THALLIUM ACETATE

TLA

CAUTIONARY RESPONSE INFORMATION

Common Synonyms
Acetic acid, thallium (I) salt
Acetic acid, thallous salt
Thallium (I) acetate
Thallium monoacetate
Thallous acetate

Solid (crystals) White Odorless

Sinks and mixes with water.

KEEP PEOPLE AWAY. AVOID CONTACT WITH SOLID AND DUST.
Wear self-contained positive pressure breathing apparatus and full protective clothing.
Notify local health and pollution control agencies.
Protect water intakes.

Fire

Nonflammable.
Poisonous and irritating fumes are produced in a fire or when heated.
Wear self-contained positive pressure breathing apparatus and full protective clothing.
Extinguish small fires: dry chemical, carbon dioxide, water spray, or foam; large fires: water spray, fog or foam.

Exposure

CALL FOR MEDICAL AID.
DUST
POISONOUS. MAY BE FATAL IF INHALED OR ABSORBED THROUGH SKIN.
ONSET OF SYMPTOMS MAY BE DELAYED SEVERAL HOURS.
If in eyes or on skin, flush with running water for at least 15 minutes holding eyelids open periodically, if appropriate.
Remove and isolate contaminated clothing and shoes at the site.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.

SOLID
POSIONOUS. MAY BE FATAL IF SWALLOWED OR ABSORBED THROUGH SKIN.
ONSET OF SYMPTOMS DELAYED 12 TO 24 HOURS AFTER INGESTION.
If swallowed, may cause nausea, vomiting, diarrhea, and abdominal pain.
IF IN EYES OR ON SKIN, flush with running water for at least 15 minutes, hold eyelids open periodically if appropriate.
Remove and isolate contaminated clothing and shoes at the site.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water and induce vomiting by touching a finger to the back of the throat.
IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim quiet and maintain body temperature.

Water Pollution

HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS.
May be dangerous if it enters water intakes.
Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. CORRECTIVE RESPONSE ACTIONS

Stop discharge
Dilute and disperse

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: Not listed.
2.2 Formula: CH_3COTl
2.3 IMO/UN Designation: 6.1/1707
2.4 DOT ID No.: 1707
2.5 CAS Registry No.: 563-68-8
2.6 NAERG Guide No.: 151
2.7 Standard Industrial Trade Classification: 51372

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Wear self-contained positive pressure breathing apparatus and full protective clothing.

3.2 Symptoms Following Exposure: Thallium is one of the more toxic elements both as an acute and a chronic poison. Effects of exposure are cumulative and onset of symptoms may be delayed 12 to 24 hours. May be fatal if inhaled, ingested or absorbed through the skin. Irritating to skin and eyes. Readily absorbed through the skin and digestive tract. Ingestion of soluble thallium compounds has caused many deaths. Ingestion of sublethal quantities may cause nausea, vomiting, diarhea, abdominal pain, and bleeding from the gut accompanied or followed by drooping eyelids, crossed eyes, weakness, numbness, tingling of arms and legs, trembling, tightness and pain in the chest. Loss of hair may occur in two to three weeks. Severe intoxication may cause prostration, rapid hearbeat, convulsions, and psychosis. Some effects may be permanent.

3.3 Treatment of Exposure: INHALATION: Move victim to fresh air; call emergency medical care. If breathing has stopped, give artificial respiration. EYES OR SKIN: Immediately flush with running water for at least 15 minutes, lifting the upper and lower lids occasionally, if appropriate. Speed in removing material from skin is important. Remove and isolate contaminated clothing and shoes at the site. INGESTION: If concsious, have victim drink large quantities of water and induce vomiting by touching the back of throat with a finger. If unconcsious or having convulsions, do nothing except keep victim warm.

3.4 TLV-TWA: 0.1 mg Tl/m^3

3.5 TLV-STEL: Not listed.

3.6 TLV-Ceiling: Not listed.

3.7 Toxicity by Ingestion: Grade 4; LD_{50} = 35 mg/kg (mouse)

3.8 Toxicity by Inhalation: Currently not available.

3.9 Chronic Toxicity: Thallous ion causes mutagenic effects (chromosomal aberations) in animals and plants, and teratogenic effects (detrimental to the sexual behavior, reproductive organs, egg and fetal development, and survival of the chicken). It also causes liver and kidney damage, hair loss and permanent effects such as staggering, visual difficulties, trembling, and mental abnormalities. Chronic oral or cutaneous exposure of mice to thallium caused cancer of the female genital tract.

