

# Safety Data Sheet

According to Canadian Hazardous Products Regulations and WHMIS 2015

Initial preparation date: 02.13.2018

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## Tetrahydrofuran

### SECTION 1: Identification

#### Product identifier

**Product name:** Tetrahydrofuran

**Product code:** TF1200

#### Recommended use of the product and restriction on use

**Relevant identified uses:** Laboratory chemicals

**Uses advised against:** Not determined or not applicable.

**Reasons why uses advised against:** Not determined or not applicable.

#### Manufacturer or supplier details

##### Manufacturer:

##### United States

AquaPhoenix Scientific, Inc.

860 Gitts Run Road

Hanover, PA 17331

1-717-632-1291

#### Emergency telephone number:

##### United States

##### ChemTel Inc

+1(800)255-3924

+1(813)248-0585

### SECTION 2: Hazard identification

#### GHS classification:

Flammable liquids, category 2

Carcinogenicity, category 2

Eye irritation, category 2A

Specific target organ toxicity - single exposure, category 3, respiratory irritation

#### Label elements

##### Hazard pictograms:



**Signal word:** Danger

#### Hazard statements:

H225 Highly flammable liquid and vapor

H351 Suspected of causing cancer

H319 Causes serious eye irritation

H335 May cause respiratory irritation

#### Precautionary statements:

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking

P233 Keep container tightly closed

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P240 Ground/bond container and receiving equipment  
P241 Use explosion-proof electrical/ventilating/light/equipment  
P242 Use only non-sparking tools  
P243 Take precautionary measures against static discharge  
P280 Wear protective gloves/protective clothing/eye protection/face protection  
P201 Obtain special instructions before use  
P202 Do not handle until all safety precautions have been read and understood  
P264 Wash skin thoroughly after handling  
P261 Avoid breathing dust/fume/gas/mist/vapors/spray  
P271 Use only outdoors or in a well-ventilated area  
P303+P361+P353 If on skin (or hair): Immediately remove/take off all contaminated clothing. Rinse skin with water/shower  
P370+P378 In case of fire: Use agents recommended in section 5 for extinction  
P308+P313 If exposed or concerned: Get medical advice/attention  
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing  
P304+P340+P312 If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell  
P405 Store locked up  
P403+P233 Store in a well ventilated place. Keep container tightly closed  
P501 Dispose of contents and container as instructed in Section 13

**Hazards not otherwise classified:** None

### SECTION 3: Composition/information on ingredients

| Identification          | Name            | Weight % |
|-------------------------|-----------------|----------|
| CAS number:<br>109-99-9 | Tetrahydrofuran | 100      |

**Additional Information:** None

### SECTION 4: First-aid measures

#### Description of first-aid measures

##### General notes:

Not determined or not available.

##### After inhalation:

Loosen clothing as necessary and position individual in a comfortable position  
Maintain an unobstructed airway  
Move exposed individual to fresh air  
Call a POISON CONTROL CENTER or seek medical attention if you feel unwell

##### After skin contact:

Rinse affected area with soap and water  
If symptoms develop or persist, seek medical attention

##### After eye contact:

Rinse/flush exposed eye(s) gently using water for 15-20 minutes  
If symptoms develop or persist, seek medical attention  
Remove contact lens(es) if able to do so during rinsing  
Seek medical attention if irritation persists or if concerned

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#### After ingestion:

- Rinse mouth thoroughly
- Seek medical attention if irritation, discomfort, or vomiting persists

#### Most important symptoms and effects, both acute and delayed

##### Acute symptoms and effects:

- Not determined or not available.

##### Delayed symptoms and effects:

- Not determined or not available.

#### Immediate medical attention and special treatment

##### Specific treatment:

- Not determined or not available.

##### Notes for the doctor:

- Not determined or not available.

### SECTION 5: Fire-fighting measures

#### Extinguishing media

##### Suitable extinguishing media:

- Use dry chemical, chemical foam, carbon dioxide, or alcohol-resistant foam

##### Unsuitable extinguishing media:

- Not determined or not applicable.

#### Specific hazards during fire-fighting:

- Thermal decomposition can lead to release of irritating gases and vapors
- Vapors can flow to distant ignition sources and flashback
- Liquid is volatile and may generate an explosive atmosphere

#### Special protective equipment for firefighters:

- Wear protective eye wear, gloves and clothing
- Refer to Section 8

#### Special precautions:

- Avoid inhaling gases, fumes, dust, mist, vapor and aerosols
- Avoid contact with skin, eyes and clothing

### SECTION 6: Accidental release measures

#### Personal precautions, protective equipment and emergency procedures:

- Ensure adequate ventilation
- Ensure air handling systems are operational
- Beware of vapors accumulating to form explosive concentrations
- Vapors can accumulate in low areas

#### Environmental precautions:

- Should not be released into the environment
- Prevent from reaching drains, sewer or waterway

#### Methods and material for containment and cleaning up:

- Wear protective eye wear, gloves and clothing
- Use spark-proof tools and explosion-proof equipment

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#### Reference to other sections:

Not determined or not applicable.

