

SAFETY DATA SHEET

Date Printed: 05/20/2024

Date Revised: 01/15/2022

SECTION 1. IDENTIFICATION

Product Identifier: Phenyllithium Solution

Product Code: PH-LI-01-SOL

CAS Number: 591-51-5

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

Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)

GHS02 Flame

Flam. Liq. 3 H226 Flammable liquid and vapor.

GHS08 Health hazard

Muta. 1B H340 May cause genetic defects.

Carc. 1A H350 May cause cancer.

GHS05 Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

GHS07

STOT SE 3 H335 May cause respiratory irritation.

Hazards not otherwise classified No data available

GHS label elements, including precautionary statements



Hazard pictograms

GHS02 GHS05 GHS07 GHS08

Signal word Danger

Hazard-determining components of labeling:

Phenyllithium

Benzene

Hazard statements

H226 Flammable liquid and vapor.

H314 Causes severe skin burns and eye damage.

H340 May cause genetic defects.

H350 May cause cancer.

H335 May cause respiratory irritation.

Precautionary statements

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

P260 Do not breathe dust/fume/gas/mist/vapors/spray.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

WHMIS classification

B2 - Flammable liquid

D2A - Very toxic material causing other toxic effects

E - Corrosive material

Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH

FIRE

REACTIVITY

3

3

2

Health (acute effects) = 3

Flammability = 3

Physical Hazard = 2

Other hazards

Results of PBT and vPvB assessment

PBT: N/A

vPvB: N/A

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical characterization: Mixtures

Dangerous components:

591-51-5 Phenyllithium

Skin Corr. 1B, H314; Eye Dam. 1, H318

20.0%

71-43-2 Benzene

Flam. Liq. 2, H225; Muta. 1B, H340; Carc. 1A, H350; STOT RE 1, H372; Asp. Tox. 1, H304; Skin Irrit. 2, H315; Eye Irrit. 2, H319

0.9%

Additional information None known.

SECTION 4. FIRST AID MEASURES

Description of first aid measures

General information Immediately remove any clothing soiled by the product.

If inhaled:

Supply patient with fresh air. If not breathing, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

In case of skin contact:

Immediately wash with soap and water; rinse thoroughly.

Seek immediate medical advice.

In case of eye contact:

Rinse opened eye for several minutes under running water. Consult a physician.

If swallowed:

Seek medical treatment.

Information for doctor

Most important symptoms and effects, both acute and delayed

Causes severe skin burns.

Causes serious eye damage.

Indication of any immediate medical attention and special treatment needed:

No data available

SECTION 5. FIREFIGHTING MEASURES

Extinguishing media

Suitable extinguishing agents In case of fire, use sand, carbon dioxide or powdered extinguishing agent. Never use water.

For safety reasons unsuitable extinguishing agents Water

Special hazards arising from the substance or mixture

Reacts violently with water

If this product is involved in a fire, the following can be released:

Carbon monoxide and carbon dioxide

Lithium oxide

Advice for firefighters

Protective equipment:

Wear self-contained respirator.

Wear fully protective impervious suit.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources

Environmental precautions: Do not allow product to enter drains, sewage systems, or other water courses.

Methods and materials for containment and cleanup:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose of contaminated material as waste according to section 13.

Ensure adequate ventilation.

Do not flush with water or aqueous cleansing agents
Prevention of secondary hazards: Keep away from ignition sources.
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.

SECTION 7. HANDLING AND STORAGE

Handling

Precautions for safe handling
Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation at the workplace.
Open and handle container with care.
Prevent formation of aerosols.
Information about protection against explosions and fires:
Protect against electrostatic charges.
Fumes can combine with air to form an explosive mixture.
Keep ignition sources away.
Conditions for safe storage, including any incompatibilities
Requirements to be met by storerooms and receptacles: No special requirements.
Information about storage in one common storage facility:
Store away from water/moisture.
Store away from oxidizing agents.
Further information about storage conditions:
Protect from humidity and water.
Keep container tightly sealed.
Store in cool, dry conditions in well-sealed containers.
Specific end use(s) No data available

