

Safety data sheet according to Regulation (EC) No. 1907/2006

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

1.1. Product identifier.

Code. **HI7092**
Product name. **Oxidizing Pretreatment Solution for ORP Electrodes**

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

Intended use. **Pretreatment solution for ORP Electrodes.**

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

Name. **Hanna Instruments S.R.L.**
Full address. **str. Hanna Nr 1**
District and Country. **457260 loc. Nusfalau (Salaj)**
Romania
Tel. **(+40) 260607700**
Fax. **(+40) 260607700**

e-mail address of the competent person.
responsible for the Safety Data Sheet. **msds@hanna.ro**

1.4. Emergency telephone number.

For urgent inquiries refer to. **Emergency Number - International: +(1)-703-527-3887 - UK, London:
+(44)-870-8200418 - CHEMTREC 24 hours/365 days**

SECTION 2. Hazards identification.

2.1. Classification of the substance or mixture.

The product is classified as hazardous pursuant to the provisions set forth in EC Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of EC Regulation 1907/2006 and subsequent amendments.

Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Hazard classification and indication:

Substance or mixture corrosive to metals, category 1 H290 May be corrosive to metals.

2.2. Label elements.

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

Hazard pictograms:



Signal words: **Warning**

Hazard statements:
H290 May be corrosive to metals.

Precautionary statements:
P390 Absorb spillage to prevent material damage.

2.3. Other hazards.

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

SECTION 3. Composition/information on ingredients.

3.1. Substances.

Information not relevant.

3.2. Mixtures.

Contains:

Identification. **x = Conc. %.** **Classification 1272/2008 (CLP).**

SODIUM HYPOCHLORITE

8% - active chlorine

CAS. 7681-52-9 3 ≤ x < 5 Met. Corr. 1 H290, Skin Corr. 1B H314, Aquatic Acute 1 H400 M=10, EUH031, Note B
EC. 231-668-3
INDEX. 017-011-00-1

HYDROCHLORIC ACID

CAS. 7647-01-0 0,1 ≤ x < 0,5 Met. Corr. 1 H290, Skin Corr. 1B H314, STOT SE 3 H335, Note B
EC. 231-595-7
INDEX. 017-002-01-X
Reg. no. 01-2119484862-26

The full wording of hazard (H) phrases is given in section 16 of the sheet.

SECTION 4. First aid measures.

4.1. Description of first aid measures.

Not specifically necessary. Observance of good industrial hygiene is recommended.

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

No episodes of damage to health ascribable to the product have been reported.

HYDROCHLORIC ACID

HYDROCHLORIC ACID 37%: Irritation and corrosion, Cough, Shortness of breath, cardiovascular disorders, Risk of blindness!

SODIUM HYPOCHLORITE

SODIUM HYPOCHLORITE 8%: Irritation and corrosion, Cough, Shortness of breath, Risk of blindness!

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

Information not available.

SECTION 5. Firefighting measures.

5.1. Extinguishing media.

SUITABLE EXTINGUISHING EQUIPMENT

Extinguishing substances are: carbon dioxide and chemical powder. For product loss or leakage that has not caught fire, water spray can be used to disperse flammable vapours and protect those trying to stem the leak.

UNSUITABLE EXTINGUISHING EQUIPMENT

Do not use jets of water.

Water is not effective for putting out fires but can be used to cool containers exposed to flames to prevent explosions.

5.2. Special hazards arising from the substance or mixture.

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE

If large quantities of the product are involved in a fire, they can make it considerably worse. Do not breathe combustion products.

HYDROCHLORIC ACID

HYDROCHLORIC ACID 37%: Not combustible. Ambient fire may liberate hazardous vapours. Fire may cause evolution of: Hydrogen chloride gas.

SODIUM HYPOCHLORITE

SODIUM HYPOCHLORITE 8%: Not combustible. Ambient fire may liberate hazardous vapours. Fire may cause evolution of: Hydrogen chloride gas.

5.3. Advice for firefighters.

GENERAL INFORMATION

In the case of fire, use jets of water to cool the containers to prevent the risk of explosions (product decomposition and excess pressure) and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Remove all containers

containing the product from the fire, if it is safe to do so.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

SECTION 6. Accidental release measures.

6.1. Personal precautions, protective equipment and emergency procedures.

Block the leakage if there is no hazard.

Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

6.2. Environmental precautions.

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

6.3. Methods and material for containment and cleaning up.

Collect the leaked product into a suitable container. If the product is flammable, use explosion-proof equipment. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.

Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections.

Any information on personal protection and disposal is given in sections 8 and 13.

SECTION 7. Handling and storage.

7.1. Precautions for safe handling.

Before handling the product, consult all the other sections of this material safety data sheet. Avoid leakage of the product into the environment. Do not eat, drink or smoke during use.

