MATERIAL SAFETY DATA SHEET

Redox standard (600 mv)

SECTION 1: Identification of the substance/mixture and of the company/undertaking			
1.1	**Product identifiers**		
	Product name	:	Redox standard
	Brand	:	LABORT
	CAS-No.	:	-
1.2	**Relevant identified uses of the substance or mixture and uses advised against**		
	Identified uses	:	Laboratory chemicals, Industrial
1.3	**Details of the supplier of the safety data sheet**		
	LABORT FINE CHEM PVT LTD. 703-704 ICON BUSINESS CENTRE, OPP. CENTRAL MALL, NR. VALENTINE CINEMA, DUMAS ROAD, SURAT - 395007, (GUJARAT), INDIA. **PH:** 0091-261-2725761; 2725388 **FAX:** 0091-261-2725388 **E MAIL:** info@laboratorychemical.net **WEBSITE:** www.laboratorychemical.net		
1.4	**Emergency telephone number**		
	Emergency Phone #	:	**091-261-2725388**
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 Skin irritation (Category 2), H315 Serious eye damage (Category 1), H318		
2.2	**Label elements**		
	Labelling according Regulation (EC) No 1272/2008		
	Pictogram	:	
	Signal word	:	Danger
	Hazard statement(s)		
	H290 May be corrosive to metals. H315 Causes skin irritation. H318 Causes serious eye damage.		

	Precautionary statement(s)		
	P234	Keep only in original packaging.	
	P264	Wash skin thoroughly after handling.	
	P280	Wear protective gloves/ eye protection/ face protection.	
	P302 + P352	IF ON SKIN: Wash with plenty of 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.	
	P332 + P313	If skin irritation occurs: Get medical advice/ attention.	
	Supplemental Hazard statements		
	none		
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**		
	Hazardous ingredients according to Regulation (EC) No 1272/2008		
	Component	Classification	Concentration
	sulphuric acid CAS-No. 7664-93-9 EC-No. 231-639-5 Index-No. 016-020-00-8 Registration number 01 2119458838-20- XXXX	Met. Corr. 1; Skin Corr. 1A; Eye Dam. 1; H290, H314, H318 Concentration limits: >= 15 %: Skin Corr. 1A, H314; 5 - < 15 %: Skin Irrit. 2, H315; 5 - < 15 %: Eye Irrit. 2, H319; >= 0,3 %: Met. Corr. 1, H290;	>= 10 - < 15 %
	iron(III) chloride		
	CAS-No. 7705-08-0 EC-No. 231-729-4 Registration number 01-2119497998-05- XXXX	Met. Corr. 1; Acute Tox. 4; Skin Irrit. 2; Eye Dam. 1; H290, H302, H315, H318 Concentration limits: >= 1 %: Met. Corr. 1, H290;	>= 10 - < 20 %
	Iron(II) sulphate		
	CAS-No. 7720-78-7 EC-No. 231-753-5 Index-No. 026-003-00-7 Registration number 01-2119513203-57- XXXX	Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2; H302, H315, H319	>= 1 - < 10 %
SECTION 4: First aid measures			
4.1	**Description of first aid measures**		
	General advice Show this material safety data sheet to the doctor in attendance.		
	If inhaled After inhalation: fresh air.		
	In case of skin contact In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower		
	In case of eye contact After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.		
	If swallowed After swallowing: immediately make victim drink water (two glasses at most). 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** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. **Unsuitable extinguishing media** For this substance/mixture no limitations of extinguishing agents are given.
5.2	**Special hazards arising from the substance or mixture** Sulfur oxides Hydrogen chloride gas Iron oxides Not combustible. Ambient fire may liberate hazardous vapours.
5.3	**Advice for firefighters** Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.
5.4	**Further information** Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.
SECTION 6: Accidental release measures	
6.1	**Personal precautions, protective equipment and emergency procedures** Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.
6.2	**Environmental precautions** Do not let product enter drains.
6.3	**Methods and materials for containment and cleaning up** Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.
6.4	**Reference to other sections** For disposal see section 13.
SECTION 7: Handling and storage	
7.1	**Precautions for safe handling** For precautions see section 2.2.
7.2	**Conditions for safe storage, including any incompatibilities** **Storage conditions** No metal containers. Tightly closed. **Storage stability** Recommended storage temperature 2 - 8 °C **Storage class** Storage class (TRGS 510): 8B: Non-combustible, corrosive hazardous materials
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** **Ingredients with workplace control parameters**
8.2	**Exposure control**

