

**THALLIUM(I) ETHOXIDE**

Safety Data Sheet AKT825

Date of issue: 06/01/2017

Version: 1.0

SECTION 1: Identification**1.1. Product identifier**

| | |
|-----------------|--|
| Product name | : THALLIUM(I) ETHOXIDE |
| Product code | : AKT825 |
| Product form | : Substance |
| Physical state | : Liquid |
| Formula | : C ₂ H ₅ O ₂ TI |
| Synonyms | : ETHOXYTHALLIUM THALLIUM ETHYLATE THALLOUS ETHOXIDE THALLIUM(I) ETHANOLATE |
| Chemical family | : METAL COMPOUND |

1.2. Recommended use of the chemical and restrictions on use

| | |
|-----------------|---|
| Recommended use | : Chemical intermediate For research and industrial use only |
|-----------------|---|

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**1.4. Emergency telephone number**

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

SECTION 2: Hazard(s) identification**2.1. Classification of the substance or mixture****GHS-US classification**

| | |
|--|------|
| Acute toxicity (oral) Category 2 | H300 |
| Acute toxicity (inhalation) Category 2 | H330 |
| Specific target organ toxicity (repeated exposure) Category 2 | H373 |
| Hazardous to the aquatic environment - Chronic Hazard Category 2 | H411 |

Full text of H statements : see section 16

2.2. Label elements**GHS-US labeling**

Hazard pictograms (GHS-US)



GHS06

GHS08

GHS09

Signal word (GHS-US)

: Danger

Hazard statements (GHS-US)

: H300+H330 - Fatal if swallowed or if inhaled
 H373 - May cause damage to organs through prolonged or repeated exposure
 H411 - Toxic to aquatic life with long lasting effects

Precautionary statements (GHS-US)

: P260 - Do not breathe vapors
 P284 - [In case of inadequate ventilation] wear respiratory protection
 P264 - Wash hands thoroughly after handling
 P270 - Do not eat, drink or smoke when using this product
 P271 - Use only outdoors or in a well-ventilated area
 P273 - Avoid release to the environment
 P310 - Immediately call a POISON CENTER
 P330 - Rinse mouth
 P301+P310 - If swallowed: Immediately call a POISON CENTER
 P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
 P314 - Get medical advice/attention if you feel unwell
 P320 - Specific treatment is urgent (see first aid instructions on this label)
 P391 - Collect spillage
 P403+P233 - Store in a well-ventilated place. Keep container tightly closed

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P405 - Store locked up

P501 - Dispose of contents/container to licensed waste disposal facility.

2.3. Hazards not otherwise classified (HNOC)

No additional information available

2.4. Unknown acute toxicity (GHS US)

No data available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Substance type : Mono-constituent
Name : THALLIUM(I) ETHOXIDE
CAS No : 20398-06-5

| Name | Product identifier | % | GHS-US classification |
|----------------------|---------------------|----------|--|
| Thallium(I) ethoxide | (CAS No) 20398-06-5 | 95 - 100 | Acute Tox. 2 (Oral), H300 Acute Tox. 2 (Inhalation), H330 STOT RE 2, H373 Aquatic Chronic 2, H411 |

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures

Not applicable

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 victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a poison center or doctor/physician.

First-aid measures after skin contact : Wash with plenty of soap and water. Get 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 medical advice/attention.

First-aid measures after ingestion : Never give anything by mouth to an unconscious person. Immediately call a poison center or doctor/physician.

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

Symptoms/effects : May cause damage to organs through prolonged or repeated exposure.

Symptoms/effects after inhalation : Fatal if inhaled. May cause irritation to the respiratory tract.

Symptoms/effects after skin contact : May cause skin irritation.

Symptoms/effects after eye contact : May cause eye irritation.

Symptoms/effects after ingestion : Swallowing a small quantity of this material will result in serious health hazard. Fatal if swallowed.

Chronic symptoms : Note: The hydrolysis products of thallium ethoxide are thallium oxides and ethanol. Of primary concern is the toxic effect of thallium. However, overexposure to ethanol by skin absorption, inhalation or ingestion may have a narcotic effect.