7.2. Conditions for safe storage, including any incompatibilities.

Keep the product in clearly labelled containers. Keep containers away from any incompatible materials, see section 10 for details.

7.3. Specific end use(s).

Information not available.

SECTION 8. Exposure controls/personal protection.

8.1. Control parameters.

Regulatory References:

DEU	Deutschland	MAK-und BAT-Werte-Liste 2012
ESP	España	INSHT - Límites de exposición profesional para agentes químicos en España 2015
GBR	United Kingdom	EH40/2005 Workplace exposure limits
HUN	Magyarország	50/2011. (XII. 22.) NGM rendelet a munkahelyek kémiai biztonságáról
ITA	Italia	Decreto Legislativo 9 Aprile 2008, n.81
NLD	Nederland	Databank of the social and Economic Council of Netherlands (SER) Values, AF 2011:18
ROU	România	Monitorul Oficial al României 44; 2012-01-19
EU	OEL EU	Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC.
	TLV-ACGIH	ACGIH 2016

SECTION 8. Exposure controls/personal protection. ... / >>

SODIUM HYPOCHLORITE

Predicted no-effect concentration - PNEC.

Normal value in fresh water	0,00021	mg/l
Normal value in marine water	0,000042	mg/l
Normal value for water, intermittent release	0,00026	mg/l
Normal value of STP microorganisms	4,69	mg/l

Health - Derived no-effect level - DNEL / DMEL

Route of exposure	Effects on consumers.				Effects on workers			
	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral.			VND	0,26 mg/kg bw/d				
Inhalation.	3,1 mg/m3	3,1 mg/m3	1,55 mg/m3	1,55 mg/m3	3,1 mg/m3	3,1 mg/m3	1,55 mg/m3	1,55 mg/m3

HYDROCHLORIC ACID

Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min	
		mg/m3	ppm	mg/m3	ppm
MAK	DEU	3	2		
VLA	ESP	7,6	5	15	10
WEL	GBR	2	1	8	5
					gas and aerosol mists
AK	HUN	8		16	
VLEP	ITA	8	5	15	10
MAC	NLD	3	2	6	4
TLV	ROU	8	5	15	10
OEL	EU	8	5	15	10
TLV-ACGIH				2 (C)	

Predicted no-effect concentration - PNEC.

Normal value in fresh water	0,036	mg/l
Normal value in marine water	0,036	mg/l
Normal value for water, intermittent release	0,045	mg/l
Normal value of STP microorganisms	0,036	mg/l

Health - Derived no-effect level - DNEL / DMEL

Route of exposure	Effects on consumers.				Effects on workers			
	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Inhalation.					15 mg/m3	VND	8 mg/m3	VND

Legend:

(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.
VND = hazard identified but no DNEL/PNEC available ; NEA = no exposure expected ; NPI = no hazard identified.

HYDROCHLORIC ACID

Methods for measurement of the workplace atmosphere have to correspond to the requirements of norm NIOSH 7903.

8.2. Exposure controls.

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.

HAND PROTECTION

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

The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability.

The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.

SKIN PROTECTION

Wear category I professional long-sleeved overalls and safety footwear (see Directive 89/686/EEC and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.

EYE PROTECTION

Wear airtight protective goggles (see standard EN 166).

RESPIRATORY PROTECTION

If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, use a mask with a type B filter whose class (1, 2 or 3) must be chosen according to the limit of use concentration. (see standard EN 14387). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.

SECTION 8. Exposure controls/personal protection. ... / >>

Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.

If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus (in compliance with standard EN 137) or external air-intake breathing apparatus (in compliance with standard EN 138). For a correct choice of respiratory protection device, see standard EN 529.

ENVIRONMENTAL EXPOSURE CONTROLS.

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

SECTION 9. Physical and chemical properties.

9.1. Information on basic physical and chemical properties.

Appearance	liquid
Colour	colourless
Odour	odourless
Odour threshold.	Not available.
pH.	7
Melting point / freezing point.	Not available.
Initial boiling point.	Not available.
Boiling range.	Not available.
Flash point.	> 60 °C.
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Lower inflammability limit.	Not available.
Upper inflammability limit.	Not available.
Lower explosive limit.	Not available.
Upper explosive limit.	Not available.
Vapour pressure.	Not available.
Vapour density	Not available.
Relative density.	1,000
Solubility	soluble in water
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature.	Not available.
Decomposition temperature.	Not available.
Viscosity	Not available.
Explosive properties	Not available.
Oxidising properties	Not available.

9.2. Other information.

Total solids (250°C / 482°F)	5,18 %
VOC (Directive 2010/75/EC) :	0
VOC (volatile carbon) :	0

SECTION 10. Stability and reactivity.

