

# Safety Data Sheet

acc. to OSHA HCS

Printing date 12/08/2017

Reviewed on 12/08/2017

## 1 Identification

- **Product identifier**
- **Trade name:** Benzene Standard  
100 ug/ml (ppm) in Hexane
- **Article number:** MOT152
- **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

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

STOT RE 2 H373 May cause damage to 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.

STOT SE 3 H336 May cause drowsiness or dizziness.

- **Label elements**

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

- **Hazard pictograms**



GHS02



GHS07



GHS08

- **Signal word** Danger

- **Hazard-determining components of labeling:**

Hexane

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*Benzene*

- **Hazard statements**

*Highly flammable liquid and vapor.**Causes skin irritation.**Suspected of damaging fertility or the unborn child.**May cause drowsiness or dizziness.**May cause damage to 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.**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.**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 exposed or concerned: Get medical advice/attention.**Call a poison center/doctor if you feel unwell.**Get medical advice/attention if you feel unwell.**Specific treatment (see on this label).**Do NOT induce vomiting.**If skin irritation occurs: Get medical advice/attention.**Take off contaminated clothing and wash it before reuse.**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 = 1

Fire = 3

Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



Health = 1

Fire = 3

Reactivity = 0

- **Other hazards**

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

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### 3 Composition/information on ingredients

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

- **Dangerous components:**

CAS: 110-54-3	Hexane	99.99%
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- **Table of Nonhazardous Ingredients**

CAS: 71-43-2	Benzene	0.01%
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### 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:** 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.
- **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<sub>2</sub>, 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** 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**  
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.

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### · Protective Action Criteria for Chemicals

· PAC-1:		
CAS: 110-54-3	Hexane	260 ppm
CAS: 71-43-2	Benzene	52 ppm
· PAC-2:		
CAS: 110-54-3	Hexane	2900* ppm
CAS: 71-43-2	Benzene	800 ppm
· PAC-3:		
CAS: 110-54-3	Hexane	8600** ppm
CAS: 71-43-2	Benzene	4000* ppm

## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling** No special precautions are necessary if used correctly.
- **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:** 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:	
<b>CAS: 110-54-3 Hexane</b>	
PEL	Long-term value: 1800 mg/m <sup>3</sup> , 500 ppm
REL	Long-term value: 180 mg/m <sup>3</sup> , 50 ppm
TLV	Long-term value: 176 mg/m <sup>3</sup> , 50 ppm
	Skin; BEI
· Ingredients with biological limit values:	
<b>CAS: 110-54-3 Hexane</b>	
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.

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- **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 skin.*

*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:**

<b>Form:</b>	Liquid
<b>Color:</b>	Clear water white
<b>Odor:</b>	Characteristic
<b>Odor threshold:</b>	Not determined.

- **pH-value:** Not determined.

- **Change in condition**

<b>Melting point/Melting range:</b>	-95 °C (-139 °F)
<b>Boiling point/Boiling range:</b>	69 °C (156.2 °F)

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· <b>Flash point:</b>	-26 °C (-14.8 °F)
· <b>Flammability (solid, gaseous):</b>	Not applicable.
· <b>Ignition temperature:</b>	240 °C (464 °F)
· <b>Decomposition temperature:</b>	Not determined.
· <b>Auto igniting:</b>	Product is not selfigniting.
· <b>Danger of explosion:</b>	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· <b>Explosion limits:</b>	
<b>Lower:</b>	1.2 Vol %
<b>Upper:</b>	7.4 Vol %
· <b>Vapor pressure at 20 °C (68 °F):</b>	160 hPa (120 mm Hg)
· <b>Density at 20 °C (68 °F):</b>	0.66 g/cm <sup>3</sup> (5.5077 lbs/gal)
· <b>Relative density</b>	Not determined.
· <b>Vapor density</b>	Not determined.
· <b>Evaporation rate</b>	Not determined.
· <b>Solubility in / Miscibility with Water at 20 °C (68 °F):</b>	0.1 g/l
· <b>Partition coefficient (n-octanol/water):</b>	Not determined.
· <b>Viscosity:</b>	
<b>Dynamic:</b>	Not determined.
<b>Kinematic:</b>	Not determined.
· <b>Solvent content:</b>	
<b>Organic solvents:</b>	100.0 %
<b>VOC content:</b>	100.00 %
	660.0 g/l / 5.51 lb/gl
<b>Solids content:</b>	0.0 %
· <b>Other information</b>	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.

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## 11 Toxicological information

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

· **LD/LC50 values that are relevant for classification:**

**CAS: 110-54-3 Hexane**

Oral	LD50	25,000 mg/kg (rat)
Inhalative	LC50/4 h	48,000 mg/l (rat)

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **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:  
 Irritant

- **Carcinogenic categories**

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

CAS: 71-43-2	Benzene	I
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· **NTP (National Toxicology Program)**

CAS: 71-43-2	Benzene	K
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· **OSHA-Ca (Occupational Safety & Health Administration)**

CAS: 71-43-2	Benzene	
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## 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.

## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
 Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

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

## 14 Transport information

<ul style="list-style-type: none"> <li>· <b>UN-Number</b></li> <li>· <b>DOT, IMDG, IATA</b></li> </ul>	<p style="margin-left: 20px;">UN1993</p>
<ul style="list-style-type: none"> <li>· <b>UN proper shipping name</b></li> <li>· <b>DOT</b></li> <li>· <b>IMDG</b></li> <li>· <b>IATA</b></li> </ul>	<p style="margin-left: 20px;">Flammable liquids, n.o.s. (Hexanes)            FLAMMABLE LIQUID, N.O.S. (HEXANES), MARINE POLLUTANT            FLAMMABLE LIQUID, N.O.S. (HEXANES)</p>
<ul style="list-style-type: none"> <li>· <b>Transport hazard class(es)</b></li> <li>· <b>DOT</b></li> </ul>	<p style="margin-left: 20px;">3 Flammable liquids</p>
<div style="text-align: center;">  </div> <ul style="list-style-type: none"> <li>· <b>Class</b></li> <li>· <b>Label</b></li> </ul>	<p style="margin-left: 20px;">3</p>
<ul style="list-style-type: none"> <li>· <b>IMDG</b></li> </ul>	<p style="margin-left: 20px;">3 Flammable liquids</p>
<div style="text-align: center;">  </div> <ul style="list-style-type: none"> <li>· <b>Class</b></li> <li>· <b>Label</b></li> </ul>	<p style="margin-left: 20px;">3</p>
<ul style="list-style-type: none"> <li>· <b>IATA</b></li> </ul>	<p style="margin-left: 20px;">3 Flammable liquids</p>
<div style="text-align: center;">  </div> <ul style="list-style-type: none"> <li>· <b>Class</b></li> <li>· <b>Label</b></li> </ul>	<p style="margin-left: 20px;">3</p>
<ul style="list-style-type: none"> <li>· <b>Packing group</b></li> <li>· <b>DOT, IMDG, IATA</b></li> </ul>	<p style="margin-left: 20px;">II</p>
<ul style="list-style-type: none"> <li>· <b>Environmental hazards:</b></li> <li>· <b>Marine pollutant:</b></li> </ul>	<p style="margin-left: 20px;">Product contains environmentally hazardous substances: Hexane            Yes            Symbol (fish and tree)</p>
<ul style="list-style-type: none"> <li>· <b>Special precautions for user</b></li> <li>· <b>Danger code (Kemler):</b></li> <li>· <b>EMS Number:</b></li> <li>· <b>Stowage Category</b></li> </ul>	<p style="margin-left: 20px;">Warning: Flammable liquids            33            F-E, S-E            B</p>

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- |  |   |
|--|---|
| <b>· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b> | Not applicable.   |
| <b>· Transport/Additional information:</b>                                       |   |
| <b>· DOT</b>   |   |
| <b>· Quantity limitations</b>  | On passenger aircraft/rail: 5 L<br>On cargo aircraft only: 60 L   |
| <hr style="border-top: 1px dashed black;"/>                                      |   |
| <b>· IMDG</b>  |   |
| <b>· Limited quantities (LQ)</b>   | 1L  |
| <b>· Excepted quantities (EQ)</b>  | Code: E2<br>Maximum net quantity per inner packaging: 30 ml<br>Maximum net quantity per outer packaging: 500 ml |
| <b>· UN "Model Regulation":</b>  | UN 1993 FLAMMABLE LIQUIDS, N.O.S. (HEXANES), 3, II  |

## 15 Regulatory information

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

<b>· Section 355 (extremely hazardous substances):</b>
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None of the ingredients is listed.
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<b>· Section 313 (Specific toxic chemical listings):</b>
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All ingredients are listed.
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<b>· TSCA (Toxic Substances Control Act):</b>
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Hexane
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Benzene
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<b>· Proposition 65</b>
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<b>· Chemicals known to cause cancer:</b>
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CAS: 71-43-2   Benzene
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<b>· Chemicals known to cause reproductive toxicity for females:</b>
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None of the ingredients is listed.
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<b>· Chemicals known to cause reproductive toxicity for males:</b>
--

CAS: 71-43-2   Benzene
------------------------

<b>· Chemicals known to cause developmental toxicity:</b>
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CAS: 71-43-2   Benzene
------------------------

- Carcinogenic categories

<b>· EPA (Environmental Protection Agency)</b>
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CAS: 110-54-3   Hexane	II
------------------------	----

CAS: 71-43-2   Benzene	A, K/L
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<b>· TLV (Threshold Limit Value established by ACGIH)</b>
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CAS: 71-43-2   Benzene	AI
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<b>· NIOSH-Ca (National Institute for Occupational Safety and Health)</b>
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CAS: 71-43-2   Benzene
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- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

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· **Hazard pictograms**



GHS02    GHS07    GHS08

· **Signal word** *Danger*

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

*Hexane*  
*Benzene*

· **Hazard statements**

*Highly flammable liquid and vapor.*  
*Causes skin irritation.*  
*Suspected of damaging fertility or the unborn child.*  
*May cause drowsiness or dizziness.*  
*May cause damage to 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.*  
*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.*  
*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 exposed or concerned: Get medical advice/attention.*  
*Call a poison center/doctor if you feel unwell.*  
*Get medical advice/attention if you feel unwell.*  
*Specific treatment (see on this label).*  
*Do NOT induce vomiting.*  
*If skin irritation occurs: Get medical advice/attention.*  
*Take off contaminated clothing and wash it before reuse.*  
*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.*

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· **Contact:**

· **Date of preparation / last revision**

12-08-2017: review SDS for accuracy. STN

Creation date for SDS 03-31-2014. STN

12/08/2017 / -

· **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

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

Repr. 2: Reproductive toxicity – Category 2

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

Asp. Tox. 1: Aspiration hazard – Category 1