SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form: Substance
Physical state: Liquid
Substance name: ARSENIC TRIETHOXIDE
Product code: AKA115
Formula: C6H15AsO3
Synonyms: ARSENIC ETHYLATE; ARSENIC TRIETHOXIDE
Chemical family: ARSENIC ALCOHOLATE

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses
Use of the substance/mixture: Chemical intermediate

1.2.2. Uses advised against
No additional information available

1.3. Details of the supplier of the safety data sheet

GELEST, INC.
11 East Steel Road
Morrisville, PA 19067
USA
T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST
info@gelest.com - www.gelest.com

GELEST INC.
Fritz-Klatte-Strasse 8
65933 Frankfurt
Germany
T +49 (0) 69 3535106-500 - F +49 (0) 69 3535106-501 - (M-F): 8:00 AM - 4:00 PM
info@gelestde.com - www.gelestd.de

1.4. Emergency telephone number

Emergency number: CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]
Flammable liquids, Category 3 H226
Acute toxicity (oral), Category 3 H301
Serious eye damage/eye irritation, Category 2 H319

Adverse physicochemical, human health and environmental effects
No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP):

![GHS02](image1)
![GHS06](image2)

Signal word (CLP): Danger
Hazard statements (CLP):
H226 - Flammable liquid and vapour.
H301 - Toxic if swallowed.
H319 - Causes serious eye irritation.
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Precautionary statements (CLP):
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P240 - Ground/bond container and receiving equipment.
P264 - Wash hands thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310 - IF SWALLOWED: Immediately call a doctor.

2.3. Other hazards
No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances
Substance type: Mono-constituent
Name: ARSENIC TRIETHOXIDE
CAS-No.: 3141-12-6
EC-No.: 221-543-1

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
</table>
| Arsenic triethoxide   | (CAS-No.) 3141-12-6    | 95 - 100 | Flam. Liq. 3, H226  
|                       | (EC-No.) 221-543-1     |     | Acute Tox. 3 (Oral), H301  
|                       |                        |     | Eye Irrit. 2, H319                                           |

Full text of H-statements: see section 16

3.2. Mixtures
Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures
First-aid measures general: Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.
First-aid measures after inhalation: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention if you feel unwell.
First-aid measures after skin contact: Wash with plenty of water/…. Get immediate medical advice/attention.
First-aid measures after eye contact: Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.
First-aid measures after ingestion: Never give anything by mouth to an unconscious person. Obtain emergency medical attention.

4.2. Most important symptoms and effects, both acute and delayed
Symptoms/effects after inhalation: May cause irritation to the respiratory tract.
Symptoms/effects after skin contact: May cause skin irritation.
Symptoms/effects after eye contact: Causes serious eye irritation.
Symptoms/effects after ingestion: Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard. Acute arsenic poisoning from ingestion results in marked irritation of of the stomach and intestines with nausea, vomiting and diarrhea. In severe cases the vomitus and stools are bloody and the victim goes into shock with weak rapid pulse, cold sweats, coma and death.
Chronic symptoms: Chronic arsenic poisoning may cause disturbances of the digestive system such as loss of appetite, cramps, nausea, constipation or diarrhea.

4.3. Indication of any immediate medical attention and special treatment needed
No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

5.2. Special hazards arising from the substance or mixture
Fire hazard: Flammable liquid and vapour. Toxic fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.

5.3. Advice for firefighters
Firefighting instructions: Use water spray to cool exposed surfaces. Exercise caution when fighting any chemical fire.
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Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. Avoid all eye and skin contact and do not breathe vapour and mist.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures: Remove ignition sources. Use special care to avoid static electric charges.

6.1.1. For non-emergency personnel

Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment: Equip cleanup crew with proper protection.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up: Clean up any spills as soon as possible, using an absorbent material to collect it. Sweep or shovel spills into appropriate container for disposal. Use only non-sparking tools.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling: Avoid all eye and skin contact and do not breathe vapour and mist. Provide good ventilation in process area to prevent formation of vapour. Containers must be properly grounded before beginning transfer. Take precautionary measures against static discharge. Do not allow hydrolyzed solids to accumulate in work areas. Use only outdoors or in a well-ventilated area. Use only non-sparking tools.

Hygiene measures: Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures: Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof electrical equipment.

Storage conditions: Keep container tightly closed.

Incompatible materials: Water:

Storage area: Store in a well-ventilated place. Store away from heat.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Arsenic triethoxide (3141-12-6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA OSHA</td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Appropriate engineering controls:

Handle in an enclosing hood with exhaust ventilation.