10.1. Reactivity.

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

HYDROCHLORIC ACID

HYDROCHLORIC ACID 37%: Corrosive in contact with metals.

10.2. Chemical stability.

The product is stable in normal conditions of use and storage.

SODIUM HYPOCHLORITE

SODIUM HYPOCHLORITE 8%: Heat-sensitive. Sensitivity to light, Sensitive to air.

10.3. Possibility of hazardous reactions.

No hazardous reactions are foreseeable in normal conditions of use and storage.

SODIUM HYPOCHLORITE

SODIUM HYPOCHLORITE 8%: Risk of explosion with: acids, hydrochloric acid, nitrous gases, Chlorine, Nitric acid, Cyanides, Oxidizing agents, Reducing agents, oxalic acid, Organic Substances, Methanol, urea, Acetic anhydride, Ammonia, Amines, formic acid. Risk of ignition or formation of inflammable gases or vapours with: arsenic.

SECTION 10. Stability and reactivity. ... / >>

HYDROCHLORIC ACID

HYDROCHLORIC ACID 37%: Exothermic reaction with: Amines, potassium permanganate, salts of oxyhalogenic acids, semimetallic oxides, semimetallic hydrogen compounds, Aldehydes, vinylmethyl ether, Risk of ignition or formation of inflammable gases or vapours with: carbides, lithium silicide, Fluorine, Generates dangerous gases or fumes in contact with: Aluminium, hydrides, formaldehyde, Metals, strong alkalis, Sulphides. Risk of explosion with: Alkali metals, conc. sulfuric acid.

10.4. Conditions to avoid.

None in particular. However the usual precautions used for chemical products should be respected.

SODIUM HYPOCHLORITE

SODIUM HYPOCHLORITE 8%: Avoid shock and friction.

10.5. Incompatible materials.

HYDROCHLORIC ACID

HYDROCHLORIC ACID 37%: Alkalis, organic substances, strong oxidants and metals.

10.6. Hazardous decomposition products.

HYDROCHLORIC ACID

HYDROCHLORIC ACID 37%: Above decomposition temperature hydrochloric acid fumes may develop.

SECTION 11. Toxicological information.

11.1. Information on toxicological effects.

HYDROCHLORIC ACID

HYDROCHLORIC ACID 37% - Mixture - Acute oral toxicity, Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach - Acute inhalation toxicity, Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract - Skin irritation, Mixture causes burns. - Eye irritation, Mixture causes serious eye damage. Risk of blindness! - Specific target organ toxicity, single exposure, Target Organs: Respiratory system, Mixture may cause respiratory irritation.

SODIUM HYPOCHLORITE

SODIUM HYPOCHLORITE 8% - Acute oral toxicity, Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach - Acute inhalation toxicity, Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages, damage of respiratory tract, Inhalation may lead to the formation of oedemas in the respiratory tract - Skin irritation, Mixture causes burns - Eye irritation, Mixture causes serious eye damage. Risk of blindness!

ACUTE TOXICITY.

LC50 (Inhalation - vapours) of the mixture:	Not classified (no significant component).
LC50 (Inhalation - mists / powders) of the mixture:	Not classified (no significant component).
LD50 (Oral) of the mixture:	Not classified (no significant component).
LD50 (Dermal) of the mixture:	Not classified (no significant component).

HYDROCHLORIC ACID

LC50 (Inhalation). 4,74 mg/l/1h Rat

SODIUM HYPOCHLORITE

LD50 (Oral). > 5000 mg/kg Rat
LD50 (Dermal). > 10000 mg/kg Rabbit

SKIN CORROSION / IRRITATION.

Does not meet the classification criteria for this hazard class.

SERIOUS EYE DAMAGE / IRRITATION.

Does not meet the classification criteria for this hazard class.

RESPIRATORY OR SKIN SENSITISATION.

Does not meet the classification criteria for this hazard class.

GERM CELL MUTAGENICITY.

Does not meet the classification criteria for this hazard class.

SECTION 11. Toxicological information. ... / >>

CARCINOGENICITY.

Does not meet the classification criteria for this hazard class.

REPRODUCTIVE TOXICITY.

Does not meet the classification criteria for this hazard class.

STOT - SINGLE EXPOSURE.

Does not meet the classification criteria for this hazard class.

STOT - REPEATED EXPOSURE.

Does not meet the classification criteria for this hazard class.

ASPIRATION HAZARD.

Does not meet the classification criteria for this hazard class.

SECTION 12. Ecological information.

No specific data are available for this product. Handle it according to good working practices. Avoid littering. Do not contaminate soil and waterways. Inform the competent authorities, should the product reach waterways or contaminate soil or vegetation. Please take all the proper measures to reduce harmful effects on aquifers.

