Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: January 21, 2020

1 Identification

· **Product identifier**

· **Trade name: Total Alkalinity Indicator**
· **Product code:** BETAI7925-P

· **Recommended use and restriction on use**
· **Recommended use:** Laboratory chemicals
· **Restrictions on use:** No relevant information available.

· **Details of the supplier of the Safety Data Sheet**
· **Manufacturer/Supplier:**
AquaPhoenix Scientific, Inc.
860 Gitts Run Road
Hanover, PA 17331
Phone: (717)632-1291
Toll-Free: (866)632-1291
info@aquaphoenixsci.com
· **Distributor:**
Betco
400 Vann Camp Road,
Bowling Green, OH 43042
(419) 725-3750

· **Emergency telephone number:**
ChemTel Inc.
(800)255-3924 (North America)
+1 (813)248-0585 (International)

2 Hazard(s) identification

· **Classification of the substance or mixture**
The product is not classified as hazardous according to the Globally Harmonized System (GHS).

· **Label elements**
· **GHS label elements** Not regulated.
· **Hazard pictograms:** Not regulated.
· **Signal word:** None
· **Hazard statements:** None.
· **Precautionary statements:** None.

· **Other hazards** There are no other hazards not otherwise classified that have been identified.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Components:**		
7732-18-5	Water	98%
62625-32-5	sodium alpha-(3,5-dibromo-2-methyl-4-oxo-2,5-cyclohexadienylidene)-alpha-(3,5-dibromo-4-hydroxyphenyl)toluenesulphonate	<1%
845-10-3	sodium 2-(p-(dimethylamino)phenylazo)benzoate	<1%

· **Additional information:**

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For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.
For the wording of the listed Hazard Statements, refer to section 16.

4 First-aid measures

· **Description of first aid measures**
· **General information:** No special measures required.
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:**
Immediately rinse with water.
If skin irritation is experienced, consult a doctor.
· **After eye contact:**
Remove contact lenses if worn.
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; immediately call for medical help.
· **Most important symptoms and effects, both acute and delayed:**
Gastric or intestinal disorders when ingested.
· **Danger:** No relevant information available.
· **Indication of any immediate medical attention and special treatment needed:**
If medical advice is needed, have product container or label at hand.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
· **For safety reasons unsuitable extinguishing agents:** No relevant information available.
· **Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
· **Advice for firefighters**
· **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Ensure adequate ventilation.
For large spills, wear protective clothing.
· **Environmental precautions**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
· **Methods and material for containment and cleaning up**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose of the collected material according to regulations.
· **Reference to other sections**

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See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

· **Handling**
· **Precautions for safe handling:**
Avoid splashes or spray in enclosed areas.
Use only in well ventilated areas.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Requirements to be met by storerooms and receptacles:**
Due to photo-sensitivity, store product in brown-glass or stainless steel receptacles.
· **Information about storage in one common storage facility:**
Do not store together with acids.
Store away from oxidizing agents.
· **Further information about storage conditions:**
Keep containers tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
· **Specific end use(s)** No relevant information available.

8 Exposure controls/personal protection

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **Exposure controls**
· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
· **Engineering controls:** Provide adequate ventilation.
· **Breathing equipment:** Not required under normal conditions of use.
· **Protection of hands:** Gloves not required under normal conditions of use.
· **Eye protection:**

Safety glasses

Follow relevant national guidelines concerning the use of protective eyewear.
· **Body protection:** Protective work clothing
· **Limitation and supervision of exposure into the environment** No special requirements.
· **Risk management measures** No special requirements.

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Trade name: Total Alkalinity Indicator

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9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **Appearance:**	
Form:	Liquid
Color:	Colored
· **Odor:**	Not determined.
· **Odor threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Melting point/Melting range:**	Not determined.
· **Boiling point/Boiling range:**	101-105 °C (213.8-221 °F)
· **Flash point:**	The product is not flammable.
· **Flammability (solid, gaseous):**	Not applicable.
· **Auto-ignition temperature:**	Not determined.
· **Decomposition temperature:**	Not determined.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits**	
Lower:	Not determined.
Upper:	Not determined.
· **Oxidizing properties:**	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17.3 mm Hg)
· **Density:**	
Relative density:	Not determined.
Vapor density:	Not determined.
Evaporation rate:	Not determined.
· **Solubility in / Miscibility with**	
Water:	Not determined.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Other information**	No relevant information available.

10 Stability and reactivity

· **Reactivity:** Photoreactive.
· **Chemical stability:** Stable under normal temperatures and pressures.
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
· **Possibility of hazardous reactions** Reacts with strong acids and oxidizing agents.
· **Conditions to avoid**
Excessive heat.

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Direct sunlight.

· **Incompatible materials** No relevant information available.

· **Hazardous decomposition products**

Under fire conditions only:
Carbon monoxide and carbon dioxide

11 Toxicological information

· **Information on toxicological effects**

· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:** None.

· **Primary irritant effect:**

· **On the skin:** Based on available data, the classification criteria are not met.

· **On the eye:** Based on available data, the classification criteria are not met.

· **Sensitization:** Based on available data, the classification criteria are not met.

· **IARC (International Agency for Research on Cancer):**
None of the ingredients are listed.

· **NTP (National Toxicology Program):**
None of the ingredients are listed.

· **OSHA-Ca (Occupational Safety & Health Administration):**
None of the ingredients are listed.

· **Probable route(s) of exposure:**

Ingestion.
Inhalation.
Eye contact.
Skin contact.

· **Acute effects (acute toxicity, irritation and corrosivity):** No relevant information available.

· **Repeated dose toxicity:** No relevant information available.

· **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.

12 Ecological information

· **Toxicity**

· **Aquatic toxicity** No relevant information available.

· **Persistence and degradability** No relevant information available.

· **Bioaccumulative potential:** No relevant information available.

· **Mobility in soil:** No relevant information available.

· **Additional ecological information**

· **General notes:**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

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Trade name: Total Alkalinity Indicator

(Cont'd. of page 5)

· **Other adverse effects** No relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system. The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.

· **Uncleaned packagings**
· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **UN-Number**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	Not regulated.
· **UN proper shipping name**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	Not regulated.
· **Transport hazard class(es)**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	
· **Class**	Not regulated.
· **Packing group**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	Not regulated.
· **Environmental hazards**	Not applicable.
· **Special precautions for user**	Not applicable.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **United States (USA)**
· **SARA**

· **Section 302 (extremely hazardous substances):**
None of the ingredients are listed.

· **Section 355 (extremely hazardous substances):**
None of the ingredients are listed.

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· **Section 313 (Specific toxic chemical listings):**

None of the ingredients are listed.

· **TSCA (Toxic Substances Control Act)**

845-10-3	sodium 2-(p-(dimethylamino)phenylazo)benzoate
62625-32-5	sodium alpha-(3,5-dibromo-2-methyl-4-oxo-2,5-cyclohexadienylidene)-alpha-(3,5-dibromo-4-hydroxyphenyl)toluenesulphonate
7732-18-5	Water

· **Proposition 65 (California)**

· **Chemicals known to cause cancer:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for females:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for males:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

· **EPA (Environmental Protection Agency):**

None of the ingredients are listed.

· **IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

· **Canadian Domestic Substances List (DSL):**

None of the ingredients are listed.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Abbreviations and acronyms:**
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
OSHA: Occupational Safety & Health Administration

· **Sources**
Website, European Chemicals Agency (echa.europa.eu)
Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)
Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)
Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6
Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.
Safety Data Sheets, Individual Manufacturers

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SDS Prepared by:
ChemTel Inc.
1305 North Florida Avenue
Tampa, Florida USA 33602-2902
Toll Free North America 1-888-255-3924 Intl. +01 813-248-0573
Website: www.chemtelinc.com

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: October 16, 2019

1 Identification

· **Product identifier**

· **Trade name: Sulfuric Acid 0.12N**
· **Product code:** 91887-P

· **Recommended use and restriction on use**
· **Recommended use:** Laboratory chemicals
· **Restrictions on use:** No relevant information available.

· **Details of the supplier of the Safety Data Sheet**
· **Manufacturer/Supplier:**
AquaPhoenix Scientific, Inc.
860 Gitts Run Road
Hanover, PA 17331
Phone: (717)632-1291
Toll-Free: (866)632-1291
info@aquaphoenixsci.com
· **Distributor:**
Betco
400 Vann Camp Road,
Bowling Green, OH 43042
(419) 725-3750

· **Emergency telephone number:**
ChemTel Inc.
(800)255-3924 (North America)
+1 (813)248-0585 (International)

2 Hazard(s) identification

· **Classification of the substance or mixture**
The product is not classified as hazardous according to the Globally Harmonized System (GHS).

· **Label elements**
· **GHS label elements** Not regulated.
· **Hazard pictograms:** Not regulated.
· **Signal word:** Not regulated.
· **Hazard statements:** Not regulated.

· **Other hazards** There are no other hazards not otherwise classified that have been identified.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Components:**		
7732-18-5	Water	>95%
7664-93-9	Sulfuric acid	<5%
	Met. Corr.1, H290; Skin Corr. 1A, H314; Eye Dam. 1, H318	

· **Additional information:**
For the wording of the listed Hazard Statements, refer to section 16.
For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.

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Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: October 16, 2019

Trade name: Sulfuric Acid 0.12N

(Cont'd. of page 1)

4 First-aid measures

· **Description of first aid measures**
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:**
Rinse with warm water.
If skin irritation is experienced, consult a doctor.
· **After eye contact:**
Remove contact lenses if worn, if possible.
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; immediately call for medical help.
· **Most important symptoms and effects, both acute and delayed:**
Nausea in case of ingestion.
Gastric or intestinal disorders when ingested.
· **Indication of any immediate medical attention and special treatment needed:**
No relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
The product is not flammable.
Use fire fighting measures that suit the environment.
· **For safety reasons unsuitable extinguishing agents:** None.
· **Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
· **Advice for firefighters**
· **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Use personal protective equipment as required.
Ensure adequate ventilation.
For large spills, use respiratory protective device against the effects of fumes/dust/aerosol.
· **Environmental precautions**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
· **Methods and material for containment and cleaning up**
Use limestone to neutralize and/or absorb spill.
Clean the affected area carefully; suitable cleaners are:
Warm water
Send for recovery or disposal in suitable receptacles.
· **Reference to other sections**

(Cont'd. on page 3)

Safety Data Sheet

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Trade name: Sulfuric Acid 0.12N

(Cont'd. of page 2)

See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

· **Handling**
· **Precautions for safe handling:**
Avoid splashes or spray in enclosed areas.
Use only in well ventilated areas.
Avoid breathing mist, vapors, or spray.
Avoid contact with the eyes and skin.

· **Conditions for safe storage, including any incompatibilities**
· **Requirements to be met by storerooms and receptacles:**
Use only receptacles specifically permitted for this substance/product.
Unsuitable material for receptacle: aluminium.
Store in cool, dry conditions in well sealed receptacles.
· **Information about storage in one common storage facility:**
Store away from foodstuffs.
Do not store together with alkalis (caustic solutions).
· **Specific end use(s)** No relevant information available.

8 Exposure controls/personal protection

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

7664-93-9 Sulfuric acid	
PEL (USA)	Long-term value: 1 mg/m³
REL (USA)	Long-term value: 1 mg/m³
TLV (USA)	Long-term value: 0.2* mg/m³ *as thoracic fraction
EL (Canada)	Long-term value: 0.2 mg/m³ ACGIH A2; IARC 1
EV (Canada)	Long-term value: 0.2 mg/m³
LMPE (Mexico)	Long-term value: 0.2* mg/m³ A2;*fracción torácica

· **Exposure controls**
· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Do not inhale gases / fumes / aerosols.
Avoid contact with the eyes and skin.

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Trade name: Sulfuric Acid 0.12N

(Cont'd. of page 3)

· **Engineering controls:** Provide adequate ventilation.
· **Breathing equipment:**
Not required under normal conditions of use.
For spills, respiratory protection may be advisable.
· **Protection of hands:**

Protective gloves

· **Eye protection:**

Safety glasses

Follow relevant national guidelines concerning the use of protective eyewear.
· **Body protection:** Protection may be required for spills.
· **Limitation and supervision of exposure into the environment**
No relevant information available.
· **Risk management measures** No relevant information available.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **Appearance:**	
Form:	Liquid
Color:	Colorless
· **Odor:**	Sulphurous
· **Odor threshold:**	Not determined.
· **pH-value:**	Slightly acidic
· **Melting point/Melting range:**	Not determined.
· **Boiling point/Boiling range:**	Not determined.
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not applicable.
· **Auto-ignition temperature:**	Not determined.
· **Decomposition temperature:**	Not determined.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits**	
Lower:	Not determined.
Upper:	Not determined.
· **Oxidizing properties:**	Non-oxidizing.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17.3 mm Hg)
· **Density:**	
Relative density:	Not determined.
Vapor density:	Not determined.

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Trade name: Sulfuric Acid 0.12N

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Evaporation rate:	Not determined.
· **Solubility in / Miscibility with Water:**	Soluble.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Other information**	No relevant information available.

10 Stability and reactivity

· **Reactivity:** No relevant information available.
· **Chemical stability:**
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
· **Possibility of hazardous reactions**
Toxic fumes may be released if heated above the decomposition point.
Reacts with certain metals.
Reacts with alkali (lyes).
· **Conditions to avoid** Store away from oxidizing agents.
· **Incompatible materials** Alkalis.
· **Hazardous decomposition products** Sulfur oxides (SOx)

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:** Based on available data, the classification criteria are not met.
· **LD/LC50 values that are relevant for classification:** None.
· **Primary irritant effect:**
· **On the skin:** Based on available data, the classification criteria are not met.
· **On the eye:** Based on available data, the classification criteria are not met.
· **Sensitization:** No sensitizing effects known.

· **IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

· **NTP (National Toxicology Program):**

7664-93-9	Sulfuric acid	K

· **OSHA-Ca (Occupational Safety & Health Administration):**

None of the ingredients are listed.

· **Probable route(s) of exposure:**
Ingestion.
Inhalation.
Eye contact.
Skin contact.

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· **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.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity** No relevant information available.
· **Persistence and degradability** No relevant information available.
· **Bioaccumulative potential:** No relevant information available.
· **Mobility in soil:** No relevant information available.
· **Additional ecological information**
· **General notes:**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
· **Other adverse effects** No relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Small amounts may be diluted with plenty of water and washed away. Dispose of bigger amounts in accordance with Local Authority requirements.
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.

· **Uncleaned packagings**
· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **UN-Number**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	Not regulated.
· **UN proper shipping name**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	Not regulated.
· **Transport hazard class(es)**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	
· **Class**	Not regulated.
· **Packing group**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	Not regulated.

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Trade name: Sulfuric Acid 0.12N

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· **Environmental hazards**	
· **Marine pollutant:**	No
· **Special precautions for user**	Not applicable.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.

15 Regulatory information

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

· **United States (USA)**

· **SARA**

· **Section 302 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 355 (extremely hazardous substances):**

7664-93-9	Sulfuric acid

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients are listed.

· **TSCA (Toxic Substances Control Act)**

7664-93-9	Sulfuric acid
7732-18-5	Water

· **Proposition 65 (California)**

· **Chemicals known to cause cancer:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for females:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for males:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

· **EPA (Environmental Protection Agency):**

None of the ingredients are listed.

· **IARC (International Agency for Research on Cancer):**

7664-93-9	Sulfuric acid	1

· **Canadian Domestic Substances List (DSL):**

None of the ingredients are listed.

