

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

#### 1.1. Product identifier

Product form : Mixture  
Product name : ORP Standard, 475mV  
Product code : LC18020

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

Use of the substance/mixture : For laboratory and manufacturing use only.

#### 1.3. Details of the supplier of the safety data sheet

LabChem Inc  
Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court  
Zelienople, PA 16063 - USA  
T 412-826-5230 - F 724-473-0647  
[info@labchem.com](mailto:info@labchem.com) - [www.labchem.com](http://www.labchem.com)

#### 1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 or 011-703-527-3887

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### GHS-US classification

Skin Corr. 1B H314  
Eye Dam. 1 H318

#### 2.2. Label elements

##### GHS-US labelling

Hazard pictograms (GHS-US) :



GHS05

Signal word (GHS-US) : Danger  
Hazard statements (GHS-US) : H314 - Causes severe skin burns and eye damage  
Precautionary statements (GHS-US) : P260 - Do not breathe mist, vapours, spray  
P264 - Wash exposed skin thoroughly after handling  
P280 - Wear protective gloves, protective clothing, eye protection, face protection  
P301+P330+P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting  
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower  
P304+P340 - IF INHALED: remove victim to fresh air and keep at rest in a position comfortable for breathing  
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 or doctor/physician  
P363 - Wash contaminated clothing before reuse  
P405 - Store locked up  
P501 - Dispose of contents/container to comply with local, state and federal regulations

#### 2.3. Other hazards

Other hazards not contributing to the classification : None.

#### 2.4. Unknown acute toxicity (GHS-US)

No data available

### SECTION 3: Composition/information on ingredients

#### 3.1. Substance

Not applicable

# ORP Standard, 475mV

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Full text of H-phrases: see section 16

### 3.2. Mixture

Name	Product identifier	%	GHS-US classification
Water	(CAS No) 7732-18-5	81.76	Not classified
Sulfuric Acid, 96% w/w	(CAS No) 7664-93-9	9.5	Skin Corr. 1A, H314 Eye Dam. 1, H318
Ferric Ammonium Sulfate, Dodecahydrate	(CAS No) 7783-83-7	4.82	Skin Irrit. 2, H315 Eye Irrit. 2A, H319
Ferrous Ammonium Sulfate Hexahydrate	(CAS No) 7783-85-9	3.92	Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

- First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
- First-aid measures after inhalation : Remove to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
- First-aid measures after skin contact : Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a POISON CENTER or doctor/physician.
- First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.
- First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.

### 4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/injuries : Causes severe skin burns and eye damage.
- Symptoms/injuries after eye contact : Causes serious eye damage.

### 4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

- Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.
- Unsuitable extinguishing media : Do not use a heavy water stream.

### 5.2. Special hazards arising from the substance or mixture

- Reactivity : Thermal decomposition generates : Corrosive vapours.

### 5.3. Advice for firefighters

- Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Avoid (reject) fire-fighting water to enter environment.
- Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

- Protective equipment : Safety glasses. Gloves. Protective clothing. Head/neck protection.
- Emergency procedures : Evacuate unnecessary personnel.

#### 6.1.2. For emergency responders

- Protective equipment : Equip cleanup crew with proper protection.
- Emergency procedures : Ventilate area.

### 6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

### 6.3. Methods and material for containment and cleaning up

- Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

# ORP Standard, 475mV

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### 6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

- Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour. Do not breathe mist, vapours, spray. Avoid contact during pregnancy/while nursing.
- Hygiene measures : Wash exposed skin thoroughly after handling.

### 7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Comply with applicable regulations.
- Storage conditions : Keep only in the original container in a cool, well ventilated place away from : incompatible materials. Keep container closed when not in use.
- Incompatible products : Strong bases. metals. cyanides.
- Incompatible products : Heat sources.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

Sulfuric Acid, 96% w/w (7664-93-9)		
USA ACGIH	ACGIH TWA (mg/m³)	0.2 mg/m³
USA OSHA	OSHA PEL (TWA) (mg/m³)	1 mg/m³

Ferric Ammonium Sulfate, Dodecahydrate (7783-83-7)		
USA ACGIH	ACGIH TWA (mg/m³)	1 mg/m³

Ferrous Ammonium Sulfate Hexahydrate (7783-85-9)		
USA ACGIH	ACGIH TWA (mg/m³)	1 mg/m³ Iron salts, soluble, as Fe

