SAFETY DATA SHEET

SECTION 1: IDENTIFICATION OF THE MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier:
TC89965 REDOX + 650 mV

1.2. Relevant identified uses of the mixture and uses advised against:
Laboratory reagent for process control.
For professional use.

1.3. Details of the supplier of the safety data sheet:
Distributor:
Etatron D.S. SPA
VIA DEI RANUNCOLI 53
00134 ROMA
ITALY
Tel.: +39069349891

Information about the manufacturer:
TITOLCHIMICA SPA
VIA SAN PIETRO MARTIRE, 1054
45030 PONTECCHIO POLESINE (RO)
ITALY
Tel.: 0425/492644
Fax: 0425/492909

1.3.1. Responsible person: Technical Department of TITOLCHIMICA SPA
E-mail: utecnico@titolchimica.it

1.4. Emergency telephone number: ***<<Please fill in>>***

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the mixture:

Classification according to Regulation 1272/2008/EC (CLP):
Skin irritation 2 – H315
Serious eye damage 1 – H318

Warning **H statements:**
H315 – Causes skin irritation.
H318 – Causes serious eye damage.

2.2. Label elements:

Components which define the hazards: Iron trichloride; Hydrochloric acid



DANGER

Warning **H statements:**
H315 – Causes skin irritation.
H318 – Causes serious eye damage.

Precautionary **P statements:**
P264 – Wash hands thoroughly after handling.
P280 – Wear protective gloves/ 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.
P310 – Immediately call a POISON CENTER/doctor.

2.3. Other hazards:
The product has no other known specific hazards for human or environment.
According to the available data, the product does not contain PBT or vPvB substances in a percentage higher than 0.1%.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance:
Not applicable.

3.2. Mixture:

Description	CAS number	EC number / ECHA List number	REACH reg. nr.	Conc. (%)	Classification: 1272/2008/EC (CLP)		
					Hazard pict.	Hazard cat.	H phrase
Iron trichloride*	7705-08-0	231-729-4	-	3 - 5	GHS07 GHS05 Danger	Acute Tox. 4 Skin Corr. 1B	H302 H314
Hydrochloric acid** Index: 017-002-01-X	7647-01-0	231-595-7	01-2119484862-27-XXXX	0,5 - 1	GHS05 GHS07 Danger	Met. Corr. 1 Skin Corr. 1B STOT SE 3	H290 H314 H335

*: Substance classified by the manufacturer or substance which has no obligatory classification according to the EU regulations.
**: Classification specified by the manufacturer, which includes other classification in addition to the classification specified by Regulation 1272/2008/EC.

For the full text of H phrases: see Section 16.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures:
IN CASE OF INGESTION:
Measures:
- Have the subject drink as much water as possible.
- Get medical advice/attention.
- Do not induce vomiting unless explicitly authorised by a doctor.

IN CASE OF INHALATION:
Measures:
- Get medical advice/attention immediately.
- Remove victim to fresh air, away from the accident scene.
- If the subject stops breathing, administer artificial respiration.
- Take suitable precautions for rescue workers.

IN CASE OF SKIN CONTACT:
Measures:
- Remove contaminated clothing.
- Rinse skin with a shower immediately.
- Get medical advice/attention.

IN CASE OF EYE CONTACT:
Measures:
- Remove contact lenses, if present.
- Flush immediately with plenty of water for at least 30-60 minutes, opening the eyelids fully.
- Get medical advice/attention.

4.2. Most important symptoms and effects, both acute and delayed:
For symptoms and effects caused by the product, see section 11.
Information on the ingredients:
Hydrochloric acid (CAS: 7647-01-0):
Acute effects are depending on the dose.
Cute: irritation, burns, ulcer.
Eyes: irritation, corneal damage.
Nose: irritation.
Upper respiratory tract: irritation.
Lungs: irritation.
Digestive system: if ingested retrosternal and epigastric pain, hematemesis.
Chronic Effects:
Cute: irritation, depigmentation, skin dryness, hair loss.
Eyes: irritation.
Nose: irritation.
Upper respiratory tract: irritation.
Lungs: irritation.

