

## Material Safety Data Sheet

Date Printed: 21/JUN/2005  
Date Updated: 13/MAR/2004  
Version 1.1  
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 9-FLUORENYLMETHYL CHLOROFORMATE, 97%  
Product Number 160512

Company Sigma-Aldrich Pty. Ltd.  
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Australia

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#### 2 - Composition/Information on Ingredients

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| Product Name   | CAS #      | EC no     | Annex I Index Number |
|--|------------|-----------|----------------------|
| 9-FLUORENYLMETHYL CHLOROFORMATE  | 28920-43-6 | 249-313-6 | None                 |
| Formula C15H11ClO2   |            |           |                      |
| Molecular Weight 258.7 AMU   |            |           |                      |
| Synonyms Carbonochloridic acid, 9H-fluoren-9-ylmethyl este * 9-Fluorenylmethyl chloroformate |            |           |                      |

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#### 3 - Hazards Identification

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SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT  
Causes burns.

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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. Do not induce vomiting.

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## 5 - Fire Fighting Measures

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### 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.

## 6 - Accidental Release Measures

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### 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. Ventilate area and wash spill site after material pickup is complete.

## 7 - Handling and Storage

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### HANDLING

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

### STORAGE

Conditions of Storage: Keep tightly closed.  
Store at 2-8°C

### SPECIAL REQUIREMENTS: May develop pressure. Open carefully. Moisture sensitive.

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## 8 - Exposure Controls / Personal Protection

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### ENGINEERING CONTROLS

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

### GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

### PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.

Hand Protection: Compatible chemical-resistant gloves.

Eye Protection: Chemical safety goggles.

## 9 - Physical and Chemical Properties

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### Appearance

Physical State: Solid  
Color: Very faintly yellow  
Form: Fine crystals

### Property

### Value

### At Temperature or Pressure

|                       |       |
|-----------------------|-------|
| pH                    | N/A   |
| BP/BP Range           | N/A   |
| MP/MP Range           | 61 °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        | N/A   |
| SG/Density            | N/A   |
| 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

Conditions of Instability: May decompose on exposure to moist air or water.

Materials to Avoid: Acids, Strong bases, Alcohols, Amines.

### HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Hydrogen chloride gas Carbon monoxide, Carbon dioxide, Phosgene gas.

### HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

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## 11 - Toxicological Information

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RTECS NUMBER: LQ6250000

### SIGNS AND SYMPTOMS OF EXPOSURE

Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

### ROUTE OF EXPOSURE

Skin Contact: Causes burns.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: Causes burns. Lachrymator.

Inhalation: Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. May be harmful if inhaled.

Ingestion: May be harmful if swallowed.

## 12 - Ecological Information

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No data available.

## 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.

## 14 - Transport Information

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### RID/ADR

UN#: 3261  
Class: 8  
PG: II  
Proper Shipping Name: Corrosive solid, acidic, organic, n.o.s.

### IMDG

UN#: 3261  
Class: 8  
PG: II  
Proper Shipping Name: CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.  
Marine Pollutant: No  
Severe Marine Pollutant: No  
Technical Name: Required

### IATA

UN#: 3261  
Class: 8  
PG: II  
Proper Shipping Name: Corrosive solid, acidic, organic, 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

#### INDICATION OF DANGER: C

Corrosive.

R-PHRASES: 34

Causes burns.

S-PHRASES: 26 36/37/39 45

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

## 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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