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

(Note to physician: The following treatment for thallium metal poisoning has recommended by the International Technical Information Institute. The applicability to thallium ethoxide poisoning has not been determined. Treat swallowing by inducing vomiting, practice stomach was with 1% sodium iodide solution, followed by saline catharsis and then provide laxative. Prescribe 10cc of 10% sodium thiosulfate solution intravenously three times daily).

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Foam. Carbon dioxide. Dry chemical.

Unsuitable extinguishing media : Do not use straight streams.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Toxic, irritating fumes and organic acid vapors will develop when material is exposed to elevated temperatures or open flame.

5.3. Advice for firefighters

Firefighting instructions : Exercise caution when fighting any chemical fire.

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 vapor and mist. Leave area of fire unless equipped with a self-contained breathing apparatus.

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Protective equipment : Wear protective equipment as described in Section 8.
Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

- For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
Methods for cleaning up : Collect spillage. Clean up any spills as soon as possible, using an absorbent material to collect it.

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 vapor and mist. Use only outdoors or in a well-ventilated area.
Hygiene measures : Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Physical Examination: Physical examinations of exposed personnel should be conducted annually, with special attention to vision and weight, and including a complete blood count, urinalysis and studies of kidney and liver function.
Storage conditions : Keep container tightly closed. Store locked up.
Incompatible materials : Oxidizing agent.
Storage area : Store in a well-ventilated place. Store away from heat.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

| Thallium(I) ethoxide (20398-06-5) | | |
|-----------------------------------|-------------------------------------|----------------------------|
| ACGIH | ACGIH TWA (mg/m ³) | 0.1 mg/m ³ (TI) |
| OSHA | OSHA PEL (TWA) (mg/m ³) | 0.1 mg/m ³ (TI) |

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. 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. NIOSH-certified dust and mist (teal cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Physical state : Liquid
Appearance : Hazy liquid.
Molecular mass : 249.43 g/mol
Color : No data available
Odor : No data available
Odor threshold : No data available

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|---|----------------------|
| Refractive index | : 1.6714 |
| pH | : No data available |
| Relative evaporation rate (butyl acetate=1) | : No data available |
| Melting point | : -3 °C |
| Freezing point | : No data available |
| Boiling point | : 130 °C decomposes |
| Flash point | : > 110 °C |
| Auto-ignition temperature | : No data available |
| Decomposition temperature | : No data available |
| Flammability (solid, gas) | : No data available |
| Vapor pressure | : No data available |
| Relative vapor density at 20 °C | : No data available |
| Relative density | : 3.493 |
| Solubility | : Reacts with water. |
| Log Pow | : No data available |
| Log Kow | : No data available |
| Viscosity, kinematic | : No data available |
| Viscosity, dynamic | : No data available |
| Explosive properties | : No data available |
| Oxidizing properties | : No data available |
| Explosion limits | : No data available |

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 water and carbon dioxide, liberating ethanol.

10.4. Conditions to avoid

Heat. Open flame. Sparks.

10.5. Incompatible materials

Oxidizing agent.

10.6. Hazardous decomposition products

Ethanol. Organic acid vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Fatal if swallowed. Inhalation: Fatal if inhaled.

| THALLIUM(I) ETHOXIDE (20398-06-5) | |
|-----------------------------------|---|
| ATE US (oral) | 5 mg/kg body weight |
| ATE US (gases) | 100 ppmV/4h |
| ATE US (vapors) | 0.5 mg/l/4h |
| ATE US (dust, mist) | 0.05 mg/l/4h |
| Toxicity information | 50 mg/kg LDLo, rat: thallium; Oral toxicity of thallium ethoxide has not been determined. |
| Thallium(I) ethoxide (20398-06-5) | |
| ATE US (oral) | 5 mg/kg body weight |
| ATE US (gases) | 100 ppmV/4h |
| ATE US (vapors) | 0.5 mg/l/4h |
| ATE US (dust, mist) | 0.05 mg/l/4h |

| | |
|-----------------------------------|------------------|
| Skin corrosion/irritation | : Not classified |
| Serious eye damage/irritation | : Not classified |
| Respiratory or skin sensitization | : Not classified |
| Germ cell mutagenicity | : Not classified |