4.3. Indication of any immediate medical attention and special treatment needed:
No data available for the product.
Information on the ingredients:
Hydrochloric acid (CAS: 7647-01-0):
In case of emergency get medical advice.
Symptoms of pulmonary edema can be delayed up to 48 hours after exposure.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media:

5.1.1. Suitable extinguishing media:
Conventional extinguishers: carbon dioxide, foam, powder and water spray.

5.1.2. Unsuitable extinguishing media:
None known.

5.2. Special hazards arising from the substance or mixture:
In case of fire, smoke and other combustion products may be formed, the inhalation of such combustion products can have serious adverse effects on health.

5.3. Advise for firefighters:
General:
Use water jets to cool 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 system.
Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.
Equipment:
Normal fire-fighting equipment, like open-circuit compressed air breathing apparatus (EN 137), fire suit (EN 469), flame retardant gloves (EN 659) and fireman's boots (HO A29 or A30).

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures:

6.1.1. For non-emergency personnel:
Keep unprotected people away, allow only well trained experts wearing suitable protective clothing to abide in the field of accident.

6.1.2. For emergency responders:
Block the leakage if there is no hazard.
Wear suitable protective equipment (including personal protective equipment see in 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:
Dispose the spillage and the resulting waste according to the applicable environmental regulations. Do not allow the product and the resulting waste to enter sewers/soil/surface or ground water. Notify the respective authorities in accordance with local law in the case of environmental pollution immediately.

6.3. Methods and material for containment and cleaning up:
Collect the leaked product into a suitable container. 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. Check incompatibility for container material in section 7. Contaminated material should be disposed of in compliance with the provisions in section 13.

6.4. Reference to other sections:
For further and detailed information see section 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling:
Observe conventional hygiene precautions.
Handle the product after reading all other sections of this safety data sheet.
Avoid release to the environment.
Do not eat, drink or smoke while handling.
Remove contaminated clothing and protective equipment before entering areas in which food is consumed.
Technical measures:
Ensure adequate ventilation.
Precautions against fire and explosion:
No special measures required.

7.2. Conditions for safe storage, including any incompatibilities:
Technical measures and storage condition:
Store only in original container.
Store closed containers in a well-ventilated area, away from direct sunlight.
Store containers away from any incompatible materials, see section 10.
Incompatible materials: see section 10.
Packaging material: no special prescriptions.

7.3. Specific end use(s):
No specific instructions available.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters:

Occupational exposure limit values (2000/39/EC ; 2006/15/EC ; 2009/161/EU):
The components of the mixture are not regulated with exposure limit value.

DNEL		Routes of exposure	Exposure frequency:	Remarks:
Worker	Consumer			
no data available	no data available	Dermal	Short term (acute) Long term (repeated)	no data available
no data available	no data available	Inhalative	Short term (acute) Long term (repeated)	no data available
no data available	no data available	Oral	Short term (acute) Long term (repeated)	no data available

PNEC			Exposure frequency:	Remarks:
Water	Soil	Air		
no data available	no data available	no data available	Short term (single use) Long term (continuous)	no data available
no data available	no data available	no data available	Short term (single use) Long term (continuous)	no data available
no data available	no data available	no data available	Short term (single use) Long term (continuous)	no data available

8.2. Exposure controls:
In case of a hazardous material with no controlled concentration limit it is the employer's duty to keep concentration levels down to a minimum achievable by existing scientific and technological means, where the hazardous substance poses no harm to workers.

8.2.1 Appropriate engineering controls:
In pursuance of work is proper foresight needed to avoid leaking onto clothes and floors and to avoid contact with eyes and skin.
As the use of adequate technical equipment must always take priority over personal protection equipment, ensure good ventilation at the workplace through effective local aspiration.
For the selection of personal protective equipment if necessary, request advice from your chemical supplier.
The personal protective equipment must contain the mercantile EC attesting to their compliance with applicable regulations.
Provide emergency eye wash and shower facilities.

8.2.2. Individual protection measures, such as personal protective equipment:

1. Eye/face protection: the use of a protective hood or visor combined with tightly sealed goggles (ref. standard EN 166) is recommended.
2. Skin protection:
   a. Hand protection: protect hands with category III (ref. Directive 89/686/EEC and standard EN 374) work gloves. In choosing appropriate work glove material consider: degradation, breakage time and permeation. Work glove resistance to preparations must be checked before use, as it could be unpredictable. Glove wear depends on the duration of exposure.
   b. Other: wear category II professional long-sleeved protective clothing and safety footwear (ref. Directive 89/686/CEE and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.
3. 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. 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.
4. Thermal hazards: none known.

