Safety Data Sheet
acc. to OSHA HCS

SB07206
SB07205
VH000102

Printing date 03/21/2014 *Reviewed on 03/21/2014*

1 Identification

· **Product identifier**

· **Trade name: Barium Chloride Solution**
0.3 Molar

· **Article number:** CH008

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Aqua Solutions, Inc.
6913 Highway 225
DEER PARK, TX 77536
USA
800-256-2586

· **Information department:**
Product safety department
Technical Coordinator
Sherman Nelson sherman@aquasolutions.org
· **Emergency telephone number:**
Chemtrec: 800-424-9300
Canutec: 613-996-6666

2 Hazard(s) identification

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

· **Label elements**
· **GHS label elements** Not Applicable
· **Hazard pictograms** Not Applicable
· **Signal word** Not Applicable
· **Hazard statements** Not Applicable
· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 2
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

HEALTH	2
FIRE	0
REACTIVITY	0

Health = 2
Fire = 0
Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/21/2014

Trade name: Barium Chloride Solution
0.3 Molar

(Contd. of page 1)

· **Dangerous components:**		
10326-27-9	Barium Chloride Dihydrate	7.33%

· **Table of Nonhazardous Ingredients**		
7732-18-5	Water, Deionized, Distilled	92.67%

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 required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately rinse with water.
· **After eye contact:** Rinse opened eye for several minutes under running water.
· **After swallowing:** Immediately call a doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.
· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **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.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Trade name: Barium Chloride Solution
0.3 Molar

(Contd. of page 2)

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** Keep receptacle tightly sealed.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
10326-27-9 Barium Chloride Dihydrate	
PEL	Long-term value: 0.5 mg/m³ as Ba
REL	Long-term value: 0.5 mg/m³ as Ba
TLV	Long-term value: 0.5 mg/m³ as Ba

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Wash hands before breaks and at the end of work.
· **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
· **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **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.

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/21/2014

Trade name: Barium Chloride Solution
0.3 Molar

(Contd. of page 3)

· **Eye protection:** Goggles recommended during refilling.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Color:	Clear to slightly turbid
· **Odor:**	Odorless
· **Odour threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not applicable.
· **Ignition temperature:**	
Decomposition temperature:	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17 mm Hg)
· **Density at 20 °C (68 °F):**	1.15371 g/cm³ (9.628 lbs/gal)
· **Relative density**	Not determined.
· **Vapour density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with**	
Water:	Not miscible or difficult to mix.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Organic solvents:	0.0 %
Water:	92.7 %
Solids content:	7.3 %
· **Other information**	No further relevant information available.

USA

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Trade name: Barium Chloride Solution
0.3 Molar

(Contd. of page 4)

10 Stability and reactivity

· **Reactivity**
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Harmful

· **Carcinogenic categories**

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

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

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/21/2014

Trade name: Barium Chloride Solution
0.3 Molar

(Contd. of page 5)

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
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.

14 Transport information

· **UN-Number**	
· **DOT, IMDG, IATA**	Not Applicable
· **UN proper shipping name**	
· **DOT, IMDG, IATA**	Not Applicable
· **Transport hazard class(es)**	
· **DOT, IMDG, IATA**	
· **Class**	Not Applicable
· **Packing group**	
· **DOT, IMDG, IATA**	Not Applicable
· **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.
· **UN "Model Regulation":**	-

15 Regulatory information

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

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

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

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

7732-18-5	Water, Deionized, Distilled

· **Proposition 65**

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

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

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/21/2014

Trade name: Barium Chloride Solution
0.3 Molar

(Contd. of page 6)

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

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

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**		
10326-27-9	Barium Chloride Dihydrate	D, CBD(inh), NL(oral)

· **TLV (Threshold Limit Value established by ACGIH)**		
10326-27-9	Barium Chloride Dihydrate	A4

· **NIOSH-Ca (Nationol Institute for Occupational Safety and Health)**
None of the ingredients is listed.

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

· **GHS label elements** Not Applicable
· **Hazard pictograms** Not Applicable
· **Signol word** Not Applicable
· **Hazard statements** Not Applicable
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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.

· **Department issuing MSDS:** Environment protection department.
· **Contact:** Mr. Nelson
· **Date of preparation / last revision**
Creation date for SDS 03-21-2014 STN
03/21/2014 / -
· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (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
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/12/2014

1 Identification

· **Product identifier**

· **Trade name: Iodine, 0.1 Normal Solution Certified**

· **Article number:** CH501, CH501A

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Aqua Solutions, Inc.
6913 Highway 225
DEER PARK, TX 77536
USA
800-256-2586

· **Information department:**
Product safety department
Technical Coordinator
Sherman Nelson sherman@aquasolutions.org
· **Emergency telephone number:**
Chemtrec: 800-424-9300
Canutec: 613-996-6666

2 Hazard(s) identification

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

· **Label elements**
· **GHS label elements** Not Applicable
· **Hazard pictograms** Not Applicable
· **Signal word** Not Applicable
· **Hazard statements** Not Applicable
· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 0
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

HEALTH	0
FIRE	0
REACTIVITY	0

Health = 0
Fire = 0
Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 *Reviewed on 03/12/2014*

Trade name: Iodine, 0.1 Normal Solution Certified

(Contd. of page 1)

· **Dangerous components:**		
7681-11-0	Potassium Iodide	4.0%
7553-56-2	Iodine *DEA regulated item	1.269%

· **Table of Nonhazardous Ingredients**		
7732-18-5	Water, Deionized, Distilled	94.731%

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:** Generally the product does not irritate the skin.
· **After eye contact:** Rinse opened eye for several minutes under running water.
· **After swallowing:** If symptoms persist consult doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.
· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
· **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** No special measures required.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Trade name: Iodine, 0.1 Normal Solution
Certified

(Contd. of page 2)

· **Further information about storage conditions:** None.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
7681-11-0 Potassium Iodide	
TLV	Long-term value: 0.01* ppm *as inhalable fraction and vapor
7553-56-2 Iodine *DEA regulated item	
PEL	Ceiling limit value: 1 mg/m³, 0.1 ppm
REL	Ceiling limit value: 1 mg/m³, 0.1 ppm
TLV	Short-term value: 1 mg/m³, 0.1** ppm Long-term value: 0.1* mg/m³, 0.01* ppm *as inhalable fraction and vapor;**vapor

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
· **Breathing equipment:** Not required.
· **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **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:** Goggles recommended during refilling.

9 Physical and chemical properties

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

Form:	Liquid
Color:	Brown
· **Odor:**	Odorless
· **Odour threshold:**	Not determined.

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/12/2014

Trade name: Iodine, 0.1 Normal Solution Certified

(Contd. of page 3)

· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not applicable.
· **Ignition temperature:**	
Decomposition temperature:	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17 mm Hg)
· **Density at 20 °C (68 °F):**	1.13507 g/cm³ (9.472 lbs/gal)
· **Relative density**	Not determined.
· **Vapour density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with**	
Water:	Not miscible or difficult to mix.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Organic solvents:	0.0 %
Water:	94.7 %
Solids content:	5.3 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity**
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

USA

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Trade name: Iodine, 0.1 Normal Solution Certified

(Contd. of page 4)

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product is not subject to classification according to internally approved calculation methods for preparations:
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

· **Carcinogenic categories**

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

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

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:** Smaller quantities can be disposed of with household waste.

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

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/12/2014

Trade name: Iodine, 0.1 Normal Solution Certified

(Contd. of page 5)

14 Transport information

· UN-Number · DOT, ADN, IMDG, IATA	Not Applicable
· UN proper shipping name · DOT, ADN, IATA · IMDG	Not Applicable Not Regulated
· Transport hazard class(es) · DOT, ADN, IMDG, IATA · Class	Not Applicable
· Packing group · DOT, IMDG, IATA	Not Applicable
· 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.
· UN "Model Regulation":	Not Regulated -

15 Regulatory information

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

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

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

· TSCA (Toxic Substances Control Act):
All ingredients are listed.

· Proposition 65

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

· Chemicals known to cause reproductive toxicity for females:
None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:
None of the ingredients is listed.

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

· Carcinogenic categories

· EPA (Environmental Protection Agency)
None of the ingredients is listed.

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/12/2014

Trade name: Iodine, 0.1 Normal Solution Certified

(Contd. of page 6)

· **TLV (Threshold Limit Value established by ACGIH)**

7553-56-2	Iodine *DEA regulated item	A4

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

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

None of the ingredients is listed.

· **GHS label elements** Not Applicable
· **Hazard pictograms** Not Applicable
· **Signal word** Not Applicable
· **Hazard statements** Not Applicable
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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.

· **Department issuing MSDS:** Environment protection department.
· **Contact:** Mr. Nelson
· **Date of preparation / last revision**
Creation date for SDS 03-12-14
03/21/2014 / -
· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (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
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/20/2014

1 Identification

· **Product identifier**

· **Trade name: Sulfuric Acid**
10% v/v Solution

· **Article number:** CH109

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Aqua Solutions, Inc.
6913 Highway 225
DEER PARK, TX 77536
USA
800-256-2586

· **Information department:**
Technical Coordinator
Sherman Nelson sherman@aquasolutions.org
Product safety department
· **Emergency telephone number:**
Chemtrec: 800-424-9300
Canutec: 613-996-6666

2 Hazard(s) identification

· **Classification of the substance or mixture**

GHS05 Corrosion

Skin Corr. 1A H314 Causes severe skin burns and eye damage.