16 Other information

(Cont'd. on page 8)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: October 16, 2019

Trade name: Sulfuric Acid 0.12N

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This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Abbreviations and acronyms:**
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
OSHA: Occupational Safety & Health Administration
Met. Corr.1: Corrosive to metals – Category 1
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Eye Dam. 1: Serious eye damage/eye irritation – Category 1

· **Sources**
Website, European Chemicals Agency (echa.europa.eu)
Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)
Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)
Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6
Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.
Safety Data Sheets, Individual Manufacturers

SDS Prepared by:
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Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: January 27, 2021

1 Identification

· **Product identifier**

· **Trade name: Hardness Titrant, High**
· **Product code:** ED2007-B

· **Recommended use and restriction on use**
· **Recommended use:** Laboratory chemicals
· **Restrictions on use:** No relevant information available.

· **Details of the supplier of the Safety Data Sheet**
· **Manufacturer/Supplier:**
AquaPhoenix Scientific, Inc.
860 Gitts Run Road
Hanover, PA 17331 USA
Tel +1 (717)632-1291
Toll-Free: (866)632-1291
info@aquaphoenixsci.com
· **Distributor:**
AquaPhoenix Scientific
860 Gitts Run Road,
Hanover, PA 17331
(717) 632-1291

· **Emergency telephone number:**
ChemTel Inc.
(800)255-3924 (North America)
+1 (813)248-0585 (International)

2 Hazard(s) identification

· **Classification of the substance or mixture**
STOT RE 2 H373 May cause damage to the respiratory tract through prolonged or repeated exposure.
Route of exposure: Inhalation.

· **Label elements**
· **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms:**

GHS08

· **Signal word:** Warning
· **Hazard statements:**
H373 May cause damage to the respiratory tract through prolonged or repeated exposure. Route of exposure: Inhalation.
· **Precautionary statements:**
P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P314 Get medical advice/attention if you feel unwell.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Other hazards** There are no other hazards not otherwise classified that have been identified.

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3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Components:**

139-33-3	Disodium dihydrogenethylenediaminetetraacetate STOT RE 2, H373 Acute Tox. 4, H332	<6%
1310-73-2	Sodium hydroxide Met. Corr.1, H290; Skin Corr. 1A, H314; Eye Dam. 1, H318	<1%
7786-30-3	magnesium chloride	<1%
7732-18-5	Water	>90%

· **Additional information:**
For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.
For the wording of the listed Hazard Statements, refer to section 16.

4 First-aid measures

· **Description of first aid measures**
· **General information:**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
· **After inhalation:**
Supply fresh air.
If experiencing respiratory symptoms: Call a doctor.
· **After skin contact:**
Immediately rinse with water.
If skin irritation is experienced, consult a doctor.
· **After eye contact:**
Remove contact lenses if worn.
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; immediately call for medical help.
· **Most important symptoms and effects, both acute and delayed:**
Gastric or intestinal disorders when ingested.
· **Indication of any immediate medical attention and special treatment needed:**
If medical advice is needed, have product container or label at hand.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
The product is not flammable.
Use fire fighting measures that suit the environment.
· **For safety reasons unsuitable extinguishing agents:** No relevant information available.
· **Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.

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· **Advice for firefighters**
· **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
For large spills, wear protective clothing.
For large spills, use respiratory protective device against the effects of fumes/dust/aerosol.
Ensure adequate ventilation.
· **Environmental precautions** No special measures required.
· **Methods and material for containment and cleaning up**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Send for recovery or disposal in suitable receptacles.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

· **Handling**
· **Precautions for safe handling:**
Prevent formation of aerosols.
Avoid splashes or spray in enclosed areas.
Use only in well ventilated areas.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:**
Do not store together with oxidizing and acidic materials.
Store away from foodstuffs.
· **Further information about storage conditions:** Keep containers tightly sealed.
· **Specific end use(s)** No relevant information available.

8 Exposure controls/personal protection

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

1310-73-2 Sodium hydroxide	
PEL (USA)	Long-term value: 2 mg/m³
REL (USA)	Ceiling limit value: 2 mg/m³

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TLV (USA)	Ceiling limit value: 2 mg/m³
EL (Canada)	Ceiling limit value: 2 mg/m³
EV (Canada)	Ceiling limit value: 2 mg/m³
LMPE (Mexico)	Ceiling limit value: 2 mg/m³

· **Exposure controls**
· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Wash hands before breaks and at the end of work.
· **Engineering controls:** Provide adequate ventilation.
· **Breathing equipment:**
Not required under normal conditions of use.
Use suitable respiratory protective device when aerosol or mist is formed.
· **Protection of hands:**

Protective gloves

· **Material of gloves**
Butyl rubber, BR
Natural rubber, NR
Neoprene gloves
Nitrile rubber, NBR
Fluorocarbon rubber (Viton)
Sensibilization by the components in the glove materials is possible.
· **Eye protection:**

Safety glasses

Follow relevant national guidelines concerning the use of protective eyewear.
· **Body protection:** Protective work clothing
· **Limitation and supervision of exposure into the environment**
No relevant information available.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**
· **Appearance:**

Form:	Liquid
Color:	Colorless
· **Odor:**	Odorless
· **Odor threshold:**	Not determined.
· **pH-value at 20 °C (68 °F):**	8-10
· **Melting point/Melting range:**	Not determined.
· **Boiling point/Boiling range:**	100-105 °C (212-157 °F)

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· **Flash point:**	The product is not flammable.
· **Flammability (solid, gaseous):**	Not applicable.
· **Auto-ignition temperature:**	Not determined.
· **Decomposition temperature:**	Not determined.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits**	
Lower:	Not determined.
Upper:	Not determined.
· **Oxidizing properties:**	Not determined.
· **Vapor pressure:**	Not determined.
· **Density at 20 °C (68 °F):**	1.01-1.05 g/cm³ (8.43-8.76 lbs/gal)
· **Relative density:**	Not determined.
· **Vapor density:**	Not determined.
· **Evaporation rate:**	Not determined.
· **Solubility in / Miscibility with**	
Water:	Fully miscible.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Other information**	No relevant information available.

10 Stability and reactivity

· **Reactivity:** No relevant information available.
· **Chemical stability:** Stable under normal temperatures and pressures.
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
· **Possibility of hazardous reactions**
Contact with acids releases toxic gases.
Exothermic reaction with acids.
Reacts with strong oxidizing agents.
Toxic fumes may be released if heated above the decomposition point.
· **Conditions to avoid** No relevant information available.
· **Incompatible materials** No relevant information available.
· **Hazardous decomposition products**
Under fire conditions only:
Nitrogen oxides
Carbon monoxide and carbon dioxide
Chlorine compounds

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11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**		
ATE (Acute Toxicity Estimate)		
Inhalative	LC50/4h	>27.8 mg/l

· **Primary irritant effect:**
· **On the skin:** Based on available data, the classification criteria are not met.
· **On the eye:** Based on available data, the classification criteria are not met.
· **Sensitization:** Based on available data, the classification criteria are not met.

· **IARC (International Agency for Research on Cancer):**
None of the ingredients are listed.

· **NTP (National Toxicology Program):**
None of the ingredients are listed.

· **OSHA-Ca (Occupational Safety & Health Administration):**
None of the ingredients are listed.

· **Probable route(s) of exposure:**
Ingestion.
Inhalation.
Eye contact.
Skin contact.
· **Acute effects (acute toxicity, irritation and corrosivity):** No relevant information available.
· **Repeated dose toxicity:** Possible risk of irreversible effects.
· **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:**
May cause damage to the respiratory tract through prolonged or repeated exposure. Route of exposure: Inhalation.
· **Aspiration hazard:** Based on available data, the classification criteria are not met.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity** No relevant information available.
· **Persistence and degradability** No relevant information available.
· **Bioaccumulative potential:** No relevant information available.
· **Mobility in soil:** No relevant information available.
· **Additional ecological information**
· **General notes:** Do not allow product to reach ground water, water course or sewage system.
· **Other adverse effects** No relevant information available.

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13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings**
· **Recommendation:** Disposal must be made according to official regulations.
· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· **UN-Number**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	Not regulated.
· **UN proper shipping name**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	Not regulated.
· **Transport hazard class(es)**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	
· **Class**	Not regulated.
· **Packing group**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	Not regulated.
· **Environmental hazards**	Not applicable.
· **Special precautions for user**	Not applicable.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **United States (USA)**
· **SARA**

· **Section 302 (extremely hazardous substances):**
None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**
None of the ingredients are listed.

· **TSCA (Toxic Substances Control Act)**

139-33-3	Disodium dihydrogenethylenediaminetetraacetate

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7786-30-3	magnesium chloride
1310-73-2	Sodium hydroxide
7732-18-5	Water

· **Proposition 65 (California)**

· **Chemicals known to cause cancer:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for females:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for males:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

· **EPA (Environmental Protection Agency):**

None of the ingredients are listed.

· **IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

· **Canadian Domestic Substances List (DSL):**

None of the ingredients are listed.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Abbreviations and acronyms:**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
OSHA: Occupational Safety & Health Administration
Met. Corr.1: Corrosive to metals – Category 1
Acute Tox. 4: Acute toxicity – Category 4
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

· **Sources**

Website, European Chemicals Agency (echa.europa.eu)
Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)
Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)
Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6
Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.
Safety Data Sheets, Individual Manufacturers

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: January 23, 2020

1 Identification

· **Product identifier**

· **Trade name: Hardness Buffer Solution**
· **Product code:** 91889-00

· **Recommended use and restriction on use**
· **Recommended use:** Laboratory chemicals
· **Restrictions on use:** No relevant information available.

· **Details of the supplier of the Safety Data Sheet**
· **Manufacturer/Supplier:**
AquaPhoenix Scientific, Inc.
860 Gitts Run Road
Hanover, PA 17331
Phone: (717)632-1291
Toll-Free: (866)632-1291
info@aquaphoenixsci.com
· **Distributor:**
Betco
400 Vann Camp Road,
Bowling Green, OH 43042
(419) 725-3750

· **Emergency telephone number:**
ChemTel Inc.
(800)255-3924 (North America)
+1 (813)248-0585 (International)

2 Hazard(s) identification

· **Classification of the substance or mixture**

Met. Corr.1	H290	May be corrosive to metals.
Skin Corr. 1C	H314	Causes severe skin burns and eye damage.
Eye Dam. 1	H318	Causes serious eye damage.
STOT SE 3	H335-H336	May cause respiratory irritation. May cause drowsiness or dizziness.

· **Label elements**
· **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms:**

GHS05 GHS07

· **Signal word:** Danger
· **Hazard statements:**
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.
· **Precautionary statements:**
P234 Keep only in original container.

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P260	Do not breathe mist/vapors/spray.
P264	Wash thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection.
P301+P330+P331	If swallowed: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove person to fresh air and keep 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/doctor.
P363	Wash contaminated clothing before reuse.
P390	Absorb spillage to prevent material damage.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P406	Store in corrosive resistant container with a resistant inner liner.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Other hazards** There are no other hazards not otherwise classified that have been identified.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Components:**

7732-18-5	Water	>80%
1336-21-6	ammonia Met. Corr.1, H290; Skin Corr. 1B, H314; Eye Dam. 1, H318 STOT SE 3, H335	5-10%
12125-02-9	ammonium chloride Acute Tox. 4, H302; Eye Irrit. 2A, H319	1-5%
14402-88-1	Disodium [[N,N'-ethylenebis[N-(carboxymethyl)glycinato]](4-)-N,N',O,O',ON,ON'] magnesate(2-) Skin Irrit. 2, H315 Eye Irrit. 2B, H320	<1%
12135-76-1	ammonium sulphide Skin Corr. 1B, H314; Eye Dam. 1, H318	<1%

· **Additional information:**
For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.
For the wording of the listed Hazard Statements, refer to section 16.

4 First-aid measures

· **Description of first aid measures**

· **After inhalation:**
Supply fresh air.
Provide oxygen treatment if affected person has difficulty breathing.
Seek medical help for symptoms or if unconscious.

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· **After skin contact:**
Immediately remove any clothing soiled by the product.
Immediately rinse with water.
Seek immediate help for blistering or open wounds.
If skin irritation continues, consult a doctor.
· **After eye contact:**
Protect unharmed eye.
Remove contact lenses if worn.
Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; immediately call for medical help.
· **Most important symptoms and effects, both acute and delayed:**
Dizziness
Coughing
Strong irritant with the danger of severe eye injury.
Caustic effect on skin and mucous membranes.
May cause respiratory irritation.
Gastric or intestinal disorders when ingested.
Nausea in case of ingestion.
Breathing difficulty
· **Danger:**
Danger of impaired breathing.
Danger of gastric perforation.
May cause drowsiness or dizziness.
· **Indication of any immediate medical attention and special treatment needed:**
Later observation for pneumonia and pulmonary edema.
Medical supervision for at least 48 hours.
If necessary oxygen respiration treatment.
If medical advice is needed, have product container or label at hand.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
The product is not flammable.
Use fire fighting measures that suit the environment.
· **For safety reasons unsuitable extinguishing agents:** No relevant information available.
· **Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.
· **Advice for firefighters**
· **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.

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For large spills, use respiratory protective device against the effects of fumes/dust/aerosol.
Ensure adequate ventilation.

· **Environmental precautions**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

· **Methods and material for containment and cleaning up**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Send for recovery or disposal in suitable receptacles.

· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

· **Handling**
· **Precautions for safe handling:**
Prevent formation of aerosols.
Avoid splashes or spray in enclosed areas.
Use only in well ventilated areas.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Requirements to be met by storerooms and receptacles:**
Store only in the original receptacle.
Unsuitable material for receptacle: aluminium.
· **Information about storage in one common storage facility:**
Store away from foodstuffs.
Do not store together with acids.
Store away from oxidizing agents.
Store away from metals.
· **Further information about storage conditions:** Keep containers tightly sealed.
· **Specific end use(s)** No relevant information available.

8 Exposure controls/personal protection

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

12125-02-9 ammonium chloride	
REL (USA)	Short-term value: 20 mg/m³ Long-term value: 10 mg/m³
TLV (USA)	Short-term value: 20 mg/m³ Long-term value: 10 mg/m³
EL (Canada)	Short-term value: 20 mg/m³ Long-term value: 10 mg/m³

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	fume
EV (Canada)	Short-term value: 20 mg/m³ Long-term value: 10 mg/m³ fume
LMPE (Mexico)	Short-term value: 20 mg/m³ Long-term value: 10 mg/m³

· **Exposure controls**

· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Do not inhale gases / fumes / aerosols.
Avoid contact with the eyes and skin.

· **Engineering controls:** Provide adequate ventilation.

· **Breathing equipment:** Use suitable respiratory protective device when high concentrations are present.

· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

· **Material of gloves**
Nitrile rubber, NBR
Natural rubber, NR

· **Eye protection:**

Safety glasses

Follow relevant national guidelines concerning the use of protective eyewear.

· **Body protection:** Protective work clothing

· **Limitation and supervision of exposure into the environment**
No relevant information available.

· **Risk management measures** No relevant information available.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **Appearance:**

Form:	Liquid
Color:	Colorless
· **Odor:**	Ammonia-like
· **Odor threshold:**	Not determined.
· **pH-value:**	Alkaline
· **Melting point/Melting range:**	<0 °C (<32 °F)

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· **Boiling point/Boiling range:**	>100 °C (>212 °F)
· **Flash point:**	The product is not flammable.
· **Flammability (solid, gaseous):**	Not applicable.
· **Auto-ignition temperature:**	Not determined.
· **Decomposition temperature:**	Not determined.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits**	
Lower:	Not determined.
Upper:	Not determined.
· **Oxidizing properties:**	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17.3 mm Hg)
· **Density:**	
Relative density:	Not determined.
Vapor density:	Not determined.
Evaporation rate:	Not determined.
· **Solubility in / Miscibility with**	
Water:	Easily soluble.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Other information**	No relevant information available.