### SECTION 7: Handling and storage

#### Precautions for safe handling:

Do not eat, drink, smoke or use personal products when handling chemical substances.

Avoid breathing mist or vapor.

Use only non-sparking tools.

Take precautionary measures against electrostatic discharges.

#### Conditions for safe storage, including any incompatibilities:

Store in a cool, well-ventilated area.

Keep container tightly sealed.

Keep away from all ignition sources: open flames, hot surfaces, direct sunlight, spark sources.

Store locked up.

Use appropriate containment to avoid environmental contamination.

Protect from freezing and physical damage.

### SECTION 8: Exposure controls/personal protection

Only those substances with limit values have been included below.

#### Occupational Exposure limit values:

| Country (Legal Basis) | Substance       | Identifier | Permissible concentration  |
|-----------------------|-----------------|------------|--|
| Canada                | Tetrahydrofuran | 109-99-9   | Alberta OELs - 8-Hour TWA Exposure Limit: 147 mg/m <sup>3</sup> (50 ppm) |
|                       | Tetrahydrofuran | 109-99-9   | Alberta OELs - 15-minute STEL: 295 mg/m <sup>3</sup> (100 ppm)           |
|                       | Tetrahydrofuran | 109-99-9   | British Columbia OELs - 8-Hour TWA Exposure Value: 50 ppm                |
|                       | Tetrahydrofuran | 109-99-9   | British Columbia OELs - 15-minute STEL: 100 ppm                          |
|                       | Tetrahydrofuran | 109-99-9   | Manitoba OELs - 8-Hour Exposure Limit (TLV-TWA): 50 ppm                  |
|                       | Tetrahydrofuran | 109-99-9   | Manitoba OELs - 15-minute STEL: 100 ppm                                  |
|                       | Tetrahydrofuran | 109-99-9   | Ontario OELs - 8-Hour TWA Exposure Value (TWA): 50 ppm                   |
|                       | Tetrahydrofuran | 109-99-9   | Ontario OELs - 15-minute STEL (STEL): 100 ppm                            |
|                       | Tetrahydrofuran | 109-99-9   | Quebec OELs - 8-Hour TWA Exposure Value: 300 mg/m <sup>3</sup> (100 ppm) |
|                       | Tetrahydrofuran | 109-99-9   | Saskatchewan OELs - 8 hour average contamination limit: 50 ppm           |
|                       | Tetrahydrofuran | 109-99-9   | Saskatchewan OELs - 15 minute average contamination limit: 100 ppm       |

#### Biological limit values:

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No biological exposure limits noted for the ingredient(s).

#### Information on monitoring procedures:

Not determined or not applicable.

#### Appropriate engineering controls:

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use or handling.

Use explosion-proof ventilation equipment.

#### Personal protection equipment

##### Eye and face protection:

Safety goggles or glasses, or appropriate eye protection.

##### Skin and body protection:

Select glove material impermeable and resistant to the substance.

##### Respiratory protection:

When necessary, use NIOSH-approved breathing equipment.

#### General hygienic measures:

Wash hands before breaks and at the end of work.

Avoid contact with skin, eyes and clothing.

### SECTION 9: Physical and chemical properties

#### Information on basic physical and chemical properties

|   |                              |
|---|------------------------------|
| <b>Appearance (physical state, color):</b>      | Clear, colorless liquid      |
| <b>Odor:</b>                                    | Petroleum distillates        |
| <b>Odor threshold:</b>                          | Not available                |
| <b>pH-value:</b>                                | 7 - 8 (20% aqueous solution) |
| <b>Melting/Freezing point:</b>                  | -108.4°C                     |
| <b>Boiling point/range:</b>                     | 66°C                         |
| <b>Flash point:</b>                             | -21°C                        |
| <b>Evaporation rate:</b>                        | >1                           |
| <b>Flammability (solid, gaseous):</b>           | Not available                |
| <b>Explosion limit upper:</b>                   | 11.8%                        |
| <b>Explosion limit lower:</b>                   | 2%                           |
| <b>Vapor pressure:</b>                          | 200 mbar at 20 °C            |
| <b>Vapor density:</b>                           | 2.5                          |
| <b>Density:</b>                                 | Not available                |
| <b>Relative density:</b>                        | Not available                |
| <b>Solubilities:</b>                            | Soluble                      |
| <b>Partition coefficient (n-octanol/water):</b> | Not available                |
| <b>Auto/Self-ignition temperature:</b>          | 215°C                        |
| <b>Decomposition temperature:</b>               | Not available                |
| <b>Dynamic viscosity:</b>                       | Not available                |
| <b>Kinematic viscosity:</b>                     | Not available                |
| <b>Explosive properties</b>                     | Not available                |
| <b>Oxidizing properties</b>                     | Not available                |

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#### Other information

### SECTION 10: Stability and reactivity

#### Reactivity:

Does not react under normal conditions of use and storage.