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Additional information about design of technical systems:
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.
Control parameters
Components with limit values that require monitoring at the workplace:
71-43-2 Benzene (0.9%)
PEL (USA) Short-term value: 15* mg/m³, 5* ppm
Long-term value: 3* mg/m³, 1* ppm
*table Z-2 for exclusions in 29CFR1910.1028(d)
REL (USA) Short-term value: 1 ppm
Long-term value: 0.1 ppm
See Pocket Guide App. A
TLV (USA) Short-term value: 8 mg/m³, 2.5 ppm
Long-term value: 1.6 mg/m³, 0.5 ppm
Skin; BEI
EL (Canada) Short-term value: 2.5 ppm
Long-term value: 0.5 ppm

Skin; ACGIH A1; IARC 1
EV (Canada) Short-term value: 2.5 ppm
Long-term value: 0.5 ppm
Skin
Ingredients with biological limit values:
71-43-2 Benzene (0.9%)
BEI (USA) 25 µg/g creatinine
Medium: urine
Time: end of shift
Parameter: S-Phenylmercapturic acid (background
500 µg/g creatinine
Medium: urine
Time: end of shift
Parameter: t,t-Muconic acid (background)
Additional information: No data
Exposure controls
Personal protective equipment
Follow typical protective and hygienic practices for handling chemicals.
Keep away from foodstuffs, beverages and feed.
Remove all soiled and contaminated clothing immediately.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes and skin.
Maintain an ergonomically appropriate working environment.
Breathing equipment: Use suitable respirator when high concentrations are present.
Recommended filter device for short term use:
Use a respirator with organic vapor/acid gas cartridges as a backup to engineering controls. Risk
assessment should be performed to determine if air-purifying
respirators are appropriate. Only use equipment tested and approved under appropriate government
standards such as NIOSH (USA) or CEN (EU).
Protection of hands:
Impervious gloves
Inspect gloves prior to use.
The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary
from manufacturer to manufacturer.
Eye protection:
Tightly sealed goggles
Full face protection
Body protection: Protective work clothing.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance:

Form: Liquid

Color: Dark brown to black

Odor: Not determined

Odor threshold: Not determined.

pH: Not determined.

Melting point/Melting range: Not determined

Boiling point/Boiling range: 140-143 °C

Sublimation temperature / start: Not determined

Flash point: 25 °C (77 °F)

Flammability (solid, gas) Not determined.
Ignition temperature: 175 °C (347 °F)
Decomposition temperature: Not determined
Autoignition: Product is not selfigniting.
Danger of explosion: Product is not explosive. However, formation of explosive air/vapor mixtures is possible.
Explosion limits:
Lower: 0.9 Vol %
Upper: 8.5 Vol %
Vapor pressure at 20 °C (68 °F): 400 hPa (300 mm Hg)
Density at 20 °C (68 °F): 0.81 g/cm³ (6.759 lbs/gal)
Relative density Not determined.
Vapor density Not determined.
Evaporation rate Not determined.
Solubility in / Miscibility with
Water: Reacts violently
Partition coefficient (n-octanol/water): Not determined.
Viscosity:
Dynamic: Not determined.
Kinematic: Not determined.
Solvent content:
Organic solvents: 0.9 %
Solids content: 20.6 %
Other information No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity Reacts violently with water.
Chemical stability Stable under recommended storage conditions.
Thermal decomposition / conditions to be avoided: Decomposition will not occur if used and stored according to specifications.
Possibility of hazardous reactions
Reacts with strong oxidizing agents
Reacts violently with water
Conditions to avoid No data available
Incompatible materials:
Oxidizing agents
Water/moisture
Hazardous decomposition products:
Carbon monoxide and carbon dioxide
Lithium oxide

SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects
Acute toxicity:
Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.
The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for components in this product.
LD/LC50 values that are relevant for classification:

71-43-2 Benzene

Oral LD50 930 mg/kg (rat)

Dermal LD50 >9400 µL/kg (rabbit)

Inhalative LC50/7H 10000 ppm/7H (rat)

Skin irritation or corrosion: Causes severe skin burns.

Eye irritation or corrosion: Causes serious eye damage.

Sensitization: No sensitizing effects known.

Germ cell mutagenicity: May cause genetic defects.

Carcinogenicity:

May cause cancer.

EPA-A: human carcinogen: sufficient evidence from epidemiologic studies to support a causal association between exposure and cancer.

