

MATERIAL SAFETY DATASHEET

According to EG Nr. 1907/2006

Version 5, Revision date 11-Aug-19

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GENERIC MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

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

1.1 Product identifiers

Product Name : ISAAC solution
Product number : 250.2010
Supplier : Antec Scientific
REACH number : A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

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

Identified use : For use with ISAAC reference electrodes.

1.3 Details of the supplier of the safety data sheet

Company : Antec Scientific
Industrieweg 12
2382NV Zoeterwoude
The Netherlands
Telephone : +31 71-5813333
Email : info@AntecScientific.com

1.4 Emergency telephone number

Emergency # : 112 (Alarm number)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Corrosive to metals (Category 1), H290
Acute toxicity, Oral (Category 4), H302
Skin irritation (Category 2), H315
Serious eye damage (Category 1), H318
For the full text of the H-Statements mentioned in this Section, see Section 16

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram



Signal word

Danger

Hazard statements

H290	May be corrosive to metals
H302	Harmful if swallowed.
H315	Causes skin irritation.
H318	Causes serious eye damage.

Precautionary statement(s)

P280	Wear eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER / doctor.
Supplemental Hazard Statements	none

2.3 Other hazards

This substance/mixture contains no components considered to be persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients**3.2 Mixture**

Component	Classification	Concentration
Iron chloride		
CAS-no: 7705-08-0 EG-no: 231-729-4	Met. Corr. 1; Acute Tox. 4; Skin Irrit. 2; Eye Dam. 1; H290, H302, H315, H318	12.5 % (w/v)
Component	Classification	Concentration
Hydrogen chloride acid solution reagent grade		
CAS-no: 7647-01-0 EG-no: 231-595-7 Index-no: 017-002-01-X Reg.no: 01-2119484862-27-XXXX	Met. Corr. 1; Skin Corr. 1B; STOT SE 3; H290, H314, H335 Concentration limits: >= 25 %: Skin Corr. 1B, H314; 10 - < 25 %: Skin Irrit. 2, H315; 10 - < 25 %: Eye Irrit. 2, H319; >= 10 %: STOT SE 3, H335; >= 0,1 %: Met. Corr. 1, H290;	0.3% (w/v)

Mixture in w/v % (g per 100 mL water).

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures**4.1 Description of first aid measures****General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Immediately flush eyes with plenty of water for at least 15 minutes. Consult a physician.

If swallowed

Wash out mouth with water provided the person is conscious, do not induce vomiting. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed**Notes to Physician**

Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure.

SECTION 5: Firefighting measures**5.1 Extinguishing media****Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Decomposition can lead to release of irritating gases and vapours.

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

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

Attention! Corrosive material. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Avoid breathing vapours, mist or gas. Evacuate personnel to safe areas. For personal protection see section 8.

6.2 Environmental precautions

Prevent product to drain into waterways, sewers, basements or confined areas.

6.3 Methods and materials for containment and cleaning up

Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Use only with adequate ventilation and in closed systems. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

7.2 Conditions for safe storage, including any incompatibilities

Store in a cool and dry place. Keep container tightly closed in a dry and well-ventilated place.

Storage class (TRGS 510): Non Combustible Liquids.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Component	EU	ACGIH TLV	OSHA PEL	NIOSH IDLH
Iron chloride CAS-no: 7705-08-0	-	TWA: 1 mg/m ³ Fe	(vacated) TWA: 1 mg/m ³ Fe	TWA: 1 mg/m ³ Fe
Hydrogen chloride acid CAS-no: 7647-01-0	TWA 5 ppm TWA 8 mg/m ³ STEL 10 ppm STEL 15 mg/m ³	Ceiling: 2 ppm	(vacated) Ceiling: 7 mg/m ³ Ceiling: 5 ppm Ceiling: 7 mg/m ³	IDLH: 50 ppm Ceiling: 5 ppm Ceiling: 7 mg/m ³

Other Exposure Guidelines

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992)

8.2 Exposure controls

Appropriate engineering controls

Use general industrial hygiene practice.

Personal protective equipment

Eye/face protection

No special precautions required.

Skin protection

No special precautions required.

Body Protection

No special precautions required.

Respiratory protection

No special precautions required.