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

GHS05

· **Signal word** Danger

· **Hazard-determining components of labeling:**
Sulfuric Acid 96 - 98%
· **Hazard statements**
Causes severe skin burns and eye damage.
· **Precautionary statements**
If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.
Do not breathe dust/fume/gas/mist/vapours/spray.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Specific treatment (see on this label).
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/20/2014

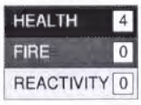
Trade name: Sulfuric Acid
10% v/v Solution

(Contd. of page 1)

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 4
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 4
Fire = 0
Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**		
7664-93-9	Sulfuric Acid 96 - 98%	16.974%

· **Table of Nonhazardous Ingredients**		
7732-18-5	Water, Deionized, Distilled	83.026%

4 First-aid measures

· **Description of first aid measures**
· **General information:** Immediately remove any clothing soiled by the product.
· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:** Drink copious amounts of water and provide fresh air. Immediately call a doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/20/2014

Trade name: Sulfuric Acid
10% v/v Solution

(Contd. of page 2)

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **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**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompotibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** Keep receptacle tightly sealed.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
7664-93-9 Sulfuric Acid 96 - 98%	
PEL	Long-term value: 1 mg/m³
REL	Long-term value: 1 mg/m³
TLV	Long-term value: 0.2* mg/m³ *as thoracic fraction

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/20/2014

Trade name: Sulfuric Acid
10% v/v Solution

(Contd. of page 3)

Avoid contact with the eyes and skin.

· **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **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:**

Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Color:	Colorless
· **Odor:**	Odorless
· **Odour threshold:**	Not determined.
· **pH-value at 20 °C (68 °F):**	< 2
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not applicable.
· **Ignition temperature:**	
Decomposition temperature:	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/20/2014

Trade name: Sulfuric Acid
10% v/v Solution

(Contd. of page 4)

· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17 mm Hg)
· **Density at 20 °C (68 °F):**	1.14258 g/cm³ (9.535 lbs/gal)
· **Relative density**	Not determined.
· **Vapour 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.
· **Solvent content:**	
Organic solvents:	0.0 %
Water:	83.0 %
VOC content:	17.0 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity**
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decompasition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decampasition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on taxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** Strong caustic effect on skin and mucous membranes.
· **on the eye:** Strong caustic effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according ta internally approved calculation methods far preparations:
Corrosive
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/20/2014

Trade name: Sulfuric Acid
10% v/v Solution

(Contd. of page 5)

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**		
7664-93-9	Sulfuric Acid 96 - 98%	1

· **NTP (National Toxicology Program)**		
7664-93-9	Sulfuric Acid 96 - 98%	K

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further 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.

· **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, IMDG, IATA**	UN1760
· **UN proper shipping name**	
· **DOT**	Corrosive liquids, n.o.s. (Sulfuric Acid)
· **IMDG, IATA**	CORROSIVE LIQUID, N.O.S. (Sulfuric Acid)

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 *Reviewed on 03/20/2014*

Trade name: Sulfuric Acid
10% v/v Solution

(Contd. of page 6)

· **Transport hazard class(es)**

· **DOT**

· **Class**	8 Corrosive substances.
· **Label**	8

· **IMDG, IATA**

· **Class**	8 Corrosive substances.
· **Label**	8
· **Packing group**	
· **DOT, IMDG, IATA**	II
· **Environmental hazards:**	
· **Marine pollutant:**	No
· **Special precautions for user**	Warning: Corrosive substances
· **Danger code (Kemler):**	88
· **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.
· **UN "Model Regulation":**	UN1760, Corrosive liquids, n.o.s. (Sulfuric Acid), 8, II

15 Regulatory information

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

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

7664-93-9	Sulfuric Acid 96 - 98%

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

7664-93-9	Sulfuric Acid 96 - 98%

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

All ingredients are listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

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

None of the ingredients is listed.

(Contd. on page 8)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/20/2014

Trade name: Sulfuric Acid
10% v/v Solution

(Contd. of page 7)

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

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

· **Carcinogenic categories**

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

· **TLV (Threshold Limit Value established by ACGIH)**

7664-93-9	Sulfuric Acid 96 - 98%	A2

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

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

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

GHS05

· **Signal word** Danger

· **Hazard-determining components of labeling:**
Sulfuric Acid 96 - 98%
· **Hazard statements**
Causes severe skin burns and eye damage.
· **Precautionary statements**
If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.
Do not breathe dust/fume/gas/mist/vapours/spray.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Specific treatment (see on this label).
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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.

· **Department issuing MSDS:** Environment protection department.
· **Contact:** Mr. Nelson
· **Date of preparation / last revision**
Creation date for SDS 03-20-2014. STN
03/21/2014 / -

(Contd. on page 9)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 *Reviewed on 03/20/2014*

Trade name: Sulfuric Acid
10% v/v Solution

(Contd. of page 8)

· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (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
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
Skin Corr. 1A: Skin corrosion/irritation, Hazard Category 1A

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/21/2014

1 Identification

· **Product identifier**

· **Trade name: Potassium Thiocyanate**
0.1 Molar Solution

· **Article number:** CH092

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Aqua Solutions, Inc.
6913 Highway 225
DEER PARK, TX 77536
USA
800-256-2586

· **Information department:**
Product safety department
Technical Coordinator
Sherman Nelson sherman@aquasolutions.org
· **Emergency telephone number:**
Chemtrec: 800-424-9300
Canutec: 613-996-6666

2 Hazard(s) identification

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

· **Label elements**
· **GHS label elements** Not Applicable
· **Hazard pictograms** Not Applicable
· **Signal word** Not Applicable
· **Hazard statements** Not Applicable
· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 0
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

HEALTH	0
FIRE	0
REACTIVITY	0

Health = 0
Fire = 0
Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:** Not Applicable

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/21/2014

Trade name: Potassium Thiocyanate
0.1 Molar Solution

(Contd. of page 1)

· Table of Nonhazardous Ingredients		
333-20-0	Potassium Thiocyanate	0.972%
7732-18-5	Water, Deionized, Distilled	99.028%

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:** Generally the product does not irritate the skin.
· **After eye contact:** Rinse opened eye for several minutes under running water.
· **After swallowing:** If symptoms persist consult doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.
· **Environmental precautions:** Dilute with plenty of water.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
· **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** No special measures required.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** None.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/21/2014

Trade name: Potassium Thiocyanate
0.1 Molar Solution

(Contd. of page 2)

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

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **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.
· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
· **Breathing equipment:** Not required.
· **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **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:** Goggles recommended during refilling.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Color:	Colorless
· **Odor:**	Odorless
· **Odour threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not applicable.
· **Ignition temperature:**	
Decomposition temperature:	Not determined.

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/21/2014

Trade name: Potassium Thiocyanate
0.1 Molar Solution

(Contd. of page 3)

· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17 mm Hg)
· **Density at 20 °C (68 °F):**	1.00861 g/cm³ (8.417 lbs/gal)
· **Relative density**	Not determined.
· **Vapour 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.
· **Solvent content:**	
Organic solvents:	0.0 %
Water:	99.0 %
Solids content:	1.0 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity**
· **Chemical stability**
· **Thermal decompasition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product is not subject to classification according to internally approved calculation methods for preparations:
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Trade name: Potassium Thiocyanate
0.1 Molar Solution

(Contd. of page 4)

· **Carcinogenic categories**

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

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

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:** Generally not hazardous for water
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:** Smaller quantities can be disposed of with household waste.

· **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, IMDG, IATA**	Not Applicable
· **UN proper shipping name**	
· **DOT, IATA**	Not Applicable
· **IMDG**	Not Regulated
· **Transport hazard class(es)**	
· **DOT, IMDG, IATA**	
· **Class**	Not Applicable
· **Packing group**	
· **DOT, IMDG, IATA**	Not Applicable
· **Environmental hazards:**	
· **Marine pollutant:**	No

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/21/2014

Trade name: Potassium Thiocyanate
0.1 Molar Solution

(Contd. of page 5)

· **Special precautions for user**	Not applicable.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **UN "Model Regulation":**	Not Regulated -

15 Regulatory information

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

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

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

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

· **Proposition 65**

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

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

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

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

· **Carcinogenic categories**

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

· **TLV (Threshold Limit Value established by ACGIH)**
None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

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

· **GHS label elements** Not Applicable
· **Hazard pictograms** Not Applicable
· **Signal word** Not Applicable
· **Hazard statements** Not Applicable
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Trade name: Potassium Thiocyanate
0.1 Molar Solution

(Contd. of page 6)

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.

