

# SAFETY DATA SHEET

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## SECTION 1. IDENTIFICATION

**Product Identifier:** (3N) 99.9% Lithium Tetrabromonickelate(II) Solution

**Product Code:** LI-BRNI-03-SOL

**CAS Number:** 13826-95-4

**Relevant identified uses of the substance:** Scientific research and development

Supplier details:

American Elements  
10884 Weyburn Ave.  
Los Angeles, CA 90024  
Tel: +1 310-208-0551  
Fax: +1 310-208-0351  
Emergency telephone number:  
+1 800-424-9300

## SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 2), H225

Eye irritation (Category 2A), H319

Carcinogenicity (Category 1B), H350

Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)

H225 Highly flammable liquid and vapor.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

H350 May cause cancer.

Precautionary statement(s)

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.  
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.  
P233 Keep container tightly closed.  
P240 Ground/bond container and receiving equipment.  
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.  
P242 Use only non-sparking tools.  
P243 Take precautionary measures against static discharge.  
P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.  
P264 Wash skin thoroughly after handling.  
P271 Use only outdoors or in a well-ventilated area.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P308 + P313 IF exposed or concerned: Get medical advice/ attention.  
P337 + P313 If eye irritation persists: Get medical advice/ attention.  
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.  
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235 Store in a well-ventilated place. Keep cool.  
P405 Store locked up.  
P501 Dispose of contents/ container to an approved waste disposal plant.  
2.3 Hazards not otherwise classified (HNOC) or not covered by GHS  
May form explosive peroxides.

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## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.2 Mixtures

Synonyms : di-Lithium tetrabromonickelate(II)

Lithium tetrabromonickelate(II)solution

Formula :  $\text{Br}_4\text{Li}_2\text{Ni}$

Molecular weight : 392.19 g/mol

Hazardous components

Component Classification Concentration

Tetrahydrofuran

CAS-No.

EC-No.

Index-No.

Registration number

109-99-9

203-726-8

603-025-00-0

01-2119444314-46-XXXX

Flam. Liq. 2; Acute Tox. 4; Eye

Irrit. 2A; Carc. 2; STOT SE 3;

H225, H302, H319, H335,

H351

>= 70 - < 90 %

di-Lithium tetrabromonickelate(II)

CAS-No.

13826-95-4

Carc. 1B; H350 >= 20 - < 30 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

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## SECTION 4. FIRST AID MEASURES

### 4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

### 4.3 Indication of any immediate medical attention and special treatment needed

No data available

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## SECTION 5. FIREFIGHTING MEASURES

### 5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

### 5.2 Special hazards arising from the substance or mixture

Carbon oxides, Hydrogen bromide gas, Nickel/nickel oxides, Lithium oxides

### 5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

### 5.4 Further information

Use water spray to cool unopened containers.

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## SECTION 6. ACCIDENTAL RELEASE MEASURES

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

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

Remove all

sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive

concentrations. Vapors can accumulate in low areas.

For personal protection see section 8.

#### 6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

#### 6.3 Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in

container for disposal according to local regulations (see section 13).

#### 6.4 Reference to other sections

For disposal see section 13.

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## SECTION 7. HANDLING AND STORAGE

#### 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist.

Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build

up of electrostatic charge.

For precautions see section 2.2.

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

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully

resealed and kept upright to prevent leakage.

Handle and store under inert gas.

#### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### 8.1 Control parameters

Components with workplace control parameters

Component CAS-No. Value Control

parameters

Basis

Tetrahydrofuran 109-99-9 TWA 50.000000 ppm

USA. ACGIH Threshold Limit Values

(TLV)

Remarks Central Nervous System impairment

Upper Respiratory Tract irritation

Kidney damage

Confirmed animal carcinogen with unknown relevance to humans

Danger of cutaneous absorption

STEL 100.000000

ppm

USA. ACGIH Threshold Limit Values

(TLV)

Central Nervous System impairment

Upper Respiratory Tract irritation

Kidney damage

Confirmed animal carcinogen with unknown relevance to humans

Danger of cutaneous absorption

TWA 200.000000

ppm  
590.000000

mg/m<sup>3</sup>

USA. NIOSH Recommended

Exposure Limits

ST 250.000000

ppm

735.000000

mg/m<sup>3</sup>

USA. NIOSH Recommended

Exposure Limits

TWA 200.000000

ppm

590.000000

mg/m<sup>3</sup>

USA. Occupational Exposure Limits

(OSHA) - Table Z-1 Limits for Air

Contaminants

The value in mg/m<sup>3</sup> is approximate.

