

Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2018

Reviewed on 01/05/2018

1 Identification

- **Product identifier**
- **Trade name:** Lithium Nitrate Electrolyte
Solution in Ethanol
- **Article number:** SPX352
- **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.



GHS03 Flame over circle

Ox. Liq. 3 H272 May intensify fire; oxidizer.



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



GHS03



GHS08

- **Signal word** Danger
- **Hazard-determining components of labeling:**
Isopropanol
Methanol (Methyl Alcohol)
- **Hazard statements**
Highly flammable liquid and vapor.

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*May intensify fire; oxidizer.**May cause damage to organs.*

· **Precautionary statements**

*Keep away from heat/sparks/open flames/hot surfaces. - No smoking.**Keep/Store away from clothing/combustible materials.**Take any precaution to avoid mixing with combustibles.**Keep container tightly closed.**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.**Wear protective gloves/protective clothing/eye protection/face protection.**If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.**IF exposed or concerned: Call a poison center/doctor.**In case of fire: Use for extinction: CO₂, powder or water spray.**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 = 0

Fire = 3

Reactivity = 0

The substance possesses oxidizing properties.

· **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:**

| | | |
|----------------|-----------------------------------|----------|
| CAS: 64-17-5 | Ethyl Alcohol, Absolute 200 Proof | 65.758% |
| CAS: 7790-69-4 | Lithium Nitrate | 13.0168% |
| CAS: 67-56-1 | Methanol (Methyl Alcohol) | 4.121% |
| CAS: 67-63-0 | Isopropanol | 4.087% |

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· Table of Nonhazardous Ingredients

| | | |
|----------------|-------|----------|
| CAS: 7732-18-5 | Water | 13.0168% |
|----------------|-------|----------|

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.
- **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**
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).
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: 64-17-5 | Ethyl Alcohol, Absolute 200 Proof | 1,800 ppm |
| CAS: 7790-69-4 | Lithium Nitrate | 30 mg/m ³ |
| CAS: 67-56-1 | Methanol (Methyl Alcohol) | 530 ppm |
| CAS: 67-63-0 | Isopropanol | 400 ppm |

· PAC-2:

| | | |
|--------------|-----------------------------------|-----------|
| CAS: 64-17-5 | Ethyl Alcohol, Absolute 200 Proof | 3300* ppm |
|--------------|-----------------------------------|-----------|

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Solution in Ethanol**

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| | | |
|-----------------|-----------------------------------|-------------------------|
| CAS: 7790-69-4 | Lithium Nitrate | 330 mg/m ³ |
| CAS: 67-56-1 | Methanol (Methyl Alcohol) | 2,100 ppm |
| CAS: 67-63-0 | Isopropanol | 2000* ppm |
| · PAC-3: | | |
| CAS: 64-17-5 | Ethyl Alcohol, Absolute 200 Proof | 15000* ppm |
| CAS: 7790-69-4 | Lithium Nitrate | 2,000 mg/m ³ |
| CAS: 67-56-1 | Methanol (Methyl Alcohol) | 7200* ppm |
| CAS: 67-63-0 | Isopropanol | 12000** 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:**
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.
At this time, the remaining constituent has no known exposure limits.

| | |
|---|--|
| CAS: 64-17-5 Ethyl Alcohol, Absolute 200 Proof | |
| PEL | Long-term value: 1900 mg/m ³ , 1000 ppm |
| REL | Long-term value: 1900 mg/m ³ , 1000 ppm |
| TLV | Short-term value: 1880 mg/m ³ , 1000 ppm |
| CAS: 67-56-1 Methanol (Methyl Alcohol) | |
| PEL | Long-term value: 260 mg/m ³ , 200 ppm |
| REL | Short-term value: 325 mg/m ³ , 250 ppm Long-term value: 260 mg/m ³ , 200 ppm Skin |
| TLV | Short-term value: 328 mg/m ³ , 250 ppm Long-term value: 262 mg/m ³ , 200 ppm Skin; BEI |

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CAS: 67-63-0 Isopropanol

| | |
|-----|--|
| PEL | Long-term value: 980 mg/m ³ , 400 ppm |
| REL | Short-term value: 1225 mg/m ³ , 500 ppm Long-term value: 980 mg/m ³ , 400 ppm |
| TLV | Short-term value: 984 mg/m ³ , 400 ppm Long-term value: 492 mg/m ³ , 200 ppm BEI |

· **Ingredients with biological limit values:****CAS: 67-56-1 Methanol (Methyl Alcohol)**

| | |
|-----|--|
| BEI | 15 mg/L LD50 Intraperitoneal: urine Time: end of shift LD50: Methanol (background, nonspecific) |
|-----|--|

CAS: 67-63-0 Isopropanol

| | |
|-----|--|
| BEI | 40 mg/L LD50 Intraperitoneal: urine Time: end of shift at end of workweek LD50: Acetone (background, nonspecific) |
|-----|--|

· **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:** 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:**

Tightly sealed goggles

· **Body protection:** Protective work clothing

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9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

| | |
|------------------------|-----------------|
| Form: | Liquid |
| Color: | Clear |
| Odor: | Alcohol |
| Odor threshold: | Not determined. |

| | |
|------------------|-----------------|
| pH-value: | Not determined. |
|------------------|-----------------|