10 Stability and reactivity

· **Reactivity:** No relevant information available.
· **Chemical stability:** Stable under normal temperatures and pressures.
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
· **Possibility of hazardous reactions**
Corrodes aluminium.
Strong exothermic reaction with acids.
Reacts with strong oxidizing agents.
Toxic fumes may be released if heated above the decomposition point.
· **Conditions to avoid** No relevant information available.
· **Incompatible materials** No relevant information available.
· **Hazardous decomposition products**
Under fire conditions only:
Chlorine compounds
Nitrogen oxides (NOx)

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Trade name: Hardness Buffer Solution

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11 Toxicological information

· **Information on toxicological effects**

· **Acute toxicity:** Based on available data, the classification criteria are not met.

· **LD/LC50 values that are relevant for classification:**		
12125-02-9 ammonium chloride		
Oral	LD50	1650 mg/kg (rat)

· **Primary irritant effect:**

· **On the skin:** Caustic effect on skin and mucous membranes.

· **On the eye:** Strong irritant with the danger of severe eye injury.

· **Sensitization:** Based on available data, the classification criteria are not met.

· **IARC (International Agency for Research on Cancer):**
None of the ingredients are listed.

· **NTP (National Toxicology Program):**
None of the ingredients are listed.

· **OSHA-Ca (Occupational Safety & Health Administration):**
None of the ingredients are listed.

· **Probable route(s) of exposure:**
Ingestion.
Inhalation.
Eye contact.
Skin contact.

· **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:**
May cause respiratory irritation.
May cause drowsiness or dizziness.

· **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.

12 Ecological information

· **Toxicity**

· **Aquatic toxicity** No relevant information available.

· **Persistence and degradability** No relevant information available.

· **Bioaccumulative potential:** No relevant information available.

· **Mobility in soil:** No relevant information available.

· **Additional ecological information**

· **General notes:**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Rinse off of bigger amounts into drains or the aquatic environment may lead to increased pH-values. A high pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably reduced, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

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Safety Data Sheet

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Revision: January 23, 2020

Trade name: Hardness Buffer Solution

(Cont'd. of page 7)

· **Other adverse effects** No relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.

· **Uncleaned packagings**
· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **UN-Number**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	UN2672
· **UN proper shipping name**	
· **DOT, IATA**	Ammonia solution
· **ADR/RID/ADN, IMDG**	AMMONIA SOLUTION
· **Transport hazard class(es)**	
· **DOT**	

· **Class**	8
· **Label**	8
· **ADR/RID/ADN**	

· **Class**	8 (C5)
· **Label**	8
· **IMDG, IATA**	

· **Class**	8
· **Label**	8
· **Packing group**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	III

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Trade name: Hardness Buffer Solution

(Cont'd. of page 8)

· **Environmental hazards**	
· **Marine pollutant:**	No
· **Special precautions for user**	Warning: Corrosive substances
· **Hazard identification number (Kemler code):**	80
· **EMS Number:**	F-A,S-B
· **Segregation groups**	Alkalis
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.

15 Regulatory information

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

· **United States (USA)**

· **SARA**

· **Section 302 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**

1336-21-6	ammonia

· **TSCA (Toxic Substances Control Act)**

All ingredients are listed or exempt.

· **Proposition 65 (California)**

· **Chemicals known to cause cancer:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for females:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for males:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

· **EPA (Environmental Protection Agency):**

None of the ingredients are listed.

· **IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

· **Canadian Domestic Substances List (DSL):**

All ingredients listed on DSL or NDSL.

(Cont'd. on page 10)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: January 23, 2020

Trade name: Hardness Buffer Solution

(Cont'd. of page 9)

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Abbreviations and acronyms:**
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
OSHA: Occupational Safety & Health Administration
Met. Corr.1: Corrosive to metals – Category 1
Acute Tox. 4: Acute toxicity – Category 4
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Skin Corr. 1C: Skin corrosion/irritation – Category 1C
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
Eye Irrit. 2B: Serious eye damage/eye irritation – Category 2B
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

· **Sources**
Website, European Chemicals Agency (echa.europa.eu)
Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)
Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)
Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6
Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.
Safety Data Sheets, Individual Manufacturers

SDS Prepared by:
ChemTel Inc.
1305 North Florida Avenue
Tampa, Florida USA 33602-2902
Toll Free North America 1-888-255-3924 Intl. +01 813-248-0573
Website: www.chemtelinc.com

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: January 31, 2020

1 Identification

· **Product identifier**

· **Trade name: Hardness Indicator Liquid**
· **Product code:** 91890-00

· **Recommended use and restriction on use**
· **Recommended use:** Laboratory chemicals
· **Restrictions on use:** No relevant information available.

· **Details of the supplier of the Safety Data Sheet**
· **Manufacturer/Supplier:**
AquaPhoenix Scientific, Inc.
860 Gitts Run Road
Hanover, PA 17331
Phone: (717)632-1291
Toll-Free: (866)632-1291
info@aquaphoenixsci.com
· **Distributor:**
Betco
400 Vann Camp Road,
Bowling Green, OH 43042
(419) 725-3750

· **Emergency telephone number:**
ChemTel Inc.
(800)255-3924 (North America)
+1 (813)248-0585 (International)

2 Hazard(s) identification

· **Classification of the substance or mixture**
The product is not classified as hazardous according to the Globally Harmonized System (GHS).

· **Label elements**
· **GHS label elements** Not regulated.
· **Hazard pictograms:** Not regulated.
· **Signal word:** None
· **Hazard statements:** None.
· **Precautionary statements:** None.

· **Other hazards** There are no other hazards not otherwise classified that have been identified.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Components:**		
7732-18-5	Water	>90%
3147-14-6	3-hydroxy-4-(6-hydroxy-m-tolylazo)naphthalene-1-sulphonic acid	<10%

· **Additional information:**
For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.
For the wording of the listed Hazard Statements, refer to section 16.

(Cont'd. on page 2)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

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Trade name: Hardness Indicator Liquid

(Cont'd. of page 1)

4 First-aid measures

· **Description of first aid measures**
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:**
Immediately rinse with water.
If skin irritation is experienced, consult a doctor.
· **After eye contact:**
Remove contact lenses if worn.
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; immediately call for medical help.
· **Most important symptoms and effects, both acute and delayed:**
Gastric or intestinal disorders when ingested.
· **Indication of any immediate medical attention and special treatment needed:**
No relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
The product is not flammable.
Use fire fighting measures that suit the environment.
· **For safety reasons unsuitable extinguishing agents:** No relevant information available.
· **Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
· **Advice for firefighters**
· **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Ensure adequate ventilation.
For large spills, wear protective clothing.
· **Environmental precautions**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
· **Methods and material for containment and cleaning up**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose of the collected material according to regulations.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

(Cont'd. on page 3)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: January 31, 2020

Trade name: Hardness Indicator Liquid

(Cont'd. of page 2)

7 Handling and storage

· **Handling**
· **Precautions for safe handling:**
Avoid splashes or spray in enclosed areas.
Use only in well ventilated areas.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Requirements to be met by storerooms and receptacles:**
Store in cool, dry conditions in well sealed receptacles.
· **Information about storage in one common storage facility:** Store away from oxidizing agents.
· **Further information about storage conditions:** Store in cool, dry conditions in well sealed receptacles.
· **Specific end use(s)** No relevant information available.

8 Exposure controls/personal protection

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **Exposure controls**
· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
· **Engineering controls:** Provide adequate ventilation.
· **Breathing equipment:** Not required under normal conditions of use.
· **Protection of hands:**
Gloves not required under normal conditions of use.
Gloves are advised for repeated or prolonged contact.
Wear protective gloves to handle contents of damaged or leaking units.
· **Eye protection:** Follow relevant national guidelines concerning the use of protective eyewear.
· **Body protection:** Protective work clothing
· **Limitation and supervision of exposure into the environment** No special requirements.
· **Risk management measures** No special requirements.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**
· **Appearance:**

Form:	Liquid
Color:	Light purple.
· **Odor:**	Not determined.
· **Odor threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Melting point/Melting range:**	0 °C (32 °F)

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Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: January 31, 2020

Trade name: Hardness Indicator Liquid

(Cont'd. of page 3)

· **Boiling point/Boiling range:**	100 °C (212 °F)
· **Flash point:**	The product is not flammable.
· **Flammability (solid, gaseous):**	Not applicable.
· **Auto-ignition temperature:**	Not determined.
· **Decomposition temperature:**	Not determined.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits**	
Lower:	Not determined.
Upper:	Not determined.
· **Oxidizing properties:**	Not determined.
· **Vapor pressure:**	Not determined.
· **Density:**	
Relative density:	Not determined.
Vapor density:	Not determined.
Evaporation rate:	Not determined.
· **Solubility in / Miscibility with**	
Water:	Soluble.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Other information**	No relevant information available.

10 Stability and reactivity

· **Reactivity:** No relevant information available.
· **Chemical stability:** Stable under normal temperatures and pressures.
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
· **Possibility of hazardous reactions**
Reacts with strong alkali.
Reacts with strong oxidizing agents.
· **Conditions to avoid** No relevant information available.
· **Incompatible materials** No relevant information available.
· **Hazardous decomposition products**
Under fire conditions only:
Possible in traces.

11 Toxicological information

· **Information on toxicological effects**

(Cont'd. on page 5)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: January 31, 2020

Trade name: Hardness Indicator Liquid

(Cont'd. of page 4)

· **Acute toxicity:**
· **LD/LC50 values that are relevant for classification:** None.
· **Primary irritant effect:**
· **On the skin:** Based on available data, the classification criteria are not met.
· **On the eye:** Based on available data, the classification criteria are not met.
· **Sensitization:** Based on available data, the classification criteria are not met.

· **IARC (International Agency for Research on Cancer):**
None of the ingredients are listed.

· **NTP (National Toxicology Program):**
None of the ingredients are listed.

· **OSHA-Ca (Occupational Safety & Health Administration):**
None of the ingredients are listed.

· **Probable route(s) of exposure:**
Ingestion.
Inhalation.
Eye contact.
Skin contact.
· **Acute effects (acute toxicity, irritation and corrosivity):** No relevant information available.
· **Repeated dose toxicity:** No relevant information available.
· **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.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity** No relevant information available.
· **Persistence and degradability** No relevant information available.
· **Bioaccumulative potential:** No relevant information available.
· **Mobility in soil:** No relevant information available.
· **Additional ecological information**
· **General notes:** Generally not hazardous for water.
· **Other adverse effects** No relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.

· **Uncleaned packagings**

(Cont'd. on page 6)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: January 31, 2020

Trade name: Hardness Indicator Liquid

(Cont'd. of page 5)

· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **UN-Number**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	Not regulated.
· **UN proper shipping name**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	Not regulated.
· **Transport hazard class(es)**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	
· **Class**	Not regulated.
· **Packing group**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	Not regulated.
· **Environmental hazards**	Not applicable.
· **Special precautions for user**	Not applicable.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.

15 Regulatory information

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

· **United States (USA)**

· **SARA**

· **Section 302 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients are listed.

· **TSCA (Toxic Substances Control Act)**

3147-14-6	3-hydroxy-4-(6-hydroxy-m-tolylazo)naphthalene-1-sulphonic acid
7732-18-5	Water

· **Proposition 65 (California)**

· **Chemicals known to cause cancer:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for females:**

None of the ingredients are listed.

(Cont'd. on page 7)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: January 31, 2020

Trade name: Hardness Indicator Liquid

(Cont'd. of page 6)

· **Chemicals known to cause developmental toxicity for males:**
None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients are listed.

· **EPA (Environmental Protection Agency):**
None of the ingredients are listed.

· **IARC (International Agency for Research on Cancer):**
None of the ingredients are listed.

· **Canadian Domestic Substances List (DSL):**
None of the ingredients are listed.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Abbreviations and acronyms:**
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
OSHA: Occupational Safety & Health Administration

· **Sources**
Website, European Chemicals Agency (echa.europa.eu)
Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)
Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)
Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6
Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.
Safety Data Sheets, Individual Manufacturers

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Website: www.chemtelinc.com

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: February 21, 2020

1 Identification

· **Product identifier**

· **Trade name: Ortho-Tolidine Reagent**
· **Product code:** 91891-00

· **Recommended use and restriction on use**
· **Recommended use:** Laboratory chemicals
· **Restrictions on use:** No relevant information available.

· **Details of the supplier of the Safety Data Sheet**
· **Manufacturer/Supplier:**
AquaPhoenix Scientific, Inc.
860 Gitts Run Road
Hanover, PA 17331
Phone: (717)632-1291
Toll-Free: (866)632-1291
info@aquaphoenixsci.com
· **Distributor:**
Betco
400 Vann Camp Road,
Bowling Green, OH 43042
(419) 725-3750

· **Emergency telephone number:**
ChemTel Inc.
(800)255-3924 (North America)
+1 (813)248-0585 (International)

2 Hazard(s) identification

· **Classification of the substance or mixture**

Met. Corr.1	H290	May be corrosive to metals.
Skin Irrit. 2	H315	Causes skin irritation.
Eye Dam. 1	H318	Causes serious eye damage.
Carc. 1B	H350	May cause cancer.

· **Label elements**
· **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms:**

GHS05 GHS08

· **Signal word:** Danger
· **Hazard statements:**
H290 May be corrosive to metals.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H350 May cause cancer.
· **Precautionary statements:**

(Cont'd. on page 2)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: February 21, 2020

Trade name: Ortho-Tolidine Reagent

(Cont'd. of page 1)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P234	Keep only in original container.
P264	Wash thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye 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.
P310	Immediately call a poison center/doctor.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P390	Absorb spillage to prevent material damage.
P405	Store locked up.
P406	Store in corrosive resistant container with a resistant inner liner.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Other hazards** There are no other hazards not otherwise classified that have been identified.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Components:**

7647-01-0	hydrochloric acid Met. Corr.1, H290; Skin Corr. 1B, H314; Eye Dam. 1, H318 Acute Tox. 4, H302; STOT SE 3, H335	14.125%
612-82-8	salts of 4,4'-bi-o-toluidine Carc. 1B, H350 Acute Tox. 4, H302	0.126%
7732-18-5	Water	84.749%

· **Additional information:**
For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.
For the wording of the listed Hazard Statements, refer to section 16.

4 First-aid measures

· **Description of first aid measures**
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:** If skin irritation continues, consult a doctor.
· **After eye contact:**
Protect unharmed eye.
Remove contact lenses if worn.
Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; immediately call for medical help.
· **Most important symptoms and effects, both acute and delayed:**

(Cont'd. on page 3)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: February 21, 2020

Trade name: Ortho-Tolidine Reagent

(Cont'd. of page 2)

Irritant to skin and mucous membranes.
Strong irritant with the danger of severe eye injury.
Causes skin irritation.
Gastric or intestinal disorders when ingested.

· **Danger:**
Causes serious eye damage.
May cause cancer.

· **Indication of any immediate medical attention and special treatment needed:**
Medical supervision for at least 48 hours.
If medical advice is needed, have product container or label at hand.

5 Fire-fighting measures

· **Extinguishing media**

· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.

· **For safety reasons unsuitable extinguishing agents:** No relevant information available.

· **Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.

· **Advice for firefighters**

· **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation.
For large spills, use respiratory protective device against the effects of fumes/dust/aerosol.

· **Environmental precautions**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

· **Methods and material for containment and cleaning up**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Send for recovery or disposal in suitable receptacles.

· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

· **Handling**

· **Precautions for safe handling:**
Prevent formation of aerosols.
Avoid splashes or spray in enclosed areas.
Use only in well ventilated areas.