### 8.2. Exposure controls

- Appropriate engineering controls : Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Provide adequate general and local exhaust ventilation.
- Personal protective equipment : Avoid all unnecessary exposure.
- Hand protection : Wear protective gloves.
- Eye protection : Chemical goggles or face shield.
- Skin and body protection : Wear suitable protective clothing.
- Respiratory protection : Wear appropriate mask.
- Other information : Do not eat, drink or smoke during use.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

- Physical state : Liquid
- Appearance : Clear, colorless liquid.
- Colour : Yellow.
- Odour : None.
- Odour threshold : No data available
- pH : No data available
- Relative evaporation rate (butylacetate=1) : No data available
- Melting point : No data available
- Freezing point : No data available
- Boiling point : No data available
- Flash point : No data available
- Self ignition temperature : No data available
- Decomposition temperature : No data available

# ORP Standard, 475mV

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Solubility	: Soluble in water.
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: Not applicable.
Oxidising properties	: None.
Explosive limits	: No data available

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Thermal decomposition generates : Corrosive vapours.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

Reacts violently with (some) bases: release of heat.

### 10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

### 10.5. Incompatible materials

metals. Strong bases. cyanides.

### 10.6. Hazardous decomposition products

Sulfur compounds. Thermal decomposition generates : Corrosive vapours.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Not classified

Sulfuric Acid, 96% w/w (7664-93-9)	
LD50 oral rat	2140 mg/kg bodyweight (Rat; Experimental value,Rat; Experimental value)

Water (7732-18-5)	
LD50 oral rat	≥ 90000 mg/kg

Ferrous Ammonium Sulfate Hexahydrate (7783-85-9)	
LD50 oral rat	3250 mg/kg

Skin corrosion/irritation	: Causes severe skin burns and eye damage.
Serious eye damage/irritation	: Causes serious eye damage.
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified

Sulfuric Acid, 96% w/w (7664-93-9)	
IARC group	1 - Carcinogenic to humans

Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified

Specific target organ toxicity (repeated exposure)	: Not classified
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# ORP Standard, 475mV

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Aspiration hazard	: Not classified
Potential Adverse human health effects and symptoms	: Based on available data, the classification criteria are not met.
Symptoms/injuries after eye contact	: Causes serious eye damage.

### SECTION 12: Ecological information

#### 12.1. Toxicity

Sulfuric Acid, 96% w/w (7664-93-9)	
LC50 fishes 1	42 mg/l (96 h; Gambusia affinis)
EC50 Daphnia 1	29 mg/l (24 h; Daphnia magna)
LC50 fish 2	49 mg/l (48 h; Lepomis macrochirus)
TLM fish 1	42 mg/l (96 h; Gambusia affinis)
Threshold limit other aquatic organisms 1	6900 mg/l (24 h; Pseudomonas fluorescens)

#### 12.2. Persistence and degradability

ORP Standard, 475mV	
Persistence and degradability	Not established.

Sulfuric Acid, 96% w/w (7664-93-9)	
Persistence and degradability	Biodegradability: not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

Water (7732-18-5)	
Persistence and degradability	Not established.

Ferric Ammonium Sulfate, Dodecahydrate (7783-83-7)	
Persistence and degradability	Biodegradability in water: no data available.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

Ferrous Ammonium Sulfate Hexahydrate (7783-85-9)	
Persistence and degradability	Not established.

#### 12.3. Bioaccumulative potential

ORP Standard, 475mV	
Bioaccumulative potential	Not established.

Sulfuric Acid, 96% w/w (7664-93-9)	
Log Pow	-2.20 (Estimated value)
Bioaccumulative potential	Bioaccumulation: not applicable.

Water (7732-18-5)	
Bioaccumulative potential	Not established.

Ferric Ammonium Sulfate, Dodecahydrate (7783-83-7)	
Bioaccumulative potential	No bioaccumulation data available.

Ferrous Ammonium Sulfate Hexahydrate (7783-85-9)	
Bioaccumulative potential	Not established.

#### 12.4. Mobility in soil

No additional information available

#### 12.5. Other adverse effects

Other information : Avoid release to the environment.

# ORP Standard, 475mV

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

- Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to comply with local, state and federal regulations.
- Ecology - waste materials : Avoid release to the environment.