Biological occupational exposure limits

Component CAS-No. Parameters Value Biological

specimen

Basis

Tetrahydrofuran 109-99-9 Tetrahydrofur

an

2.0000

mg/l

Urine ACGIH - Biological

Exposure Indices

(BEI)

Remarks End of shift (As soon as possible after exposure ceases)

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate

government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without

touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after

use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance

at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose

combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

- a) Appearance Form: liquid
  - b) Odor No data available
  - c) Odor Threshold No data available
  - d) pH No data available
  - e) Melting point/freezing point  
No data available
  - f) Initial boiling point and boiling range  
67 °C (153 °F) at 1,013 hPa (760 mmHg)
  - g) Flash point -18 °C (0 °F) - closed cup
  - h) Evaporation rate No data available
  - i) Flammability (solid, gas) No data available
  - j) Upper/lower flammability or explosive limits  
No data available
  - k) Vapor pressure No data available
  - l) Vapor density No data available
  - m) Relative density 1.070 g/cm<sup>3</sup>
  - n) Water solubility No data available
  - o) Partition coefficient: noctanol/water  
No data available
  - p) Auto-ignition temperature  
No data available
  - q) Decomposition temperature  
No data available
  - r) Viscosity No data available
  - s) Explosive properties No data available
  - t) Oxidizing properties No data available
- ### 9.2 Other safety information
- No data available
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## SECTION 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

No data available

#### 10.2 Chemical stability

Stable under recommended storage conditions.

#### 10.3 Possibility of hazardous reactions

Vapors may form explosive mixture with air.

#### 10.4 Conditions to avoid

Heat, flames and sparks. Extremes of temperature and direct sunlight.

#### 10.5 Incompatible materials

Oxidizing agents, Oxygen

#### 10.6 Hazardous decomposition products

Other decomposition products - No data available

In the event of fire: see section 5

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## SECTION 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

Acute toxicity

No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

No data available

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: Not available

Central nervous system depression, narcosis, Cough, chest pain, Difficulty in breathing, Nausea, Dizziness, Headache,

Unconsciousness

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence (Tetrahydrofuran)

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## SECTION 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

No data available

### 12.2 Persistence and degradability:

No data available

### 12.3 Bioaccumulative potential:

No data available

### 12.4 Mobility in soil:

No data available

### 12.5 Results of PBT and vPvB assessment:

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Other adverse effects

No data available

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## SECTION 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this

material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a

licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

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## SECTION 14. TRANSPORT INFORMATION

DOT (US)

UN number: 1993 Class: 3 Packing group: II

Proper shipping name: Flammable liquids, n.o.s. (Tetrahydrofuran, di-Lithium tetrabromonickelate(II))

Reportable Quantity (RQ): 1220 lbs

Poison Inhalation Hazard: No

IMDG

UN number: 1993 Class: 3 Packing group: II EMS-No: F-E, S-E

Proper shipping name: FLAMMABLE LIQUID, N.O.S. (di-Lithium tetrabromonickelate(II), Tetrahydrofuran)

IATA

UN number: 1993 Class: 3 Packing group: II

Proper shipping name: Flammable liquid, n.o.s. (di-Lithium tetrabromonickelate(II), Tetrahydrofuran)

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## SECTION 15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the



threshold (De  
Minimis) reporting levels established by SARA Title III, Section 313.  
SARA 311/312 Hazards  
Fire Hazard, Acute Health Hazard, Chronic Health Hazard  
Massachusetts Right To Know Components  
Tetrahydrofuran  
CAS-No.  
109-99-9  
Revision Date  
1993-04-24  
Pennsylvania Right To Know Components  
Tetrahydrofuran  
CAS-No.  
109-99-9  
Revision Date  
1993-04-24  
di-Lithium tetrabromonickelate(II) 13826-95-4  
New Jersey Right To Know Components  
CAS-No. Revision Date  
Tetrahydrofuran 109-99-9 1993-04-24  
di-Lithium tetrabromonickelate(II) 13826-95-4  
California Prop. 65 Components  
This product does not contain any chemicals known to State of California to cause cancer, birth  
defects, or any other  
reproductive harm.

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## 16. OTHER INFORMATION

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. American Elements shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. COPYRIGHT 1997-2022 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.