· **Department issuing MSDS:** Environment protection department.
· **Contact:** Mr. Nelson
· **Date of preparation / last revision**
Creation date for SDS 03-21-2014 STN
03/21/2014 / -
· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (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
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/14/2014

1 Identification

· **Product identifier**

· **Trade name: Potassium Iodide 1% w/v Solution**

· **Article number:** CH086

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Aqua Solutions, Inc.
6913 Highway 225
DEER PARK, TX 77536
USA
800-256-2586

· **Information department:**
Product safety department
Technical Coordinator
Sherman Nelson sherman@aquasolutions.org
· **Emergency telephone number:**
Chemtrec: 800-424-9300
Canutec: 613-996-6666

2 Hazard(s) identification

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

· **Label elements**
· **GHS label elements** Not Applicable
· **Hazard pictograms** Not Applicable
· **Signal word** Not Applicable
· **Hazard statements** Not Applicable
· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 0
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

HEALTH	0
FIRE	0
REACTIVITY	0

Health = 0
Fire = 0
Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/14/2014

Trade name: Potassium Iodide
1% w/v Solution

(Contd. of page 1)

· **Dangerous components:**		
7681-11-0	Potassium Iodide	1.0%

· **Table of Nonhazardous Ingredients**		
7732-18-5	Water, Deionized, Distilled	99.0%

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:** Generally the product does not irritate the skin.
· **After eye contact:** Rinse opened eye for several minutes under running water.
· **After swallowing:** If symptoms persist consult doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.
· **Environmental precautions:** Dilute with plenty of water.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
· **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** No special measures required.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** None.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Trade name: Potassium Iodide
1% w/v Solution

(Contd. of page 2)

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

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
7681-11-0 Potassium Iodide	
TLV	Long-term value: 0.01* ppm *as inhalable fraction and vapor

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
· **Breathing equipment:** Not required.
· **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **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:** Goggles recommended during refilling.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Color:	Colorless
· **Odor:**	Odorless
· **Odour threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not applicable.

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/14/2014

Trade name: Potassium Iodide
1% w/v Solution

(Contd. of page 3)

· **Ignition temperature:**	
Decomposition temperature:	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17 mm Hg)
· **Density at 20 °C (68 °F):**	1.0213 g/cm³ (8.523 lbs/gal)
· **Relative density**	Not determined.
· **Vapour 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.
· **Solvent content:**	
Organic solvents:	0.0 %
Water:	99.0 %
Solids content:	1.0 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity**
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** Na dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/14/2014

Trade name: Potassium Iodide
1% w/v Solution

(Contd. of page 4)

· **Additional toxicological information:**
The product is not subject to classification according to internally approved calculation methods for preparations:
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

· **Carcinogenic categories**

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

· NTP (National Toxicology Program)
None of the ingredients is listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:** Generally not hazardous for water
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:** Smaller quantities can be disposed of with household waste.

· **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, ADN, IMDG, IATA	Not Applicable
· UN proper shipping name	
· DOT, ADN, IATA	Not Applicable
· IMDG	Not Regulated
· Transport hazard class(es)	
· DOT, ADN, IMDG, IATA	
· Class	Not Applicable

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 *Reviewed on 03/14/2014*

Trade name: Potassium Iodide 1% w/v Solution

(Contd. of page 5)

· **Packing group** · **DOT, IMDG, IATA**	Not Applicable
· **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.
· **UN "Model Regulation":**	Not Regulated

15 Regulatory information

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

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

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

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

· **Proposition 65**

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

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

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

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

· **Carcinogenic categories**

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

· **TLV (Threshold Limit Value established by ACGIH)**
None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

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

· **GHS label elements** Not Applicable
· **Hazard pictograms** Not Applicable
· **Signal word** Not Applicable
· **Hazard statements** Not Applicable

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 *Reviewed on 03/14/2014*

Trade name: Potassium Iodide
1% w/v Solution

(Contd. of page 6)

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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.

· **Department issuing MSDS:** Environment protection department.
· **Contact:** Mr. Nelson
· **Date of preparation / last revision**
Creation date for SDS 03-14-2014. STN
03/21/2014 / -
· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (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
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/12/2014

1 Identification

· **Product identifier**

· **Trade name: Hydrogen Peroxide 3% Solution**

· **Article number:** CH050

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Aqua Solutions, Inc.
6913 Highway 225
DEER PARK, TX 77536
USA
800-256-2586

· **Information department:**
Technical Coordinator
Sherman Nelson sherman@aquasolutions.org
Product safety department
· **Emergency telephone number:**
Chemtrec: 800-424-9300
Canutec: 613-996-6666

2 Hazard(s) identification

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

· **Label elements**
· **GHS label elements** Not Applicable
· **Hazard pictograms** Not Applicable
· **Signal word** Not Applicable
· **Hazard statements** Not Applicable
· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 0
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

HEALTH	0
FIRE	0
REACTIVITY	0

Health = 0
Fire = 0
Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**		
7722-84-1	Hydrogen Peroxide Solution	3.0%

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/12/2014

Trade name: Hydrogen Peroxide 3% Solution

(Contd. of page 1)

· Table of Nonhazardous Ingredients		
7732-18-5	Water, Deionized, Distilled	97.0%

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:** Generally the product does not irritate the skin.
· **After eye contact:** Rinse opened eye for several minutes under running water.
· **After swallowing:** If symptoms persist consult doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.
· **Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleoning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
· **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** No special measures required.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** None.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/12/2014

Trade name: Hydrogen Peroxide 3% Solution

(Contd. of page 2)

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

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
7722-84-1 Hydrogen Peroxide Solution	
PEL	Long-term value: 1.4 mg/m³, 1 ppm
REL	Long-term value: 1.4 mg/m³, 1 ppm
TLV	Long-term value: 1.4 mg/m³, 1 ppm

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
· **Breathing equipment:** Not required.
· **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **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:** Goggles recommended during refilling.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Color:	Colorless
· **Odor:**	Odorless
· **Odour threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not applicable.

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/12/2014

Trade name: Hydrogen Peroxide 3% Solution

(Contd. of page 3)

· **Ignition temperature:**	
Decomposition temperature:	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17 mm Hg)
· **Density at 20 °C (68 °F):**	1.0135 g/cm³ (8.458 lbs/gal)
· **Relative density**	Not determined.
· **Vapour 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.
· **Solvent content:**	
Organic solvents:	0.0 %
Water:	97.0 %
VOC content:	3.0 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity**
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product is not subject to classification according to internally approved calculation methods for preparations:

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Trade name: Hydrogen Peroxide 3% Solution

(Contd. of page 4)

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

· **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)		
7722-84-1	Hydrogen Peroxide Salution	3

· NTP (National Toxicology Program)
None of the ingredients is listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:** Smaller quantities can be disposed of with household waste.

· **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, ADN, IMDG, IATA	Not Applicable
· UN proper shipping name	
· DOT, ADN, IATA	Not Applicable
· IMDG	Not Regulated
· Transport hazard class(es)	
· DOT, ADN, IMDG, IATA	
· Class	Not Applicable
· Packing group	
· DOT, IMDG, IATA	Not Applicable

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/12/2014

Trade name: Hydrogen Peroxide 3% Solution

(Contd. of page 5)

· **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.
· **UN "Model Regulation":**	Not Regulated -

15 Regulatory information

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

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

7722-84-1	Hydrogen Peroxide Solution

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

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

· **Proposition 65**

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

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

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

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

· **Carcinogenic categories**

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

· **TLV (Threshold Limit Value established by ACGIH)**

7722-84-1	Hydrogen Peroxide Solution	A3

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

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

· **GHS label elements** Not Applicable
· **Hazard pictograms** Not Applicable
· **Signal word** Not Applicable
· **Hazard statements** Not Applicable
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Trade name: Hydrogen Peroxide 3% Solution

(Contd. of page 6)

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.

· **Department issuing MSDS:** Environment protection department.
· **Contact:** Mr. Nelson
· **Date of preparation / last revision**
Creation date for SDS 03-14-2014. STN
03/21/2014 / -
· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (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
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/11/2014

1 Identification

· **Product identifier**

· **Trade name: Gelatin, Laboratory Grade**

· **Article number:** CH047
· **CAS Number:**
9000-70-8
· **EC number:**
232-554-6

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Aqua Solutions, Inc.
6913 Highway 225
DEER PARK, TX 77536
USA
800-256-2586

· **Information department:**
Technical Coordinator
Sherman Nelson sherman@aquasolutions.org
Product safety department
· **Emergency telephone number:**
Chemtrec: 800-424-9300
Canutec: 613-996-6666

2 Hazard(s) identification

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

· **Label elements**
· **GHS label elements** Not Applicable
· **Hazard pictograms** Not Applicable
· **Signal word** Not Applicable
· **Hazard statements** Not Applicable
· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 0
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

HEALTH	0
FIRE	0
REACTIVITY	0

Health = 0
Fire = 0
Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/11/2014

Trade name: Gelatin, Laboratory Grade

(Contd. of page 1)

3 Composition/information on ingredients

· **Chemical characterization: Substances**
· **CAS No. Description**
9000-70-8 Gelatin, Laboratory Grade
· **Identification number(s)**
· **EC number:** 232-554-6

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:** Generally the product does not irritate the skin.
· **After eye contact:** Rinse opened eye for several minutes under running water.
· **After swallowing:** If symptoms persist consult doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.
· **Environmental precautions:** No special measures required.
· **Methods and material for containment and cleaning up:** Pick up mechanically.
· **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** No special measures required.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** None.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Trade name: Gelatin, Laboratory Grade

(Contd. of page 2)

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

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:** Not required.
· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
· **Breathing equipment:** Not required.
· **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
· **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:** Not required.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Powder
Color:	White to yellow
· **Odor:**	Light
· **Odour threshold:**	Not determined.
· **pH-value:**	Not applicable.
· **Change in condition**	
Melting point/Melting range:	Information not °C
Boiling point/Boiling range:	Information not °C
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Product is not flammable.
· **Ignition temperature:**	
Decomposition temperature:	Not determined.
· **Auto igniting:**	Not determined.
· **Danger of explosion:**	Product does not present an explosion hazard.