(Cont'd. on page 4)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: February 21, 2020

Trade name: Ortho-Tolidine Reagent

(Cont'd. of page 3)

· **Information about protection against explosions and fires:**
Keep respiratory protective device available.

· **Conditions for safe storage, including any incompatibilities**
· **Requirements to be met by storerooms and receptacles:**
Store only in the original receptacle.
Unsuitable material for receptacle: steel.
Unsuitable material for receptacle: aluminium.
· **Information about storage in one common storage facility:**
Store away from foodstuffs.
Store away from metals.
Do not store together with alkalis (caustic solutions).
· **Further information about storage conditions:**
Keep containers tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
· **Specific end use(s)** No relevant information available.

8 Exposure controls/personal protection

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

7647-01-0 hydrochloric acid	
PEL (USA)	Ceiling limit value: 7 mg/m³, 5 ppm
REL (USA)	Ceiling limit value: 7 mg/m³, 5 ppm
TLV (USA)	Ceiling limit value: 2.98 mg/m³, 2 ppm
EL (Canada)	Ceiling limit value: 2 ppm
EV (Canada)	Ceiling limit value: 2 ppm
LMPE (Mexico)	Ceiling limit value: 2 ppm A4

· **Exposure controls**
· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes and skin.
· **Engineering controls:** Provide adequate ventilation.
· **Breathing equipment:** Use suitable respiratory protective device when high concentrations are present.
· **Protection of hands:**

Protective gloves

· **Material of gloves**
Nitrile rubber, NBR

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Neoprene gloves

· **Eye protection:**

Contact lenses should not be worn.

Safety glasses

Follow relevant national guidelines concerning the use of protective eyewear.

· **Body protection:** Acid resistant protective clothing.

· **Limitation and supervision of exposure into the environment**

No relevant information available.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **Appearance:**	
Form:	Liquid
Color:	According to product specification
· **Odor:**	Acrid
· **Odor threshold:**	Not determined.
· **pH-value at 20 °C (68 °F):**	<2
· **Melting point/Melting range:**	Not determined.
· **Boiling point/Boiling range:**	100 °C (212 °F)
· **Flash point:**	The product is not flammable.
· **Flammability (solid, gaseous):**	Not applicable.
· **Auto-ignition temperature:**	Not determined.
· **Decomposition temperature:**	Not determined.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits**	
Lower:	Not determined.
Upper:	Not determined.
· **Oxidizing properties:**	Non-oxidizing.
· **Vapor pressure:**	Not determined.
· **Density at 20 °C (68 °F):**	0.98-1.04 g/cm³ (8.18-8.68 lbs/gal)
· **Relative density:**	Not determined.
· **Vapor density:**	Not determined.
· **Evaporation rate:**	Not determined.
· **Solubility in / Miscibility with**	
Water:	Fully miscible.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity**	
Dynamic:	Not determined.

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Trade name: Ortho-Tolidine Reagent

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Kinematic:	Not determined.
· **Other information**	No relevant information available.

10 Stability and reactivity

· **Reactivity:** No relevant information available.
· **Chemical stability:** Stable under normal temperatures and pressures.
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
· **Possibility of hazardous reactions**
Reacts with alkali (lyes).
Corrosive action on metals.
Toxic fumes may be released if heated above the decomposition point.
· **Conditions to avoid** No relevant information available.
· **Incompatible materials**
Metals.
Alkalis.
· **Hazardous decomposition products**
Under fire conditions only:
Chlorine compounds

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:** Based on available data, the classification criteria are not met.

· **LD/LC50 values that are relevant for classification:**		
ATE (Acute Toxicity Estimate)		
Oral	LD50	>15929 mg/kg (rabbit)

· **Primary irritant effect:**
· **On the skin:** Irritant to skin and mucous membranes.
· **On the eye:** Strong irritant with the danger of severe eye injury.
· **Sensitization:** Based on available data, the classification criteria are not met.

· **IARC (International Agency for Research on Cancer):**		
7647-01-0	hydrochloric acid	3

· **NTP (National Toxicology Program):**		
612-82-8	salts of 4,4'-bi-o-toluidine	R

· **OSHA-Ca (Occupational Safety & Health Administration):**
None of the ingredients are listed.

· **Probable route(s) of exposure:**
Ingestion.
Inhalation.
Eye contact.
Skin contact.
· **Acute effects (acute toxicity, irritation and corrosivity):**

(Cont'd. on page 7)

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Irritating to skin.
Causes serious eye damage.
· **Repeated dose toxicity:** Danger of very serious irreversible effects.
· **Germ cell mutagenicity:** Based on available data, the classification criteria are not met.
· **Carcinogenicity:** May cause cancer.
· **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.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity** No relevant information available.
· **Persistence and degradability** No relevant information available.
· **Bioaccumulative potential:** No relevant information available.
· **Mobility in soil:** No relevant information available.
· **Additional ecological information**
· **General notes:**
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
· **Other adverse effects** No relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes. Residual materials should be treated as hazardous.

· **Uncleaned packagings**
· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **UN-Number**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	UN1789
· **UN proper shipping name**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	HYDROCHLORIC ACID SOLUTION
· **Transport hazard class(es)**	

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· **DOT**

· **Class**	8
· **Label**	8

· **ADR/RID/ADN**

· **Class**	8 (C1)
· **Label**	8

· **IMDG, IATA**

· **Class**	8
· **Label**	8

· **Packing group**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	III
· **Environmental hazards**	Not applicable.
· **Special precautions for user**	Warning: Corrosive substances
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.

15 Regulatory information

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

· **United States (USA)**

· **SARA**

· **Section 302 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**

7647-01-0	hydrochloric acid

· **TSCA (Toxic Substances Control Act)**

All ingredients are listed or exempt.

· **Proposition 65 (California)**

· **Chemicals known to cause cancer:**

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Trade name: Ortho-Tolidine Reagent

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612-82-8	salts of 4,4'-bi-o-toluidine

· **Chemicals known to cause developmental toxicity for females:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for males:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

· **EPA (Environmental Protection Agency):**

None of the ingredients are listed.

· **IARC (International Agency for Research on Cancer):**

7647-01-0	hydrochloric acid	3

· **Canadian Domestic Substances List (DSL):**

None of the ingredients are listed.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Abbreviations and acronyms:**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
OSHA: Occupational Safety & Health Administration
Met. Corr.1: Corrosive to metals – Category 1
Acute Tox. 4: Acute toxicity – Category 4
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Carc. 1B: Carcinogenicity – Category 1B
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

· **Sources**

Website, European Chemicals Agency (echa.europa.eu)
Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)
Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)
Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6
Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.
Safety Data Sheets, Individual Manufacturers

SDS Prepared by:
ChemTel Inc.
1305 North Florida Avenue
Tampa, Florida USA 33602-2902
Toll Free North America 1-888-255-3924 Intl. +01 813-248-0573
Website: www.chemtelinc.com

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

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1 Identification

· **Product identifier**

· **Trade name: Sour Tester**
· **Product code:** 91894-00

· **Recommended use and restriction on use**
· **Recommended use:** Laboratory chemicals
· **Restrictions on use:**
No relevant information available.
Contact manufacturer/supplier

· **Details of the supplier of the Safety Data Sheet**
· **Manufacturer/Supplier:**
AquaPhoenix Scientific, Inc.
860 Gitts Run Road
Hanover, PA 17331
Phone: (717)632-1291
Toll-Free: (866)632-1291
info@aquaphoenixsci.com
· **Distributor:**
Betco
400 Vann Camp Road,
Bowling Green, OH 43042
(419) 725-3750

· **Emergency telephone number:**
ChemTel Inc.
(800)255-3924 (North America)
+1 (813)248-0585 (International)

2 Hazard(s) identification

· **Classification of the substance or mixture**
Flam. Liq. 2 H225 Highly flammable liquid and vapor.
Eye Irrit. 2A H319 Causes serious eye irritation.
STOT SE 3 H336 May cause drowsiness or dizziness.

· **Label elements**
· **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms:**

GHS02 GHS07

· **Signal word:** Danger
· **Hazard statements:**
H225 Highly flammable liquid and vapor.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
· **Precautionary statements:**

(Cont'd. on page 2)

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Trade name: Sour Tester

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P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
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/vapors/spray
P264	Wash thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove person to fresh air and keep 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.
P312	Call a poison center/doctor if you feel unwell.
P337+P313	If eye irritation persists: Get medical advice/attention.
P370+P378	In case of fire: Use for extinction: CO_2, powder or water spray.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Other hazards** There are no other hazards not otherwise classified that have been identified.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Components:**

34722-90-2	Sodium α-(3-bromo-5-isopropyl-4-oxo-2-methyl-2,5-cyclohexadienylidene)-2-(3-bromo-4-hydroxy-5-isopropyl-2-methylphenyl)toluenesulphonate	0.08%
845-10-3	sodium 2-(p-(dimethylamino)phenylazo)benzoate	0.04%
66-71-7	1,10-phenanthroline Acute Tox. 3, H301	0.08%
67-63-0	Propan-2-ol Flam. Liq. 2, H225 Eye Irrit. 2A, H319; STOT SE 3, H336	39.30%
7732-18-5	Water	60.50%

· **Additional information:**
For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.
For the wording of the listed Hazard Statements, refer to section 16.

4 First-aid measures

· **Description of first aid measures**
· **General information:** Immediately remove any clothing soiled by the product.
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:**

(Cont'd. on page 3)

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If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
If skin irritation is experienced, consult a doctor.

· **After eye contact:**
Remove contact lenses if worn.
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

· **After swallowing:**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; immediately call for medical help.

· **Most important symptoms and effects, both acute and delayed:**
Dizziness
Coughing
Causes eye irritation.
Vision disorders.
Breathing difficulty
Gastric or intestinal disorders when ingested.
Nausea in case of ingestion.
Acidosis
Blindness
Disorientation
Unconsciousness

· **Danger:**
May cause drowsiness or dizziness.
Danger of impaired breathing.
Causes mild skin irritation.

· **Indication of any immediate medical attention and special treatment needed:**
If necessary oxygen respiration treatment.
Medical supervision for at least 48 hours.
If medical advice is needed, have product container or label at hand.

5 Fire-fighting measures

· **Extinguishing media**

· **Suitable extinguishing agents:**
Alcohol resistant foam
Carbon dioxide
Gaseous extinguishing agents
Water fog / haze
Water spray
Fire-extinguishing powder

· **For safety reasons unsuitable extinguishing agents:** Water stream.

· **Special hazards arising from the substance or mixture**
Highly flammable liquid and vapor.
Formation of toxic gases is possible during heating or in case of fire.

· **Advice for firefighters**

· **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.

· **Additional information:**
Eliminate all ignition sources if safe to do so.
Use large quantities of foam as it is partially destroyed by the product.

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Cool endangered receptacles with water in flooding quantities.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation.
Keep away from ignition sources.
Protect from heat.
For large spills, use respiratory protective device against the effects of fumes/dust/aerosol.

· **Environmental precautions**
Do not allow to enter sewers/ surface or ground water.
Inform respective authorities in case of seepage into water course or sewage system.

· **Methods and material for containment and cleaning up**
Absorb with non-combustible liquid-binding material (sand, diatomite, acid binders, universal binders).
Send for recovery or disposal in suitable receptacles.

· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

· **Handling**

· **Precautions for safe handling:**
Prevent formation of aerosols.
Avoid splashes or spray in enclosed areas.
Use only in well ventilated areas.

· **Information about protection against explosions and fires:**
Highly flammable liquid and vapor.
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Flammable gas-air mixtures may be formed in empty containers/receptacles.

· **Conditions for safe storage, including any incompatibilities**

· **Requirements to be met by storerooms and receptacles:**
Store in a cool location.
Avoid storage near extreme heat, ignition sources or open flame.

· **Information about storage in one common storage facility:**
Store away from foodstuffs.
Store away from oxidizing agents.

· **Further information about storage conditions:**
Keep containers tightly sealed.
Store in cool, dry conditions in well sealed receptacles.

· **Specific end use(s)** No relevant information available.

8 Exposure controls/personal protection

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· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

67-63-0 Propan-2-ol	
PEL (USA)	Long-term value: 980 mg/m³, 400 ppm
REL (USA)	Short-term value: 1225 mg/m³, 500 ppm Long-term value: 980 mg/m³, 400 ppm
TLV (USA)	Short-term value: 984 mg/m³, 400 ppm Long-term value: 492 mg/m³, 200 ppm BEI
EL (Canada)	Short-term value: 400 ppm Long-term value: 200 ppm
EV (Canada)	Short-term value: 400 ppm Long-term value: 200 ppm
LMPE (Mexico)	Short-term value: 400 ppm Long-term value: 200 ppm A4, IBE

· **Ingredients with biological limit values:**

67-63-0 Propan-2-ol	
BEI (USA)	40 mg/L Medium: urine Time: end of shift at end of workweek Parameter: Acetone (background, nonspecific)

· **Exposure controls**

· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.

· **Engineering controls:** Provide adequate ventilation.

· **Breathing equipment:** Suitable respiratory protective device recommended.

· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

· **Material of gloves**
Laminated film gloves.
Natural rubber, NR
Neoprene gloves
Butyl rubber, BR
Sensibilization by the components in the glove materials is possible.

· **Not suitable are gloves made of the following materials:**
PVA gloves
PVC gloves

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· **Eye protection:**

Safety glasses

Follow relevant national guidelines concerning the use of protective eyewear.

· **Body protection:** Protective work clothing

· **Limitation and supervision of exposure into the environment**

No relevant information available.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **Appearance:**	
Form:	Liquid
Color:	Not determined.
· **Odor:**	Alcohol-like
· **Odor threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Melting point/Melting range:**	Not determined.
· **Boiling point/Boiling range:**	82 °C (179.6 °F)
· **Flash point:**	13 °C (55.4 °F)
· **Flammability (solid, gaseous):**	Not applicable.
· **Auto-ignition temperature:**	425 °C (797 °F)
· **Decomposition temperature:**	Not determined.
· **Danger of explosion:**	Product is not explosive. However, formation of explosive air/ vapor mixtures are possible.
· **Explosion limits**	
Lower:	2 Vol %
Upper:	12 Vol %
· **Oxidizing properties:**	Non-oxidizing.
· **Vapor pressure at 20 °C (68 °F):**	43 hPa (32.3 mm Hg)
· **Density:**	
Relative density:	Not determined.
Vapor density:	Not determined.
Evaporation rate:	Not determined.
· **Solubility in / Miscibility with**	
Water:	Fully miscible.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity**	
Dynamic:	Not determined.
Kinematic:	Not determined.

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(Cont'd. of page 6)

· **Other information** No relevant information available.

10 Stability and reactivity

· **Reactivity:** No relevant information available.
· **Chemical stability:** Stable under normal temperatures and pressures.
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
· **Possibility of hazardous reactions**
Highly flammable liquid and vapor.
Reacts violently with oxidizing agents.
Reacts with strong acids.
Used empty containers may contain product gases which form explosive mixtures with air.
Can form explosive mixtures in air if heated above flash point and/or when sprayed or atomized.
Toxic fumes may be released if heated above the decomposition point.
· **Conditions to avoid**
Keep ignition sources away - Do not smoke.
Store away from oxidizing agents.
· **Incompatible materials** No relevant information available.
· **Hazardous decomposition products**
Under fire conditions only:
Carbon monoxide and carbon dioxide

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:** Based on available data, the classification criteria are not met.

· **LD/LC50 values that are relevant for classification:**		
ATE (Acute Toxicity Estimate)		
Inhalative	LC50/4h	76.3 mg/l (rat)

· **Primary irritant effect:**
· **On the skin:** May cause minor skin irritation, mainly with prolonged contact.
· **On the eye:** Irritating effect.
· **Sensitization:** Based on available data, the classification criteria are not met.