· **Change in condition**

| | |
|-------------------------------------|------------------|
| Melting point/Melting range: | Undetermined. |
| Boiling point/Boiling range: | 78 °C (172.4 °F) |

| | |
|---------------------|-----------------|
| Flash point: | 13 °C (55.4 °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: | 19 Vol % |

| | |
|---|---------------------|
| Vapor pressure at 20 °C (68 °F): | 59 hPa (44.3 mm Hg) |
|---|---------------------|

| | |
|----------------------------------|---|
| Density at 20 °C (68 °F): | 0.76824 g/cm ³ (6.41096 lbs/gal) |
|----------------------------------|---|

| | |
|-------------------------|-----------------|
| Relative density | Not determined. |
|-------------------------|-----------------|

| | |
|----------------------|-----------------|
| Vapor 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: | 74.0 % |
| Water: | 13.0 % |
| VOC content: | 73.97 % |
| | 568.2 g/l / 4.74 lb/gl |

| | |
|------------------------|--------|
| Solids content: | 78.8 % |
|------------------------|--------|

| | |
|--------------------------|--|
| 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:**

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

ATE (Acute Toxicity Estimate)

| | | |
|------------|----------|---------------------------|
| Oral | LD50 | 28,803-67,191 mg/kg (rat) |
| Inhalative | LC50/4 h | 594 mg/l (rat) |

CAS: 67-56-1 Methanol (Methyl Alcohol)

| | | |
|------------|----------|-----------------|
| Oral | LD50 | 100 mg/kg (ATE) |
| Dermal | LD50 | 300 mg/kg (ATE) |
| Inhalative | LC50/4 h | 3 mg/l (ATE) |

- **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:
- **Carcinogenic categories**

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

| | | |
|--------------|-----------------------------------|---|
| CAS: 64-17-5 | Ethyl Alcohol, Absolute 200 Proof | 1 |
| CAS: 67-63-0 | Isopropanol | 3 |

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

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

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.

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- **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 | UN1993 |
| · DOT, IMDG, IATA | |
| · UN proper shipping name | Flammable liquids, n.o.s. (Ethanol, Methanol, Isopropanol) |
| · DOT | FLAMMABLE LIQUID, N.O.S. (ETHANOL, METHANOL, Isopropanol) |
| · IMDG, IATA | |
| · Transport hazard class(es) | |
| · DOT | |
|  | |
| · Class | 3 Flammable liquids |
| · Label | 3 |
| · IMDG, IATA | |
|  | |
| · Class | 3 Flammable liquids |
| · Label | 3 |
| · Packing group | |
| · DOT, IMDG, IATA | II |
| · Environmental hazards: | |
| · Marine pollutant: | No |

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| | |
|--|---|
| · Special precautions for user | Warning: Flammable liquids |
| · Danger code (Kemler): | 33 |
| · EMS Number: | F-E, S-E |
| · Stowage Category | B |
| · Transport in bulk according to Annex II of 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 |
| · IMDG | |
| · Limited quantities (LQ) | 1L |
| · Excepted quantities (EQ) | Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml |
| · UN "Model Regulation": | UN 1993 FLAMMABLE LIQUIDS, N.O.S. (ETHANOL, METHANOL, ISOPROPANOL), 3, 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):

| | |
|----------------|---------------------------|
| CAS: 7790-69-4 | Lithium Nitrate |
| CAS: 67-56-1 | Methanol (Methyl Alcohol) |
| CAS: 67-63-0 | Isopropanol |

· TSCA (Toxic Substances Control Act):

Ethyl Alcohol, Absolute 200 Proof
Lithium Nitrate
Methanol (Methyl Alcohol)
Isopropanol
Water

· 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:

CAS: 64-17-5 Ethyl Alcohol, Absolute 200 Proof

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| | |
|--------------|---------------------------|
| CAS: 67-56-1 | Methanol (Methyl Alcohol) |
|--------------|---------------------------|

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

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

| | | |
|--------------|-----------------------------------|----|
| CAS: 64-17-5 | Ethyl Alcohol, Absolute 200 Proof | A3 |
|--------------|-----------------------------------|----|

| | | |
|--------------|-------------|----|
| CAS: 67-63-0 | Isopropanol | 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

GHS03

GHS08

· **Signal word** Danger

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

Isopropanol

Methanol (Methyl Alcohol)

· **Hazard statements**

Highly flammable liquid and vapor.

May intensify fire; oxidizer.

May cause damage to organs.

· **Precautionary statements**

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

Keep/Store away from clothing/combustible materials.

Take any precaution to avoid mixing with combustibles.

Keep container tightly closed.

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.

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

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

IF exposed or concerned: Call a poison center/doctor.

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

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.

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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**

01-05-2018: review SDS for accuracy. STN

Creation date for SDS 04-06-2015. STN

01/05/2018 / -

· **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

Ox. Liq. 3: Oxidizing liquids – Category 3

STOT SE 2: Specific target organ toxicity (single exposure) – Category 2

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