

## Material Safety Data Sheet

Date Printed: 31/MAY/2005  
Date Updated: 13/MAR/2004  
Version 1.2  
According to 91/155/EEC

Classified as Hazardous according to the criteria of EU Annex 1 and NOHSC.

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#### 1 - Product and Company Information

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Product Name	THALLIUM(I) CHLORIDE, 99.999%
Product Number	229962
Company	Sigma-Aldrich Pty, Ltd Unit 2, 14 Anella Avenue Castle Hill NSW 1765 Australia
Technical Phone #	+61 2 9841 0555
Fax	+61 2 9841 0500
Emergency Phone #	+61 2 9841 0566

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#### 2 - Composition/Information on Ingredients

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Product Name	CAS #	EC no	Annex I Index Number
THALLIUM(I) CHLORIDE	7791-12-0	232-241-4	081-002-00-9
Formula	TlCl		
Molecular Weight	239.82 AMU		
Synonyms	RCRA waste number U216 * Thallium chloride * Thallium(1+) chloride * Thallium monochloride * Thallous chloride		

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#### 3 - Hazards Identification

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##### SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT

Very toxic by inhalation and if swallowed. Danger of cumulative effects. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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#### 4 - First Aid Measures

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##### AFTER INHALATION

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

##### AFTER SKIN CONTACT

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

##### AFTER EYE CONTACT

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

##### AFTER INGESTION

If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

## GENERAL INFORMATION

For thallium antidote, see Eur. J. Pharmacol., 6, 340 (1969).

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## 5 - Fire Fighting Measures

### EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

### SPECIAL RISKS

Specific Hazard(s): Emits toxic fumes under fire conditions.

### SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

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## 6 - Accidental Release Measures

### PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

### PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

### METHODS FOR CLEANING UP

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

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## 7 - Handling and Storage

### HANDLING

Directions for Safe Handling: Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

### STORAGE

Conditions of Storage: Keep tightly closed.

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## 8 - Exposure Controls / Personal Protection

### ENGINEERING CONTROLS

Safety shower and eye bath. Use only in a chemical fume hood.

### GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Wash thoroughly after handling.

### EXPOSURE LIMITS - DENMARK

Source	Type	Value
OEL	TWA	0.1 mg/m <sup>3</sup>

Remarks: SKIN

### EXPOSURE LIMITS - UNITED KINGDOM

Source	Type	Value
OEL	TWA	0.1MG(TL)/M <sup>3</sup>

Remarks: Skin

### PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.  
Hand Protection: Compatible chemical-resistant gloves.  
Eye Protection: Chemical safety goggles.

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## 9 - Physical and Chemical Properties

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Appearance	Physical State: Solid Color: White Form: Powder	
Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	N/A	
MP/MP Range	430 °C	
Flash Point	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	N/A	
Vapor Pressure	10 mmHg	517 °C
SG/Density	7 g/cm <sup>3</sup>	
Partition Coefficient	N/A	
Viscosity	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
Evaporation Rate	N/A	
Bulk Density	N/A	
Decomposition Temp.	N/A	
Solvent Content	N/A	
Water Content	N/A	
Surface Tension	N/A	
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

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## 10 - Stability and Reactivity

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### STABILITY

Stable: Stable.  
Conditions of Instability: May discolor on exposure to light.  
Conditions to Avoid: Moisture.  
Materials to Avoid: Strong oxidizing agents.

### HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Thallium.

### HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

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## 11 - Toxicological Information

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RTECS NUMBER: XG4200000

### ACUTE TOXICITY

LD50  
Oral  
Mouse  
24 mg/kg

LD50  
Intraperitoneal  
Mouse  
23982 UG/KG

LD50  
Intraperitoneal  
Rabbit  
150 MG/KG  
Remarks: Gastrointestinal:Hypermotility, diarrhea. Kidney, Ureter, Bladder:Other changes.

#### SIGNS AND SYMPTOMS OF EXPOSURE

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. The most characteristic symptom of thallium exposure is alopecia (loss of hair). Cutaneous effects may include dry, scaly skin and impairment of nail growth often resulting in the appearance of crescent-shaped strips across fingernails and toenails (Mees' line). Other symptoms in acute poisoning relate chiefly to the gastrointestinal tract, nervous system, skin, eyes, and cardiovascular system. Acute poisoning results in swelling of the feet and legs, arthralgia, vomiting, insomnia, hyperesthesia and paresthesia of the hands and feet, mental confusion, polyneuritis with severe pain in the legs and loins, partial paralysis of the legs, angina-like pains, nephritis, wasting and weakness, and lymphocytosis and eosinophilia. In chronic poisoning, central and peripheral nervous system abnormalities may persist including ataxia, tremor, incoordination, paralysis of extremities, endocrine disorders, memory loss, and psychoses may develop.

#### ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.  
Skin Absorption: May be harmful if absorbed through the skin.  
Eye Contact: May cause eye irritation. Can cause blindness.  
Inhalation: May be fatal if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.  
Ingestion: May be fatal if swallowed.

#### TARGET ORGAN INFORMATION

Nerves. Cardiovascular system. Eyes. Skin. Liver. Kidneys. Male reproductive system.

#### CHRONIC EXPOSURE - MUTAGEN

Hamster  
100 UMOL/L  
Cell Type: Embryo  
Morphological transformation.

#### CHRONIC EXPOSURE - TERATOGEN

Species: Rat  
Dose: 30 MG/KG  
Route of Application: Oral  
Exposure Time: (6-15D PREG)  
Result: Specific Developmental Abnormalities: Musculoskeletal system.

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#### 12 - Ecological Information

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No data available.

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## 13 - Disposal Considerations

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### SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

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## 14 - Transport Information

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### RID/ADR

UN#: 1707  
Class: 6.1  
PG: II  
Proper Shipping Name: Thallium compound, n.o.s..

### IMDG

UN#: 1707  
Class: 6.1  
PG: II  
Proper Shipping Name: THALLIUM COMPOUND, N.O.S.  
Marine Pollutant: Yes  
Severe Marine Pollutant: No  
Technical Name: Required

### IATA

UN#: 1707  
Class: 6.1  
PG: II  
Proper Shipping Name: THALLIUM COMPOUND, N.O.S.  
Inhalation Packing Group I: No  
Technical Name: Required

## 15 - Regulatory Information

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### CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

ANNEX I INDEX NUMBER: 081-002-00-9

NOTA: A

INDICATION OF DANGER: T+ N

Very toxic. Dangerous for the environment.

R-PHRASES: 26/28 33 51/53

Very toxic by inhalation and if swallowed. Danger of cumulative effects. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-PHRASES: 13 28 45 61

Keep away from food, drink, and animal feedingstuffs. After contact with skin, wash immediately with plenty of soap-suds.

In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Avoid release to the environment. Refer to special instructions/safety data sheets.

## 16 - Other Information

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### WARRANTY

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

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