· **IARC (International Agency for Research on Cancer):**		
67-63-0	Propan-2-ol	3

· **NTP (National Toxicology Program):**
None of the ingredients are listed.

· **OSHA-Ca (Occupational Safety & Health Administration):**
None of the ingredients are listed.

· **Probable route(s) of exposure:**
Ingestion.
Inhalation.
Eye contact.

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Skin contact.
· **Acute effects (acute toxicity, irritation and corrosivity):**
Vapors have narcotic effect.
May cause drowsiness or dizziness.
Irritating to eyes.
· **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:** May cause drowsiness or dizziness.
· **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.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity** No relevant information available.
· **Persistence and degradability** No relevant information available.
· **Bioaccumulative potential:** No relevant information available.
· **Mobility in soil:** No relevant information available.
· **Additional ecological information**
· **General notes:**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
· **Other adverse effects** No relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes. Residual materials should be treated as hazardous.
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings**
· **Recommendation:** Disposal must be made according to official regulations.
· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· **UN-Number**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	UN1139
· **UN proper shipping name**	
· **DOT**	Coating solution
· **ADR/RID/ADN, IMDG, IATA**	COATING SOLUTION

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· **Transport hazard class(es)**

· **DOT**

· **Class**	3
· **Label**	3

· **ADR/RID/ADN**

· **Class**	3 (F1)
· **Label**	3

· **IMDG, IATA**

· **Class**	3
· **Label**	3

· **Packing group**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	II
· **Environmental hazards**	Not applicable.
· **Special precautions for user**	Warning: Flammable liquids
· **Hazard identification number (Kemler code):**	33
· **EMS Number:**	F-E,S-E
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.

15 Regulatory information

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

· **United States (USA)**

· **SARA**

· **Section 302 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**

67-63-0	Propan-2-ol

· **TSCA (Toxic Substances Control Act)**

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All components have the value ACTIVE.

· **Proposition 65 (California)**

· **Chemicals known to cause cancer:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for females:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for males:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

· **EPA (Environmental Protection Agency):**

None of the ingredients are listed.

· **IARC (International Agency for Research on Cancer):**

67-63-0	Propan-2-ol	3

· **Canadian Domestic Substances List (DSL):**

None of the ingredients are listed.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Abbreviations and acronyms:**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
OSHA: Occupational Safety & Health Administration
Flam. Liq. 2: Flammable liquids – Category 2
Acute Tox. 3: Acute toxicity – Category 3
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

· **Sources**

Website, European Chemicals Agency (echa.europa.eu)
Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)
Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)
Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6
Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.
Safety Data Sheets, Individual Manufacturers

SDS Prepared by:
ChemTel Inc.
1305 North Florida Avenue
Tampa, Florida USA 33602-2902

(Cont'd. on page 11)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: April 02, 2020

Trade name: Sour Tester

(Cont'd. of page 10)

Toll Free North America 1-888-255-3924 Intl. +01 813-248-0573
Website: www.chemtelinc.com

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: November 25, 2019

1 Identification

· **Product identifier**

· **Trade name: Phenolphthalein Indicator Solution,**
· **Product code:** 91883-00

· **Recommended use and restriction on use**
· **Recommended use:** Laboratory chemicals
· **Restrictions on use:** No relevant information available.

· **Details of the supplier of the Safety Data Sheet**
· **Manufacturer/Supplier:**
AquaPhoenix Scientific, Inc.
860 Gitts Run Road
Hanover, PA 17331
Phone: (717)632-1291
Toll-Free: (866)632-1291
info@aquaphoenixsci.com
· **Distributor:**
Betco
400 Vann Camp Road,
Bowling Green, OH 43042
(419) 725-3750

· **Emergency telephone number:**
ChemTel Inc.
(800)255-3924 (North America)
+1 (813)248-0585 (International)

2 Hazard(s) identification

· **Classification of the substance or mixture**

Flam. Liq. 2	H225	Highly flammable liquid and vapor.
Acute Tox. 4	H302	Harmful if swallowed.
Acute Tox. 4	H312	Harmful in contact with skin.
Acute Tox. 4	H332	Harmful if inhaled.
Eye Irrit. 2A	H319	Causes serious eye irritation.
Carc. 2	H351	Suspected of causing cancer.
Repr. 2	H361	Suspected of damaging fertility or the unborn child.
STOT SE 2	H371	May cause damage to the central nervous system and optic nerve.
STOT SE 3	H336	May cause drowsiness or dizziness.

· **Label elements**
· **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms:**

GHS02 GHS07 GHS08

· **Signal word:** Danger

(Cont'd. on page 2)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: November 25, 2019

Trade name: Phenolphthalein Indicator Solution,

(Cont'd. of page 1)

· **Hazard statements:**

H225	Highly flammable liquid and vapor.
H302+H312+H332	Harmful if swallowed, in contact with skin or if inhaled.
H319	Causes serious eye irritation.
H351	Suspected of causing cancer.
H361	Suspected of damaging fertility or the unborn child.
H371	May cause damage to the central nervous system and optic nerve.
H336	May cause drowsiness or dizziness.

· **Precautionary statements:**

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
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.
P260	Do not breathe mist/vapors/spray.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection.
P303+P361+P353	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove person to fresh air and keep 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.
P308+P311	IF exposed or concerned: Call a poison center/doctor.
P330	Rinse mouth.
P337+P313	If eye irritation persists: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P370+P378	In case of fire: Use for extinction: Alcohol resistant foam or water spray.
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Other hazards** There are no other hazards not otherwise classified that have been identified.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Components:**

67-63-0	Propan-2-ol Flam. Liq. 2, H225 Eye Irrit. 2A, H319; STOT SE 3, H336	25%
64-17-5	Ethanol Flam. Liq. 2, H225 Eye Irrit. 2A, H319	15.5%
67-56-1	Methanol	9.5%

(Cont'd. on page 3)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: November 25, 2019

Trade name: Phenolphthalein Indicator Solution,

(Cont'd. of page 2)

	Flam. Liq. 2, H225 Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331 STOT SE 1, H370	
77-09-8	phenolphthalein Muta. 2, H341; Carc. 1B, H350; Repr. 2, H361	0.42%
7732-18-5	Water	49.58%

· **Additional information:**
For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.
For the wording of the listed Hazard Statements, refer to section 16.

4 First-aid measures

· **Description of first aid measures**
· **General information:** Immediately remove any clothing soiled by the product.
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:**
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
If skin irritation continues, consult a doctor.
· **After eye contact:**
Remove contact lenses if worn.
Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; immediately call for medical help.
· **Most important symptoms and effects, both acute and delayed:**
Dizziness
Nausea in case of ingestion.
Acidosis
Blindness
Breathing difficulty
Coughing
Causes eye irritation.
Gastric or intestinal disorders when ingested.
Disorientation
· **Danger:**
May be harmful if swallowed, in contact with skin or if inhaled.
Vapors may cause drowsiness and dizziness.
May cause cancer.
May cause neurotoxic effects.
Danger of impaired breathing.
May cause damage to the central nervous system and optic nerve.
Suspected of damaging fertility or the unborn child.
· **Indication of any immediate medical attention and special treatment needed:**
Medical supervision for at least 48 hours.
If medical advice is needed, have product container or label at hand.

5 Fire-fighting measures

(Cont'd. on page 4)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: November 25, 2019

Trade name: Phenolphthalein Indicator Solution,

(Cont'd. of page 3)

· **Extinguishing media**
· **Suitable extinguishing agents:**
Alcohol resistant foam
Water fog / haze
Carbon dioxide
Gaseous extinguishing agents
Water spray
Fire-extinguishing powder
· **For safety reasons unsuitable extinguishing agents:** Water stream.
· **Special hazards arising from the substance or mixture**
Highly flammable liquid and vapor.
Formation of toxic gases is possible during heating or in case of fire.
· **Advice for firefighters**
· **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.
· **Additional information:**
Use large quantities of foam as it is partially destroyed by the product.
Cool endangered product with water spray.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Isolate area and prevent access.
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation.
Keep away from ignition sources.
Use respiratory protective device against the effects of fumes/dust/aerosol.
· **Environmental precautions**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
· **Methods and material for containment and cleaning up**
Absorb with non-combustible liquid-binding material (sand, diatomite, acid binders, universal binders).
Send for recovery or disposal in suitable receptacles.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

· **Handling**
· **Precautions for safe handling:**
Use only in well ventilated areas.
Avoid splashes or spray in enclosed areas.
Prevent formation of aerosols.
· **Information about protection against explosions and fires:**
Keep respiratory protective device available.

(Cont'd. on page 5)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: November 25, 2019

Trade name: Phenolphthalein Indicator Solution,

(Cont'd. of page 4)

· **Conditions for safe storage, including any incompatibilities**
· **Requirements to be met by storerooms and receptacles:**
Store in a well-ventilated place. Keep cool.
Avoid storage near extreme heat, ignition sources or open flame.
· **Information about storage in one common storage facility:**
Store away from foodstuffs.
Store away from oxidizing agents.
· **Further information about storage conditions:** Keep containers tightly sealed.
· **Specific end use(s)** No relevant information available.

8 Exposure controls/personal protection

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
67-63-0 Propan-2-ol	
PEL (USA)	Long-term value: 980 mg/m³, 400 ppm
REL (USA)	Short-term value: 1225 mg/m³, 500 ppm Long-term value: 980 mg/m³, 400 ppm
TLV (USA)	Short-term value: 984 mg/m³, 400 ppm Long-term value: 492 mg/m³, 200 ppm BEI
EL (Canada)	Short-term value: 400 ppm Long-term value: 200 ppm
EV (Canada)	Short-term value: 400 ppm Long-term value: 200 ppm
LMPE (Mexico)	Short-term value: 400 ppm Long-term value: 200 ppm A4, IBE
64-17-5 Ethanol	
PEL (USA)	Long-term value: 1900 mg/m³, 1000 ppm
REL (USA)	Long-term value: 1900 mg/m³, 1000 ppm
TLV (USA)	Short-term value: 1880 mg/m³, 1000 ppm
EL (Canada)	Short-term value: 1000 ppm
EV (Canada)	Long-term value: 1,900 mg/m³, 1,000 ppm
LMPE (Mexico)	Long-term value: 1000 ppm A3
67-56-1 Methanol	
PEL (USA)	Long-term value: 260 mg/m³, 200 ppm
REL (USA)	Short-term value: 325 mg/m³, 250 ppm Long-term value: 260 mg/m³, 200 ppm Skin
TLV (USA)	Short-term value: 328 mg/m³, 250 ppm Long-term value: 262 mg/m³, 200 ppm Skin; BEI

(Cont'd. on page 6)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: November 25, 2019

Trade name: Phenolphthalein Indicator Solution,

(Cont'd. of page 5)

EL (Canada)	Short-term value: 250 ppm Long-term value: 200 ppm Skin
EV (Canada)	Short-term value: 325 mg/m³, 250 ppm Long-term value: 260 mg/m³, 200 ppm Skin
LMPE (Mexico)	Short-term value: 250 ppm Long-term value: 200 ppm PIEL, IBE

· **Ingredients with biological limit values:**

67-63-0 Propan-2-ol	
BEI (USA)	40 mg/L Medium: urine Time: end of shift at end of workweek Parameter: Acetone (background, nonspecific)
67-56-1 Methanol	
BEI (USA)	15 mg/L Medium: urine Time: end of shift Parameter: Methanol (background, nonspecific)

· **Exposure controls**

· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Do not inhale gases / fumes / aerosols.

· **Engineering controls:** Provide adequate ventilation.

· **Breathing equipment:** In case of inadequate ventilation wear respiratory protection.

· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

· **Material of gloves**
Nitrile rubber, NBR
Neoprene gloves
Butyl rubber, BR

· **Eye protection:**

Safety glasses

Follow relevant national guidelines concerning the use of protective eyewear.

· **Body protection:** Protective work clothing

· **Limitation and supervision of exposure into the environment**
No relevant information available.

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Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: November 25, 2019

Trade name: Phenolphthalein Indicator Solution,

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· **Risk management measures** No relevant information available.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **Appearance:**	
Form:	Liquid
Color:	Colorless
· **Odor:**	Like alcohol
· **Odor threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Melting point/Melting range:**	Not determined.
· **Boiling point/Boiling range:**	64.7 °C (148.5 °F)
· **Flash point:**	13 °C (55.4 °F)
· **Flammability (solid, gaseous):**	Not applicable.
· **Auto-ignition temperature:**	425 °C (797 °F)
· **Decomposition temperature:**	Not determined.
· **Danger of explosion:**	Product is not explosive. However, formation of explosive air/ vapor mixtures are possible.
· **Explosion limits**	
Lower:	2 Vol %
Upper:	15 Vol %
· **Oxidizing properties:**	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	59 hPa (44.3 mm Hg)
· **Density at 20 °C (68 °F):**	0.89 g/cm³ (7.43 lbs/gal)
· **Relative density:**	0.85-0.96
· **Vapor density:**	Not determined.
· **Evaporation rate:**	Not determined.
· **Solubility in / Miscibility with**	
Water:	Fully miscible.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Other information**	No relevant information available.

10 Stability and reactivity

· **Reactivity:**
Reacts with alkali (lyes).
Reacts with certain metals.

(Cont'd. on page 8)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: November 25, 2019

Trade name: Phenolphthalein Indicator Solution,

(Cont'd. of page 7)

· **Chemical stability:** Stable under normal temperatures and pressures.
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
· **Possibility of hazardous reactions**
Reacts violently with oxidizing agents.
Reacts with strong acids.
Toxic fumes may be released if heated above the decomposition point.
· **Conditions to avoid** Excessive heat.
· **Incompatible materials** Oxidizers
· **Hazardous decomposition products**
Under fire conditions only:
Carbon monoxide and carbon dioxide

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:** Harmful if swallowed, in contact with skin or if inhaled.
· **LD/LC50 values that are relevant for classification:** None.
· **Primary irritant effect:**
· **On the skin:** Based on available data, the classification criteria are not met.
· **On the eye:** Irritating effect.
· **Sensitization:** Based on available data, the classification criteria are not met.

· **IARC (International Agency for Research on Cancer):**		
67-63-0	Propan-2-ol	3
64-17-5	Ethanol	1
77-09-8	phenolphthalein	2B

· **NTP (National Toxicology Program):**		
77-09-8	phenolphthalein	R

· **OSHA-Ca (Occupational Safety & Health Administration):**
None of the ingredients are listed.

· **Probable route(s) of exposure:**
Ingestion.
Inhalation.
Eye contact.
Skin contact.
· **Acute effects (acute toxicity, irritation and corrosivity):**
Toxic if swallowed, in contact with skin or if inhaled.
Causes serious eye irritation.
· **Repeated dose toxicity:** Possible risk of irreversible effects.
· **Germ cell mutagenicity:** Suspected of causing genetic defects.
· **Carcinogenicity:** May cause cancer.
· **Reproductive toxicity:** Suspected of damaging fertility or the unborn child.
· **STOT-single exposure:** May cause damage to the central nervous system and optic nerve.
· **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.

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Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: November 25, 2019

Trade name: Phenolphthalein Indicator Solution,

(Cont'd. of page 8)

12 Ecological information

· **Toxicity**
· **Aquatic toxicity** No relevant information available.
· **Persistence and degradability** No relevant information available.
· **Bioaccumulative potential:** No relevant information available.
· **Mobility in soil:** No relevant information available.
· **Additional ecological information**
· **General notes:** Do not allow product to reach ground water, water course or sewage system.
· **Other adverse effects** No relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes. Residual materials should be treated as hazardous.