12.1. Toxicity.

HYDROCHLORIC ACID

LC50 - for Fish. 282 mg/l/96h
EC50 - for Crustacea. 0,00005 mg/l/48h

SODIUM HYPOCHLORITE

LC50 - for Fish. 0,059 mg/l/96h *Oncorhynchus mykiss*
EC50 - for Crustacea. 0,04 mg/l/48h *Daphnia magna*
EC50 - for Algae / Aquatic Plants. 46 mg/l/72h *Gracilaria tenuistipitata*

12.2. Persistence and degradability.

HYDROCHLORIC ACID

Solubility in water. > 10000 mg/l
Biodegradability: Information not available.

SODIUM HYPOCHLORITE

Solubility in water. 1000 - 10000 mg/l
Biodegradability: Information not available.

12.3. Bioaccumulative potential.

SODIUM HYPOCHLORITE

Partition coefficient: n-octanol/water. -3,42

12.4. Mobility in soil.

Information not available.

12.5. Results of PBT and vPvB assessment.

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

12.6. Other adverse effects.

HYDROCHLORIC ACID

HYDROCHLORIC ACID 37%: Forms corrosive mixtures with water even if diluted. Harmful effect due to pH shift. Discharge into the environment must be avoided.

SECTION 13. Disposal considerations.

13.1. Waste treatment methods.

Reuse, when possible. Neat product residues should be considered special non-hazardous waste.

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

CONTAMINATED PACKAGING

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

SECTION 14. Transport information.

The product is not dangerous under current provisions of the Code of International Carriage of Dangerous Goods by Road (ADR) and by Rail (RID), of the International Maritime Dangerous Goods Code (IMDG), and of the International Air Transport Association (IATA) regulations.

14.1. UN number.

Not applicable.

14.2. UN proper shipping name.

Not applicable.

14.3. Transport hazard class(es).

Not applicable.

14.4. Packing group.

Not applicable.

14.5. Environmental hazards.

Not applicable.

14.6. Special precautions for user.

Not applicable.

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code.

Information not relevant.

SECTION 15. Regulatory information.

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

Seveso Category - Directive 2012/18/EC: _____ None.

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006.
Product.
Point. 3

Substances in Candidate List (Art. 59 REACH).
On the basis of available data, the product does not contain any SVHC in percentage greater than 0,1%.

Substances subject to authorisation (Annex XIV REACH).
None.

Substances subject to exportation reporting pursuant to (EC) Reg. 649/2012:
None.

Substances subject to the Rotterdam Convention:
None.

Substances subject to the Stockholm Convention:
None.

Healthcare controls.
Information not available.

WGK 1: Low hazard to waters

SECTION 15. Regulatory information. ... / >>

15.2. Chemical safety assessment.

A chemical safety assessment has been performed for the following contained substances.
HYDROCHLORIC ACID

SECTION 16. Other information.

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

Met. Corr. 1	Substance or mixture corrosive to metals, category 1
Skin Corr. 1B	Skin corrosion, category 1B
Skin Corr. 1C	Skin corrosion, category 1C
Eye Dam. 1	Serious eye damage, category 1
Eye Irrit. 2	Eye irritation, category 2
Skin Irrit. 2	Skin irritation, category 2
STOT SE 3	Specific target organ toxicity - single exposure, category 3
Aquatic Acute 1	Hazardous to the aquatic environment, acute toxicity, category 1
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
EUH031	Contact with acids liberates toxic gas.

LEGEND:

- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- CAS NUMBER: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE NUMBER: Identifier in ESIS (European archive of existing substances)
- CLP: EC Regulation 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX NUMBER: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent bioaccumulative and toxic as REACH Regulation
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PNEC: Predicted no effect concentration
- REACH: EC Regulation 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA STEL: Short-term exposure limit
- TWA: Time-weighted average exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very Persistent and very Bioaccumulative as for REACH Regulation
- WGK: Water hazard classes (German).

GENERAL BIBLIOGRAPHY

1. Regulation (EU) 1907/2006 (REACH) of the European Parliament
2. Regulation (EU) 1272/2008 (CLP) of the European Parliament
3. Regulation (EU) 790/2009 (I Atp. CLP) of the European Parliament
4. Regulation (EU) 2015/830 of the European Parliament
5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament

SECTION 16. Other information. ... / >>

7. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
8. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
9. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament

- The Merck Index. - 10th Edition
- Handling Chemical Safety
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- ECHA website

Note for users:

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.

This document must not be regarded as a guarantee on any specific product property.

The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.

Provide appointed staff with adequate training on how to use chemical products.

Changes to previous review:

The following sections were modified:

02 / 03 / 04 / 07 / 08 / 09 / 10 / 11 / 13 / 15.