
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

Product Name	Ag/Ag+ reference electrode filling
CAS No.	Not applicable
EC No.	Not applicable
REACH Registration No.	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.

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

Identified Use(s)	PC21 Laboratory chemicals
Uses Advised Against	No data available

1.3 Details of the supplier of the safety data sheet

Company:	Redoxme AB
Address:	Box 5002 Kungsgatan 41 600 05 Norrköping SWEDEN
Telephone:	+46 700 89 62 86
E-mail:	info@redox.me

1.4 Emergency telephone number

Emergency Phone No.	112 / 911
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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Flammable liquids (Category 2), H225
Oxidizing liquids (Category 2), H272
Acute toxicity, Oral(Category 4), H302
Acute toxicity, Dermal(Category 4), H312
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Acute toxicity, Inhalation(Category 4), H332
Specific target organ toxicity -single exposure (Category 3), Respiratory system, H335
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

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2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Hazard Pictogram(s)



Signal Word(s)

Danger

Hazard Statement(s)

H225	Highly flammable liquid and vapour.
H272	May intensify fire; oxidiser.
H302 + H312 + H332	Harmful if swallowed, in contact with skin or if inhaled.
H314	Causes severe skin burns and eye damage.
H335	May cause respiratory irritation.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary Statement(s)

P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P220	Keep/Store away from clothing/ combustible materials.
P221	Take any precaution to avoid mixing with combustibles.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting equipment.
P242	Use only non-sparking tools
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray
P264	Wash skin thoroughly after handling.
P273	Avoid release to the environment.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
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	Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P235	Store in a well-ventilated place. Keep cool.

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2.3 Other hazards

This substance/mixture contains no components considered to be either 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**3.1 Substances**

Not applicable

3.2 Mixtures

INGREDIENT(S)	CAS No.	EC No.	%W/V	Hazard Statement(s)	Comments
Silver nitrate	7761-88-8	231-853-9	0.3 – 0.5%	Ox. Sol. 2 H272 Skin Corr. 1B H314 Aquatic Acute 1 H400 Aquatic Chronic 1 H410 M-Factor-Aquatic Acute:1,000 Aquatic Chronic:100	-
Tetrabutylammonium perchlorate	1923-70-2	217-655-5	3 - 5%	Ox. Sol. 2 H272 Skin Irrit. 2 H315 Eye Irrit. 2 H319 STOT SE 3 H335	
Acetonitrile	75-05-8	200-835-2	95 - 97	Flam. Liq. 2 H225 Acute Tox. 4 H302 Acute Tox. 4 H312 Eye Irrit. 2 H319 Acute Tox. 4 H332	

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.

Inhalation

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

Skin Contact

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

Eye Contact

Flush eyes with plenty of water for at least 15 minutes. Consult a physician
Continue rinsing eyes during transport to hospital.

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Ingestion Never give anything by mouth to an unconscious person. Rinse mouth with water. 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

No data available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable Extinguishing media Dry powder Dry sand

Unsuitable extinguishing media None.

5.2 Special hazards arising from the substance or mixture

Nitrogen oxides (NO_x), Silver/silver oxides, Carbon oxides, Hydrogen chloride gas, Combustible.

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

Use water spray to cool unopened containers.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear personal protective equipment (section 8). Avoid breathing vapours, mist or gas. Ensure room is well ventilated. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Contain and clean up spill if safe to do so using saw dust or absorbent mats. Dispose of in suitable closed container according to local regulations.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

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7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Filled under nitrogen. Use explosion-proof equipment. Keep away from sources of ignition -No smoking. Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Store in a cool, dry and well-ventilated place inside of a tightly sealed container. Reseal containers that have been opened and keep upright to prevent leakage.

Storage class (TRGS 510): 3: Flammable liquids

Storage class (TRGS 510): 5.1B: Oxidizing hazardous materials

Storage temperature	Ambient
Storage life	Stable under recommended storage conditions.
Incompatible materials	No data available

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

8.1.1 Occupational Exposure Limits

INGREDIENT	CAS No.	LTEL (8h TWA)	STEL	Note
Silver nitrate	7761-88-8	0.01 mg/m ³	-	Argyria varies
Acetonitrile	75-05-8	20 ppm 34 mg/m ³	60 ppm 105 mg/m ³	Lower Respiratory Tract irritation Not classifiable as a human carcinogen Danger of cutaneous absorption Forms cyanide in the body

Region: USA
 Source: Occupational Exposure Limits (OSHA) -Table Z-1 Limits for Air Contaminants.; ACGIH Threshold Limit Values (TLV).; NIOSH Recommended Exposure Limits

Derived No Effect Level(DNEL)

Application Area	Exposure routes	Health effect	Value
Workers	Inhalation	Acute local effects, Acute systemic effects	68 mg/m ³
Workers	Skin contact	Long-term systemic effects	32.2mg/kg BW/d
Workers	Inhalation	Long-term local effects, Long-term systemic effects	68 mg/m ³
Consumers	Inhalation	Acute local effects	220 mg/m ³
Consumers	Inhalation	Acute systemic effects	22 mg/m ³
Consumers	Inhalation	Long-term systemic effects	4.8 mg/m ³

Predicted No Effect Concentration (PNEC)

Compartment	Value
Water	10 mg/l

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Soil	2.41 mg/kg
Marine water	1 mg/kg
Fresh water	10 mg/l
Fresh water sediment	7.53 mg/kg
Onsite sewage treatment plant	32 mg/l

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial/laboratory practices hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.2.2. Personal protection equipment



Eye Protection

Face shield and safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).



Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.



Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).



