



SAFETY DATA SHEET

Fmoc-Lys(tBu-OOC-C16-CO-Glu(AEEA-AEEA)-OtBu)-OH

SECTION 1: IDENTIFICATION

1.1 Product Identifier: Fmoc-Lys(tBu-OOC-C16-CO-Glu(AEEA-AEEA)-OtBu)-OH

Further trade names

(23S,50S)-50-(((9H-fluoren-9-yl)methoxy)carbonyl)amino)-23-(tert-butoxycarbonyl)-2,2-dimethyl-4,21,26,35,44-pentaoxo-3,30,33,39,42-pentaoxa-22,27,36,45-tetraazahenpentacontan-51-oic acid

CAS No: 1662688-20-1

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

Use of the substance/mixture: Laboratory chemical. Manufacture of the substance.

Uses advised against: Do not use for private purposes (household).

1.3 Details of the supplier of the safety data sheet

Company:

CEM Corporation
3100 Smith Farm Road
Matthews, NC 28104

1.4 Telephone: 704-821-7015

Fax: 704-821-7894

SECTION 2: HAZARD(S) IDENTIFICATION

2.1 Classification of the substance or mixture

GB CLP Regulation: This substance is not classified as hazardous in accordance with GB CLP Regulation.

2.2 Label elements:

GB CLP Regulation

Precautionary statements

P202 Do not handle until all safety precautions have been read and understood.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P262 Do not get in eyes, on skin, or on clothing.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

Additional advice on labelling

Warning - substance not yet tested completely.

2.3 Other hazards: No information available.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Chemical characterization:

(2S,5S)-5-((((9H-fluoren-9-yl)methoxy)carbonyl)amino)-2-(tert-butoxycarbonyl)-2,2-dimethyl-4,21,26,35,44-pentaoxo-3,30,33,39,42-pentaoxa-22,27,36,45-tetraazapentacontan-51-oic acid

Sum formula: C₆₄H₁₀₁N₅O₁₆

Molecular weight: 1196.53 g/mol

SECTION 4: FIRST-AID MEASURES

4.1 Description of first aid measures

General information: In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

After inhalation: Provide fresh air. Remove casualty to fresh air and keep warm and at rest. In case of irregular breathing or respiratory arrest provide artificial respiration. In all cases of doubt, or when symptoms persist, seek medical advice.

After contact with skin: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. After contact with skin, wash immediately with plenty of water and soap. In all cases of doubt, or when symptoms persist, seek medical advice.

After contact with eyes: Rinse immediately carefully and thoroughly with eye-bath or water. If product gets into the eye, keep eyelid open and rinse immediately with large quantities of water, for at least 5 minutes. Subsequently consult an ophthalmologist.

After ingestion: Rinse mouth immediately and drink plenty of water. Rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person or a person with cramps. In all cases of doubt, or when symptoms persist, seek medical advice.

4.2 Most important symptoms and effects, both acute and delayed

No information available.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: Co-ordinate fire-fighting measures to the fire surroundings. Water spray. alcohol resistant foam. Dry extinguishing powder. Carbon dioxide (CO₂). Sand.



Unsuitable extinguishing media: High power water jet.

5.2 Special hazards arising from the substance or mixture: Non-flammable. Thermal decomposition can lead to the escape of irritating gases and vapours. In case of fire may be liberated: Carbon dioxide (CO₂). Carbon monoxide (CO). Nitrogen oxides (NO_x).

5.3 Advice for firefighters: In case of fire: Wear self-contained breathing apparatus.

Additional information: Usual measures for fire prevention.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

General measures: Provide adequate ventilation. Provide adequate ventilation. Avoid breathing dust/fume/gas/mist/vapours/spray.

Avoid contact with skin, eyes and clothes.

Wear personal protection equipment.

In case of fire: Evacuate area.

6.2 Environmental precautions:

Do not allow to enter into soil/subsoil.

Do not allow to enter into surface water or drains.

6.3 Methods and material for containment and cleaning up:

Other information: Take up mechanically. Treat the recovered material as prescribed in the section on waste disposal. Take up mechanically, placing in appropriate containers for disposal. Avoid dust formation. Clear contaminated areas thoroughly.

6.4 Reference to other sections:

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling:

Provide adequate ventilation.

Avoid dust formation. Avoid breathing dust/fume/gas/mist/vapours/spray.

Avoid contact with skin, eyes and clothes.

Advice on protection against fire and explosion:

Usual measures for fire prevention.

Advice on general occupational hygiene:



Take off contaminated clothing. Wash hands before breaks and after work. When using do not eat, drink, smoke, sniff. Avoid contact with skin, eyes and clothes. Provide adequate ventilation. When using do not eat, drink or smoke. Wash hands before breaks and after work.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels:

Keep container tightly closed. Keep container tightly closed in a cool, well-ventilated place. Handle and store contents under inert gas. Protect from moisture.
storage temperature: -20°C

Hints on joint storage:

No special measures are necessary.

7.3 Specific end use(s):

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Additional advice on limit values:

To date, no national critical limit values exist.

8.2 Exposure controls

Appropriate engineering controls:

The receiver of our product is singularly responsible for adhering to existing laws and regulations.

Individual protection measures, such as personal protective equipment:

Eye/face protection: Wear eye/face protection.