Control of environmental exposure

No special environmental precautions required.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Take off contaminated clothing and wash before reuse. For environmental protection, remove and wash all contaminated protective equipment before re-use.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance Form:	Liquid
Colour:	Yellow
b) Odour:	Odourless
c) Odour threshold:	No data available
d) pH:	<=2 at 20 °C
e) Melting point/freezing point:	No data available
f) Initial boiling point and boiling range:	No data available
g) Flash point:	No data available
h) Evaporation rate:	No data available
i) Flammability (solid, gas):	No data available
j) Upper/lower flammability or explosive limits:	No data available
k) Vapour pressure:	190mm at 25°C
l) Vapour density:	No data available
m) Relative density:	1 g/cm ³ at 20 °C
n) Water solubility:	No data available

o)	Partition coefficient octanol/water:	No data available
p)	Auto-ignition temperature:	No data available
q)	Decomposition temperature:	No data available
r)	Viscosity:	No data available
s)	Explosive properties:	No data available
t)	Oxidizing properties:	No data available

9.2 Other safety information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No data available.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available.

10.4 Conditions to avoid

Exposure to air or moisture over prolonged periods.

10.5 Incompatible materials

Acids, bases, strong oxidizing agents.

10.6 Hazardous decomposition products

Carbon dioxides.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Inhalation

No specific data available. Corrosive by inhalation, (based on components). Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal. May cause irritation of respiratory tract.

Skin contact

No specific data available. Corrosive causes burns (based on components).

Eye contact

No specific data available. Causes burns, (based on components). Corrosive to the eyes and may cause severe damage including blindness. Causes serious eye damage. May cause irreversible damage to eyes.

Ingestion

No specific data available. Causes burns, (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways. Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Chronic Toxicity

No known effect based on information supplied. Chronic exposure to corrosive fumes/gases may cause erosion of the teeth followed by jaw necrosis. Bronchial irritation with chronic cough and frequent attacks of pneumonia are common. Gastrointestinal disturbances may also be seen. Effects from this product caused by acute exposure may cause permanent damage to target organs and/or may cause chronic conditions. Contains a known or suspected carcinogen. May cause adverse liver effects.

Target Organ Effects

Respiratory system, Eyes, Skin, Gastrointestinal tract (GI), Liver, Systemic Toxicity.

Aspiration hazard

No data available

Additional Information**Numerical measures of toxicity Product Information**

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)

7,576.00 mg/kg

ATEmix (inhalation-dust/mist)

167.00 mg/L

ATEmix (inhalation-vapor)

1,000.00 ATEmix

SECTION 12: Ecological information**12.1 Toxicity**

Chemical name	Algae	Fish	Micro-organisms	Daphnia Magna (Water Flea)
Iron chloride CAS-no: 7705-08-0		96h LC50: = 20.26 mg/L (Lepomis macrochirus) 96h LC50: 20.95 - 22.56 mg/L (Pimephales promelas) 96h LC50: = 75.6 mg/L (Gambusia affinis)		48h EC50: = 27.9 mg/L EC50: = 9.6 mg/L
Hydrochloric acid CAS-no: 7647-01-0		96h LC50: = 282 mg/L (Gambusia affinis)		

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

This mixture contains no components considered to be persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

No data available

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

Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

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

ADR/RID: UN3264

IMDG: UN3264

IATA: UN3264

14.2 UN proper shipping name

CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (FERRIC CHLORIDE, HYDROCHLORIC ACID)

14.3 Transport hazard class(es)

ADR/RID: 8

IMDG: 8

IATA: 8

14.4 Packaging group

ADR/RID: III

IMDG: III

IATA: III

14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

14.6 Special precautions for user

No data available

SECTION 15: Regulatory information

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

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

This product does not contain substances subject to authorization (Regulation (EC) No. 1907/2006 (REACH), Annex XIV). This product does not contain substances subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII).

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3

H290	May be corrosive to metals
H302	Harmful if swallowed.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

Legend

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA TWA (time-weighted average)

STEL STEL (Short Term Exposure Limit)

Ceiling Maximum limit value

16.1 Changes with previous revision

The layout is changed and confirmed according to EG Nr. 1907/2006.

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