

Date of issue: 20.03.2009

Version: 0020

n.ap. = not applicable

n.av. = not available

SI Analytics

1. Identification of the substance/preparation and of the company/undertaking

1.1 Identification of the substance or preparation

Trade name **Redox-Prüflösung (+430 mV/+470 mV)**Product number **scho0035**Substance code **L 430, L 4304, L 4643, L 4648**

1.2 Use of the substance/preparation

The product is used as a laboratory chemical.

1.3 Company/undertaking identification

Address: SI Analytics GmbH

Geb. G12

Hattenbergstrasse 10

D-55122 Mainz

Information: Telephone: int+49-(0)6131-66-5051 or -5116

Fax: int+49-(0)6131-66-5001

e-mail-address of the competent person responsible for this Safety Data Sheet:

urban-finking.gefstoff@t-online.de

1.4 Emergency telephone

Beratungsstelle für Vergiftungserscheinungen und Embryonaltoxikologie, Berlin

Telephone: int+49-(0)30 - 19240

2. Hazards identification

2.1 Hazards identification

Irritant within the meaning of the current version of Directive 1999/45/EC.

2.2 Critical hazards to man

Irritating to eyes and skin.

2.3 Critical hazards to the environment

The product is classified as low hazardous to water.

3. Composition/information on ingredients

This product is a preparation.

It is an aqueous solution of sulphuric acid, ammonium ferrous sulfate and ammonium ferric sulfate.

3.1 Substances presenting a health / environmental hazard within the meaning of Directive 67/548/EEC

CAS number	EC number	Identification	m %	Symbols	R phrases
7664-93-9	231-639-5	sulphuric acid	5 - < 15	C	35
7783-85-9	233-151-8	ammonium iron(II) sulfate hexahydrate	< 10	Xi	36/37/38
7783-83-7	233-382-4	hydrated ammonium iron(III) sulfate	< 10	Xi	36/38

The product requires a hazard warning label in accordance with EC directives/German regulations on hazardous substances (see heading 15.). Full text of the R phrases see heading 16.2.

3.2 Substances for which there are Community workplace exposure limits, which are not already included under heading 3.1 (see also heading 8.)

No substances.

3.3 Additional information

None.

4. First aid measures

4.1 General information

Remove contaminated, soaked clothing immediately and dispose of safely.

4.2 after inhalation

Remove the casualty to fresh air and keep him calm. In the event of symptoms take medical treatment.

4.3 after contact with skin

In case of contact with skin wash off immediately with plenty of water.

In the event of symptoms take medical treatment.

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4.4 after contact with eyes

In case of contact with eyes rinse thoroughly with plenty of water and seek medical advice.

4.5 after ingestion

Let plenty of water be drunk immediately. Never give anything by mouth to an unconscious person. Do not induce vomiting (risk of perforation). Call physician immediately.

4.6 Hints for the physician

Symptoms The following symptoms may occur: coughing, nausea, vomiting, drowsiness.

Hazards Irritating to skin and eyes.

Risk of bronchitis (chronic). Risk of liver damage.

Treatment Treat symptomatically.

4.7 First aid equipment

In the immediate working surroundings emergency shower and eye wash must be installed. Label their location conspicuously.

4.8 Additional remarks

None.

5. Fire-fighting measures**5.1 Suitable extinguishing media**

Product itself does not burn. Co-ordinate fire-fighting measures to the fire surroundings.

5.2 Extinguishing media which must not be used for safety reasons

Product itself does not burn. Co-ordinate fire-fighting measures to the fire surroundings.

5.3 Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases

In the event of fire the following can be released: sulphur dioxide, nitrogen oxides and irritant gases/vapours.

5.4 Special protective equipment for fire-fighters

Use self-contained breathing apparatus. Wear full protective suit.

5.5 Further information

Do not inhale explosion and/or combustion gases. Cool endangered containers with water spray jet.

Contaminated firefighting water must be disposed of in accordance with the local regulations (firefighting water reacts acidic).

6. Accidental release measures**6.1 Personal precautions** (see also heading 8., Personal protective equipment)

Avoid contact with eyes and skin. Ensure adequate ventilation.

Use personal protective clothing.

6.2 Environmental precautions (see also heading 13., Disposal considerations)

Do not discharge into the drains/surface waters/groundwater.

6.3 Methods for cleaning up

Neutralise with chalk and dispose of in accordance with the regulations.

Flush away residues with water.

6.4 Additional information

None.

7. Handling and storage (National measures see headings 15. and 16.)**7.1 Handling****7.1.1 Advice on safe handling**

Open and handle container with care. Use acid-resistant equipment.

7.1.2 Advice on protection against fire and explosion

None.

7.2 Storage**7.2.1 Requirements for storage rooms and vessels**

Keep container tightly closed.

7.2.2 Advice on storage compatibility

Do not store together with alkalis.

7.2.3 Further information on storage conditions

Keep container in a well-ventilated place. Provide acid-resistant floor.

7.2.4 Storage class (for Germany only)

LGK 8 B (Non-flammable caustic substances) in accordance with the VCI Guideline for the mixed storage of chemicals.