Hand protection: When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. Wear suitable gloves.

The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances.

Skin protection: Use of protective clothing.

Respiratory protection: In case of inadequate ventilation wear respiratory protection. If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn.

Environmental exposure controls: Discharge into the environment must be avoided.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state:

Colour: light yellow



Odour: No data available

Changes in the physical state

Melting point/freezing point: not determined

Boiling point or initial boiling point and boiling range: not determined

Sublimation point: not determined

Softening point: not determined

Flash point: No data available

Flammability

Solid/liquid: not determined

Gas: not applicable

Explosive properties

The product is not: Explosive.

Lower explosion limits: not determined

Upper explosion limits: not determined

Auto-ignition temperature: not determined

Self-ignition temperature

Solid: not determined

Gas: not applicable

Decomposition temperature: not determined

Oxidizing properties

No data available

pH-Value: not determined

Water solubility: No data available

Solubility in other solvents

not determined

Partition coefficient n-octanol/water: not determined

Vapour pressure: not determined

Density: not determined

Relative vapour density: not determined

9.2. Other information

Information with regard to physical hazard classes

Sustaining combustion: No data available

Other safety characteristics

Solvent content: No data available

Solid content: not determined

Evaporation rate: not determined

Further Information

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

No data available

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

No data available

10.4. Conditions to avoid



Protect from moisture.

Keep away from heat.

10.5. Incompatible materials

Oxidizing agents, strong.

10.6. Hazardous decomposition products

Thermal decomposition can lead to the escape of irritating gases and vapours.

In case of fire may be liberated: Carbon dioxide (CO₂). Carbon monoxide (CO). Nitrogen oxides (NO_x).

Further Information

In case of fire: See chapter 5.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in GB CLP Regulation

Toxicokinetics, metabolism and distribution

No data available

Acute toxicity

Based on available data, the classification criteria are not met.

Irritation and corrosivity

Based on available data, the classification criteria are not met.

Sensitising effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

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.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

Specific effects in experiment on an animal

No data available

Additional information on tests

The substance is classified as not hazardous according to regulation (EC) No 1272/2008 [CLP].

Practical experience

No data available



Further information

RTECS: No data available

Caution! To the best of our knowledge the toxicological properties of this material have not been thoroughly investigated.

SECTION 12: ECOLOGICAL INFORMATION (NON-MANDATORY)

12.1. Toxicity

No data available

12.2. Persistence and degradability

No data available

12.3. Bioaccumulative potential

No data available

No data available

12.4. Mobility in soil

12.5. Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

12.7. Other adverse effects

Warning - substance not yet tested completely.

Further Information

Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS (NON-MANDATORY)

13.1. Waste treatment methods

Disposal recommendations

Dispose of waste according to applicable legislation. Dispose of waste according to applicable legislation.

Consult the appropriate local waste disposal expert about waste disposal.

Handle contaminated packages in the same way as the substance itself.

Contaminated packaging

Wash with plenty of water. Completely emptied packages can be recycled.

SECTION 14: TRANSPORT INFORMATION (NON-MANDATORY)

Land transport (ADR/RID)

14.2. UN proper shipping name: No dangerous good in sense of these transport regulations.

Inland waterways transport (ADN)

14.2. UN proper shipping name: No dangerous good in sense of these transport regulations.

Marine transport (IMDG)

14.2. UN proper shipping name: No dangerous good in sense of these transport regulations.



Air transport (ICAO-TI/IATA-DGR)

14.2. UN proper shipping name: No dangerous good in sense of these transport regulations.

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

No information available.

14.7. Maritime transport in bulk according to IMO instruments

not applicable

SECTION 15: REGULATORY INFORMATION (NON-MANDATORY)

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
EU regulatory information

Information according to 2012/18/EU (SEVESO III): Not subject to 2012/18/EU (SEVESO III)

Additional information

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)

National regulatory information

Water hazard class (D): - - non-hazardous to water

15.2. Chemical safety assessment

For this substance a chemical safety assessment has not been carried out.

SECTION 16: OTHER INFORMATION

This information is presented in good faith and believed to be accurate as of the date shown. This information is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determination of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees.

Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route
(European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service

LC50: Lethal concentration, 50%

LD50: Lethal dose, 50%

CLP: Classification, labelling and Packaging

REACH: Registration, Evaluation and Authorization of Chemicals



GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals

UN: United Nations

DNEL: Derived No Effect Level

DMEL: Derived Minimal Effect Level

PNEC: Predicted No Effect Concentration

ATE: Acute toxicity estimate

LL50: Lethal loading, 50%

EL50: Effect loading, 50%

EC50: Effective Concentration 50%

ErC50: Effective Concentration 50%, growth rate

NOEC: No Observed Effect Concentration

BCF: Bio-concentration factor

PBT: persistent, bioaccumulative, toxic

vPvB: very persistent, very bioaccumulative

RID: Regulations concerning the international carriage of dangerous goods by rail

ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures)

EmS: Emergency Schedules

MFAG: Medical First Aid Guide

ICAO: International Civil Aviation Organization

MARPOL: International Convention for the Prevention of Marine Pollution from Ships

IBC: Intermediate Bulk Container

SVHC: Substance of Very High Concern

For abbreviations and acronyms, see table at <http://abbrev.esdscom.eu>