Personal protective equipment:

Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Hand protection:

Neoprene or nitrile rubber gloves

Eye protection:

Chemical goggles or face shield. Contact lenses should not be worn

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

Where exposure through inhalation may occur from use, respiratory protection equipment is recommended
**SECTION 9: Physical and chemical properties**

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Clear liquid</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>210.07 g/mol</td>
</tr>
<tr>
<td>Colour</td>
<td>Straw</td>
</tr>
<tr>
<td>Odour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Refractive index</td>
<td>1.433</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>&lt; 0 °C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>166 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>49 °C</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Flammable liquid and vapour.</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>1.6 mm Hg at 25°C</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.21</td>
</tr>
<tr>
<td>% Volatiles</td>
<td>&lt; 5 %</td>
</tr>
<tr>
<td>Solubility</td>
<td>Reacts with water</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Log Kow</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>No data available</td>
</tr>
</tbody>
</table>

9.2. Other information

No additional information available

**SECTION 10: Stability and reactivity**

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable.

10.3. Possibility of hazardous reactions

Material decomposes slowly in contact with air by reaction with moisture, liberating ethanol and arsenic oxides (arsenic acids). Avoid contact with water.

10.4. Conditions to avoid

Open flame. Sparks.

10.5. Incompatible materials

Water :

10.6. Hazardous decomposition products

Arsenic oxide (arsenic acid) fumes.

**SECTION 11: Toxicological information**

11.1. Information on toxicological effects

Acute toxicity : Toxic if swallowed.

<table>
<thead>
<tr>
<th>Exposure</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic triethoxide (3141-12-6)</td>
<td>54 mg/kg This product is expected to form arsenic acids.</td>
</tr>
<tr>
<td>LD50 oral rat</td>
<td>54 mg/kg</td>
</tr>
<tr>
<td>ATE CLP (oral)</td>
<td>54 mg/kg bodyweight</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Not classified</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>Causes serious eye irritation.</td>
</tr>
</tbody>
</table>

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Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Arsenic acids are reported human carcinogens.
Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified
Aspiration hazard : Not classified
Symptoms/effects after inhalation : May cause irritation to the respiratory tract.
Symptoms/effects after skin contact : May cause skin irritation.
Symptoms/effects after eye contact : Causes serious eye irritation.
Symptoms/effects after ingestion : Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard. Acute arsenic poisoning from ingestion results in marked irritation of the stomach and intestines with nausea, vomiting and diarrhea. In severe cases the vomitus and stools are bloody and the victim goes into shock with weak rapid pulse, cold sweats, coma and death.

Chronic symptoms : Chronic arsenic poisoning may cause disturbances of the digestive system such as loss of appetite, cramps, nausea, constipation or diarrhea.
Reason for classification : Expert judgment

SECTION 12: Ecological information
12.1. Toxicity
Acute aquatic toxicity : Not classified
Chronic aquatic toxicity : Not classified

12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential
No additional information available

12.4. Mobility in soil
No additional information available

12.5. Results of PBT and vPvB assessment
No additional information available

12.6. Other adverse effects
Other adverse effects : This substance may be hazardous to the environment.

SECTION 13: Disposal considerations
13.1. Waste treatment methods
Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.
Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information
14.1. UN number
In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number
UN-No. (ADR) : 2929
UN-No. (IMDG) : 2929
UN-No. (IATA) : 2929
UN-No. (ADN) : 2929
UN-No. (RID) : 2929

14.2. UN proper shipping name
Proper Shipping Name (ADR) : TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.
Proper Shipping Name (IMDG) : TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.
Proper Shipping Name (IATA) : Toxic liquid, flammable, organic, n.o.s.
Proper Shipping Name (ADN) : TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.
Proper Shipping Name (RID) : TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.
## ARSENIC TRIETHOXIDE

### Safety Data Sheet

| Transport document description (ADR) | : UN 2929 TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S. (ARSENIC TRIETHOXIDE), 6.1 (3), II, (D/E) |
| Transport document description (IMDG) | : UN 2929 TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S. (ARSENIC TRIETHOXIDE), 6.1 (3), II |
| Transport document description (IATA) | : UN 2929 Toxic liquid, flammable, organic, n.o.s. (ARSENIC TRIETHOXIDE), 6.1, II |
| Transport document description (ADN) | : UN 2929 TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S. (ARSENIC TRIETHOXIDE), 6.1 (3), II |
| Transport document description (RID) | : UN 2929 TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S. (ARSENIC TRIETHOXIDE), 6.1 (3), II |

### 14.3. Transport hazard class(es)

| ADR | Transport hazard class(es) (ADR) : 6.1 (3) |
| Danger labels (ADR) : 6.1, 3 |

| IMDG | Transport hazard class(es) (IMDG) : 6.1 (3) |
| Danger labels (IMDG) : 6.1, 3 |

| IATA | Transport hazard class(es) (IATA) : 6.1 (3) |
| Hazard labels (IATA) : 6.1, 3 |

| ADN | Transport hazard class(es) (ADN) : 6.1 (3) |
| Danger labels (ADN) : 6.1, 3 |

| RID | Transport hazard class(es) (RID) : 6.1 (3) |
| Danger labels (RID) : 6.1, 3 |

