Printing date 03/09/2020 Reviewed on 03/09/2020

#### 1 Identification

· Product identifier

· Trade name: <u>HBBLI</u>

Level 3

· Article number: ARL010

· 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

· 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. 2 H225 Highly flammable liquid and vapor.



GHS08 Health hazard

Carc. 2 H351 Suspected of causing cancer.

Repr. 2 H361 Suspected of damaging fertility or the unborn child.

STOT RE 1 H372 Causes damage to the hearing organs through prolonged or repeated exposure.

Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H336 May cause drowsiness or dizziness.

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







GHS02

GHS07

GHS08

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#### · Signal word Danger

#### · Hazard-determining components of labeling:

Cyclohexane

Hexane

Styrene 99+%

4-Vinyl-1-Cyclohexene

#### · Hazard statements

Highly flammable liquid and vapor.

Causes skin irritation.

Causes serious eye irritation.

Suspected of causing cancer.

Suspected of damaging fertility or the unborn child.

May cause drowsiness or dizziness.

Causes damage to the hearing organs through prolonged or repeated exposure.

May be fatal if swallowed and enters airways.

#### · Precautionary statements

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/equipment.

*Use only non-sparking tools.* 

Take precautionary measures against static discharge.

Do not breathe dust/fume/gas/mist/vapors/spray.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

If swallowed: Immediately call a poison center/doctor.

Specific treatment (see on this label).

Do NOT induce vomiting.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF exposed or concerned: Get medical advice/attention.

Call a poison center/doctor if you feel unwell.

Get medical advice/attention if you feel unwell.

Take off contaminated clothing and wash it before reuse.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

In case of fire: Use for extinction: CO2, powder or water spray.

Store in a well-ventilated place. Keep container tightly closed.

Store in a well-ventilated place. Keep cool.

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 = 3

Reactivity = 0

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· HMIS-ratings (scale 0 - 4)



- · 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:				
CAS: 110-82-7	Cyclohexane	40.0%		
CAS: 100-40-3	4-Vinyl-1-Cyclohexene	20.0%		
CAS: 100-42-5	Styrene 99+%	20.0%		
CAS: 110-54-3	Hexane	20.0%		

#### 4 First-aid measures

- · Description of first aid measures
- · General information:

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

- · 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.

- · For safety reasons unsuitable extinguishing agents: Water with full jet
- · Special hazards arising from the substance or mixture

During heating or in case of fire poisonous gases are produced.

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- · Advice for firefighters
- · Protective equipment: Mouth respiratory protective device.

#### 6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures

Mount respiratory protective device.

Wear protective equipment. Keep unprotected persons away.

- · 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.

· Protective Action Criteria for Chemicals

· PAC-1:		
CAS: 110-82-7	Cyclohexane	300 ppm
CAS: 100-40-3	4-Vinyl-1-Cyclohexene	0.3 ppm
CAS: 100-42-5	Styrene 99+%	20 ppm
CAS: 110-54-3	Hexane	260 ppm
· PAC-2:		
CAS: 110-82-7	Cyclohexane	1700* ppm
CAS: 100-40-3	4-Vinyl-1-Cyclohexene	210 ppm
CAS: 100-42-5	Styrene 99+%	130 ppm
CAS: 110-54-3	Hexane	2900* ppm
· PAC-3:		
CAS: 110-82-7	Cyclohexane 10	0000** ppm
CAS: 100-40-3	4-Vinyl-1-Cyclohexene 3-	40 ppm
CAS: 100-42-5	Styrene 99+% 1.	100* ppm
CAS: 110-54-3	Hexane 80	600** ppm

#### 7 Handling and storage

- · Handling:
- · Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

Prevent formation of aerosols.

· Information about protection against explosions and fires:

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

Keep respiratory protective device available.

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- · Conditions 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

· Contro	· Control parameters			
· Compo	· Components with limit values that require monitoring at the workplace:			
CAS: 1	110-82-7 Cyclohexane			
PEL	Long-term value: 1050 mg/m³, 300 ppm			
REL	Long-term value: 1050 mg/m³, 300 ppm			
TLV	Long-term value: 344 mg/m³, 100 ppm			
CAS: 1	00-40-3 4-Vinyl-1-Cyclohexene			
TLV	Long-term value: 0.44 mg/m³, 0.1 ppm			
WEEL	Long-term value: 4.4 mg/m³, 1 ppm			
CAS: 1	100-42-5 Styrene 99+%			
PEL	Long-term value: 100 ppm			
	Ceiling limit value: 200; 600* ppm			
	*5-min peak in any 3 hrs			
REL	Short-term value: 425 mg/m³, 100 ppm			
	Long-term value: 215 mg/m³, 50 ppm			
TLV	Short-term value: (170) mg/m³, (40) NIC-20 ppm			
	Long-term value: (85) mg/m³, (20) NIC-10 ppm			
	BEI, NIC-A3, NIC-OTO			
CAS: 1	CAS: 110-54-3 Hexane			