3.10 Vapor (Gas) Irritant Characteristics: Currently not available

3.11 Liquid or Solid Characteristics: Causes skin and eye irritation

3.12 Odor Threshold: Odorless

3.13 IDLH Value: 15 mg Tl/m^3

3.14 OSHA PEL-TWA: 0.1 mg/m^3 as thallium

3.15 OSHA PEL-STEL: Not listed.

3.16 OSHA PEL-Ceiling: Not listed.

3.17 EPA AEGL: Not listed

4. FIRE HAZARDS

4.1 Flash Point: Not pertinent

4.2 Flammable Limits in Air: Not pertinent

4.3 Fire Extinguishing Agents: Use an agent appropriate for the surrounding fire.

4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent

4.5 Special Hazards of Combustion Products: Contain toxic thallium fumes.

4.6 Behavior in Fire: Decomposes to produce toxic thallium fumes.

4.7 Auto Ignition Temperature: Currently not available

4.8 Electrical Hazards: Currently not available

4.9 Burning Rate: Not pertinent

4.10 Adiabatic Flame Temperature: Currently not available

4.11 Stoichometric Air to Fuel Ratio: Not pertinent.

4.12 Flame Temperature: Currently not available

4.13 Combustion Molar Ratio (Reactant to Product): Not pertinent.

4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed

5. CHEMICAL REACTIVITY

5.1 Reactivity with Water: No reaction

5.2 Reactivity with Common Materials: No reaction

5.3 Stability During Transport: Stable

5.4 Neutralizing Agents for Acids and Caustics: Not pertinent

5.5 Polymerization: Not pertinent

5.6 Inhibitor of Polymerization: Not pertinent

6. WATER POLLUTION

6.1 Aquatic Toxicity: 0.03 ppm Tl/atlantic salom/LD_{50} 10 ppm Tl/96 hr./brown shrimp/LC_{50}

6.2 Waterfowl Toxicity: Approximate oral mean lethal dose in domestic mallards and wild white geese: 31 mg/kg (dry thallous acetate);
16 mg/kg (in solution or coated on grain)

6.3 Biological Oxygen Demand (BOD): Currently not available

6.4 Food Chain Concentration Potential: Plants growing in soils or water with very high thallium content may accumulate sufficient thallium to be toxic to organisms that feed on them. Algae from contaminated water exhibited thallium bioconcentration factor of >430. Other bioconcentration factors that have been reported include 130 for atlantic salmon mussel and 18 for the edible portion of softshell clams. Thallium is a cumlative poison four times as toxic as arsenious oxide.

6.5 GESAMP Hazard Profile: Not listed

7. SHIPPING INFORMATION

7.1 Grades of Purity: 99.99%

7.2 Storage Temperature: Ambient

7.3 Inert Atmosphere: Not listed

7.4 Venting: Not pertinent

7.5 IMO Pollution Category: Currently not available

7.6 Ship Type: Currently not available

7.7 Barge Hull Type: Currently not available

8. HAZARD CLASSIFICATIONS

8.1 49 CFR Category: Poison, B

8.2 49 CFR Class: 6

8.3 49 CFR Package Group: Not listed.

8.4 Marine Pollutant: No

8.5 NFPA Hazard Classification: Not listed

8.6 EPA Reportable Quantity: 100 pounds

8.7 EPA Pollution Category: B

8.8 RCRA Waste Number: U214

8.9 EPA FWPCA List: Not listed

9. PHYSICAL & CHEMICAL PROPERTIES

9.1 Physical State at 15° C and 1 atm: Solid

9.2 Molecular Weight: 263.42

9.3 Boiling Point at 1 atm: Not pertinent (decomposes)

9.4 Freezing Point: 267.8°F = 131°C = 404.2°K

9.5 Critical Temperature: Not pertinent

9.6 Critical Pressure: Not pertinent

9.7 Specific Gravity: 3.765 at 137°C

9.8 Liquid Surface Tension: Not pertinent

9.9 Liquid Water Interfacial Tension: Not pertinent

9.10 Vapor (Gas) Specific Gravity: Not pertinent

9.11 Ratio of Specific Heats of Vapor (Gas): Not pertinent

9.12 Latent Heat of Vaporization: Not pertinent

9.13 Heat of Combustion: Currently not available

9.14 Heat of Decomposition: Not pertinent

9.15 Heat of Solution: Currently not available

9.16 Heat of Polymerization: Not pertinent

9.17 Heat of Fusion: Currently not available

9.18 Limiting Value: Currently not available

9.19 Reid Vapor Pressure: Not pertinent

NOTES

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9.20 SATURATED LIQUID DENSITY		9.21 LIQUID HEAT CAPACITY		9.22 LIQUID THERMAL CONDUCTIVITY		9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit inch per hour-square foot-F	Temperature (degrees F)	Centipoise
	NOT PERTINENT		NOT PERTINENT		NOT PERTINENT		NOT PERTINENT

9.24 SOLUBILITY IN WATER		9.25 SATURATED VAPOR PRESSURE		9.26 SATURATED VAPOR DENSITY		9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
	VERY SOLUBLE		NOT PERTINENT		NOT PERTINENT		NOT PERTINENT