

# • SAFETY DATA SHEET

Version 6.12  
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## SECTION 1. IDENTIFICATION

### 1.1 Product identifiers

Product name : 9-Fluorenone

Product Number : F1506  
Brand : Aldrich  
CAS-No. : 486-25-9

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

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

### 1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.  
3050 SPRUCE ST  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765  
Fax : +1 800 325-5052

### 1.4 Emergency telephone number

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

## SECTION 2. HAZARDS IDENTIFICATION

**GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

**Hazards for the product as supplied**

Eye irritation : Category 2A

Long-term (chronic) aquatic hazard : Category 2

### Other hazards

None known.

### GHS label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : H319 Causes serious eye irritation.  
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**  
P264 Wash skin thoroughly after handling.  
P273 Avoid release to the environment.  
P280 Wear eye protection/ face protection.  
**Response:**  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P337 + P313 If eye irritation persists: Get medical advice/ attention.  
P391 Collect spillage.  
**Disposal:**  
P501 Dispose of contents/ container to an approved waste disposal plant.

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## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

CAS-No. : 486-25-9

### Components

| Chemical name | CAS No./Unique ID | Concentration (% w/w) | Trade secret |
|---------------|-------------------|-----------------------|--------------|
| Fluoren-9-one | 486-25-9*         | >= 80 - <= 100        | TSC          |

\* Indicates that the identifier is a CAS No.

TSC- the actual concentration or concentration range is withheld as a trade secret

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## SECTION 4. FIRST AID MEASURES

|                                                             |                                                                                                                       |
|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| General advice                                              | : Show this safety data sheet to the doctor in attendance.                                                            |
| If inhaled                                                  | : After inhalation: fresh air.                                                                                        |
| In case of skin contact                                     | : In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.             |
| In case of eye contact                                      | : After eye contact: rinse out with plenty of water.<br>Call in ophthalmologist.<br>Remove contact lenses.            |
| If swallowed                                                | : After swallowing: immediately make victim drink water (two glasses at most).<br>Consult a physician.                |
| Most important symptoms and effects, both acute and delayed | : The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11 |
| Protection of first-aiders                                  | : For personal protection see section 8.                                                                              |
| Notes to physician                                          | : No data available                                                                                                   |

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## SECTION 5. FIREFIGHTING MEASURES

|                                       |                                                                                |
|---------------------------------------|--------------------------------------------------------------------------------|
| Suitable extinguishing media          | : Water<br>Foam<br>Carbon dioxide (CO <sub>2</sub> )<br>Dry powder             |
| Unsuitable extinguishing media        | : For this substance/mixture no limitations of extinguishing agents are given. |
| Specific hazards during fire fighting | : Combustible.                                                                 |

Vapours are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapours possible in the event of fire.

|                                                |                                                                                                 |
|------------------------------------------------|-------------------------------------------------------------------------------------------------|
| Hazardous combustion products                  | : Carbon oxides                                                                                 |
| Specific extinguishing methods                 | : No data available                                                                             |
| Further information                            | : Prevent fire extinguishing water from contaminating surface water or the ground water system. |
| Special protective equipment for fire-fighters | : In the event of fire, wear self-contained breathing apparatus.                                |

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## SECTION 6. ACCIDENTAL RELEASE MEASURES

|                                                                     |                                                                                                                                                                                                                                                                                             |
|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Personal precautions, protective equipment and emergency procedures | : Advice for non-emergency personnel:<br>Avoid inhalation of dusts.<br>Avoid substance contact.<br>Ensure adequate ventilation.<br>Evacuate the danger area, observe emergency procedures, consult an expert.<br>Advice for emergency responders:<br>For personal protection see section 8. |
| Environmental precautions                                           | : Do not let product enter drains.                                                                                                                                                                                                                                                          |
| Methods and materials for containment and cleaning up               | : Cover drains. Collect, bind, and pump off spills.<br>Observe possible material restrictions (see sections 7 and 10).<br>Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.                                                                              |

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## SECTION 7. HANDLING AND STORAGE

For precautions see section 2.2.

|                                           |                                                      |
|-------------------------------------------|------------------------------------------------------|
| Further information on storage conditions | : Tightly closed.<br>Dry.                            |
| Storage class                             | : 11, Combustible Solids                             |
| Recommended storage temperature           | : Recommended storage temperature see product label. |

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

### Biological occupational exposure limits

| Components    | CAS-No.  | Control parameters | Biological specimen | Sampling time                   | Permissible concentration | Basis     |
|---------------|----------|--------------------|---------------------|---------------------------------|---------------------------|-----------|
| Fluoren-9-one | 486-25-9 | 1-Hydroxypyrrene   | Urine               | End of shift at end of workweek | 2.5 µg/l                  | ACGIH BEI |

**Engineering measures** : No data available

### Personal protective equipment

Respiratory protection : required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: : Filter type P2

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

### Hand protection

Material : Nitrile rubber  
Break through time : 480 min  
Glove thickness : 0.11 mm  
Protective index : Full contact  
Manufacturer : Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