PEL	Long-term value: 1800 mg/m³, 500 ppm
REL	Long-term value: 180 mg/m³, 50 ppm
TLV	Long-term value: 176 mg/m³, 50 ppm
	Skin; BEI

#### · Ingredients with biological limit values:

#### CAS: 100-42-5 Styrene 99+%

BEI 400 mg/g creatinine

LD50 Intraperitoneal: urine

Time: end of shift

LD50: Mandelic acid plus phenylglyoxylic acid (nonspecific)

0.2 mg/L

LD50 Intraperitoneal: venous blood

Time: end of shift

LD50: Styrene (semi-quantitative)

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#### CAS: 110-54-3 Hexane

BEI 0.4 mg/L

LD50 Intraperitoneal: urine

Time: end of shift at end of workweek LD50: 2.5-Hexanedione without hydrolysis

- · 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.

Store protective clothing separately.

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

· Body protection: Protective work clothing

#### 9 Physical and chemical properties

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

Form: Liquid

Color: Clear-Pale Yellow

· Odor: Strong

· Odor threshold: Not determined.

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	(Contd. of page
pH-value:	Not determined.
· Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	69 °C (156.2 °F)
· Flash point:	-26 °C (-78.8 °F)
· Flammability (solid, gaseous):	Not applicable.
Decomposition temperature:	Not determined.
· Auto igniting:	Product is not selfigniting.
· Danger of explosion:	Product is not explosive. However, formation of explosive air/vapo mixtures are possible.
· Explosion limits:	
Lower:	1.2 Vol %
Upper:	8.9 Vol %
· Vapor pressure at 20 °C (68 °F):	160 hPa (120 mm Hg)
· Density at 20 °C (68 °F):	0.7916 g/cm³ (6.6059 lbs/gal)
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with	
Water:	Not miscible or difficult to mix.
· Partition coefficient (n-octanol/wate	e <b>r</b> ): Not determined.
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	80.0 %
VOC content:	80.00 %
	633.3 g/l / 5.28 lb/gal
Solids content:	0.0 %
· Other information	No further relevant information available.

#### 10 Stability and reactivity

- · Reactivity No further relevant information available.
- · 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.

US

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#### 11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:

· LD/LC50 values that are relevant for classification:			
ATE (Acu	te Toxicity	v Estimate)	
Oral	LD50	6,514 mg/kg (rat)	
Inhalative	LC50/4h	135 mg/l (mouse)	

#### CAS: 100-42-5 Styrene 99+%

Inhalative LC50/4h 11 mg/l (ATE)

- · 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 calculation methods for preparations: Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)		
CAS: 100-40-3	4-Vinyl-1-Cyclohexene	2 <i>B</i>
CAS: 100-42-5	Styrene 99+%	2B
· NTP (National	Toxicology Program)	
CAS: 100-42-5	Styrene 99+%	R
· OSHA-Ca (Occupational Safety & Health Administration)		
None of the ing	redients 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 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

HS

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### 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.

UN-Number	
DOT, IMDG, IATA	UN1993
UN proper shipping name	
DOT	Flammable liquids, n.o.s. (Cyclohexane, Hexanes, 4-Viny
IMDG	Cyclohexene, Styrene monomer, stabilized) FLAMMABLE LIQUID, N.O.S. (CYCLOHEXANE, HEXANES
TWDG	Vinyl-1-Cyclohexene, STYRENE MONOMER, STABILIZE
	MARINE POLLUTANT
IATA	FLAMMABLE LIQUID, N.O.S. (CYCLOHEXANE, HEXANES
	Vinyl-1-Cyclohexene, STYRENE MONOMER, STABILIZED)
Transport hazard class(es)	
DOT	
FLAMMABLE LIQUID	
3	
Class	3 Flammable liquids
Label	3
IMDG	
<b>1 1 1 1 1 1 1 1 1 1</b>	
Class	3 Flammable liquids
Label	3
IATA	
Class	3 Flammable liquids
Label	3