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/11/2014

Trade name: Gelatin, Laboratory Grade

(Contd. of page 3)

· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure:**	Not applicable.
· **Density at 20 °C (68 °F):**	0.68 g/cm³ (5.675 lbs/gal)
· **Relative density**	Not determined.
· **Vapour density**	Not applicable.
· **Evaporation rate**	Not applicable.
· **Solubility in / Miscibility with**	
Water:	Not determined.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity**
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.
The substance is not subject to classificatian.

· **Carcinogenic categories**
· **IARC (International Agency for Research on Cancer)** Substance is not listed.
· **NTP (National Toxicology Program)** Substance is not listed.

12 Ecological information

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

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/11/2014

Trade name: Gelatin, Laboratory Grade

(Contd. of page 4)

· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:** Generally not hazardous for water
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:** Smaller quantities can be disposed of with household waste.

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

14 Transport information

· **UN-Number**	
· **DOT**	Not regulated
· **UN proper shipping name**	
· **IMDG**	Not Regulated
· **Transport hazard class(es)**	
· **DOT**	Not applicable
· **Packing group**	
· **DOT**	Not applicable
· **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.
· **Transport/Additional information:**	
· **DOT**	
· **Remarks:**	Not regulated
· **UN "Model Regulation":**	Not Regulated

15 Regulatory information

· **Safety, health and enviranmental regulations/legislation specific for the substance or mixture**
· **Sara**
· **Section 355 (extremely hazardous substances):** Substance is not listed.
· **Section 313 (Specific toxic chemical listings):** Substance is not listed.
· **TSCA (Toxic Substances Control Act):** Substance is listed.

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/21/2014 Reviewed on 03/11/2014

Trade name: Gelatin, Laboratory Grade

(Contd. of page 5)

· **Proposition 65**
· **Chemicals known to cause cancer:** Substance is not listed.
· **Chemicals known to cause reproductive toxicity for females:** Substance is not listed.
· **Chemicals known to cause reproductive toxicity for males:** Substance is not listed.
· **Chemicals known to cause developmental toxicity:** Substance is not listed.

· **Carcinogenic categories**
· **EPA (Environmental Protection Agency)** Substance is not listed.
· **TLV (Threshold Limit Value established by ACGIH)** Substance is not listed.
· **NIOSH-Ca (National Institute for Occupational Safety and Health)** Substance is not listed.
· **OSHA-Ca (Occupational Safety & Health Administration)** Substance is not listed.
· **GHS label elements** Not Applicable
· **Hazard pictograms** Not Applicable
· **Signal word** Not Applicable
· **Hazard statements** Not Applicable
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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.

· **Department issuing MSDS:** Environment protection department.
· **Contact:** Mr. Nelson
· **Date of preparation / last revision**
Creation date for SDS. STN 03-11-2014
03/21/2014 / -
· **Abbreviations and acronyms:**
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/25/2014 Reviewed on 03/21/2014

1 Identification

· **Product identifier**

· **Trade name: Dextrose (Glucose) Anhydrous Laboratory Grade**

· **Article number:** CH020A
· **CAS Number:**
50-99-7
· **EC number:**
200-075-1

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Aqua Solutions, Inc.
6913 Highway 225
DEER PARK, TX 77536
USA
800-256-2586

· **Information department:**
Product safety department
Technical Coordinator
Sherman Nelson sherman@aquasolutions.org
· **Emergency telephone number:**
Chemtrec: 800-424-9300
Canutec: 613-996-6666

2 Hazard(s) identification

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

· **Label elements**
· **GHS label elements** Not Applicable
· **Hazard pictograms** Not Applicable
· **Signal word** Not Applicable
· **Hazard statements** Not Applicable
· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 0
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

HEALTH	0
FIRE	0
REACTIVITY	0

Health = 0
Fire = 0
Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Substances**
· **CAS No. Description**
50-99-7 Dextrose (Glucose) Anhydrous

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/25/2014 Reviewed on 03/21/2014

Trade name: Dextrose (Glucose) Anhydrous Laboratory Grade

(Contd. of page 1)

· **Identification number(s)**
· **EC number:** 200-075-1

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:** Generally the product does not irritate the skin.
· **After eye contact:** Rinse opened eye for several minutes under running water.
· **After swallowing:** If symptoms persist consult doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO_2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.
· **Environmental precautions:** No special measures required.
· **Methods and material for containment and cleaning up:** Pick up mechanically.
· **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** No special measures required.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** None.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:** Not required.
· **Additional information:** The lists that were valid during the creation were used as basis.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/25/2014 Reviewed on 03/21/2014

Trade name: Dextrose (Glucose) Anhydrous Laboratory Grade

(Contd. of page 2)

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
· **Breathing equipment:** Not required.
· **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
· **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:** Not required.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Powder
Color:	White
· **Odor:**	Odorless
· **Odour threshold:**	Not determined.
· **pH-value:**	Not applicable.
· **Change in condition**	
Melting point/Melting range:	152 °C (306 °F)
Boiling point/Boiling range:	Information not °C
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Product is not flammable.
· **Ignition temperature:**	
Decomposition temperature:	Not determined.
· **Auto igniting:**	Not determined.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure:**	Not applicable.
· **Density at 20 °C (68 °F):**	1.544 g/cm³ (12.885 lbs/gal)
· **Relative density**	Not determined.
· **Vapour density**	Not applicable.
· **Evaporation rate**	Not applicable.
· **Solubility in / Miscibility with**	
Water:	Not determined.
· **Partition coefficient (n-octanol/water):**	Not determined.

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/25/2014 Reviewed on 03/21/2014

Trade name: Dextrose (Glucose) Anhydrous Laboratory Grade

(Contd. of page 3)

· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity**
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

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

· **LD/LC50 values that are relevant for classification:**		
Oral	LD50	25800 mg/kg (rat)

· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.
The substance is not subject to classification.

· **Carcinogenic categories**
· **IARC (International Agency for Research on Cancer)** Substance is not listed.
· **NTP (National Toxicology Program)** Substance is not listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:** Generally not hazardous for water
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:** Smaller quantities can be disposed of with household waste.

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/25/2014 Reviewed on 03/21/2014

Trade name: Dextrose (Glucose) Anhydrous Laboratory Grade

(Contd. of page 4)

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

14 Transport information

· **UN-Number** · **DOT**	Not regulated
· **UN proper shipping name** · **IMDG**	Not Regulated
· **Transport hazard class(es)** · **DOT**	Not applicable
· **Packing group** · **DOT**	Not applicable
· **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.
· **UN "Model Regulation":**	Not Regulated

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**
· **Section 355 (extremely hazardous substonees):** Substance is not listed.
· **Section 313 (Specific toxic chemical listings):** Substance is not listed.
· **TSCA (Toxic Substances Control Act):** Substance is listed.
· **Proposition 65**
· **Chemicals known to cause cancer:** Substance is not listed.
· **Chemicals known to cause reproductive toxicity for females:** Substance is not listed.
· **Chemicals known to cause repraductive toxicity for males:** Substance is not listed.
· **Chemicals known to cause developmental toxicity:** Substance is not listed.

· **Carcinogenic categories**
· **EPA (Environmental Protection Agency)** Substance is not listed.
· **TLV (Threshold Limit Value established by ACGIH)** Substance is not listed.
· **NIOSH-Ca (National Institute for Occupational Safety and Health)** Substance is not listed.
· **OSHA-Ca (Occupational Safety & Health Administration)** Substance is not listed.
· **GHS label elements** Not Applicable
· **Hazard pictograms** Not Applicable
· **Signal word** Not Applicable
· **Hazard statements** Not Applicable
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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.