· **Uncleaned packagings**
· **Recommendation:** Disposal must be made according to official regulations.
· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· **UN-Number**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	UN1987
· **UN proper shipping name**	
· **DOT**	Alcohols, n.o.s. (ISOPROPANOL, Ethanol, Methanol)
· **ADR/RID/ADN, IMDG, IATA**	ALCOHOLS, N.O.S. (ISOPROPANOL, ETHANOL, METHANOL)
· **Transport hazard class(es)**	
· **DOT**	

· **Class**	3
· **Label**	3
· **ADR/RID/ADN**	

· **Class**	3 (F1)

(Cont'd. on page 10)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: November 25, 2019

Trade name: Phenolphthalein Indicator Solution,

(Cont'd. of page 9)

· **Label**	3

· **IMDG, IATA**

· **Class**	3
· **Label**	3
· **Packing group**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	II
· **Environmental hazards**	
· **Marine pollutant:**	No
· **Special precautions for user**	Warning: Flammable liquids
· **Hazard identification number (Kemler code):**	33
· **EMS Number:**	F-E,S-D
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.

15 Regulatory information

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

· **United States (USA)**

· **SARA**

· **Section 302 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**

67-63-0	Propan-2-ol
67-56-1	Methanol

· **TSCA (Toxic Substances Control Act)**

67-63-0	Propan-2-ol
64-17-5	Ethanol
67-56-1	Methanol
77-09-8	phenolphthalein
7732-18-5	Water

· **Proposition 65 (California)**

· **Chemicals known to cause cancer:**

Ethanol - listing refers specifically to alcoholic beverage consumption and is not applicable for product.

64-17-5	Ethanol

(Cont'd. on page 11)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: November 25, 2019

Trade name: Phenolphthalein Indicator Solution,

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77-09-8	phenolphthalein

· **Chemicals known to cause developmental toxicity for females:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for males:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**

Ethanol - listing refers specifically to alcoholic beverage consumption and is not applicable for product.

64-17-5	Ethanol
67-56-1	Methanol

· **EPA (Environmental Protection Agency):**

None of the ingredients are listed.

· **IARC (International Agency for Research on Cancer):**

67-63-0	Propan-2-ol	3
64-17-5	Ethanol	1
77-09-8	phenolphthalein	2B

· **Canadian Domestic Substances List (DSL):**

None of the ingredients are listed.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Abbreviations and acronyms:**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
OSHA: Occupational Safety & Health Administration
Flam. Liq. 2: Flammable liquids – Category 2
Acute Tox. 3: Acute toxicity – Category 3
Acute Tox. 4: Acute toxicity – Category 4
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
Muta. 2: Germ cell mutagenicity – Category 2
Carc. 1B: Carcinogenicity – Category 1B
Carc. 2: Carcinogenicity – Category 2
Repr. 2: Reproductive toxicity – Category 2
STOT SE 1: Specific target organ toxicity (single exposure) – Category 1
STOT SE 2: Specific target organ toxicity (single exposure) – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

· **Sources**

Website, European Chemicals Agency (echa.europa.eu)
Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)
Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)
Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6
Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.

(Cont'd. on page 12)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: November 25, 2019

Trade name: Phenolphthalein Indicator Solution,

(Cont'd. of page 11)

Safety Data Sheets, Individual Manufacturers

SDS Prepared by:
ChemTel Inc.
1305 North Florida Avenue
Tampa, Florida USA 33602-2902
Toll Free North America 1-888-255-3924 Intl. +01 813-248-0573
Website: www.chemtelinc.com

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: February 20, 2020

1 Identification

· **Product identifier**

· **Trade name: Sodium Thiosulfate, 0.0365N**
· **Product code:** 91884-00

· **Recommended use and restriction on use**
· **Recommended use:** Laboratory chemicals
· **Restrictions on use:** No relevant information available.

· **Details of the supplier of the Safety Data Sheet**
· **Manufacturer/Supplier:**
AquaPhoenix Scientific, Inc.
860 Gitts Run Road
Hanover, PA 17331
Phone: (717)632-1291
Toll-Free: (866)632-1291
info@aquaphoenixsci.com
· **Distributor:**
Betco
400 Vann Camp Road,
Bowling Green, OH 43042
(419) 725-3750

· **Emergency telephone number:**
ChemTel Inc.
(800)255-3924 (North America)
+1 (813)248-0585 (International)

2 Hazard(s) identification

· **Classification of the substance or mixture**
The substance is not classified as hazardous according to the Globally Harmonized System (GHS).

· **Label elements**
· **GHS label elements** None.
· **Hazard pictograms:** Not regulated.
· **Signal word:** None
· **Hazard statements:** None.
· **Precautionary statements:** None.

· **Other hazards** There are no other hazards not otherwise classified that have been identified.

3 Composition/information on ingredients

· **Chemical characterization: Substances**

· **Components:**			
7732-18-5	Water		99.08%
10102-17-7	Sodium Thiosulfate, Pentahydrate		0.91%
1303-96-4	Disodium tetraborate, decahydrate	Repr. 1B, H360 Eye Irrit. 2A, H319	0.01%

· **Additional information:**

(Cont'd. on page 2)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: February 20, 2020

Trade name: Sodium Thiosulfate, 0.0365N

(Cont'd. of page 1)

For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.
For the wording of the listed Hazard Statements, refer to section 16.

4 First-aid measures

· **Description of first aid measures**
· **General information:** No special measures required.
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:**
Wash with soap and water.
If skin irritation is experienced, consult a doctor.
· **After eye contact:**
Remove contact lenses if worn.
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; immediately call for medical help.
· **Most important symptoms and effects, both acute and delayed:**
Gastric or intestinal disorders when ingested.
· **Danger:** No relevant information available.
· **Indication of any immediate medical attention and special treatment needed:**
If medical advice is needed, have product container or label at hand.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
· **For safety reasons unsuitable extinguishing agents:** No relevant information available.
· **Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
· **Advice for firefighters**
· **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Ensure adequate ventilation.
For large spills, wear protective clothing.
· **Environmental precautions**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
· **Methods and material for containment and cleaning up**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose of the collected material according to regulations.
· **Reference to other sections**

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See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

· **Handling**
· **Precautions for safe handling:** No special measures required.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:**
Store away from foodstuffs.
Do not store together with oxidizing and acidic materials.
· **Further information about storage conditions:** Keep containers tightly sealed.
· **Specific end use(s)** No relevant information available.

8 Exposure controls/personal protection

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **Exposure controls**
· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
· **Engineering controls:** No relevant information available.
· **Breathing equipment:** Not required under normal conditions of use.
· **Protection of hands:**


Protective gloves

· **Material of gloves**
Butyl rubber, BR
Fluorocarbon rubber (Viton)
Neoprene gloves
Nitrile rubber, NBR
Natural rubber, NR
Sensibilization by the components in the glove materials is possible.
· **Eye protection:**


Safety glasses

Follow relevant national guidelines concerning the use of protective eyewear.

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· **Body protection:** Protective work clothing
· **Limitation and supervision of exposure into the environment** No special requirements.
· **Risk management measures** No special requirements.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **Appearance:**	
Form:	Liquid
Color:	Colorless
· **Odor:**	Odorless
· **Odor threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Melting point/Melting range:**	Not determined.
· **Boiling point/Boiling range:**	100-103 °C (212-153.4 °F)
· **Flash point:**	The product is not flammable.
· **Flammability (solid, gaseous):**	Not applicable.
· **Auto-ignition temperature:**	Not determined.
· **Decomposition temperature:**	Not determined.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits**	
Lower:	Not determined.
Upper:	Not determined.
· **Oxidizing properties:**	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17.3 mm Hg)
· **Density at 20 °C (68 °F):**	1.08-1.12 g/cm³ (9.01-9.35 lbs/gal)
· **Relative density:**	Not determined.
· **Vapor density:**	Not determined.
· **Evaporation rate:**	Not determined.
· **Solubility in / Miscibility with**	
Water:	Soluble.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Other information**	No relevant information available.

10 Stability and reactivity

· **Reactivity:** No relevant information available.
· **Chemical stability:** Stable under normal temperatures and pressures.

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· **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
· **Possibility of hazardous reactions**
Toxic fumes may be released if heated above the decomposition point.
Reacts with strong acids and oxidizing agents.
Contact with acids releases toxic gases.
· **Conditions to avoid** No relevant information available.
· **Incompatible materials** No relevant information available.
· **Hazardous decomposition products**
Under fire conditions only:
Sulfur oxides (SOx)

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **LD/LC50 values that are relevant for classification:** None.
· **Primary irritant effect:**
· **On the skin:** Based on available data, the classification criteria are not met.
· **On the eye:** Based on available data, the classification criteria are not met.
· **Sensitization:** Based on available data, the classification criteria are not met.

· **IARC (International Agency for Research on Cancer):**
None of the ingredients are listed.

· **NTP (National Toxicology Program):**
None of the ingredients are listed.

· **OSHA-Ca (Occupational Safety & Health Administration):**
None of the ingredients are listed.

· **Probable route(s) of exposure:**
Ingestion.
Inhalation.
Eye contact.
Skin contact.
· **Acute effects (acute toxicity, irritation and corrosivity):** No relevant information available.
· **Repeated dose toxicity:** No relevant information available.
· **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.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity** No relevant information available.
· **Persistence and degradability** No relevant information available.

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· **Bioaccumulative potential:** No relevant information available.
· **Mobility in soil:** No relevant information available.
· **Additional ecological information**
· **General notes:**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
· **Other adverse effects** No relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Smaller quantities can be disposed of with household waste.
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.

· **Uncleaned packagings**
· **Recommendation:** Disposal must be made according to official regulations.
· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· **UN-Number** · **DOT, ADR/RID/ADN, IMDG, IATA**	Not regulated.
· **UN proper shipping name** · **DOT, ADR/RID/ADN, IMDG, IATA**	Not regulated.
· **Transport hazard class(es)** · **DOT, ADR/RID/ADN, IMDG, IATA** · **Class**	Not regulated.
· **Packing group** · **DOT, ADR/RID/ADN, IMDG, IATA**	Not regulated.
· **Environmental hazards**	Not applicable.
· **Special precautions for user**	Not applicable.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **United States (USA)**

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· **SARA**

· **Section 302 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients are listed.

· **TSCA (Toxic Substances Control Act)**

7772-98-7	sodium thiosulphate
1303-96-4	Disodium tetraborate, decahydrate
7732-18-5	Water

· **Proposition 65 (California)**

· **Chemicals known to cause cancer:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for females:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for males:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

· **EPA (Environmental Protection Agency):**

None of the ingredients are listed.

· **IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

· **Canadian Domestic Substances List (DSL):**

None of the ingredients are listed.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Abbreviations and acronyms:**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
OSHA: Occupational Safety & Health Administration
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
Repr. 1B: Reproductive toxicity – Category 1B

· **Sources**

Website, European Chemicals Agency (echa.europa.eu)
Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)
Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)

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Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6
Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.
Safety Data Sheets, Individual Manufacturers

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Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

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1 Identification

· **Product identifier**

· **Trade name: Iron #1**
· **Product code:** 91892-00

· **Recommended use and restriction on use**
· **Recommended use:** Laboratory chemicals
· **Restrictions on use:** No relevant information available.

· **Details of the supplier of the Safety Data Sheet**
· **Manufacturer/Supplier:**
AquaPhoenix Scientific, Inc.
860 Gitts Run Road
Hanover, PA 17331
Phone: (717)632-1291
Toll-Free: (866)632-1291
info@aquaphoenixsci.com
· **Distributor:**
Betco
400 Vann Camp Road,
Bowling Green, OH 43042
(419) 725-3750

· **Emergency telephone number:**
ChemTel Inc.
(800)255-3924 (North America)
+1 (813)248-0585 (International)

2 Hazard(s) identification

· **Classification of the substance or mixture**

Met. Corr.1	H290	May be corrosive to metals.
Skin Irrit. 2	H315	Causes skin irritation.
Eye Dam. 1	H318	Causes serious eye damage.
Skin Sens. 1	H317	May cause an allergic skin reaction.
Carc. 2	H351	Suspected of causing cancer.
STOT RE 2	H373	May cause damage to the spleen and the blood through prolonged or repeated exposure.

· **Label elements**
· **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms:**

GHS05 GHS07 GHS08

· **Signal word:** Danger
· **Hazard statements:**
H290 May be corrosive to metals.
H315 Causes skin irritation.

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H318 Causes serious eye damage.
H317 May cause an allergic skin reaction.
H351 Suspected of causing cancer.
H373 May cause damage to the spleen and the blood through prolonged or repeated exposure.

· **Precautionary statements:**

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P234	Keep only in original container.
P260	Do not breathe mist/vapors/spray.
P264	Wash thoroughly after handling.
P272	Contaminated work clothing must not be allowed out of the workplace.
P280	Wear protective gloves/protective clothing/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.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P390	Absorb spillage to prevent material damage.
P405	Store locked up.
P406	Store in corrosive resistant container with a resistant inner liner.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Other hazards** There are no other hazards not otherwise classified that have been identified.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Components:**

7732-18-5	Water	>90%
5470-11-1	hydroxylammonium chloride Carc. 2, H351; STOT RE 2, H373 Met. Corr.1, H290 Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317	<5%
7647-01-0	hydrochloric acid Met. Corr.1, H290; Skin Corr. 1B, H314; Eye Dam. 1, H318 Acute Tox. 4, H302; STOT SE 3, H335	<6%

· **Additional information:**
For the wording of the listed Hazard Statements, refer to section 16.
For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.

4 First-aid measures

· **Description of first aid measures**
· **General information:** Immediately remove any clothing soiled by the product.

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· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:**
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
If skin irritation or rash occurs: Get medical advice/attention.
Seek immediate help for blistering or open wounds.
· **After eye contact:**
Protect unharmed eye.
Remove contact lenses if worn.
Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; immediately call for medical help.
· **Most important symptoms and effects, both acute and delayed:**
Causes skin irritation.
Coughing
Irritant to skin and mucous membranes.
Strong irritant with the danger of severe eye injury.
Gastric or intestinal disorders when ingested.
Nausea in case of ingestion.
Breathing difficulty
Allergic reactions
· **Danger:**
Causes serious eye damage.
Suspected of causing cancer.
· **Indication of any immediate medical attention and special treatment needed:**
Medical supervision for at least 48 hours.
Contains hydroxylammonium chloride. May produce an allergic reaction.
If medical advice is needed, have product container or label at hand.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
· **For safety reasons unsuitable extinguishing agents:** No relevant information available.
· **Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
· **Advice for firefighters**
· **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation.
For large spills, use respiratory protective device against the effects of fumes/dust/aerosol.
Protect from heat.
· **Environmental precautions**

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Do not allow to enter sewers/ surface or ground water.
Inform respective authorities in case of seepage into water course or sewage system.

· **Methods and material for containment and cleaning up**
Absorb with non-combustible liquid-binding material (sand, diatomite, acid binders, universal binders).
Send for recovery or disposal in suitable receptacles.

· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

· **Handling**
· **Precautions for safe handling:**
Prevent formation of aerosols.
Avoid splashes or spray in enclosed areas.
Use only in well ventilated areas.
· **Information about protection against explosions and fires:** Substance/product is oxidizing when dry.

· **Conditions for safe storage, including any incompatibilities**
· **Requirements to be met by storerooms and receptacles:**
Store only in the original receptacle.
Avoid storage near extreme heat.
Unsuitable material for receptacle: aluminium.
Unsuitable material for receptacle: steel.
· **Information about storage in one common storage facility:**
Store away from foodstuffs.
Store away from metals.
Do not store together with alkalis (caustic solutions).
· **Further information about storage conditions:**
Store in cool, dry conditions in well sealed receptacles.
Keep containers tightly sealed.
Prevent from drying out.
· **Specific end use(s)** No relevant information available.