#### Chemical stability:

Stable under normal conditions of use and storage.

#### Possibility of hazardous reactions:

None under normal conditions of use and storage.

#### Conditions to avoid:

None known.

#### Incompatible materials:

None known.

#### Hazardous decomposition products:

None known.

### SECTION 11: Toxicological information

#### Acute toxicity

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

**Product data:** No data available.

**Substance data:** No data available.

#### Skin corrosion/irritation

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

**Product data:** No data available.

**Substance data:** No data available.

#### Serious eye damage/irritation

**Assessment:** Causes serious eye irritation

**Product data:** No data available.

**Substance data:**

| Name            | Result                         |
|-----------------|--------------------------------|
| Tetrahydrofuran | Causes serious eye irritation. |

#### Respiratory or skin sensitization

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

**Product data:** No data available.

**Substance data:** No data available.

#### Carcinogenicity

**Assessment:** Suspected of causing cancer

**Product data:** No data available.

**Substance data:** No data available.

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

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

#### Germ cell mutagenicity

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

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**Product data:** No data available.

**Substance data:** No data available.

#### Reproductive toxicity

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

**Product data:** No data available.

**Substance data:** No data available.

#### Specific target organ toxicity (single exposure)

**Assessment:** May cause respiratory irritation

**Product data:** No data available.

**Substance data:**

| Name            | Result                            |
|-----------------|-----------------------------------|
| Tetrahydrofuran | May cause respiratory irritation. |

#### Specific target organ toxicity (repeated exposure)

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

**Product data:** No data available.

**Substance data:** No data available.

#### Aspiration toxicity

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

**Product data:** No data available.

**Substance data:** No data available.

**Information on likely routes of exposure:** No data available.

**Symptoms related to the physical, chemical and toxicological characteristics:** No data available.

**Other information:** No data available.

### SECTION 12: Ecological information

#### Acute (short-term) toxicity

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

**Product data:** No data available.

**Substance data:** No data available.

#### Chronic (long-term) toxicity

**Product data:** No data available.

**Substance data:** No data available.

#### Persistence and degradability

**Product data:** No data available.

**Substance data:** No data available.

#### Bioaccumulative potential

**Product data:** No data available.

**Substance data:** No data available.

#### Mobility in soil

**Product data:** No data available.

**Substance data:** No data available.

**Other adverse effects:** No data available.

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### SECTION 13: Disposal considerations

#### Disposal methods:


It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities (US 40CFR262.11)

### SECTION 14: Transport information


#### Canadian Transportation of Dangerous Goods (TDG)

|                               |   |
|-------------------------------|---|
| UN number                     | UN 2056   |
| UN proper shipping name       | Tetrahydrofuran   |
| UN transport hazard class(es) | 3  |
| Packing group                 | II  |
| Environmental hazards         | None  |
| Special precautions for user  | None  |

#### International Maritime Dangerous Goods (IMDG)

|                               |   |
|-------------------------------|---|
| UN number                     | UN 2056   |
| UN proper shipping name       | Tetrahydrofuran   |
| UN transport hazard class(es) | 3  |
| Packing group                 | II  |
| Environmental hazards         | None  |
| Special precautions for user  | None  |

#### International Air Transport Association Dangerous Goods Regulations (IATA-DGR)

|                               |   |
|-------------------------------|---|
| UN number                     | UN 2056   |
| UN proper shipping name       | Tetrahydrofuran   |
| UN transport hazard class(es) | 3  |
| Packing group                 | II  |
| Environmental hazards         | None  |
| Special precautions for user  | None  |

### SECTION 15: Regulatory information

#### Canada regulations

##### Domestic substances list (DSL):

|          |                 |        |
|----------|-----------------|--------|
| 109-99-9 | Tetrahydrofuran | Listed |
|----------|-----------------|--------|

Non-domestic substances list (NDSL): Not determined.



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### SECTION 16: Other information

**Abbreviations and Acronyms:** None

**Disclaimer:**

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations. The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations applicable to this material.

**NFPA:** 2-3-0

**HMIS:** 2-3-0

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**End of Safety Data Sheet**