	Personal protective equipment **Eye/face protection** Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles **Skin protection** Required **Body Protection** protective clothing **Respiratory protection** required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system. Recommended Filter type: Filter type ABEK The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented. **Control of environmental exposure** Do not let product enter drains.

SECTION 9: Physical and chemical properties		
9.1	**Information on basic physical and chemical properties**	
	Appearance Form	Form: clear, brownish liquid
	Colour	brownish
	Odour	No data available
	Odour Threshold	No data available
	pH	No data available
	Melting point/freezing point	No data available
	Initial boiling point and boiling range	No data available
	Flash point	No data available
	Evaporation rate	No data available
	Flammability (solid, gas)	No data available
	Upper/lower flammability or explosive limits	No data available
	Vapour pressure	No data available
	Vapour density	No data available
	Relative density Density	No data available 1,075 g/cm3
	Water solubility	at 20 °C soluble
	Partition coefficient: noctanol/water	No data available
	Auto-ignition temperature	No data available

	Decomposition temperature	No data available
	Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: No data available
	Explosive properties	Not classified as explosive.
	Oxidizing properties	none
9.2	**Other safety information**	No data available

SECTION 10: Stability and reactivity

10.1	**Reactivity** No data available
10.2	**Chemical stability** The product is chemically stable under standard ambient conditions (room temperature).
10.3	**Possibility of hazardous reactions** Violent reactions possible with: The generally known reaction partners of water.
10.4	**Conditions to avoid** no information available
10.5	**Incompatible materials** Strong oxidizing agents Metals
10.6	**Hazardous decomposition products** In the event of fire: see section 5

SECTION 11: Toxicological information

11.1	**Information on toxicological effects** **Mixture** **Acute toxicity** Oral: No data available Symptoms: Possible symptoms:, mucosal irritations Dermal: No data available **Skin corrosion/irritation** Mixture causes skin irritation. **Serious eye damage/eye irritation** Mixture causes serious eye damage. Causes serious eye damage. **Respiratory or skin sensitisation** No data available **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 **Aspiration hazard** No data available

Additional Information

irritant effects
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Other dangerous properties cannot be excluded.

Handle in accordance with good industrial hygiene and safety practice.

Components

sulphuric acid

Acute toxicity
LD50 Oral - Rat - male and female - 2.140 mg/kg
Remarks: (ECHA)
Inhalation: Corrosive to respiratory system.
Dermal: No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Extremely corrosive and destructive to tissue.
Remarks: (IUCLID)

Serious eye damage/eye irritation
Causes serious eye damage.

Respiratory or skin sensitization
No data available

11.2 **Germ cell mutagenicity**
Test Type: Ames test
Test system: Salmonella typhimurium
Result: negative
Remarks: (HSDB)

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

Aspiration hazard
No data available

iron(III) chloride

Acute toxicity
LD50 Oral - Mouse - female - 1.300 mg/kg
Remarks:(ECHA)
Inhalation: No data available
LD50 Dermal - Rat - male and female - > 2.000 mg/kg
(OECD Test Guideline 402)
Remarks: (in analogy to similar products)
The value is given in analogy to the following substances: iron dichloride

Skin corrosion/irritation
Skin - Rabbit
Result: Irritating to skin. - 4 h
(OECD Test Guideline 404)
Remarks: (in analogy to similar products)
The value is given in analogy to the following substances: Ferrous sulfate heptahydrate

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Causes serious eye damage.
(OECD Test Guideline 405)
Remarks: (in analogy to similar products)
The value is given in analogy to the following substances: iron dichloride