8 Exposure controls/personal protection

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

7647-01-0 hydrochloric acid	
PEL (USA)	Ceiling limit value: 7 mg/m³, 5 ppm
REL (USA)	Ceiling limit value: 7 mg/m³, 5 ppm
TLV (USA)	Ceiling limit value: 2.98 mg/m³, 2 ppm
EL (Canada)	Ceiling limit value: 2 ppm
EV (Canada)	Ceiling limit value: 2 ppm

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LMPE (Mexico)	Ceiling limit value: 2 ppm A4

· **Exposure controls**
· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Do not inhale gases / fumes / aerosols.
Avoid contact with the eyes and skin.
· **Engineering controls:** Provide adequate ventilation.
· **Breathing equipment:**
Not required under normal conditions of use.
Use suitable respiratory protective device when aerosol or mist is formed.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
· **Material of gloves**
Neoprene gloves
Butyl rubber, BR
Natural rubber, NR
Fluorocarbon rubber (Viton)
Nitrile rubber, NBR
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:**

Safety glasses

Follow relevant national guidelines concerning the use of protective eyewear.
· **Body protection:** Acid resistant protective clothing.
· **Limitation and supervision of exposure into the environment**
No relevant information available.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**
· **Appearance:**

Form:	Liquid
Color:	Clear, colorless
· **Odor:**	Not determined.
· **Odor threshold:**	Not determined.

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Trade name: Iron #1

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· **pH-value at 20 °C (68 °F):**	<2.0 (Estimate)
· **Melting point/Melting range:**	Not determined.
· **Boiling point/Boiling range:**	105-110 °C (221-166 °F)
· **Flash point:**	The product is not flammable.
· **Flammability (solid, gaseous):**	Not applicable.
· **Auto-ignition temperature:**	Not determined.
· **Decomposition temperature:**	Not determined.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits**	
Lower:	Not determined.
Upper:	Not determined.
· **Oxidizing properties:**	Not determined.
· **Vapor pressure:**	Not determined.
· **Density at 20 °C (68 °F):**	0.98-1.04 g/cm³ (8.18-8.68 lbs/gal)
· **Relative density:**	Not determined.
· **Vapor density:**	Not determined.
· **Evaporation rate:**	Not determined.
· **Solubility in / Miscibility with**	
Water:	Fully miscible.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Other information**	No relevant information available.

10 Stability and reactivity

· **Reactivity:** No relevant information available.
· **Chemical stability:** Stable under normal temperatures and pressures.
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
· **Possibility of hazardous reactions**
Corrosive action on metals.
Reacts with base metals forming hydrogen.
Reacts with alkali (lyes).
Toxic fumes may be released if heated above the decomposition point.
Substance/product is oxidizing when dry.
· **Conditions to avoid**
Excessive heat.
Store away from oxidizing agents.
Keep/Store away from clothing/combustible materials.
· **Incompatible materials**

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Alkalis.
Metals.

· **Hazardous decomposition products**
Under fire conditions only:
Chlorine compounds
Ammonia
Carbon monoxide and carbon dioxide

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**		
5470-11-1 hydroxylammonium chloride		
Oral	LD50	408 mg/kg (mouse)

· **Primary irritant effect:**
· **On the skin:** Irritant to skin and mucous membranes.
· **On the eye:** Strong irritant with the danger of severe eye injury.
· **Sensitization:** Sensitization possible through skin contact.

· **IARC (International Agency for Research on Cancer):**		
7647-01-0	hydrochloric acid	3

· **NTP (National Toxicology Program):**
None of the ingredients are listed.

· **OSHA-Ca (Occupational Safety & Health Administration):**
None of the ingredients are listed.

· **Probable route(s) of exposure:**
Ingestion.
Inhalation.
Eye contact.
Skin contact.
· **Acute effects (acute toxicity, irritation and corrosivity):**
Causes serious eye damage.
Irritating to skin.
· **Repeated dose toxicity:**
Possible risk of irreversible effects.
Repeated exposure may result in skin sensitivity.
· **Germ cell mutagenicity:** Based on available data, the classification criteria are not met.
· **Carcinogenicity:** Suspected of causing cancer.
· **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.

12 Ecological information

· **Toxicity**

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· **Aquatic toxicity** No relevant information available.
· **Persistence and degradability** No relevant information available.
· **Bioaccumulative potential:** No relevant information available.
· **Mobility in soil:** No relevant information available.
· **Additional ecological information**
· **General notes:**
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into the ground.
· **Other adverse effects** No relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes. Residual materials should be treated as hazardous.

· **Uncleaned packagings**
· **Recommendation:** Disposal must be made according to official regulations.
· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· **UN-Number**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	UN1789
· **UN proper shipping name**	
· **DOT**	Hydrochloric acid
· **ADR/RID/ADN, IMDG, IATA**	HYDROCHLORIC ACID
· **Transport hazard class(es)**	
· **DOT**	

· **Class**	8
· **Label**	8
· **ADR/RID/ADN**	

· **Class**	8 (C1)
· **Label**	8

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· **IMDG, IATA**

· **Class**	8
· **Label**	8
· **Packing group**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	III
· **Environmental hazards**	Not applicable.
· **Special precautions for user**	Warning: Corrosive substances
· **Hazard identification number (Kemler code):**	80
· **EMS Number:**	F-A,S-B
· **Segregation groups**	Acids
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.

15 Regulatory information

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

· **United States (USA)**

· **SARA**

· **Section 302 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**

7647-01-0	hydrochloric acid

· **TSCA (Toxic Substances Control Act)**

7647-01-0	hydrochloric acid
5470-11-1	hydroxylammonium chloride
7732-18-5	Water

· **Proposition 65 (California)**

· **Chemicals known to cause cancer:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for females:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for males:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

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Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: March 17, 2020

Trade name: Iron #1

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· **EPA (Environmental Protection Agency):**

None of the ingredients are listed.

· **IARC (International Agency for Research on Cancer):**

7647-01-0	hydrochloric acid	3

· **Canadian Domestic Substances List (DSL):**

None of the ingredients are listed.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Abbreviations and acronyms:**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
OSHA: Occupational Safety & Health Administration
Met. Corr.1: Corrosive to metals – Category 1
Acute Tox. 4: Acute toxicity – Category 4
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
Skin Sens. 1: Skin sensitisation – Category 1
Carc. 2: Carcinogenicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

· **Sources**

Website, European Chemicals Agency (echa.europa.eu)
Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)
Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)
Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6
Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.
Safety Data Sheets, Individual Manufacturers

SDS Prepared by:
ChemTel Inc.
1305 North Florida Avenue
Tampa, Florida USA 33602-2902
Toll Free North America 1-888-255-3924 Intl. +01 813-248-0573
Website: www.chemtelinc.com

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: March 19, 2020

1 Identification

· **Product identifier**

· **Trade name: Iron #2**
· **Product code:** 91893-00

· **Recommended use and restriction on use**
· **Recommended use:** Laboratory chemicals
· **Restrictions on use:** No relevant information available.

· **Details of the supplier of the Safety Data Sheet**
· **Manufacturer/Supplier:**
AquaPhoenix Scientific, Inc.
860 Gitts Run Road
Hanover, PA 17331
Phone: (717)632-1291
Toll-Free: (866)632-1291
info@aquaphoenixsci.com
· **Distributor:**
Betco
400 Vann Camp Road,
Bowling Green, OH 43042
(419) 725-3750

· **Emergency telephone number:**
ChemTel Inc.
(800)255-3924 (North America)
+1 (813)248-0585 (International)

2 Hazard(s) identification

· **Classification of the substance or mixture**
The substance is not classified as hazardous according to the Globally Harmonized System (GHS).

· **Label elements**
· **GHS label elements** Not regulated.
· **Hazard pictograms:** Not regulated.
· **Signal word:** None
· **Hazard statements:** None.
· **Precautionary statements:** None.

· **Other hazards** There are no other hazards not otherwise classified that have been identified.

3 Composition/information on ingredients

· **Chemical characterization: Substances**

· **Components:**		
366-18-7	2,2'-bipyridyl Acute Tox. 3, H301; Acute Tox. 3, H311	0.5%
7732-18-5	Water	99.5%

· **Additional information:**
For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.
For the wording of the listed Hazard Statements, refer to section 16.

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Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: March 19, 2020

Trade name: Iron #2

(Cont'd. of page 1)

4 First-aid measures

· **Description of first aid measures**
· **General information:** No special measures required.
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:**
Rinse with warm water.
If skin irritation is experienced, consult a doctor.
· **After eye contact:**
Remove contact lenses if worn.
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; immediately call for medical help.
· **Most important symptoms and effects, both acute and delayed:**
Gastric or intestinal disorders when ingested.
· **Danger:** No relevant information available.
· **Indication of any immediate medical attention and special treatment needed:**
If medical advice is needed, have product container or label at hand.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
· **For safety reasons unsuitable extinguishing agents:** No relevant information available.
· **Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
· **Advice for firefighters**
· **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Ensure adequate ventilation.
For large spills, wear protective clothing.
· **Environmental precautions** Do not allow product to reach sewage system or any water course.
· **Methods and material for containment and cleaning up**
Wipe up small spills with paper towel and discard.
For larger spills, add sawdust, chalk or other inert binding material, then sweep up and discard.
Dispose of the collected material according to regulations.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

(Cont'd. on page 3)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: March 19, 2020

Trade name: Iron #2

(Cont'd. of page 2)

7 Handling and storage

· **Handling**
· **Precautions for safe handling:** No special measures required.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:**
No relevant information available.
Do not store together with oxidizing and acidic materials.
· **Further information about storage conditions:**
Keep containers tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
· **Specific end use(s)** No relevant information available.

8 Exposure controls/personal protection

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **Exposure controls**
· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
· **Engineering controls:** No relevant information available.
· **Breathing equipment:**
Not required under normal conditions of use.
Use suitable respiratory protective device when high concentrations are present.
· **Protection of hands:** Not required under normal conditions of use.
· **Material of gloves**
Neoprene gloves
Nitrile rubber, NBR
· **Eye protection:**

Safety glasses

Follow relevant national guidelines concerning the use of protective eyewear.
· **Body protection:** Protective work clothing
· **Limitation and supervision of exposure into the environment** No special requirements.
· **Risk management measures** No special requirements.

9 Physical and chemical properties

(Cont'd. on page 4)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

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Trade name: Iron #2

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· **Information on basic physical and chemical properties**	
· **Appearance:**	
Form:	Liquid
Color:	Colorless
· **Odor:**	Odorless
· **Odor threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Melting point/Melting range:**	0 °C (32 °F)
· **Boiling point/Boiling range:**	100 °C (212 °F)
· **Flash point:**	The product is not flammable.
· **Flammability (solid, gaseous):**	Not applicable.
· **Auto-ignition temperature:**	Not determined.
· **Decomposition temperature:**	Not determined.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits**	
Lower:	Not determined.
Upper:	Not determined.
· **Oxidizing properties:**	Non-oxidizing.
· **Vapor pressure:**	Not determined.
· **Density:**	
Relative density:	Not determined.
Vapor density:	Not determined.
Evaporation rate:	Not determined.
· **Solubility in / Miscibility with**	
Water:	Fully miscible.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Other information**	No relevant information available.

10 Stability and reactivity

· **Reactivity:** No relevant information available.
· **Chemical stability:** Stable under normal temperatures and pressures.
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
· **Possibility of hazardous reactions**
Toxic fumes may be released if heated above the decomposition point.
· **Conditions to avoid**
Excessive heat.

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Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: March 19, 2020

Trade name: Iron #2

(Cont'd. of page 4)

Direct sunlight.

· **Incompatible materials** No relevant information available.

· **Hazardous decomposition products**

Under fire conditions only:
Benzene
Hydrocarbons

11 Toxicological information

· **Information on toxicological effects**

· **Acute toxicity:** Based on available data, the classification criteria are not met.

· **LD/LC50 values that are relevant for classification:**		
366-18-7 2,2'-bipyridyl		
Oral	LD50	100 mg/kg (rat)
Dermal	LD50	938 mg/kg (rat)

· **Primary irritant effect:**

· **On the skin:** Based on available data, the classification criteria are not met.

· **On the eye:** Based on available data, the classification criteria are not met.

· **Sensitization:** Based on available data, the classification criteria are not met.

· **IARC (International Agency for Research on Cancer):**
None of the ingredients are listed.

· **NTP (National Toxicology Program):**
None of the ingredients are listed.

· **OSHA-Ca (Occupational Safety & Health Administration):**
None of the ingredients are listed.

· **Probable route(s) of exposure:**

Ingestion.
Inhalation.
Eye contact.
Skin contact.

· **Acute effects (acute toxicity, irritation and corrosivity):** No relevant information available.

· **Repeated dose toxicity:** No relevant information available.

· **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.

12 Ecological information

· **Toxicity**

· **Aquatic toxicity** No relevant information available.

· **Persistence and degradability** No relevant information available.

· **Bioaccumulative potential:** No relevant information available.

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Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

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Trade name: Iron #2

(Cont'd. of page 5)

· **Mobility in soil:** No relevant information available.
· **Additional ecological information**
· **General notes:** Generally not hazardous for water.
· **Other adverse effects** No relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Smaller quantities can be disposed of with household waste.
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.

· **Uncleaned packagings**
· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **UN-Number**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	Not regulated.
· **UN proper shipping name**	
· **DOT, IMDG, IATA**	Not regulated.
· **ADR/RID/ADN**	Not regulated.
· **Transport hazard class(es)**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	
· **Class**	Not regulated.
· **Packing group**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	Not regulated.
· **Environmental hazards**	Not applicable.
· **Special precautions for user**	Not applicable.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **United States (USA)**
· **SARA**

· **Section 302 (extremely hazardous substances):**

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Trade name: Iron #2

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None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients are listed.

· **TSCA (Toxic Substances Control Act)**

All ingredients are listed or exempt.

· **Proposition 65 (California)**

· **Chemicals known to cause cancer:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for females:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for males:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

· **EPA (Environmental Protection Agency):**

None of the ingredients are listed.

· **IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

· **Canadian Domestic Substances List (DSL):**

None of the ingredients are listed.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Abbreviations and acronyms:**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
OSHA: Occupational Safety & Health Administration
Acute Tox. 3: Acute toxicity – Category 3

· **Sources**

Website, European Chemicals Agency (echa.europa.eu)
Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)
Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)
Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6
Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.
Safety Data Sheets, Individual Manufacturers

SDS Prepared by:
ChemTel Inc.

(Cont'd. on page 8)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: March 19, 2020

Trade name: Iron #2

(Cont'd. of page 7)

1305 North Florida Avenue
Tampa, Florida USA 33602-2902
Toll Free North America 1-888-255-3924 Intl. +01 813-248-0573
Website: www.chemtelinc.com

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: January 10, 2020

1 Identification

· **Product identifier**

· **Trade name: Buffer Solution pH 7.00**
· **Product code:** 91899-00

· **Recommended use and restriction on use**
· **Recommended use:** Laboratory chemicals
· **Restrictions on use:** No relevant information available.

· **Details of the supplier of the Safety Data Sheet**
· **Manufacturer/Supplier:**
AquaPhoenix Scientific, Inc.
860 Gitts Run Road
Hanover, PA 17331
Phone: (717)632-1291
Toll-Free: (866)632-1291
info@aquaphoenixsci.com
· **Distributor:**
Betco
400 Vann Camp Road,
Bowling Green, OH 43042
(419) 725-3750

· **Emergency telephone number:**
ChemTel Inc.
(800)255-3924 (North America)
+1 (813)248-0585 (International)

2 Hazard(s) identification

· **Classification of the substance or mixture**
The product is not classified as hazardous according to the Globally Harmonized System (GHS).

