

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/28/2024

Reviewed on 05/28/2024

1 Identification

- **Product identifier**
- **Trade name:** Pentane, HPLC Grade
- **Article number:** P1032
- **CAS Number:**
109-66-0
- **EC number:**
203-692-4
- **Index number:**
601-006-00-1
- **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:**
Technical Coordinator
Sherman Nelson shermann@aquasolutions.org
Technical Coordinator
Sherman Nelson shermann@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

Flammable Liquids 2

H225 Highly flammable liquid and vapor.



GHS08 Health hazard

Aspiration Hazard 1

H304 May be fatal if swallowed and enters airways.



GHS07

Specific Target Organ Toxicity - Single Exposure 3 H336 May cause drowsiness or dizziness.

Eye Irritation 2B

H320 Causes eye irritation.

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

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· **Hazard pictograms**· **Signal word** *Danger*· **Hazard statements***Highly flammable liquid and vapor.**Causes eye irritation.**May cause drowsiness or dizziness.**May be fatal if swallowed and enters airways.*· **Precautionary statements***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.**Avoid breathing dust/fume/gas/mist/vapors/spray**Wash thoroughly after handling. Do not touch eyes.**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.**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.**Call a poison center/doctor if you feel unwell.**If eye irritation persists: Get medical help.**In case of fire: Use CO₂, powder or water spray to extinguish.**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)**· **HMIS-ratings (scale 0 - 4)**· **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: Substances**
- **CAS No. Description**
CAS: 109-66-0 Pentane
- **Identification number(s)**
- **EC number:** 203-692-4
- **Index number:** 601-006-00-1

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:**
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** 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 section 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:** 3000* ppm
- **PAC-2:** 33000*** ppm
- **PAC-3:** 200000*** ppm

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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 section 7.
- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

CAS: 109-66-0 Pentane

PEL	Long-term value: 2950 mg/m ³ , 1000 ppm
REL	Long-term value: 350 mg/m ³ , 120 ppm Ceiling limit value: 1800* mg/m ³ , 610* ppm *15-min
TLV	Long-term value: 1000 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.
 - Avoid contact with the eyes and skin.
- **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.

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· 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:	Colorless
Odor:	Aromatic
Odor threshold:	Not determined.

· pH-value: Not determined.

· Change in condition

Melting point/Melting range:	-129.7 °C (-201.5 °F)
Boiling point/Boiling range:	36.1 °C (97 °F)

· Flash point: -35 °C (-31 °F)

· Flammability (solid, gaseous): Highly flammable.

· Auto igniting: 285 °C (545 °F)

· Decomposition temperature: Not determined.

· Ignition temperature: Not determined.

· Danger of explosion: Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

· Explosion limits:

Lower:	1.4 Vol %
Upper:	7.8 Vol %

· Vapor pressure at 20 °C (68 °F): 573 hPa (429.8 mm Hg)

· Density at 20 °C (68 °F): 0.62624 g/cm³ (5.22597 lbs/gal)

· Relative density: Not determined.

· Vapor density: Not determined.

· Evaporation rate: Not determined.

· Solubility in / Miscibility with

Water at 20 °C (68 °F): 0.01 g/l

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

· Viscosity:

Dynamic:	Not determined.
Kinematic:	Not determined.

· Other information: No further relevant information available.

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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.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **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.
- **OSHA-Ca (Occupational Safety & Health Administration)** 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 2 (Assessment by list): 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"> · UN-Number · DOT, IMDG, IATA 	<p style="text-align: right;"><i>UN1265</i></p>
<ul style="list-style-type: none"> · UN proper shipping name · DOT · IMDG, IATA 	<p style="text-align: right;"><i>Pentanes</i> <i>PENTANES</i></p>
<ul style="list-style-type: none"> · Transport hazard class(es) · DOT 	<div style="text-align: center;">  </div> <p style="text-align: right;"><i>3 Flammable liquids</i></p>
<ul style="list-style-type: none"> · Class · Label 	<p style="text-align: right;"><i>3</i></p>
<ul style="list-style-type: none"> · IMDG 	<div style="text-align: center;">  </div> <p style="text-align: right;"><i>3 Flammable liquids</i></p>
<ul style="list-style-type: none"> · Class · Label 	<p style="text-align: right;"><i>3</i></p>
<ul style="list-style-type: none"> · IATA 	<div style="text-align: center;">  </div> <p style="text-align: right;"><i>3 Flammable liquids</i></p>
<ul style="list-style-type: none"> · Class · Label 	<p style="text-align: right;"><i>3</i></p>
<ul style="list-style-type: none"> · Packing group · DOT, IMDG, IATA 	<p style="text-align: right;"><i>I</i></p>
<ul style="list-style-type: none"> · Environmental hazards: · Marine pollutant: 	<p style="text-align: right;"><i>Environmentally hazardous substance, liquid</i> <i>No</i> <i>Symbol (fish and tree)</i></p>
<ul style="list-style-type: none"> · Special precautions for user · Hazard identification number (Kemler code): · EMS Number: · Stowage Category 	<p style="text-align: right;"><i>Warning: Flammable liquids</i> <i>33</i> <i>F-E,S-D</i> <i>E</i></p>
<ul style="list-style-type: none"> · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code 	<p style="text-align: right;"><i>Not applicable.</i></p>

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· **Transport/Additional information:**

· **DOT**

· **Quantity limitations**

On passenger aircraft/rail: 1 L

On cargo aircraft only: 30 L

· **IMDG**

· **Limited quantities (LQ)**

0

· **Excepted quantities (EQ)**

Code: E3

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 300 ml

· **UN "Model Regulation":**

UN 1265 PENTANES, 3, I

15 Regulatory information

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

No further relevant information available.

· **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):** ACTIVE

· **Hazardous Air Pollutants** Substance is not 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 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)** Substance is not listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)** Substance is not listed.

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

· **Hazard pictograms**



GHS02

GHS07

GHS08

· **Signal word** Danger

· **Hazard statements**

Highly flammable liquid and vapor.

Causes eye irritation.

May cause drowsiness or dizziness.

May be fatal if swallowed and enters airways.

· **Precautionary statements**

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.

Avoid breathing dust/fume/gas/mist/vapors/spray

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Wash thoroughly after handling. Do not touch eyes.
 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.
 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.
 Call a poison center/doctor if you feel unwell.
 If eye irritation persists: Get medical help.
 In case of fire: Use CO₂, powder or water spray to extinguish.
 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:

- **Date of preparation / last revision**

Revision 1.2, 05/28/2024: Reviewed SDS for accuracy. MH/STN
 05/28/2024

- **Abbreviations and acronyms:**

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

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)

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

Flammable Liquids 2: Flammable liquids – Category 2

Eye Irritation 2B: Serious eye damage/eye irritation – Category 2B

Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3

Aspiration Hazard 1: Aspiration hazard – Category 1

- *** Data compared to the previous version altered.**