Body Protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

8.2.3. Environmental Exposure Controls

Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	Liquid
	Colour: Clear
Odour	ether-like
Odour threshold	No data available
pH	No data available
Melting point/freezing point	No data available
Initial boiling point and boiling range	81 -82 °C -lit.

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Flash Point	6.0 °C (42.8 °F)-closed cup
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	Upper explosion limit: 16 %(V) Lower explosion limit: 3 %(V)
Vapour pressure	No data available
Vapour density	No data available
Density (g/ml)	No data available
Relative density	No data available
Solubility	Solubility (Water): No data available Solubility (Other): No data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition Temperature (°C)	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidising properties	The substance or mixture is classified as oxidizing with the category 2.

9.2 Other safety information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No data available

10.2 Chemical stability

Decomposes on exposure to light. Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Vapours may form explosive mixture with air

10.4 Conditions to avoid

Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5 Incompatible materials

Strong reducing agents, Alcohols, Ammonia, Magnesium, Strong bases, Organic materials, Alkali metals

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions: Nitrogen oxides (NO_x), Silver/silver oxides, Carbon oxides, Hydrogen chloride gas

Other decomposition products: No data available

In the event of fire: see section 5

SECTION 11: Toxicological information

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11.1 Information on toxicological effects

Acute toxicity - Ingestion	No data available
Acute toxicity - Skin Contact	No data available
Acute toxicity - Inhalation	No data available
Skin corrosion/irritation	Self classification: Causes severe burns and eye damage.
Serious eye damage/irritation	Self classification: Causes serious eye damage.
Respiratory and Skin sensitization data	No data available
Germ cell mutagenicity	No data available
Carcinogenicity	No data available
Reproductive toxicity	No data available
STOT - single exposure	No data available
STOT - repeated exposure	No data available
Aspiration hazard	No data available

11.2 Other information

May cause argyria (a slate-gray or bluish discoloration of the skin and deep tissues due to the deposit of insoluble albuminate of silver),. Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer.

Treat as cyanide poisoning., Always have on hand a cyanide first-aid kit, together with proper instructions. Nausea, Vomiting, Diarrhoea, Headache, Dizziness, Rash, Cyanosis, excitement, depression, Drowsiness, impaired judgment, Lack of coordination, stupor, death

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

	Very toxic to aquatic life with long lasting effects.
Toxicity to Aquatic invertebrates	Silver nitrate: static test EC50-Daphnia magna (Water flea) - 0.00121 mg/l-48 h
Toxicity to Fish	Silver nitrate: semi-static test LC50-Pimephales promelas (fathead minnow) - 0.0012 mg/l-96h (US-EPA)
Toxicity to Algae	Silver nitrate: EC50-Pseudokirchneriella subcapitata (green algae) - 0.0099 mg/l-96 h
Toxicity to bacteria	Not known.

12.2 Persistence and degradability

Biodegradability	No data available
Biochemical Oxygen Demand (BOD)	No data available
Chemical Oxygen Demand (COD)	No data available

12.3 Bioaccumulative potential

Cyprinus carpio (Carp) - 41d at 20 °C (Silver nitrate)

Bioconcentration factor (BCF): 70

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

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PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life with long lasting effects.

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state and local environmental regulations and directives on waste and hazardous waste. 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

1648

14.2 UN proper shipping name

ADR/RID: Acetonitrile mixture

IMDG: ACETONITRILE MIXTURE

IATA: Acetonitrile mixture

Reportable Quantity(RQ): 5000lbs (Acetonitrile)

1lbs (Silver nitrate)

Poison Inhalation Hazard: No

14.3 Transport hazard class(es)

3

14.4 Packing group

II

14.5 Environmental hazards

IMDG: Marine pollutant (Tetrabutylammonium perchlorate, Silver nitrate)

14.6 Special precautions for user

No data available

SECTION 15: Regulatory information

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

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This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

Acetonitrile	CAS-No.: 75-05-8	Revision Date: 2007-07-01
Silver nitrate	CAS-No.: 7761-88-8	Revision Date: 1993-02-16

SARA 311/312 Hazards

Reactivity Hazard, Acute Health Hazard

Authorisations and/or restrictions on use

No data available

15.2 Chemical safety assessment

No chemical safety report/assessment was carried out for this product.

SECTION 16: Other information

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

H225	Highly flammable liquid and vapour.
H272	May intensify fire; oxidiser.
H302 + H312 + H332	Harmful if swallowed, in contact with skin or if inhaled.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Acronyms

ADR : European Agreement Concerning the International Carriage of Dangerous Goods by Road
CAS : Chemical Abstracts Service
CLP : Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
DNEL : Derived No Effect Level
EC : European Community
EC50 : Effective Concentration 50%
IARC : International Agency for Research on Cancer
IATA : International Civil Aviation Organization/International Air Transport Association
IMDG - International Maritime Dangerous Goods Code
LC50 : Lethal Concentration 50%
LD50 : Lethal Dose 50%
LTEL : Long term exposure limit
OECD : Organisation for Economic Co-operation and Development
PBT : Persistent, Bioaccumulative, Toxic
PNEC : Predicted No Effect Concentration
REACH : Registration, Evaluation, Authorisation and Restriction of Chemicals

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RTECS : Registry of Toxic Effects of Chemical Substances

STEL : Short term exposure limit

STOT : Specific Target Organ Toxicity

SVHC : Substances of Very High Concern

TWA : Time-Weighted Average

vPvB : very Persistent, very Bioaccumulative

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Redoxme AB shall not be held liable for any damage resulting from handling or from contact with the above product. Freedom under Patents, Copyright and Designs cannot be assumed.