7.3 Specific use(s)

No information about specific uses available.

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8. Exposure controls/Personal protection**8.1 Exposure limit values**

CAS number	Identification	Limit value	Remarks
7664-93-9	sulphuric acid	0.1 mg/m ³	national limit value – eight hours for Slovakia
		0.2 mg/m ²	national limit value – eight hours for Finland
		1 mg/m ³	national limit value – eight hours for Belgium, Czech Republic, Denmark, Estonia, France, Hungary, Latvia, Lithuania, Poland, Sweden and Austria (inhalable aerosol)
		1 mg/m ³	national limit value – short term for Finland and Hungary
		2 mg/m ³	national limit value – short term for Czech Republic, Denmark and Austria (inhalable aerosol)
		3 mg/m ³	national limit value – short term for Belgium, Estonia, France, Lithuania, Poland, Spain and Sweden

8.2 Exposure controls

See also heading 7.1.

Additional advice on system design

No additional advice.

8.2.1 Occupational exposure controls**Personal protective equipment****Respiratory protection**

If ventilation is insufficient, use a respiratory protection apparatus.

Hand protection

Protective gloves (acid-resistant).

Suitable:

natural rubber (0.5 mm; breakthrough time ≥ 8 h);
 neoprene (0.5 mm; breakthrough time ≥ 8 h);
 nitrile rubber (0.35 mm; breakthrough time ≥ 8 h);
 butyl rubber (0.5 mm; breakthrough time ≥ 8 h);
 fluorinated rubber (0.4 mm; breakthrough time ≥ 8 h);
 PVC (0.5 mm; breakthrough time ≥ 8 h).

Eye protection

Tightly fitting safety glasses.

Body protection

Acid-resistant protective clothing.

General protective measures and hygiene measures

Do not inhale vapours. Avoid contact with eyes and skin. At work do not eat, drink, smoke.

Remove soiled or soaked clothing immediately. Wash hands before breaks and after work.

Use barrier skin cream.

Set out skin protection guidelines.

In the immediate working surroundings emergency shower and eye wash must be installed.

Label their location conspicuously.

8.2.2 Environmental exposure controls

See heading 6.

9. Physical and chemical properties**9.1 General information****Physical state:** liquid**Colour:** light yellow**Odour:** odourless**9.2 Important health, safety and environmental information**

pH (as supplied):	- 0.1 ± 0.1	(of an aqueous solution):	n.av.
Boiling point / boiling range (°C):	approx. +102	Melting point (°C):	approx. -4.3
Thermal decomposition:	n.av.	Flash point (°C), c.c.:	n.ap.
Ignition temperature (°C):	n.ap.		
Lower explosion limit:	n.ap.	Upper explosion limit:	n.ap.
Vapour pressure (25°C):	approx. 24 mbar	Relative density / bulk density:	1.17 g/cm ³
Viscosity (25°C):	approx. 1.0 mm ² /s	Solubility in water:	soluble
Partition coefficient n-octanol/water:	n.ap.	Solvent content:	n.ap.

9.3 Other information

None

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10. Stability and reactivity**10.1 Conditions to avoid**

If product is heated risk if the solution dries out (in case of contact of dry iron salts with concentrated sulphuric acid: exothermic reaction and risk of explosion) and liberation of sulphur trioxide.

10.2 Materials to avoid

Exothermic reaction with alkalis.

If product is heated risk if the solution dries out (in case of contact of dry iron salts with concentrated sulphuric acid: exothermic reaction and risk of explosion) and liberation of sulphur trioxide.

10.3 Hazardous decomposition products

Irritant gases/vapours, sulphur dioxide, nitrogen oxides, sulphur trioxide.

10.4 Additional information

Suitable material: glass.

11. Toxicological information**11.1 Toxicokinetics, metabolism and distribution**

No data are available for the product.

11.2 Acute effects (acute toxicity, irritation and corrosivity)

LD50 rat, oral	(mg/kg)	350	(sulphuric acid)	(RTECS)
		3250	(ammonium iron(II) sulfate hexahydrate)	(RTECS)
LD50 rabbit, dermal	(mg/kg)	n.av.		
LC50 rat, inhalation	(mg/m ³ /2h)	510	(sulphuric acid)	(RTECS)
Irritant effect on skin (rabbit)		n.av.		
Irritant effect on eyes (rabbit)		corrosion	(sulphuric acid) (Standard Draize test)	(RTECS)

11.3 Sensitisation

No data are available for the product.

11.4 Repeated dose (sub-acute, sub-chronic, chronic)

No data are available for the product.

11.5 CMR effects (carcinogenicity, mutagenicity, toxicity for the reproduction)

Carcinogenicity	n.av.
Mutagenicity	n.av.
Toxicity for the reproduction	n.av.

11.6 Comprehensive evaluation of the CMR properties of substances subject to registration

No data available.

11.7 Experiences made in practice

Irritating to eyes and skin. Irritating effects on mucous membrane possible.
 Risk of bronchitis (chronic). Risk of liver damage.