### SECTION 14: Transport information

In accordance with DOT

- Transport document description : UN3264 Corrosive liquid, acidic, inorganic, n.o.s. (Sulfuric acid), 8, II
- UN-No.(DOT) : 3264
- DOT NA no. : UN3264
- DOT Proper Shipping Name : Corrosive liquid, acidic, inorganic, n.o.s.  
Sulfuric acid
- Department of Transportation (DOT) Hazard Classes : 8 - Class 8 - Corrosive material 49 CFR 173.136
- Hazard labels (DOT) : 8 - Corrosive substances



- DOT Symbols : G - Identifies PSN requiring a technical name
- Packing group (DOT) : II - Medium Danger
- DOT Special Provisions (49 CFR 172.102) : B2 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized.  
IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized.  
T11 - 6 178.274(d)(2) Normal..... 178.275(d)(3)  
TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling =  $95 / (1 + a (tr - tf))$  Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula:  $a = (d15 - d50) / 35 \cdot d50$  Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.  
TP27 - A portable tank having a minimum test pressure of 4 bar (400 kPa) may be used provided the calculated test pressure is 4 bar or less based on the MAWP of the hazardous material, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.
- DOT Packaging Exceptions (49 CFR 173.xxx) : 154
- DOT Packaging Non Bulk (49 CFR 173.xxx) : 202
- DOT Packaging Bulk (49 CFR 173.xxx) : 242
- DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 1 L
- DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 30 L
- DOT Vessel Stowage Location : B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.
- DOT Vessel Stowage Other : 40 - Stow "clear of living quarters"

#### Additional information

- Other information : No supplementary information available.

#### ADR

- Transport document description :

# ORP Standard, 475mV

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### Transport by sea

No additional information available

### Air transport

No additional information available

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

#### ORP Standard, 475mV

SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard
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#### Sulfuric Acid, 96% w/w (7664-93-9)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

RQ (Reportable quantity, section 304 of EPA's List of Lists) :	1000 lb
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SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard
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#### Water (7732-18-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

#### Ferric Ammonium Sulfate, Dodecahydrate (7783-83-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

#### Ferrous Ammonium Sulfate Hexahydrate (7783-85-9)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

RQ (Reportable quantity, section 304 of EPA's List of Lists) :	1000 lb
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SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard
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### 15.2. International regulations

#### CANADA

#### ORP Standard, 475mV

WHMIS Classification	Class E - Corrosive Material
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#### Sulfuric Acid, 96% w/w (7664-93-9)

Listed on the Canadian DSL (Domestic Substances List) inventory.

WHMIS Classification	Class E - Corrosive Material
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#### Water (7732-18-5)

WHMIS Classification	Uncontrolled product according to WHMIS classification criteria
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#### Ferric Ammonium Sulfate, Dodecahydrate (7783-83-7)

Not listed on the Canadian DSL (Domestic Substances List) inventory.

WHMIS Classification	Class D Division 2 Subdivision B - Toxic material causing other toxic effects
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#### Ferrous Ammonium Sulfate Hexahydrate (7783-85-9)

Not listed on the Canadian DSL (Domestic Substances List) inventory.

WHMIS Classification	Class D Division 2 Subdivision B - Toxic material causing other toxic effects
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### EU-Regulations

No additional information available

### Classification according to Regulation (EC) No. 1272/2008 [CLP]

### Classification according to Directive 67/548/EEC or 1999/45/EC

Not classified

### 15.2.2. National regulations

# ORP Standard, 475mV

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### Sulfuric Acid, 96% w/w (7664-93-9)

Listed on the Canadian Ingredient Disclosure List

### Ferrous Ammonium Sulfate Hexahydrate (7783-85-9)

Not listed on the Canadian Ingredient Disclosure List

### 15.3. US State regulations

No additional information available

## SECTION 16: Other information

Other information : None.

Full text of H-phrases: see section 16:

Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation, Category 2A
Skin Corr. 1A	Skin corrosion/irritation, Category 1A
Skin Corr. 1B	Skin corrosion/irritation, Category 1B
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
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

NFPA health hazard

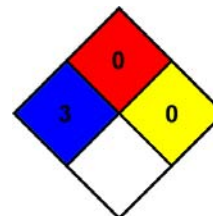
: 3 - Short exposure could cause serious temporary or residual injury even though prompt medical attention was given.

NFPA fire hazard

: 0 - Materials that will not burn.

NFPA reactivity

: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



### HMIS III Rating

Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability : 0 Minimal Hazard

Physical : 0 Minimal Hazard

Personal Protection : H

SDS US (GHS HazCom 2012)

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