Respiratory or skin sensitization
Local lymph node assay (LLNA) - Mouse
Result: negative
(OECD Test Guideline 429)
Remarks: (in analogy to similar products)

Germ cell mutagenicity
Test Type: Ames test
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Result: negative
The value is given in analogy to the following substances: Ferrous sulfate heptahydrate
Test Type: Mutagenicity (mammal cell test): micronucleus.
Test system: Chinese hamster lung cells
Result: negative
Species: Mouse - female
Result: negative
Remarks: (ECHA)

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

Aspiration hazard
No data available

Iron(II) sulphate

Acute toxicity
LD50 Oral - Rat - female - 500 mg/kg
(OECD Test Guideline 423)
Remarks: (in analogy to similar compounds)
The value is given in analogy to the following substances: iron dichloride
Symptoms: Irritation symptoms in the respiratory tract.
LD50 Dermal - Rat - male and female - > 2.000 mg/kg
(OECD Test Guideline 402)
Remarks: (in analogy to similar products)

	The value is given in analogy to the following substances: iron dichloride **Skin corrosion/irritation** Skin - Rabbit Result: Irritating to skin. - 4 h (OECD Test Guideline 404) **Serious eye damage/eye irritation** Eyes - Rabbit Result: Causes serious eye irritation. (OECD Test Guideline 405) Remarks: (in analogy to similar products) The value is given in analogy to the following substances: iron dichloride **Respiratory or skin sensitization** Local lymph node assay (LLNA) – Mouse Result: negative (OECD Test Guideline 429) **Germ cell mutagenicity** Test Type: Ames test Test system: Salmonella typhimurium Result: negative Remarks: (Lit.) Test Type: In vitro mammalian cell gene mutation test Test system: mouse lymphoma cells Result: negative Species: Mouse - female - Multiple Result: negative Remarks: (ECHA) **Carcinogenicity** No data available **Reproductive toxicity** No data available **Specific target organ toxicity - single exposure** Acute inhalation toxicity - Irritation symptoms in the respiratory tract. **Specific target organ toxicity - repeated exposure** **Aspiration hazard** No data available

SECTION 12: Ecological information		
12.1	**Toxicity**	
	Mixture	No data available
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 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.	
12.6	**Other adverse effects** No data available	

	Components **sulphuric acid** Toxicity to daphnia and other aquatic invertebrates Toxicity to algae **iron(III) chloride** No data available **Iron(II) sulphate** Toxicity to fish Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h (OECD Test Guideline 202) static test ErC50 - Desmodesmus subspicatus (green algae) - > 100 mg/l - 72 h (OECD Test Guideline 201) LC50 - Oncorhynchus mykiss (rainbow trout) - 82,4 mg/l – 96 h (OECD Test Guideline 203) EC50 - Daphnia magna (Water flea) - 7,2 mg/l - 48 h Remarks: (ECOTOX Database)	
SECTION 13: Disposal considerations			
13.1	**Waste treatment methods** **Product** See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.		
SECTION 14: Transport information			
14.1	**UN number**		
	ADR/RID: 2796	IMDG: 2796	IATA: 2796
14.2	**UN proper shipping name**		
	ADR/RID: SULPHURIC ACID IMDG: SULPHURIC ACID IATA: Sulphuric acid		
14.3	**Transport hazard class(es)**		
	ADR/RID: 8	IMDG: 8	IATA: 8
14.4	**Packaging group**		
	ADR/RID: II	IMDG: II	IATA: II
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 substance or mixture** This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006. **Other regulations** Take note of Dir 94/33/EC on the protection of young people at work.		
15.2	**Chemical safety assessment** For this product a chemical safety assessment was not carried out		
SECTION 16: Other information			

	Further information LABORT FINE CHEM PVT LTD. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. LABORT FINE CHEM PVT LTD. Makes no representations or warranties, either express or implied, including without limitation any warranties or merchantability, fitness for a particular purpose with respect to the information set forth herein or the product to which the information refers. Accordingly, LABORT FINE CHEM PVT LTD. will not be responsible for damages resulting from use of or reliance upon this information. Revised on: 01/12/21 Revision: 01