EPA-D: Not classifiable as to human carcinogenicity: inadequate human and animal evidence of carcinogenicity or no data are available.

EPA-S: Suggestive evidence of carcinogenicity, but not sufficient to assess human carcinogenic potential.

IARC-1: Carcinogenic to humans: sufficient evidence of carcinogenicity.

ACGIH A1: Confirmed human carcinogen: Agent is carcinogenic to humans based on epidemiologic studies of, or convincing clinical evidence in, exposed humans.

EPA-K: Known human carcinogens.

EPA-II: Inadequate information to assess carcinogenic potential.

Carcinogen as defined by OSHA.

NTP-K: Known to be carcinogenic: sufficient evidence from human studies.

Reproductive toxicity: No effects known.

Specific target organ system toxicity - repeated exposure: No effects known.

Specific target organ system toxicity - single exposure: May cause respiratory irritation.

Aspiration hazard: No effects known.

Subacute to chronic toxicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.

Additional toxicological information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

The product shows the following dangers according to internally approved calculation methods for preparations:

Corrosive

Irritant

Carcinogenic

The product can cause inheritable damage.

SECTION 12. ECOLOGICAL INFORMATION

Toxicity

Aquatic toxicity: No data available

Persistence and degradability No data available

Bioaccumulative potential No data available

Mobility in soil No data available

Ecotoxicological effects:

Remark: Harmful to aquatic organisms

Additional ecological information:

Do not allow product to reach groundwater, water courses, or sewage systems, even in small quantities.

Danger to drinking water if even extremely small quantities leak into the ground.

May cause long lasting harmful effects to aquatic life.

Avoid transfer into the environment.

Harmful to aquatic organisms
Results of PBT and vPvB assessment
PBT: N/A
vPvB: N/A
Other adverse effects No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods
Recommendation Consult official regulations to ensure proper disposal.
Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

SECTION 14. TRANSPORT INFORMATION

UN-Number
DOT, IMDG, IATA UN2924
UN proper shipping name
DOT Flammable liquids, corrosive, n.o.s. (Phenyllithium, Dibutyl ethers)
IMDG, IATA FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Phenyllithium, DIBUTYL ETHERS)
Transport hazard class(es)
DOT
Class 3 Flammable liquids.
Label 3+8
Class 3 (FC) Flammable liquids
Label 3+8
IMDG, IATA
Class 3 Flammable liquids.
Label 3+8
Packing group
DOT, IMDG, IATA II
Environmental hazards:
Marine pollutant (IMDG): No
Special precautions for user Warning: Flammable liquids
EMS Number: F-E,S-C
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code N/A
Transport/Additional information:
DOT
Marine Pollutant (DOT): No
UN "Model Regulation": UN2924, Flammable liquids, corrosive, n.o.s. (Phenyllithium, Dibutyl ethers), 3
(8),
II

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture
GHS label elements, including precautionary statements
Hazard pictograms
GHS02 GHS05 GHS07 GHS08
Signal word Danger

Hazard-determining components of labeling:

Phenyllithium

Benzene

Hazard statements

H226 Flammable liquid and vapor.

H314 Causes severe skin burns and eye damage.

H340 May cause genetic defects.

H350 May cause cancer.

H335 May cause respiratory irritation.

Precautionary statements

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

P260 Do not breathe dust/fume/gas/mist/vapors/spray.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

The components of this product are listed on the Canadian Domestic Substances List (DSL) and/or the Canadian Non-Domestic Substances List (NDSL).

SARA Section 313 (specific toxic chemical listings)

71-43-2 Benzene 0.9%

California Proposition 65

Prop 65 - Chemicals known to cause cancer

71-43-2 Benzene 0.9%

Prop 65 - Developmental toxicity

71-43-2 Benzene 0.9%

Prop 65 - Developmental toxicity, female

None of the ingredients are listed.

Prop 65 - Developmental toxicity, male

71-43-2 Benzene 0.9%

Information about limitation of use:

Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases.

For use only by technically qualified individuals.

Other regulations, limitations and prohibitive regulations

Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006.

None of the ingredients are listed.

The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.

None of the ingredients is listed.

Annex XIV of the REACH Regulations (requiring Authorisation for use)

None of the ingredients is listed.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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.