· **Label elements**
· **GHS label elements** Not regulated.
· **Hazard pictograms:** Not regulated.
· **Signal word:** Not regulated.
· **Hazard statements:** Not regulated.

· **Other hazards** There are no other hazards not otherwise classified that have been identified.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Components:**		
7732-18-5	Water	>99%
1310-73-2	Sodium hydroxide  Met. Corr.1, H290; Skin Corr. 1A, H314; Eye Dam. 1, H318	<0.25%
6359-83-7	Disodium 2-[[4,5-dihydro-3-methyl-5-oxo-1-(4-sulphonatophenyl)-1H-pyrazol-4-yl]azo]benzoate	<0.25%
52-51-7	bronopol (INN)	<0.25%

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Safety Data Sheet

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Revision: January 10, 2020

Trade name: Buffer Solution pH 7.00

(Cont'd. of page 1)

	Acute Tox. 3, H331 Eye Dam. 1, H318 Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Irrit. 2, H315; STOT SE 3, H335	

· **Additional information:**
For the wording of the listed Hazard Statements, refer to section 16.
For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.

4 First-aid measures

· **Description of first aid measures**
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:**
Rinse with warm water.
If skin irritation is experienced, consult a doctor.
· **After eye contact:**
Remove contact lenses if worn, if possible.
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; immediately call for medical help.
· **Most important symptoms and effects, both acute and delayed:**
Nausea in case of ingestion.
Gastric or intestinal disorders when ingested.
· **Indication of any immediate medical attention and special treatment needed:**
No relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
The product is not flammable.
Use fire fighting measures that suit the environment.
· **For safety reasons unsuitable extinguishing agents:** None.
· **Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
· **Advice for firefighters**
· **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Ensure adequate ventilation.
Use personal protective equipment as required.
· **Environmental precautions**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage

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Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

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Trade name: Buffer Solution pH 7.00

(Cont'd. of page 2)

system.

· **Methods and material for containment and cleaning up**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Send for recovery or disposal in suitable receptacles.

· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

· **Handling**
· **Precautions for safe handling:**
Avoid splashes or spray in enclosed areas.
Use only in well ventilated areas.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Requirements to be met by storerooms and receptacles:**
Use only receptacles specifically permitted for this substance/product.
Store in cool, dry conditions in well sealed receptacles.
· **Information about storage in one common storage facility:** Store away from foodstuffs.
· **Specific end use(s)** No relevant information available.

8 Exposure controls/personal protection

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

1310-73-2 Sodium hydroxide	
PEL (USA)	Long-term value: 2 mg/m³
REL (USA)	Ceiling limit value: 2 mg/m³
TLV (USA)	Ceiling limit value: 2 mg/m³
EL (Canada)	Ceiling limit value: 2 mg/m³
EV (Canada)	Ceiling limit value: 2 mg/m³
LMPE (Mexico)	Ceiling limit value: 2 mg/m³

· **Exposure controls**
· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
Avoid breathing mist, vapors, or spray.
· **Engineering controls:** Provide adequate ventilation.

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Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: January 10, 2020

Trade name: Buffer Solution pH 7.00

(Cont'd. of page 3)

· **Breathing equipment:**
Not required under normal conditions of use.
For spills, respiratory protection may be advisable.
· **Protection of hands:** Gloves are advised for repeated or prolonged contact.
· **Eye protection:**

Safety glasses

Follow relevant national guidelines concerning the use of protective eyewear.
· **Body protection:** Protection may be required for spills.
· **Limitation and supervision of exposure into the environment**
No relevant information available.
· **Risk management measures** No relevant information available.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **Appearance:**	
Form:	Liquid
Color:	Red
· **Odor:**	Odorless
· **Odor threshold:**	Not determined.
· **pH-value at 20 °C (68 °F):**	7.00
· **Melting point/Melting range:**	Not determined.
· **Boiling point/Boiling range:**	100-101 °C (212-213.8 °F)
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not applicable.
· **Auto-ignition temperature:**	Not determined.
· **Decomposition temperature:**	Not determined.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits**	
Lower:	Not determined.
Upper:	Not determined.
· **Oxidizing properties:**	Non-oxidizing.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17.3 mm Hg)
· **Density:**	
Relative density:	Not determined.
Vapor density:	Not determined.
Evaporation rate:	Not determined.
· **Solubility in / Miscibility with**	
Water:	Soluble.

(Cont'd. on page 5)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: January 10, 2020

Trade name: Buffer Solution pH 7.00

(Cont'd. of page 4)

· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity**

Dynamic:	Not determined.
Kinematic:	Not determined.

· **Other information** No relevant information available.

10 Stability and reactivity

· **Reactivity:** No relevant information available.
· **Chemical stability:**
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
· **Possibility of hazardous reactions**
Toxic fumes may be released if heated above the decomposition point.
· **Conditions to avoid** No relevant information available.
· **Incompatible materials** No relevant information available.
· **Hazardous decomposition products** Carbon monoxide and carbon dioxide

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:** Based on available data, the classification criteria are not met.
· **LD/LC50 values that are relevant for classification:** None.
· **Primary irritant effect:**
· **On the skin:** Based on available data, the classification criteria are not met.
· **On the eye:** Based on available data, the classification criteria are not met.
· **Sensitization:** No sensitizing effects known.

· **IARC (International Agency for Research on Cancer):**
None of the ingredients are listed.

· **NTP (National Toxicology Program):**
None of the ingredients are listed.

· **OSHA-Ca (Occupational Safety & Health Administration):**
None of the ingredients are listed.

· **Probable route(s) of exposure:**
Ingestion.
Inhalation.
Eye contact.
Skin contact.
· **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.

(Cont'd. on page 6)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: January 10, 2020

Trade name: Buffer Solution pH 7.00

(Cont'd. of page 5)

12 Ecological information

· **Toxicity**
· **Aquatic toxicity** No relevant information available.
· **Persistence and degradability** No relevant information available.
· **Bioaccumulative potential:** No relevant information available.
· **Mobility in soil:** No relevant information available.
· **Additional ecological information**
· **General notes:**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
· **Other adverse effects** No relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Small amounts may be diluted with plenty of water and washed away. Dispose of bigger amounts in accordance with Local Authority requirements.
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.

· **Uncleaned packagings**
· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **UN-Number** · **DOT, ADR/RID/ADN, IMDG, IATA**	Not regulated.
· **UN proper shipping name** · **DOT, ADR/RID/ADN, IMDG, IATA**	Not regulated.
· **Transport hazard class(es)** · **DOT, ADR/RID/ADN, IMDG, IATA** · **Class**	Not regulated.
· **Packing group** · **DOT, ADR/RID/ADN, IMDG, IATA**	Not regulated.
· **Environmental hazards** · **Marine pollutant:**	No
· **Special precautions for user**	Not applicable.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.

(Cont'd. on page 7)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: January 10, 2020

Trade name: Buffer Solution pH 7.00

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15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **United States (USA)**
· **SARA**

· **Section 302 (extremely hazardous substances):**
None of the ingredients are listed.

· **Section 355 (extremely hazardous substances):**
None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**
None of the ingredients are listed.

· **TSCA (Toxic Substances Control Act)**

1310-73-2	Sodium hydroxide
6359-83-7	Disodium 2-[[4,5-dihydro-3-methyl-5-oxo-1-(4-sulphonatophenyl)-1H-pyrazol-4-yl]azo] benzoate
52-51-7	bronopol (INN)
7732-18-5	Water

· **Proposition 65 (California)**

· **Chemicals known to cause cancer:**
None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for females:**
None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for males:**
None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients are listed.

· **EPA (Environmental Protection Agency):**
None of the ingredients are listed.

· **IARC (International Agency for Research on Cancer):**
None of the ingredients are listed.

· **Canadian Domestic Substances List (DSL):**
None of the ingredients are listed.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Abbreviations and acronyms:**
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association

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CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
OSHA: Occupational Safety & Health Administration
Met. Corr.1: Corrosive to metals – Category 1
Acute Tox. 4: Acute toxicity – Category 4
Acute Tox. 3: Acute toxicity – Category 3
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

· **Sources**

Website, European Chemicals Agency (echa.europa.eu)
Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)
Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)
Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6
Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.
Safety Data Sheets, Individual Manufacturers

SDS Prepared by:
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Website: www.chemtelinc.com

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: January 31, 2020

1 Identification

· **Product identifier**

· **Trade name: Hardness Indicator Liquid**
· **Product code:** 91890-00

· **Recommended use and restriction on use**
· **Recommended use:** Laboratory chemicals
· **Restrictions on use:** No relevant information available.

· **Details of the supplier of the Safety Data Sheet**
· **Manufacturer/Supplier:**
AquaPhoenix Scientific, Inc.
860 Gitts Run Road
Hanover, PA 17331
Phone: (717)632-1291
Toll-Free: (866)632-1291
info@aquaphoenixsci.com
· **Distributor:**
Betco
400 Vann Camp Road,
Bowling Green, OH 43042
(419) 725-3750

· **Emergency telephone number:**
ChemTel Inc.
(800)255-3924 (North America)
+1 (813)248-0585 (International)

2 Hazard(s) identification

· **Classification of the substance or mixture**
The product is not classified as hazardous according to the Globally Harmonized System (GHS).

· **Label elements**
· **GHS label elements** Not regulated.
· **Hazard pictograms:** Not regulated.
· **Signal word:** None
· **Hazard statements:** None.
· **Precautionary statements:** None.

· **Other hazards** There are no other hazards not otherwise classified that have been identified.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Components:**		
7732-18-5	Water	>90%
3147-14-6	3-hydroxy-4-(6-hydroxy-m-tolylazo)naphthalene-1-sulphonic acid	<10%

· **Additional information:**
For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.
For the wording of the listed Hazard Statements, refer to section 16.

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Safety Data Sheet

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Trade name: Hardness Indicator Liquid

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4 First-aid measures

· **Description of first aid measures**
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:**
Immediately rinse with water.
If skin irritation is experienced, consult a doctor.
· **After eye contact:**
Remove contact lenses if worn.
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; immediately call for medical help.
· **Most important symptoms and effects, both acute and delayed:**
Gastric or intestinal disorders when ingested.
· **Indication of any immediate medical attention and special treatment needed:**
No relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
The product is not flammable.
Use fire fighting measures that suit the environment.
· **For safety reasons unsuitable extinguishing agents:** No relevant information available.
· **Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
· **Advice for firefighters**
· **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Ensure adequate ventilation.
For large spills, wear protective clothing.
· **Environmental precautions**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
· **Methods and material for containment and cleaning up**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose of the collected material according to regulations.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

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Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

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Trade name: Hardness Indicator Liquid

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7 Handling and storage

· **Handling**
· **Precautions for safe handling:**
Avoid splashes or spray in enclosed areas.
Use only in well ventilated areas.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Requirements to be met by storerooms and receptacles:**
Store in cool, dry conditions in well sealed receptacles.
· **Information about storage in one common storage facility:** Store away from oxidizing agents.
· **Further information about storage conditions:** Store in cool, dry conditions in well sealed receptacles.
· **Specific end use(s)** No relevant information available.

8 Exposure controls/personal protection

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **Exposure controls**
· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
· **Engineering controls:** Provide adequate ventilation.
· **Breathing equipment:** Not required under normal conditions of use.
· **Protection of hands:**
Gloves not required under normal conditions of use.
Gloves are advised for repeated or prolonged contact.
Wear protective gloves to handle contents of damaged or leaking units.
· **Eye protection:** Follow relevant national guidelines concerning the use of protective eyewear.
· **Body protection:** Protective work clothing
· **Limitation and supervision of exposure into the environment** No special requirements.
· **Risk management measures** No special requirements.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**
· **Appearance:**

Form:	Liquid
Color:	Light purple.
· **Odor:**	Not determined.
· **Odor threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Melting point/Melting range:**	0 °C (32 °F)

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Trade name: Hardness Indicator Liquid

(Cont'd. of page 3)

· **Boiling point/Boiling range:**	100 °C (212 °F)
· **Flash point:**	The product is not flammable.
· **Flammability (solid, gaseous):**	Not applicable.
· **Auto-ignition temperature:**	Not determined.
· **Decomposition temperature:**	Not determined.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits**	
Lower:	Not determined.
Upper:	Not determined.
· **Oxidizing properties:**	Not determined.
· **Vapor pressure:**	Not determined.
· **Density:**	
Relative density:	Not determined.
Vapor density:	Not determined.
Evaporation rate:	Not determined.
· **Solubility in / Miscibility with**	
Water:	Soluble.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Other information**	No relevant information available.

10 Stability and reactivity

· **Reactivity:** No relevant information available.
· **Chemical stability:** Stable under normal temperatures and pressures.
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
· **Possibility of hazardous reactions**
Reacts with strong alkali.
Reacts with strong oxidizing agents.
· **Conditions to avoid** No relevant information available.
· **Incompatible materials** No relevant information available.
· **Hazardous decomposition products**
Under fire conditions only:
Possible in traces.

11 Toxicological information

· **Information on toxicological effects**

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Trade name: Hardness Indicator Liquid

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· **Acute toxicity:**
· **LD/LC50 values that are relevant for classification:** None.
· **Primary irritant effect:**
· **On the skin:** Based on available data, the classification criteria are not met.
· **On the eye:** Based on available data, the classification criteria are not met.
· **Sensitization:** Based on available data, the classification criteria are not met.

· **IARC (International Agency for Research on Cancer):**
None of the ingredients are listed.

· **NTP (National Toxicology Program):**
None of the ingredients are listed.

· **OSHA-Ca (Occupational Safety & Health Administration):**
None of the ingredients are listed.

· **Probable route(s) of exposure:**
Ingestion.
Inhalation.
Eye contact.
Skin contact.
· **Acute effects (acute toxicity, irritation and corrosivity):** No relevant information available.
· **Repeated dose toxicity:** No relevant information available.
· **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.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity** No relevant information available.
· **Persistence and degradability** No relevant information available.
· **Bioaccumulative potential:** No relevant information available.
· **Mobility in soil:** No relevant information available.
· **Additional ecological information**
· **General notes:** Generally not hazardous for water.
· **Other adverse effects** No relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.

· **Uncleaned packagings**

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Safety Data Sheet

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Revision: January 31, 2020

Trade name: Hardness Indicator Liquid

(Cont'd. of page 5)

· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **UN-Number**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	Not regulated.
· **UN proper shipping name**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	Not regulated.
· **Transport hazard class(es)**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	
· **Class**	Not regulated.
· **Packing group**	
· **DOT, ADR/RID/ADN, IMDG, IATA**	Not regulated.
· **Environmental hazards**	Not applicable.
· **Special precautions for user**	Not applicable.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.

15 Regulatory information

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

· **United States (USA)**

· **SARA**

· **Section 302 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients are listed.

· **TSCA (Toxic Substances Control Act)**

3147-14-6	3-hydroxy-4-(6-hydroxy-m-tolylazo)naphthalene-1-sulphonic acid
7732-18-5	Water

· **Proposition 65 (California)**

· **Chemicals known to cause cancer:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for females:**

None of the ingredients are listed.

(Cont'd. on page 7)

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Revision: January 31, 2020

Trade name: Hardness Indicator Liquid

(Cont'd. of page 6)

· **Chemicals known to cause developmental toxicity for males:**
None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients are listed.

· **EPA (Environmental Protection Agency):**
None of the ingredients are listed.

· **IARC (International Agency for Research on Cancer):**
None of the ingredients are listed.

· **Canadian Domestic Substances List (DSL):**
None of the ingredients are listed.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

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CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
OSHA: Occupational Safety & Health Administration

· **Sources**
Website, European Chemicals Agency (echa.europa.eu)
Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)
Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)
Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6
Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.
Safety Data Sheets, Individual Manufacturers

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