8.2.3. Environmental exposure controls:

Emissions from production processes, including those from ventilation should be monitored for the purposes of compliance with environmental regulations.

The requirements detailed in Section 8 assume skilled work under normal conditions and usage of the product for appropriate aims. If conditions differ from normal or work is carried out under extreme conditions an expert's advice should be sought out before deciding upon further protective measures.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties:

Parameter		Test method:	Remarks:
1. **Appearance:**	clear colourless liquid		
2. **Odour:**	no data available		
3. Odour threshold:	no data available		
4. pH value:	no data available		
5. Melting point/ freezing point:	not applicable		
6. Initial boiling point and boiling range:	no data available		
7. Flash point:	not applicable		
8. Evaporation rate:	no data available		
9. Flammability (solid, gas):	no data available		
10. Upper/lower flammability or explosive limits:	not applicable		
11. Vapour pressure:	no data available		
12. Vapour density:	no data available		
13. Relative density:	no data available		
14. Solubility(ies):	soluble in water		
15. Partition coefficient: n-octanol/water:	no data available		
16. Auto-ignition temperature:	not applicable		
17. Decomposition temperature:	no data available		
18. Viscosity:	no data available		
19. Explosive properties:	none		
20. Oxidizing properties:	no data available		

9.2. Other 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:

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

10.3. Possibility of hazardous reactions:
No hazardous reactions are foreseeable in normal conditions of use and storage.
10.4. Conditions to avoid:
Avoid overheating of the solution.
10.5. Incompatible materials:
None known.
Information on the ingredients:
Hydrochloric acid (CAS: 7647-01-0): alkalis, organic substances, strong oxidants and metals.
10.6. Hazardous decomposition products:
None known.

SECTION 11: TOXICOLOGICAL INFORMATION
11.1. Information on toxicological effects:
Acute toxicity: based on available data, the classification criteria are not met.
Skin corrosion/irritation: causes skin irritation.
Serious eye damage/eye irritation: causes serious eye damage.
Respiratory or skin sensitisation: based on available data, the classification criteria are not met.
Germ cell mutagenicity: based on available data, the classification criteria are not met.
Carcinogenicity: based on available data, the classification criteria are not met.
Reproductive toxicity: based on available data, the classification criteria are not met.
STOT-single exposure: based on available data, the classification criteria are not met.
STOT-repeated exposure: based on available data, the classification criteria are not met.
Aspiration hazard: based on available data, the classification criteria are not met.
11.1.1. For substances subject to registration, brief summaries of the information derived from the test conducted:
No data available.
11.1.2. Relevant toxicological properties of the hazardous substances:
Information on the ingredients:
Hydrochloric acid (CAS: 7647-01-0):
LD50 (oral, rabbit): 900 mg/kg
LC50 (inhalative, rat): 3124 ppm/1 h
Iron trichloride (CAS: 7705-08-0) :
LD50 (oral, rat): 900 mg/kg
11.1.3. Information on likely routes of exposure:
Ingestion, inhalation, skin contact, eye contact.
11.1.4. Symptoms related to the physical, chemical and toxicological characteristics:
The product causes serious eye injuries and may cause corneal opacity, iris lesions, and irreversible eye discoloration.
Acute Effects:
In case of skin contact irritation with erythema, edema, dryness and cracking may occur.
Swallowing may cause health disorders, including abdominal pain with burns, nausea and vomiting.
11.1.5. Delayed and immediate effects as well as chronic effects from short and long-term exposure:
Causes skin irritation.
Causes serious eye damage.
11.1.6. Interactive effects:
No data available.
11.1.7. Absence of specific data:
No data available.
11.1.8. Other information:
In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.
It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

SECTION 12: ECOLOGICAL INFORMATION
12.1. Toxicity:
Use according to good working practices, avoiding release of the product into the environment.
Inform the competent authorities, if the product reaches waterways or sewers or contaminate soil or vegetation.
Information on the ingredients:
Hydrochloric acid (CAS: 7647-01-0) :
LC50 Fish - Bluegill (Lepomis macrochirus): 3.25 mg /l/96h (3.25 - 3.5)
Iron trichloride (CAS: 7705-08-0) :
LC50 Fish - Pimephales promelas: 22 mg /l/96h - non-hydrated substance - ECOTOX
EC50 Crustaceans - Daphnia magna (large water flea) : 9.6 mg /l/48h - non-hydrated substance - ECOTOX