Material : Nitrile rubber  
Break through time : 480 min  
Glove thickness : 0.11 mm  
Protective index : Splash contact  
Manufacturer : Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Manufacturer             | : data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Remarks                  | : Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.<br>If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario. |
| Eye protection           | : Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).<br>Safety glasses                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Skin and body protection | : protective clothing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Hygiene measures         | : Change contaminated clothing. Wash hands after working with substance.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

|                             |                                             |
|-----------------------------|---------------------------------------------|
| Appearance                  | : solid                                     |
| Color                       | : No data available                         |
| Odor                        | : No data available                         |
| Odor Threshold              | : No data available                         |
| pH                          | : No data available                         |
| Melting point/ range        | : 176 - 181 °F / 80 - 83 °C<br>Method: lit. |
| Boiling point/boiling range | : 648 °F / 342 °C<br>Method: lit.           |
| Flash point                 | : 325 °F / 163 °C                           |
| Evaporation rate            | : No data available                         |

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|                                                     |                                              |
|-----------------------------------------------------|----------------------------------------------|
| Flammability (solid, gas)                           | : No data available                          |
| Flammability (liquids)                              | : No data available                          |
| Burning rate                                        | : No data available                          |
| Upper explosion limit /<br>Upper flammability limit | : No data available                          |
| Lower explosion limit /<br>Lower flammability limit | : No data available                          |
| Vapor pressure                                      | : No data available                          |
| Relative vapour density                             | : No data available                          |
| Relative density                                    | : No data available                          |
| Density                                             | : 1.13 g/cm <sup>3</sup> (210 °F / 99 °C)    |
| Solubility(ies)<br>Water solubility                 | : 0.001 g/l slightly soluble (77 °F / 25 °C) |
| Partition coefficient: n-<br>octanol/water          | : log Pow: 3.58 (77 °F / 25 °C)              |
| Autoignition temperature                            | : 1126 °F / 608 °C                           |
| Decomposition<br>temperature                        | : No data available                          |
| Viscosity, dynamic                                  | : No data available                          |
| Viscosity, kinematic                                | : No data available                          |
| Flow time                                           | : No data available                          |
| Explosive properties                                | : Not classified as explosive.               |
| Oxidizing properties                                | : none                                       |
| Molecular weight                                    | : 180.20 g/mol                               |
| Particle characteristics<br>Particle size           | : No data available                          |

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## SECTION 10. STABILITY AND REACTIVITY

Reactivity : Forms explosive mixtures with air on intense heating.

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A range from approx. 15 Kelvin below the flash point is to be rated as critical.

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

|                                    |                                                                                           |
|------------------------------------|-------------------------------------------------------------------------------------------|
| Chemical stability                 | : The product is chemically stable under standard ambient conditions (room temperature) . |
| Possibility of hazardous reactions | : Violent reactions possible with:<br>Strong oxidizing agents                             |
| Conditions to avoid                | : Strong heating.                                                                         |
| Incompatible materials             | : No data available                                                                       |
| Hazardous decomposition products   | : In the event of fire: see section 5                                                     |

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## SECTION 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### **Acute toxicity**

Oral: No data available

Inhalation: No data available

Dermal: No data available

#### **Skin corrosion/irritation**

No data available

#### **Serious eye damage/eye irritation**

Eyes - In vitro study

Result: irritating

(OECD Test Guideline 492)

#### **Respiratory or skin sensitization**

No data available

#### **Germ cell mutagenicity**

Test Type: reverse mutation assay

Test system: Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: US-EPA

Result: negative

#### **Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**Reproductive toxicity**

No data available

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

**11.2 Additional Information**

RTECS: LL8925000

Hazardous properties cannot be excluded but are unlikely when the product is handled appropriately.

Handle in accordance with good industrial hygiene and safety practice.

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**SECTION 12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

**Components:**

**Fluoren-9-one:**

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 15 mg/l  
Exposure time: 24 h  
Test Type: static test  
Analytical monitoring: yes

**Ecotoxicology Assessment**

Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

**Persistence and degradability**

No data available

**Bioaccumulative potential**

**Components:**

**Fluoren-9-one:**

Partition coefficient: n-octanol/water : log Pow: 3.58 (77 °F / 25 °C)

**Mobility in soil**

No data available

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## Other adverse effects

### **Product:**

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances  
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

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## SECTION 13. DISPOSAL CONSIDERATIONS

### **Disposal methods**

Waste from residues : Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

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## SECTION 14. TRANSPORT INFORMATION

### **International Regulations**

#### **IATA-DGR**

UN/ID No. : UN 3077  
Proper shipping name : Environmentally hazardous substance, solid, n.o.s. (Fluoren-9-one)  
Class : 9  
Packing group : III  
Labels : Class 9 - Miscellaneous dangerous substances and articles  
Packing instruction (cargo aircraft) : 956  
Packing instruction (passenger aircraft) : 956

#### **IMDG-Code**

UN number : UN 3077  
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Fluoren-9-one)  
Class : 9  
Packing group : III  
Labels : 9  
EmS Code : F-A, S-F  
Marine pollutant : yes

### **Transport in bulk according to IMO instruments**

Not applicable for product as supplied.

### **National Regulations**

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## 49 CFR Road

Not regulated as a dangerous good

Poison Inhalation Hazard : No

## Special precautions for user

Remarks : EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids. Packages smaller than or equal to 5 kg / L , not dangerous goods of Class 9

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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## SECTION 15. REGULATORY INFORMATION

### CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

### SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

### SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

**SARA 311/312 Hazards** : No SARA Hazards

**SARA 313** : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

### Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489).

### Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.



Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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