioconcentration is not significant.

Partition coefficient n-octanol / water: log Pow -4 (24 ° C) OECD TG107 method.

Bioaccumulation is not expected

**12.4 Mobility in soil**

## HYDROCHLORIC ACID

It is mobile on the ground.

**12.5 Results of PBT and vPvB assessment**

Based on the available data, the product does not contain PBT or vPvB substances in percentages greater than 0.1%.

**12.6 Other adverse effects**

## HYDROCHLORIC ACID

Despite dilution, form corrosive mixtures with water. Harmful effect due to pH variation.

**SECTION 13: Disposal considerations****13.1 Waste treatment methods****Product**

Waste key number: 06 03 14 = Solid salts and solutions, which contain neither heavy metals nor cyanides

Recommendation: Reuse, when possible. The product residues should be considered special non-hazardous waste.

Disposal must be performed through an authorized waste management firm, in compliance with national and local regulations..

**Contaminated packaging**

Waste key number: 15 01 02 = Plastic packaging

Recommendation: Dispose of waste according to applicable legislation.

**SECTION 14: Transport information****14.1 UN number**

ADR/RID, IMDG, IATA-DGR:

UN 1760

**14.2 UN proper shipping name**

ADR/RID : CORROSIVE LIQUID, N.O.S. (Hydrochloric acid)

IMDG : CORROSIVE LIQUID, N.O.S. (Hydrochloric acid)

IATA : CORROSIVE LIQUID, N.O.S. (Hydrochloric acid)

**14.3 Transport hazard class(es)**

ADR/RID : Classe: 8 Etichetta: 8



IMDG : Classe: 8 Etichetta: 8



IATA : Classe: 8 Etichetta: 8

**14.4 Packing group**

ADR/RID, IMDG, IATA-DGR:

III

**14.5 Environmental hazards**

Marine pollutant: No

**14.6 Special precautions for user**ADR/RID HIN – Kemler: 80 Limited quantity: 5 L tunnel restriction: (E)  
Special ProvisionIMGD EMS: F-A, S-B Limited quantity: 5 L  
IATA Cargo: Maximum quantity: 60 L Packaging instruction: 856

Limited quantity: 1L Packaging instruction: 841

Pass: Maximum quantity: 5 L Packaging instruction: 852

Limited quantity: 1L Packaging instruction: 841

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Special instructions: A3, A803

**14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**  
no data available**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****National regulations - Great Britain**

Hazchem-Code: No data available

**National regulations - USA**

No data available:

**15.2 Chemical Safety Assessment**

For this mixture a chemical safety assessment is not required.

**SECTION 16: Other information****Further information**

Wording of the H-phrases under paragraph 2 and 3:

H290 = May be corrosive to metals  
H302 = Harmful if swallowed.  
H314 = Causes severe skin burns and eye damage.  
H319 = Causes serious eye irritation.  
H315 = Causes skin irritation.  
H335 = May cause respiratory irritation.

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General Revision

Section 14 point 6