· **Department issuing MSDS:** Environment protection department.
· **Contact:** Mr. Nelson

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Trade name: Dextrose (Glucose) Anhydrous Laboratory Grade

(Contd. of page 5)

· **Date of preparation / last revision**
Creation date for SDS 03-21-2014 STN
03/25/2014 / -

· **Abbreviations and acronyms:**
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/08/2014 Reviewed on 04/01/2014

1 Identification

· **Product identifier**

· **Trade name: Citric Acid, Granular**

· **Article number:** CH018
· **CAS Number:**
5949-29-1
· **EC number:**
201-069-1

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Aqua Solutions, Inc.
6913 Highway 225
DEER PARK, TX 77536
USA
800-256-2586

· **Information department:**
Product safety department
Technical Coordinator
Sherman Nelson sherman@aquasolutions.org
· **Emergency telephone number:**
Chemtrec: 800-424-9300
Canutec: 613-996-6666

2 Hazard(s) identification

· **Classification of the substance or mixture**


GHS07

Eye Irrit. 2A H319 Causes serious eye irritation.

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


GHS07

· **Signal word** Warning
· **Hazard statements**
Causes serious eye irritation.
· **Precautionary statements**
Wear protective gloves/protective clothing/eye protection/face protection.
Wash thoroughly after handling.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 1
Fire = 1
Reactivity = 0

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/08/2014 Reviewed on 04/01/2014

Trade name: Citric Acid, Granular

(Contd. of page 1)

· **HMIS-ratings (scale 0 - 4)**

HEALTH 1	Health = 1
FIRE 1	Fire = 1
REACTIVITY 0	Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Substances**
· **CAS No. Description**
5949-29-1 Citric Acid Monohydrate
· **Identification number(s)**
· **EC number:** 201-069-1

4 First-aid measures

· **Description of first aid measures**
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:** Generally the product does not irritate the skin.
· **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:** If symptoms persist consult doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.
· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:** Pick up mechanically.
· **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** No special precautions are necessary if used correctly.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/08/2014 Reviewed on 04/01/2014

Trade name: Citric Acid, Granular

(Contd. of page 2)

· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** Keep receptacle tightly sealed.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:** Not required.
· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
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.
Avoid contact with the eyes and skin.
· **Breathing equipment:** Not required.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
· **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:**

Tightly sealed goggles

9 Physical and chemical properties

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

Form:	Crystalline
Color:	White
· **Odor:**	Odorless

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/08/2014 Reviewed on 04/01/2014

Trade name: Citric Acid, Granular

(Contd. of page 3)

· **Odour threshold:**	Not determined.
· **pH-value (100 g/l) at 20 °C (68 °F):**	1.6
· **Change in condition**	
Melting point/Melting range:	Information not °C
Boiling point/Boiling range:	Information not °C
· **Flash point:**	174 °C (345 °F)
· **Flammability (solid, gaseous):**	Product is not flammable.
· **Ignition temperature:**	1010 °C (1850 °F)
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Not determined.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure:**	Not applicable.
· **Density at 20 °C (68 °F):**	1.542 g/cm³ (12.868 lbs/gal)
· **Bulk density at 20 °C (68 °F):**	900 kg/m³
· **Relative density**	Not determined.
· **Vapour density**	Not applicable.
· **Evaporation rate**	Not applicable.
· **Solubility in / Miscibility with**	
Water at 20 °C (68 °F):	600 g/l
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity**
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

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

· **LD/LC50 values that are relevant for classification:**		
Oral	LD50	5040 mg/kg (mouse)
		not available mg/kg (rat)
	Germ cell mutagenicity	not available (rat)
	Intraperitoneal	375 mg/kg (rat)

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Trade name: Citric Acid, Granular

(Contd. of page 4)

· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** Irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**

· **Carcinogenic categories**
· **IARC (International Agency for Research on Cancer)** Substance is not listed.
· **NTP (National Toxicology Program)** Substance is not listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Water hazard class 1 (Assessment by list): slightly hazardous for water
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 decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further 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.

· **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, ADN, IMDG, IATA**	Not Applicable
· **UN proper shipping name**	
· **DOT, ADN, IMDG, IATA**	Not Applicable
· **Transport hazard class(es)**	
· **DOT, ADN, IMDG, IATA**	
· **Class**	Not Applicable
· **Packing group**	
· **DOT, IMDG, IATA**	Not Applicable

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/08/2014 Reviewed on 04/01/2014

Trade name: Citric Acid, Granular

(Contd. of page 5)

· **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.
· **Transport/Additional information:**	
· **DOT**	Not Regulated
· **UN "Model Regulation":**	-

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**
· **Section 355 (extremely hazardous substances):** Substance is not listed.
· **Section 313 (Specific toxic chemical listings):** Substance is not listed.
· **TSCA (Toxic Substances Control Act):** Substance is listed.
· **Proposition 65**
· **Chemicals known to cause cancer:** Substance is not listed.
· **Chemicals knawn to cause reproductive toxicity for females:** Substance is not listed.
· **Chemicals known to cause reproductive toxicity for males:** Substance is not listed.
· **Chemicals known to cause developmental toxicity:** Substance is not listed.

· **Carcinogenic categories**
· **EPA (Environmental Protection Agency)** Substance is not listed.
· **TLV (Threshold Limit Value established by ACGIH)** Substance is not listed.
· **NIOSH-Ca (National Institute for Occupational Safety and Health)** Substance is not listed.
· **OSHA-Ca (Occupational Safety & Health Administration)** Substance is not listed.
· **GHS label elements**
The substance is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms**

GHS07

· **Signal word** Warning
· **Hazard statements**
Causes serious eye irritation.
· **Precautionary statements**
Wear protective gloves/protective clothing/eye protection/face protection.
Wash thoroughly after handling.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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.

· **Department issuing MSDS:** Environment protection department.
· **Contact:** Mr. Nelson

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/08/2014 Reviewed on 04/01/2014

Trade name: Citric Acid, Granular

(Contd. of page 6)

· **Date of preparation / last revision**
Creation date for SDS 04-04-2014. STN
04/08/2014 / -

· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
DOT: US Department of Transportation
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/08/2014 Reviewed on 03/11/2014

1 Identification

· **Product identifier**

· **Trade name: Ethyl Alcohol, Denatured Anhydrous, Govt. Form III**

· **Article number:** CH077

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Aqua Solutions, Inc.
6913 Highway 225
DEER PARK, TX 77536
USA
800-256-2586

· **Information department:**
Product safety department
Technical Coordinator
Sherman Nelson sherman@aquasolutions.org
· **Emergency telephone number:**
Chemtrec: 800-424-9300
Canutec: 613-996-6666

2 Hazard(s) identification

· **Classification of the substance or mixture**

GHS02 Flame

Flam. Liq. 1 H224 Extremely flammable liquid and vapour.

GHS08 Health hazard

STOT SE 2 H371 May cause damage to organs.

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

GHS02 GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**
Methanol (Methyl Alcohol)
· **Hazard statements**
Extremely flammable liquid and vapour.
May cause damage to organs.
· **Precautionary statements**
If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Use explosion-proof electrical/ventilating/lighting/equipment.
Do not breathe dust/fume/gas/mist/vapours/spray.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/08/2014 Reviewed on 03/11/2014

Trade name: Ethyl Alcohol, Denatured Anhydrous, Govt. Form III

(Contd. of page 1)

Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.
· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 2
Fire = 4
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

HEALTH	*2
FIRE	4
REACTIVITY	0

Health = *2
Fire = 4
Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**		
64-17-5	Ethyl Alcohol, Absolute 200 Proof	92.464%
67-56-1	Methanol (Methyl Alcohol)	3.699%
108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-pentanone)	1.896%
142-82-5	n-Heptane	0.971%

· **Table of Nonhazardous Ingredients**		
141-78-6	Ethyl Acetate	0.971%

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 required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Generally the product does not irritate the skin.
· **After eye contact:** Rinse opened eye for several minutes under running water.
· **After swallowing:** Immediately call a doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:** CO2, sand, extinguishing powder. Do not use water.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/08/2014 Reviewed on 03/11/2014

Trade name: Ethyl Alcohol, Denatured Anhydrous, Govt. Form III

(Contd. of page 2)

· **For safety reasons unsuitable extinguishing agents:** Water with full jet
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:**
Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Sectian 13 for disposal information.

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
· **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.