### 14.4. Packing group

| Packing group (ADR) : II |

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Packing group (IMDG) : II
Packing group (IATA) : II
Packing group (ADN) : II
Packing group (RID) : II

14.5. Environmental hazards
Dangerous for the environment : No
Marine pollutant : No
Other information : No supplementary information available

14.6. Special precautions for user

- Overland transport
  Classification code (ADR) : TF1
  Special provisions (ADR) : 274
  Limited quantities (ADR) : 100ml
  Excepted quantities (ADR) : E4
  Packing instructions (ADR) : P001, IBC02
  Mixed packing provisions (ADR) : MP15
  Portable tank and bulk container instructions (ADR) : T11
  Portable tank and bulk container special provisions (ADR) : TP2, TP27
  Tank code (ADR) : L4BH
  Tank special provisions (ADR) : TU15, TE19
  Vehicle for tank carriage : FL
  Transport category (ADR) : 2
  Special provisions for carriage - Loading, unloading and handling (ADR) : CV13, CV28
  Special provisions for carriage - Operation (ADR) : S2, S9, S19
  Hazard identification number (Kemler No.) : 63
  Orange plates : 63
  Tunnel restriction code (ADR) : D/E

- Transport by sea
  Special provisions (IMDG) : 274
  Limited quantities (IMDG) : 100 ml
  Excepted quantities (IMDG) : E4
  Packing instructions (IMDG) : P001
  IBC packing instructions (IMDG) : IBC02
  Tank instructions (IMDG) : T11
  Tank special provisions (IMDG) : TP2, TP13, TP27
  EmS-No. (Fire) : F-E
  EmS-No. (Spillage) : S-D
  Stowage category (IMDG) : B
  Stowage and handling (IMDG) : SW2
  Properties and observations (IMDG) : Toxic if swallowed, by skin contact or by inhalation.

- Air transport
  PCA Exected quantities (IATA) : E4
  PCA Limited quantities (IATA) : Y641
  PCA limited quantity max net quantity (IATA) : 1L
  PCA packing instructions (IATA) : 654
  PCA max net quantity (IATA) : 5L
  CAO packing instructions (IATA) : 662
  CAO max net quantity (IATA) : 60L
  Special provisions (IATA) : A4, A137
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ERG code (IATA) : 6F

- **Inland waterway transport**
  - Classification code (ADN) : TF1
  - Special provisions (ADN) : 274, 802
  - Limited quantities (ADN) : 100 ml
  - Excepted quantities (ADN) : E4
  - Carriage permitted (ADN) : T
  - Equipment required (ADN) : PP, EP, EX, TOX, A
  - Ventilation (ADN) : VE01, VE02
  - Number of blue cones/lights (ADN) : 2

- **Rail transport**
  - Classification code (RID) : TF1
  - Special provisions (RID) : 274
  - Limited quantities (RID) : 100ml
  - Excepted quantities (RID) : E4
  - Packing instructions (RID) : P001, IBC02
  - Mixed packing provisions (RID) : MP15
  - Portable tank and bulk container instructions (RID) : T11
  - Portable tank and bulk container special provisions (RID) : TP2, TP27
  - Tank codes for RID tanks (RID) : L4BH
  - Special provisions for RID tanks (RID) : TU15
  - Transport category (RID) : 2
  - Special provisions for carriage - Loading, unloading and handling (RID) : CW13, CW28, CW31
  - Colis express (express parcels) (RID) : CE5
  - Hazard identification number (RID) : 63

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable

**SECTION 15: Regulatory information**

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

No REACH Annex XVII restrictions
ARSENIC TRIETHOXIDE is not on the REACH Candidate List
ARSENIC TRIETHOXIDE is not on the REACH Annex XIV List
ARSENIC TRIETHOXIDE is not subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

% Volatiles : < 5 %

15.1.2. National regulations

**Germany**


**Netherlands**

SZW-lijs van kankerverwekkende stoffen : The substance is not listed
SZW-lijs van mutagene stoffen : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed
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Denmark
Class for fire hazard : Class II-1
Store unit : 5 liter
Classification remarks : R10 <H226;H301;H319>; Emergency management guidelines for the storage of flammable liquids must be followed
Danish National Regulations : Young people below the age of 18 years are not allowed to use the product

15.2. Chemical safety assessment
No additional information available

SECTION 16: Other information
Abbreviations and acronyms:
Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor

Other information : Prepared by safety and environmental affairs.

Full text of H- and EUH-statements:
Acute Tox. 3 (Oral) Acute toxicity (oral), Category 3
Eye Irrit. 2 Serious eye damage/eye irritation, Category 2
Flam. Liq. 3 Flammable liquids, Category 3
H226 Flammable liquid and vapour.
H301 Toxic if swallowed.
H319 Causes serious eye irritation.

SDS EU (REACH Annex II) - Custom

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