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|---|--|
| Carcinogenicity | : Not classified None of the components in this product at concentrations >0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen. |
| Reproductive toxicity | : Not classified |
| Specific target organ toxicity – single exposure | : Not classified |
| Specific target organ toxicity – repeated exposure | : May cause damage to organs through prolonged or repeated exposure. |
| Aspiration hazard | : Not classified |
| Potential Adverse human health effects and symptoms | : Acute poisoning may occur. Can be fatal. Possible effects include paralysis, joint pain, hair loss. At lower levels or onset of exposure swelling of the feet and legs, vomiting, angina-like pain, nephritis and mental confusion may occur. |
| Symptoms/effects after inhalation | : Fatal if inhaled. May cause irritation to the respiratory tract. |
| Symptoms/effects after skin contact | : May cause skin irritation. |
| Symptoms/effects after eye contact | : May cause eye irritation. |
| Symptoms/effects after ingestion | : Swallowing a small quantity of this material will result in serious health hazard. Fatal if swallowed. |
| Chronic symptoms | : Note: The hydrolysis products of thallium ethoxide are thallium oxides and ethanol. Of primary concern is the toxic effect of thallium. However, overexposure to ethanol by skin absorption, inhalation or ingestion may have a narcotic effect. |

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Toxic to aquatic life with long lasting effects.

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. Other adverse effects

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

Effect on ozone layer : No additional information available

Effect on the global warming : No known effects from this product.

GWPmix comment : No known effects from this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Sewage disposal recommendations : Do not dispose of waste into sewer.

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

UN-No.(DOT) : 1707

DOT NA no. UN1707

14.2. UN proper shipping name

Transport document description : UN1707 Thallium compounds, n.o.s. (THALLIUM(I) ETHOXIDE), 6.1, II

Proper Shipping Name (DOT) : Thallium compounds, n.o.s.
(THALLIUM(I) ETHOXIDE)

Class (DOT) : 6.1 - Class 6.1 - Poisonous materials 49 CFR 173.132

Packing group (DOT) : II - Medium Danger

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Hazard labels (DOT) : 6.1 - Poison



Dangerous for the environment : Yes

Marine pollutant : Yes



DOT Packaging Non Bulk (49 CFR 173.xxx) : 212

DOT Packaging Bulk (49 CFR 173.xxx) : 242

DOT Packaging Exceptions (49 CFR 173.xxx) : 153

DOT Symbols : G - Identifies PSN requiring a technical name

14.3. Additional information

Emergency Response Guide (ERG) Number : 151

Other information : No supplementary information available.

Transport by sea

DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 25 kg

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 100 kg

SECTION 15: Regulatory information

15.1. US Federal regulations

Thallium(I) ethoxide (20398-06-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

Thallium(I) ethoxide (20398-06-5)

Listed on the Canadian NDSL (Non-Domestic Substances List)

EU-Regulations

Thallium(I) ethoxide (20398-06-5)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

Thallium(I) ethoxide (20398-06-5)

Listed on the AICS (Australian Inventory of Chemical Substances)

Listed on NZIoC (New Zealand Inventory of Chemicals)

Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

15.3. US State regulations

No additional information available

SECTION 16: Other information

Full text of H-phrases::

| | |
|------|---|
| H300 | Fatal if swallowed |
| H330 | Fatal if inhaled |
| H373 | May cause damage to organs through prolonged or repeated exposure |

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H411

Toxic to aquatic life with long lasting effects

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.

HMIS III Rating

Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability : 2 Moderate Hazard - Materials which must be moderately heated or exposed to high ambient temperatures before ignition will occur. Includes liquids having a flash point at or above 100 F but below 200 F. (Classes II & IIIA)

Physical : 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Prepared by safety and environmental affairs.

Date of issue: 06/01/2017 Version: 1.0

SDS US (GHS HazCom 2012) - Custom

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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