· **Conditians for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Store in a cool location.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
64-17-5 Ethyl Alcohol, Absolute 200 Proof	
PEL	Long-term value: 1900 mg/m³, 1000 ppm
REL	Long-term value: 1900 mg/m³, 1000 ppm
TLV	Short-term value: 1880 mg/m³, 1000 ppm

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/08/2014 *Reviewed on 03/11/2014*

Trade name: Ethyl Alcohol, Denatured Anhydrous, Govt. Form III

(Contd. of page 3)

67-56-1 Methanol (Methyl Alcohol)	
PEL	Long-term value: 260 mg/m³, 200 ppm
REL	Short-term value: 325 mg/m³, 250 ppm Long-term value: 260 mg/m³, 200 ppm Skin
TLV	Short-term value: 328 mg/m³, 250 ppm Long-term value: 262 mg/m³, 200 ppm Skin; BEI

108-10-1 Methyl Isobutyl Ketone (4-Methyl-2-pentanone)	
PEL	Long-term value: 410 mg/m³, 100 ppm
REL	Short-term value: 300 mg/m³, 75 ppm Long-term value: 205 mg/m³, 50 ppm
TLV	Short-term value: 307 mg/m³, 75 ppm Long-term value: 82 mg/m³, 20 ppm BEI

142-82-5 n-Heptane	
PEL	Long-term value: 2000 mg/m³, 500 ppm
REL	Long-term value: 350 mg/m³, 85 ppm Ceiling limit value: 1800* mg/m³, 440* ppm *15-min
TLV	Short-term value: 2050 mg/m³, 500 ppm Long-term value: 1640 mg/m³, 400 ppm

· **Ingredients with biological limit values:**

67-56-1 Methanol (Methyl Alcohol)	
BEI	15 mg/L LD50 Intraperitoneal: urine Time: end of shift LD50: Methanol (background, nonspecific)

108-10-1 Methyl Isobutyl Ketone (4-Methyl-2-pentanone)	
BEI	1 mg/L LD50 Intraperitoneal: urine Time: end of shift LD50: MIBK

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
· **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/08/2014 Reviewed on 03/11/2014

Trade name: Ethyl Alcohol, Denatured Anhydrous, Govt. Form III

(Contd. of page 4)

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **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:**

Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Color:	Colorless
· **Odor:**	Alcohol
· **Odour threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	> 34 °C (> 93 °F)
· **Flash point:**	13 °C (55 °F)
· **Flammability (solid, gaseous):**	Not applicable.
· **Ignition temperature:**	425 °C (797 °F)
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· **Explosion limits:**	
Lower:	3.5 Vol %
Upper:	15.0 Vol %
· **Vapor pressure at 20 °C (68 °F):**	59 hPa (44 mm Hg)
· **Density:**	Not determined.
· **Relative density**	Not determined.
· **Vapour density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with**	
Water:	Not miscible or difficult to mix.
· **Partition coefficient (n-octanol/water):**	Not determined.

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/08/2014 Reviewed on 03/11/2014

Trade name: Ethyl Alcohol, Denatured Anhydrous, Govt. Form III

(Contd. of page 5)

· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Organic solvents:	100.0 %
VOC content:	100.0 %
	1000.0 g/l / 8.35 lb/gl
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity**
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

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

· **LD/LC50 values that are relevant for classification:**		
67-56-1 Methanol (Methyl Alcohol)		
Oral	LD50	5628 mg/kg (rat)
Dermal	LD50	15800 mg/kg (rabbit)

· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Harmful

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**		
64-17-5	Ethyl Alcohol, Absolute 200 Proof	1

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

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/08/2014 *Reviewed on 03/11/2014*

Trade name: Ethyl Alcohol, Denatured Anhydrous, Govt. Form III

(Contd. of page 6)

· **Ecotoxical effects:**
· **Remark:** Harmful to fish
· **Additional ecological information:**
· **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Harmful to aquatic organisms
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further 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.

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

14 Transport information

· **UN-Number**	
· **DOT, IMDG, IATA**	UN1992
· **UN proper shipping name**	
· **DOT**	Flammable liquids, toxic, n.o.s. (Ethanol, Methanol)
· **IMDG**	FLAMMABLE LIQUID, TOXIC, N.O.S. (ETHANOL (ETHYL ALCOHOL), METHANOL)
· **IATA**	FLAMMABLE LIQUID, TOXIC, N.O.S. (ETHANOL, METHANOL)
· **Transport hazard class(es)**	
· **DOT**	
· **Class**	3 Flammable liquids.
· **Label**	3+6.1
· **IMDG, IATA**	
· **Class**	3 Flammable liquids.
· **Label**	3+6.1
· **Packing group**	
· **DOT, IMDG, IATA**	II
· **Environmental hazards:**	
· **Marine pollutant:**	No

(Contd. on page 8)

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/08/2014 Reviewed on 03/11/2014

Trade name: Ethyl Alcohol, Denatured Anhydrous, Govt. Form III

(Contd. of page 7)

· **Special precautions for user**	Warning: Flammable liquids
· **Danger code (Kemler):**	336
· **EMS Number:**	F-E,S-D
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **UN "Model Regulation":**	UN1992, Flammable liquids, toxic, n.o.s. (Ethanol (Ethyl alcohol), Methanol), 3 (6.1), II

15 Regulatory information

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

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

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

67-56-1	Methanol (Methyl Alcohol)
108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-pentanone)

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-pentanone)

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

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

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

64-17-5	Ethyl Alcohol, Absolute 200 Proof
67-56-1	Methanol (Methyl Alcohol)

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-pentanone)	I
142-82-5	n-Heptane	D

· **TLV (Threshold Limit Value established by ACGIH)**

64-17-5	Ethyl Alcohol, Absolute 200 Proof	A3

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

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

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

(Contd. on page 9)

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/08/2014 Reviewed on 03/11/2014

Trade name: Ethyl Alcohol, Denatured Anhydrous, Govt. Form III

(Contd. of page 8)

· **Hazard pictograms**

GHS02 GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**
Methanol (Methyl Alcohol)
· **Hazard statements**
Extremely flammable liquid and vapour.
May cause damage to organs.
· **Precautionary statements**
If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Use explosion-proof electrical/ventilating/lighting/equipment.
Do not breathe dust/fume/gas/mist/vapours/spray.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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.

· **Department issuing MSDS:** Environment protection department.
· **Contact:** Mr. Nelson
· **Date of preparation / last revision**
Creation date for SDS. STN 03-11-2014
04/08/2014 / -
· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (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
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
Flam. Liq. 1: Flammable liquids, Hazard Category 1
STOT SE 2: Specific target organ toxicity - Single exposure, Hazard Category 2

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/01/2014 Reviewed on 04/01/2014

1 Identification

· **Product identifier**

· **Trade name: Benedict's Qualitative Solution**

· **Article number:** CH500

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Aqua Solutions, Inc.
6913 Highway 225
DEER PARK, TX 77536
USA
800-256-2586

· **Information department:**
Technical Coordinator
Sherman Nelson sherman@aquasolutions.org
Product safety department
· **Emergency telephone number:**
Chemtrec: 800-424-9300
Canutec: 613-996-6666

2 Hazard(s) identification

· **Classification of the substance or mixture**

GHS07

Eye Irrit. 2A H319 Causes serious eye irritation.

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

GHS07

· **Signal word** Warning
· **Hazard statements**
Causes serious eye irritation.
· **Precautionary statements**
If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.
Wear protective gloves/protective clothing/eye protection/face protection.
Wash thoroughly after handling.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 1
Fire = 0
Reactivity = 0

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/01/2014 *Reviewed on 04/01/2014*

Trade name: Benedict's Qualitative Solution

(Contd. of page 1)

· **HMIS-ratings (scale 0 - 4)**

HEALTH 1	Health = 1
FIRE 0	Fire = 0
REACTIVITY 0	Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**		
497-19-8	Sodium Carbonate Anhydrous	8.777%
7758-99-8	Cupric Sulfate Pentahydrate	1.518%

· **Table of Nonhazardous Ingredients**		
6132-04-3	Sodium Citrate Dihydrate	15.184%
7732-18-5	Water, Deionized, Distilled	74.52%

4 First-aid measures

· **Description of first aid measures**
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:** Generally the product does not irritate the skin.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:** If symptoms persist consult doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.
· **Environmental precautions:**
Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Trade name: Benedict's Qualitative Solution

(Contd. of page 2)

· **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** No special precautions are necessary if used correctly.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** None.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **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.
· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:** Wash hands before breaks and at the end of work.
· **Breathing equipment:** Not required.
· **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **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:** Goggles recommended during refilling.

9 Physical and chemical properties

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

Form:	Liquid
Color:	Blue

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/01/2014 Reviewed on 04/01/2014

Trade name: Benedict's Qualitative Solution

(Contd. of page 3)

· **Odor:**	Odorless
· **Odour threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not applicable.
· **Ignition temperature:**	
Decomposition temperature:	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17 mm Hg)
· **Density at 20 °C (68 °F):**	1.13934 g/cm³ (9.508 lbs/gal)
· **Relative density**	Not determined.
· **Vapour 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.
· **Solvent content:**	
Organic solvents:	0.0 %
Water:	74.5 %
Solids content:	25.5 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity**
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/01/2014 Reviewed on 04/01/2014

Trade name: Benedict's Qualitative Solution

(Contd. of page 4)

11 Toxicological information

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

· LD/LC50 values that are relevant for classification:		
7758-99-8 Cupric Sulfate Pentahydrate		
Oral	LD50	300 mg/kg (rat)
Dermal	LD50	>2000 mg/kg (rat)

· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**

· **Carcinogenic categories**

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

· NTP (National Toxicology Program)
None of the ingredients is listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Ecotoxical effects:**
· **Remark:** Harmful to fish
· **Additional ecological information:**
· **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Harmful to aquatic organisms
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Must not be disposed of together with household gurbage. 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 ugents.

