1. PRODUCT AND COMPANY IDENTIFICATION

Product name: 9-Fluorenone-4-carbonyl chloride

Product Number: 24480
Brand: Aldrich
Supplier: Sigma-Aldrich
Supplier details: 3050 Spruce Street, SAINT LOUIS, MO 63103, USA
Telephone: +1 800-325-5832
Fax: +1 800-325-5052
Emergency Phone #: For both supplier and manufacturer: (314) 776-6555
Preparation Information: Sigma-Aldrich Corporation
Product Safety - Americas Region 1-800-526-3000

2. HAZARDS IDENTIFICATION

Emergency Overview:
OSHA Hazards
Target Organ Effect, Harmful by Ingestion, Irritant, Corrosive, Carcinogen
Target Organs
Liver, pancreas, Blood, Central nervous system, Heart, Kidney
GHS Classification
Skin corrosion (Category 1B)
Serious eye damage (Category 1)
Carcinogenicity (Category 2)
GHS Label elements, including precautionary statements
Picture symbol: Pictogram
Signal word: Danger
Hazard statement(s)
H314 Causes severe skin burns and eye damage.
H351 Suspected of causing cancer.
Precautionary statement(s)
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/physician.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: 9-Oxo-4-fluorenone/acyl chloride
Formula: C14H12ClO2
Molecular Weight: 242.66 g/mol

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.
In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.
If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability
Not flammable or combustible.
Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Special protective equipment for firefighters
Wear self-contained breathing apparatus for fire fighting if necessary.
Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Aldrich - 24480
Delivery 0845069153-000010 Purchase Order PRISM-OP-07122013
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylene chloride</td>
<td>75-09-2</td>
<td>TWA</td>
<td>50 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td>Remarks</td>
<td>Potential Occupational Carcinogen See Appendix A</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Central Nervous System impairment: Carboxyhemoglobinemia. Substances for which there is a Biological Exposure Index or indices (see BEI® section) confirmed animal carcinogen with unknown relevance to humans.

Substance listed; for more information see OSHA document 1910.1052

See 1910.1052

See Table 2-2

PEL 25 ppm OSHA Specifically Regulated Chemicals/Carcinogens

1910.1052 This section applies to all occupational exposures to methylene chloride (MC). Chemical Abstracts Service Registry Number 75-09-2, in general industry, construction and shipyard employment. Methylene chloride (MC) means an organic compound with chemical formula, CHCl₂. Its Chemical Abstracts Service Registry Number is 75-09-2. Its molecular weight is 84.9 g/mole OSHA specifically regulated carcinogen.

STEL 125 ppm OSHA Specifically Regulated Chemicals/Carcinogens

1910.1052 This section applies to all occupational exposures to methylene chloride (MC). Chemical Abstracts Service Registry Number 75-09-2, in general industry, construction and shipyard employment. Methylene chloride (MC) means an organic compound with chemical formula, CH₂Cl₂. Its Chemical Abstracts Service Registry Number is 75-09-2. Its molecular weight is 84.9 g/mole OSHA specifically regulated carcinogen.

Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

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.

Eye protection

Face shield and safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Skin and body protection

Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the hazardous substance at the specific workplace.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form solid

Colour no data available

Safety data

pH no data available

Melting point/freezing point 139 - 141 °C (282 - 286 °F) - ill.

Boiling point no data available

Flash point no data available

Ignition temperature no data available

Auto-ignition temperature no data available

Lower explosion limit no data available

Upper explosion limit no data available

Vapour pressure no data available

Density no data available

Water solubility no data available

Partition coefficient n-octanol/water log Pow: 3.07

Relative vapour density no data available

Odour no data available

Odour Threshold no data available

Evaporation rate no data available

10. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

no data available

Conditions to avoid

Exposure to moisture.

Materials to avoid

Strong oxidizing agents. Strong bases
Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity
Oral LD50
no data available
Inhalation LC50
no data available
Dermal LD50
no data available
Other information on acute toxicity
no data available
Skin corrosion/irritation
no data available
Serious eye damage/eye irritation
no data available
Respiratory or skin sensitisation
no data available
Germ cell mutagenicity
no data available

Carcinogenicity
IARC: 2B - Group 2B: Possibly carcinogenic to humans (Methylene chloride)
NTP: Reasonably anticipated to be a human carcinogen (Methylene chloride)
OSHA: OSHA specifically regulated carcinogen (Methylene chloride)
Reproductive toxicity
no data available

Teratogenicity
no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
no data available
Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available
Aspiration hazard
no data available

Potential health effects
Inhalation
May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. Causes respiratory tract irritation.
Ingestion
Harmful if swallowed.
Skin
Harmful if absorbed through skin. Causes skin burns. Causes skin irritation.
Eyes
Causes eye burns. Causes eye irritation.

Synergistic effects
no data available

Additional information
MTECO: Not available

12. ECOLOGICAL INFORMATION

Toxicity
no data available
Persistence and degradability
no data available
Bioaccumulative potential
no data available
Mobility in soil
no data available
PET and VpV assessment
no data available
Other adverse effects
no data available

13. DISPOSAL CONSIDERATIONS

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. 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.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3261 Class: 8
Packing group: II
Proper shipping name: Corrosive solid, acidic, organic, n.o.s. (9-Fluorenone-4-carbonyl chloride)
Reportable Quantity (ROQ): 50000 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 3261 Class: 8
Packing group: II
EMS-No: F-A, S-B
Proper shipping name: CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (9-Fluorenone-4-carbonyl chloride)
Marine pollutant: No

IATA
UN number: 3261 Class: 8
Packing group: II
Proper shipping name: Corrosive solid, acidic, organic, n.o.s. (9-Fluorenone-4-carbonyl chloride)

15. REGULATORY INFORMATION

OSHA Hazards
Target Organ Effect. Harmful by ingestion. Irritant. Corrosive, Carcinogen
SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

<table>
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<td>2007-07-01</td>
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SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

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Pennsylvania Right To Know Components

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<tr>
<td>9-Fluorenone-4-carbonyl chloride</td>
<td>7071-82-2</td>
<td>2007-07-01</td>
</tr>
<tr>
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<td>75-09-2</td>
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New Jersey Right To Know Components

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California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.

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<td>2007-09-28</td>
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16. OTHER INFORMATION

Further information
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