12.2. Persistence and degradability:
No data available.
12.3. Bioaccumulation potential:
No data available.
12.4. Mobility in soil:
No data available.
12.5. Results of PBT and vPvB assessment:
According to the available data, the product does not contain PBT or vPvB substances in a percentage higher than 0.1%.
12.6. Other adverse effects:
No data available.
Information on the ingredients:
Hydrochloric acid (CAS: 7647-01-0):
Despite dilution, it forms corrosive mixtures with water.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods:
Disposal according to the local regulations.
13.1.1. Information regarding the disposal of the product:
Reuse, when possible. Product residues should be considered as special hazardous waste.
The hazard level of the waste which partially contains this product must be assessed according to the legal provisions in force.
Disposal must be performed through an authorised waste management company, in compliance with national and local regulations.
European Waste Code:
For this product no waste disposal key according the European Waste Catalogue (EWC) can be determined, as only the purpose of application defined by the user enables an allocation. The European waste code number has to be determined after a discussion with a specialist dealing with waste disposal.
13.1.2. Information regarding the disposal of the packaging:
Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.
13.1.3. Physical/chemical properties that may affect waste treatment options shall be specified:
None known.
13.1.4. Sewage disposal:
None known.
13.1.5. Special precautions for any recommended waste treatment:
No data available.

SECTION 14: TRANSPORT INFORMATION

Not dangerous good in sense of the transport regulations.
14.1. UN Number:
None.
14.2. UN proper shipping name:
None.
14.3. Transport hazard class(es):
None.
14.4. Packaging group:
None.
14.5. Environmental hazards:
No relevant information available.
14.6. Special precautions for user:
No relevant information available.
14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code:
Not applicable.

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture:
REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006

COMMISSION REGULATION (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

Seveso category: none.
Restrictions on the product or the ingredients according to Annex XVII of the Regulation (EC) 1907/2006: none.
Substances listed in Candidate List (Art. 59 REACH): none.
Substances subject to authorization (Annex XIV REACH): none.
Substances subject to obligation of export notification according to Regulation (EC) 649/2012: none.

15.2. Chemical safety assessment: chemical safety assessment has been carried out for the following substance: **Hydrochloric acid** (CAS: 7647-01-0).

SECTION 16: OTHER INFORMATION

Information regarding the revision of the safety data sheet: none.

Full text of the abbreviations in the safety data sheet:
DNEL: Derived no effect level. PNEC: Predicted no effect concentration. CMR effects: carcinogenity, mutagenicity and toxicity for reproduction. PBT: Persistent, bioaccumulative and toxic. vPvB: Very Persistent, Very Bioaccumulative. n.d.: not defined. n.a.: not applicable.

Data sources: safety data sheet in Italian language (dated 06/07/2015) issued by the manufacturer.

Methods used for the classification according to Regulation 1272/2008/EC:

Skin irritation 2 – H315	Based on calculation method
Serious eye damage 1 – H318	Based on calculation method

Relevant H-Phrases (number and full text) of Section 2 and 3:
H290 - May be corrosive to metals.
H302 – Harmful if swallowed.
H314 – Causes severe skin burns and eye damage.
H315 – Causes skin irritation.
H318 – Causes serious eye damage.
H335 – May cause respiratory irritation.

Training advice: no data available.

This safety data sheet had been prepared on the basis of information provided by the manufacturer/supplier and conform to the relevant regulations.
The information, data and recommendations contained herein are provided in good faith, obtained from reliable sources and believed to be true and accurate as of the date issued; however, no representation is made as to the comprehensiveness of the information. The SDS shall be used only as a guide for handling the product; in the course of handling and using the product other considerations may arise or be required.
Users are cautioned to determine the appropriateness and applicability of the above information to their particular circumstances and purposes and assume all risk associated with the use of this product. It is the responsibility of the user to fully comply with local, national and international regulations concerning the use of this product.

Safety data sheet was prepared by: ToxInfo Kft.

Professional help regarding the explanation of the safety data sheet:
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