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	(Contd. of page
Environmental hazards:	Product contains environmentally hazardous substances
	Cyclohexane
· Marine pollutant:	Symbol (fish and tree)
Special precautions for user	Warning: Flammable liquids
· Danger code (Kemler):	33
· EMS Number:	F- $E$ , $S$ - $D$
· Stowage Category	B
· Transport in bulk according to Annex II	Tof
MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT	
· Quantity limitations	On passenger aircraft/rail: 5 L
	On cargo aircraft only: 60 L
· <i>IMDG</i>	
· Limited quantities (LQ)	5L
· Excepted quantities $(\widetilde{E}Q)$	Code: E2
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 1993 FLAMMABLE LIQUID, N.O.S. (CYCLOHEXAN)
<u> </u>	HEXANES, 4-VINYL-1-CYCLOHEXENE, STYRENE MONOME
	STABILIZED), 3, II

### 15 Regulatory information

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

· Sara		
· Section 355 (ex	tremely hazardous substances):	
None of the ing	redients is listed.	
· Section 313 (Sp	pecific toxic chemical listings):	
CAS: 110-82-7	Cyclohexane	
CAS: 100-42-5	Styrene 99+%	
CAS: 110-54-3	Hexane	
· TSCA (Toxic S	ubstances Control Act):	
Cyclohexane		ACTIVE
4-Vinyl-1-Cycle	phexene	ACTIVE
Styrene 99+%	Styrene 99+%	
Hexane		ACTIVE
· Hazardous Air	Pollutants	
CAS: 100-42-5	Styrene 99+%	
CAS: 110-54-3	Hexane	
· Proposition 65		

· Chemicals known to cause cancer: CAS: 100-40-3 4-Vinyl-1-Cyclohexene

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CAS: 100-42-5   Styrene 99+%	(Contd. of page 10)
· Chemicals known to cause reproductive toxicity for females:	
CAS: 100-40-3 4-Vinyl-1-Cyclohexene	
· Chemicals known to cause reproductive toxicity for males:	
CAS: 110-54-3   Hexane	
· Chemicals known to cause developmental toxicity:	
None of the ingredients is listed.	

· Carcinogenic categories			
'	nental Protection Agency)		
CAS: 110-82-7		I	
CAS: 110-54-3	Hexane	II	
· TLV (Threshold Limit Value established by ACGIH)			
	4-Vinyl-1-Cyclohexene	A3	
CAS: 100-42-5	Styrene 99+%	A4	
· NIOSH-Ca (National Institute for Occupational Safety and Health)			
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 Danger
- · Hazard-determining components of labeling:

Cyclohexane

Hexane

Styrene 99+%

4-Vinyl-1-Cyclohexene

#### · Hazard statements

Highly flammable liquid and vapor.

Causes skin irritation.

Causes serious eye irritation.

Suspected of causing cancer.

Suspected of damaging fertility or the unborn child.

May cause drowsiness or dizziness.

Causes damage to the hearing organs through prolonged or repeated exposure.

May be fatal if swallowed and enters airways.

#### · Precautionary statements

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Ground/bond container and receiving equipment.

*Use explosion-proof electrical/ventilating/lighting/equipment.* 

*Use only non-sparking tools.* 

Take precautionary measures against static discharge.

Do not breathe dust/fume/gas/mist/vapors/spray.

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Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

If swallowed: Immediately call a poison center/doctor.

Specific treatment (see on this label).

Do NOT induce vomiting.

If on skin (or hair): Take off immediately all contaminated clothing, Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

*IF exposed or concerned: Get medical advice/attention.* 

Call a poison center/doctor if you feel unwell.

Get medical advice/attention if you feel unwell.

Take off contaminated clothing and wash it before reuse.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

*In case of fire: Use for extinction: CO2, powder or water spray.* 

Store in a well-ventilated place. Keep container tightly closed.

Store in a well-ventilated place. Keep cool.

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 SDS:** Environment protection department.
- · Contact:
- · Date of preparation / last revision

Revision 0.0, 03-06-2020: Creation date for SDS. STN 03/09/2020 / -

· Abbreviations and acronyms:

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

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

BEI: Biological Exposure Limit

Flam. Liq. 2: Flammable liquids - Category 2

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation - Category 2A

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Carc. 2: Carcinogenicity – Category 2
Repr. 2: Reproductive toxicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1
Asp. Tox. 1: Aspiration hazard – Category 1