11.8 General remarks

The product has not been tested. The product was classified on the basis of the calculation procedure of the Directive 1999/45/EC.
 Labelling on the basis of sulphuric acid 9%.

12. Ecological information**12.1 Ecotoxicity****Aquatic toxicity**

LC50	(fish)	16-29 mg/l/96 h (Lepomis macrochirus; bluegill sunfish)
		(sulphuric acid) (external safety data sheet)
EC50	(daphnia)	29 mg/l/24 h (Daphnia magna (sulphuric acid))
		(external safety data sheet)
IC50	(algae)	n.av.

Behaviour in sewage works:

The product is an acid.

The product needs to apply neutralising agents before draining to wastewater treatment plants.

12.2 Mobility

The product has not been tested.

12.3 Persistence and degradability

The product has not been tested.

12.4 Bioaccumulative potential

The product has not been tested.

12.5 Results of PBT assessment

No data available.

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12.6 Other adverse effects

Ozone depletion potential n.av.
 Photochemical ozone creation potential n.av.
 Global warming potential n.av.
 AOX-hint Not to apply.

12.7 Further information

Chemical oxygen demand (COD) n.av.
 Biochemical oxygen demand (BOD) n.av.
 The product is classified as low hazardous to water.
 Harmful effect due to pH shift.

Contains according to the formulation following compounds of directives 2006/11/EC and 80/68/EEC:

None.

13. Disposal considerations**13.1 Product / unused product**

Waste disposal corresponding to European Waste Catalogue.
 Wastes must be classified with respect to their origin and depending on different processing steps. The waste codes mentioned as follows are only constituted as our recommendations.

Referring to the particular case they should be completed or revised.

Wastes from inorganic chemical processes

Waste type

Waste notation

Wastes from the manufacture, formulation, supply and use (MFSU) of acids

EC waste code

06 01 01 sulphuric acid and sulphurous acid

Disposal operations

D 9 Physico-chemical treatment

Recovery operations

R 6 Regeneration of acids or bases

13.2 Contaminated packaging

Recommendation

Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse.

Packaging that cannot be cleaned should be disposed off as product waste.

Recommended cleansing agent

Water

14. Transport information**14.1 Land transport ADR / RID**

UN-No.: 3264

Class: 8

Classification code: C1

Packing group: III

Tunnel restriction code: (E)

Danger label: 8



Name of the good: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (sulphuric acid, ammonium iron(II) sulfate)

14.2 Marine transport IMDG-Code

Class: 8

Subsidiary Risk: -



UN-No.: 3264

Packing group: III

EmS: F-A, S-B

Proper Shipping Name: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (sulphuric acid, ammonium iron(II) sulfate)

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14.3 Air transport IATA-DGR

UN/ID-No.:	3264	Class:	8
Packing group:	III	Subsidiary Risk:	-
Hazard Label:	Corrosive		



Proper Shipping Name: Corrosive liquid, acidic, inorganic, n.o.s. (sulphuric acid, ammonium iron(II) sulfate)

15. Regulatory information**15.1 Chemical Safety Assessment**

No Chemical Safety Assessment has been carried out for a substance in the product.

15.2 Labelling in accordance with Directive EC

Symbol(s) of danger:



Indication(s) of danger:
 Hazardous component(s) to be indicated on label:

Irritant
 n.ap.

R phrases: R36/38

Irritating to eyes and skin.

S phrases: S26

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Special labelling for certain preparations:

n.ap.

Remarks:

The R and S phrases can be omitted if the content of the package do not exceed 125 ml.

15.3 Further Community legislation

Observe Directive 98/24/EC for employee health protection against the threat of chemical substances in the workplace.
 Observe employment restrictions under the law for the protection of young people at work (94/33/EC).

15.4 National measures (for Germany only)

Indications on restriction of occupation:

Youth Employment Protection Act must be observed

Major-accident Regulation:

n.ap.

Fire and explosion hazards:

n.ap.

Regulation on clean air (TA Luft):

n.ap.

Water hazard class:

1 (calculation according to KBwS)

The Federal State Enactment for Facilities to Handle Water Endangering Substances (German VAWS–Anlagenverordnung) has to be observed.

German Ordinance on Hazardous Substances
 (in accordance with Directive 98/24/EC):

Articles 7, 8, 9, 14 and 15 must be observed

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16. Other information**16.1 Keeping (restrictions)**

Article 8 (6), (7) and (8) German Ordinance on
Hazardous Substances (for Germany only)
for industry consumer

Distribution**16.2 Full text of the R phrases referred to under heading 3 of the Safety Data Sheet**

R35: Causes severe burns.
R36/38: Irritating to eyes and skin.
R36/37/38: Irritating to eyes, respiratory system and skin.

16.3 Technical contact point

SI Analytics GmbH, Herr Dr. M. Lange
SI Analytics GmbH, Herr H. Becker

Telephone: int+49-(0)6131-66-5051
Telephone: int+49-(0)6131-66-5116

Version 0020: replacement of version 0019 dated 31.01.2009

Revised headings: page headers, 1.3, 16.3 (change of company identification)

16.4 The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

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