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/01/2014 Reviewed on 04/01/2014

Trade name: Benedict's Qualitative Solution

(Contd. of page 5)

14 Transport information

· UN-Number · DOT	Not regulated
· UN proper shipping name · DOT	Not regulated
· Transport hazard class(es) · DOT	Not applicable
· Packing group · DOT	Not applicable
· 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**
· **Sara**

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

· **Section 313 (Specific toxic chemical listings):**
7758-99-8 Cupric Sulfate Pentahydrate

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

· **Proposition 65**

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

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

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

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

· **Carcinogenic categories**

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

· **TLV (Threshold Limit Value established by ACGIH)**
None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

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

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

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/01/2014 Reviewed on 04/01/2014

Trade name: Benedict's Qualitative Solution

(Contd. of page 6)

· **Hazard pictograms**

GHS07

· **Signal word** Warning
· **Hazard statements**
Causes serious eye irritation.
· **Precautionary statements**
If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.
Wear protective gloves/protective clothing/eye protection/face protection.
Wash thoroughly after handling.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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.

· **Department issuing MSDS:** Environment protection department.
· **Contact:** Mr. Nelson
· **Date of preparation / last revision** 04/01/2014 / -
· **Abbreviations and acronyms:**
DOT: US Department of Transportation
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/31/2014 Reviewed on 03/31/2014

1 Identification

· **Product identifier**

· **Trade name: Biuret Solution**
Single Stable Solution

· **Article number:** CH505

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Aqua Solutions, Inc.
6913 Highway 225
DEER PARK, TX 77536
USA
800-256-2586

· **Information department:**
Technical Coordinator
Sherman Nelson sherman@aquasolutions.org
Product safety department
· **Emergency telephone number:**
Chemtrec: 800-424-9300
Canutec: 613-996-6666

2 Hazard(s) identification

· **Classification of the substance or mixture**


GHS05 Corrosion

Skin Corr. 1A H314 Causes severe skin burns and eye damage.

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


GHS05

· **Signal word** Danger

· **Hazard-determining components of labeling:**
Sodium Hydroxide
· **Hazard statements**
Causes severe skin burns and eye damage.
· **Precautionary statements**
If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.
Do not breathe dust/fume/gas/mist/vapours/spray.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Specific treatment (see on this label).
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/31/2014 Reviewed on 03/31/2014

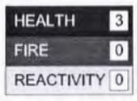
Trade name: Biuret Solution
Single Stable Solution

(Contd. of page 1)

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 3
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 3
Fire = 0
Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**		
1310-73-2	Sodium Hydroxide	3.0%
7758-99-8	Cupric Sulfate Pentahydrate	0.15%

· **Table of Nonhazardous Ingredients**		
6381-59-5	Potassium Sodium Tartrate Tetrahydrate	0.6%
7681-11-0	Potassium Iodide	0.4%
6381-92-6	Ethylenedinitrilotetraacetic acid, disodium salt	0.02%
7732-18-5	Water, Deionized, Distilled	95.83%

4 First-aid measures

· **Description of first aid measures**
· **General information:** Immediately remove any clothing soiled by the product.
· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:** Drink copious amounts of water and provide fresh air. Immediately call a doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Special hazards arising from the substance or mixture** No further relevant information available.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/31/2014 Reviewed on 03/31/2014

Trade name: Biuret Solution
Single Stable Solution

(Contd. of page 2)

· **Advice for firefighters**
· **Protective equipment:** No special measures required.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **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**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** Keep receptacle tightly sealed.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
1310-73-2 Sodium Hydroxide	
PEL	Long-term value: 2 mg/m³
REL	Ceiling limit value: 2 mg/m³
TLV	Ceiling limit value: 2 mg/m³

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
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.

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/31/2014 Reviewed on 03/31/2014

Trade name: Biuret Solution
Single Stable Solution

(Contd. of page 3)

· **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **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:**

Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Color:	Blue
· **Odor:**	Odorless
· **Odour threshold:**	Not determined.
· **pH-value at 20 °C (68 °F):**	>12
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not applicable.
· **Ignition temperature:**	
Decompasition temperature:	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/31/2014 Reviewed on 03/31/2014

Trade name: Biuret Solution
Single Stable Solution

(Contd. of page 4)

· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17 mm Hg)
· **Density at 20 °C (68 °F):**	1.04902 g/cm³ (8.754 lbs/gal)
· **Relative density**	Not determined.
· **Vapour 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.
· **Solvent content:**	
Organic solvents:	0.0 %
Water:	95.8 %
Solids content:	4.2 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity**
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

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

· **LD/LC50 values that are relevant for classification:**		
1310-73-2 Sodium Hydroxide		
Oral	LD50	2000 mg/kg (rat)
7758-99-8 Cupric Sulfate Pentahydrate		
Oral	LD50	300 mg/kg (rat)
Dermal	LD50	>2000 mg/kg (rat)

· **Primary irritant effect:**
· **on the skin:** Caustic effect on skin and mucous membranes.
· **on the eye:** Strong caustic effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Corrosive
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/31/2014 Reviewed on 03/31/2014

Trade name: Biuret Solution
Single Stable Solution

(Contd. of page 5)

· **Carcinogenic categories**

· **IARC (International Agency for Research on Concer)**
None of the ingredients is listed.

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

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
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.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further 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.

· **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, IMDG, IATA**	UN1760
· **UN proper shipping name**	
· **DOT**	Corrosive liquids, n.o.s. (Sodium hydroxide)
· **IMDG, IATA**	CORROSIVE LIQUID, N.O.S. (SODIUM HYDROXIDE)

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/31/2014 *Reviewed on 03/31/2014*

Trade name: Biuret Solution
Single Stable Solution

(Contd. of page 6)

· **Transport hazard class(es)**

· **DOT**

· **Class**	8 Corrosive substances.
· **Label**	8

· **IMDG, IATA**

· **Class**	8 Corrosive substances.
· **Label**	8
· **Packing graup**	
· **DOT, IMDG, IATA**	II
· **Environmental hazards:**	
· **Marine pollutant:**	No
· **Special precautions for user**	Warning: Corrosive substances
· **Danger code (Kemler):**	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.
· **UN "Model Regulation":**	UN1760, Corrosive liquids, n.o.s. (Sodium hydroxide), 8, II

15 Regulatory information

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

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

None of the ingredients is listed.

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

7758-99-8	Cupric Sulfate Pentahydrate

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

1310-73-2	Sodium Hydroxide
7681-11-0	Potassium Iodide
7758-99-8	Cupric Sulfate Pentahydrate
6381-92-6	Ethylenedinitrilotetraacetic acid, disodium salt
7732-18-5	Water, Deionized, Distilled

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

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

None of the ingredients is listed.

(Contd. on page 8)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/31/2014 Reviewed on 03/31/2014

Trade name: Biuret Solution
Single Stable Solution

(Contd. of page 7)

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

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

· **Carcinogenic categories**

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

· **TLV (Threshold Limit Value established by ACGIH)**
None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

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

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

GHS05

· **Signal word** Danger

· **Hazard-determining components of labeling:**
Sodium Hydroxide
· **Hazard statements**
Causes severe skin burns and eye damage.
· **Precautionary statements**
If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.
Do not breathe dust/fume/gas/mist/vapours/spray.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Specific treatment (see on this label).
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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.

· **Department issuing MSDS:** Environment protection department.
· **Contact:** Mr. Nelson
· **Date of preparation / last revision**
Creation date for SDS 03-31-2014. STN
03/31/2014 / -
· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods

(Contd. on page 9)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/31/2014 *Reviewed on 03/31/2014*

Trade name: Biuret Solution
Single Stable Solution

(Contd. of page 8)

DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
Skin Corr. 1A: Skin corrosion/irritation, Hazard Category 1A

7-CH111-SDS
SALAD OIL

technical

Material Safety Data Sheet
68554 - Great Value Vegetable Oil

CAS No:	008001-22-7						
Product Description:	Soybean Oil						
Trade Name/Synonyms:	SBO, Liquid Soybean Oil	**HMIS Code:**	H	F	R	P
Chemical Family:	Glyceride Oils		0	1	0	A

Section I - Manufacturing Identification

Manufacturer's Name:	Cargill, Incorporated
Address:	DSO NA, PO Box 5396 Minneapolis, Minnesota 55440
24 Hour Emergency Assistance:	Chemtrec: (800) 424-9300
General MSDS Assistance:	Dso_Qa@cargill.com

Section II - Hazardous Ingredients / Identity Information

Is not hazardous under the Department of labor definitions. Is Generally Recognized as Safe (GRAS) under the Food, Drug and Cosmetic A

Section III - Physical / Chemical Characteristics

Boiling Range:	Not Applicable	**Vapor Density:**	Exceeds 1.0
Specific Gravity (H20=1):	0.920 - 0.925	**Vapor Pressure:**	Not Applicable
Percent Volatile by Volume:	0%	**Solubility in Water:**	Insoluble
Evaporation Rate:	Not Applicable	**Weight/Gallon:**	7.70 lbs at 60°F
Appearance and Odor:	A pale yellow, oily liquid with only a faint odor.	**Melting Point:**	

Section IV - Fire and Explosion Hazard Data

Flammability Classification:	Combustible Liquid - Class IIIB		
Flash Point:	> 625°F when FFA < 0.05%	**Method Used:**	Cleveland Open Cup
Extinguishing Media:	UL listed Type 'K' fire extinguisher, UL wet chemical extinguishing system or water spray.		

SPECIAL FIREFIGHTING PROCEDURES: The use of self-contained breathing apparatus is recommended for fire fighters. Avoid use of wate may spread fire by dispersing oil. Use water to keep fire-exposed containers cool.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Rags and waste paper containing this material may heat and burn spontaneously. When mat presenting a large surface area, such as rags, filter clay, etc., is saturated with liquid vegetable oils or oil by-products spontaneous combustior result.

Material Safety Data Sheet
68554 - Great Value Vegetable Oil

Section V - Reactivity Data

STABILITY: Spontaneous combustion can occur. See Unusual Fire and Explosion Procedures, Section IV.

CONDITIONS TO AVOID: High surface area exposure to oxygen can result in polymerization and release of heat.

INCOMPATABILITY (MATERIALS TO AVOID): None

HAZARDOUS DECOMPOSITIONS OR BY-PRODUCTS: None

HAZARDOUS POLYMERIZATION: Will not occur.

Section VI - Health Hazard Data

OSHA PERMISSIBLE EXPOSURE LIMIT: As an oil mist - 15 mg/m3 and 5 mg/m3 respirable.

ACGIH THRESHHOLD LIMIT VALUE: As an oil mist - 10 mg/m3.

INHALATION HEALTH RISKS AND SYMPTOMS OF EXPOSURE: Excessive inhalation of oil mist may affect the respiratory system. Oil mist as a nuisance particulate by ACGIH.

SKIN ABSORPTION HEALTH RISKS AND SYMPTOMS OF EXPOSURE: Sensitive individuals may experience dermatitis after long exposure skin.

HEALTH HAZARDS (ACUTE AND CHRONIC): Acute: none observed by inhalation. Chronic: none reported.

EMERGENCY AND FIRST AID PROCEDURES FOR:
* SKIN CONTACT: May be removed from skin by washing with soap and warm water.
* INHALATION: Expose individual to fresh air source.

Section VII- Precautions for Safe Handling and Use

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Depending on quantity of spill: (a) Small spill - add solid adsorbent into disposable container and hose down area. Clean area with detergent. (b) Large spill - Squeegee or pump into holding container. Clean ar detergent.

WASTE DISPOSAL METHOD: Dispose of in accordance with local, state, and federal regulations.

Section VIII- Control Measures

RESPIRATORY PROTECTION: In the presence of any vegetable oil mists proper respiratory protection should be worn.
VENTILATION: Intermittent clean air exchanges recommended, but not required.
PROTECTIVE GLOVES: Not normally needed.
EYE PROTECTION: Not normally needed.
OTHER PROTECTIVE CLOTHING or EQUIPMENT: Not normally needed.
WORK/HYGIENIC PRACTICES: Normal good work practice.

contact
Cargill Dressings, Sauces & Oils / Box 5693 / Minneapolis, MN 55440 / 866-382-2787 / Dso_Qa@cargill.com

Material Safety Data Sheet
68554 - Great Value Vegetable Oil

Section IX- Special Precautions

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Store away from flame and fire, AND excessive heat.

Section X- Disclaimer and / or Comments

We recommend that containers be either professionally reconditioned for re-use by certified firms or properly disposed of by certified firms to h reduce the possibility of an accident. Disposal of containers should be in accordance with applicable federal, state and local laws and regulatic "Empty" drums should not be given to individuals.

The information in this MSDS was obtained from sources that we believe are reliable. However, the information is provided without any repres or warranty, expressed or implied, regarding its accuracy or correctness.

The conditions of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and c reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected w handling, storage, use or disposal of the product.

Date Issued: 11/17/2010 Spec Rev #: 14 Date Revised: 3/8/2013

contact
Cargill Dressings, Sauces & Oils / Box 5693 / Minneapolis, MN 55440 / 866-382-2787 / Dso_Qa@cargill.com

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/20/2014 Reviewed on 05/20/2014

1 Identification

· **Product identifier**

· **Trade name: Starch-Acetic Acid Solution**

· **Article number:** CH506

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Aqua Solutions, Inc.
6913 Highway 225
DEER PARK, TX 77536
USA
800-256-2586

· **Information department:** Product safety department
· **Emergency telephone number:**
Chemtrec: 800-424-9300
Canutec: 613-996-6666

2 Hazard(s) identification

· **Classification of the substance or mixture**

GHS02 Flame

Flam. Liq. 3 H226 Flammable liquid and vapour.

GHS07

Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2A H319 Causes serious eye irritation.

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

GHS02 GHS07

· **Signal word** Warning
· **Hazard statements**
Flammable liquid and vapour.
Causes skin irritation.
Causes serious eye irritation.
· **Precautionary statements**
If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Use explosion-proof electrical/ventilating/lighting/equipment.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Specific treatment (see on this label).
Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/20/2014 Reviewed on 05/20/2014

Trade name: Starch-Acetic Acid Solution

(Contd. of page 1)

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 1
Fire = 2
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

HEALTH	1
FIRE	2
REACTIVITY	0

Health = 1
Fire = 2
Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**		
64-19-7	Acetic Acid	11.342%

· **Table of Nonhazardous Ingredients**		
7647-14-5	Sodium Chloride	20.936%
9005-84-9	Starch	0.406%
7732-18-5	Water, Deionized, ASTM Type II	67.316%

4 First-aid measures

· **Description of first aid measures**
· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:** If symptoms persist consult doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

(Contd. of page 2)

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Ensure adequate ventilation.
· **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**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
· **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** Keep receptacle tightly sealed.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
64-19-7 Acetic Acid	
PEL	Long-term value: 25 mg/m³, 10 ppm
REL	Short-term value: 37 mg/m³, 15 ppm Long-term value: 25 mg/m³, 10 ppm
TLV	Short-term value: 37 mg/m³, 15 ppm Long-term value: 25 mg/m³, 10 ppm

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
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.
· **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/20/2014 Reviewed on 05/20/2014

Trade name: Starch-Acetic Acid Solution

(Contd. of page 3)

· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the praduct/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **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:**

Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Color:	Clear to Turbid
· **Odor:**	Vinegar
· **Odour threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· **Flash point:**	40 °C (104 °F)
· **Flammability (solid, gaseous):**	Not applicable.
· **Ignition temperature:**	485 °C (905 °F)
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· **Explosion limits:**	
Lower:	4.0 Vol %
Upper:	17.0 Vol %
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17 mm Hg)
· **Density at 20 °C (68 °F):**	1.134 g/cm³ (9.463 lbs/gal)
· **Relative density**	Not determined.

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/20/2014 Reviewed on 05/20/2014

Trade name: Starch-Acetic Acid Solution

(Contd. of page 4)

· **Vapour 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.
· **Solvent content:**	
Organic solvents:	5.0 %
Water:	67.3 %
VOC content:	5.0 % 128.6 g/l / 1.07 lb/gl
Solids content:	27.7 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity**
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** Irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved culculation methods for preparations:
Irritant

· **Carcinogenic categories**

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

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

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/20/2014 Reviewed on 05/20/2014

Trade name: Starch-Acetic Acid Solution

(Contd. of page 5)

· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further 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.

· **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, IMDG, IATA**	UN2790
· **UN proper shipping name**	
· **DOT**	Acetic acid solution
· **IMDG, IATA**	ACETIC ACID SOLUTION
· **Transport hazard class(es)**	
· **DOT**	
· **Class**	3 Flammable liquids.
· **Label**	8
· **IMDG, IATA**	
· **Class**	8 Corrosive substances.
· **Label**	8
· **Packing group**	
· **DOT, IMDG, IATA**	III
· **Environmental hazards:**	
· **Marine pollutant:**	No
· **Special precautions for user**	Warning: Flammable liquids
· **Danger code (Kemler):**	8
· **EMS Number:**	F-E,S-C

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/20/2014 Reviewed on 05/20/2014

Trade name: Starch-Acetic Acid Solution

(Contd. of page 6)

· **Segregation groups**	Acids
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **UN "Model Regulation":**	UN2790, Acetic acid solution, 8, III

15 Regulatory information

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

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

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

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

7647-14-5	Sodium Chloride
64-19-7	Acetic Acid
9005-84-9	Starch

· **Proposition 65**

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

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

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

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

· **Carcinogenic categories**

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

· **TLV (Threshold Limit Value established by ACGIH)**
None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

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

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

GHS02 GHS07

· **Signal word** Warning
· **Hazard statements**
Flammable liquid and vapour.
Causes skin irritation.

(Contd. on page 8)

Safety Data Sheet
acc. to OSHA HCS

Trade name: Starch-Acetic Acid Solution

(Contd. of page 7)

Causes serious eye irritation.

· **Precautionary statements**
If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Use explosion-proof electrical/ventilating/lighting/equipment.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Specific treatment (see on this label).
Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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.

· **Department issuing MSDS:** Environment protection department.
· **Contact:** Mr. Nelson
· **Date of preparation / last revision**
Creation Date for SDS 05-20-2014. STN
05/20/2014 / -

· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (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
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
Flam. Liq. 3: Flammable liquids, Hazard Category 3
Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A