



## SAFETY DATA SHEET

### Clavulanic acid potassium salt (Potassium Clavulanate)/Avicel (1:1)

According to Regulation (EC) No 1907/2006, Annex II, as amended. Commission Regulation (EU) No 2015/830 of 28 May 2015.

#### SECTION 1: Identification of the substance/mixture and of the company/undertaking

##### 1.1. Product identifier

Product name	Clavulanic acid potassium salt (Potassium Clavulanate)/Avicel (1:1)
Product number	87644048
CAS number	61177-45-5
EC number	689-367-1

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

Identified uses	For research purposes only.
Uses advised against	No specific uses advised against are identified.

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

Supplier	Molekula Ltd. Lingfield Way, Darlington, DL1 4XX, United Kingdom +44 (0) 3302000333 info@molekula.com
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##### 1.4. Emergency telephone number

+44 (0) 1380 725952

#### SECTION 2: Hazards identification

##### 2.1. Classification of the substance or mixture

<u>Classification (EC 1272/2008)</u>	
Physical hazards	Flam. Sol. 2 - H228 Self-heat. 2 - H252
Health hazards	Eye Irrit. 2 - H319
Environmental hazards	Not Classified

##### 2.2. Label elements

EC number	689-367-1
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Hazard pictograms



Signal word                      Warning

## Clavulanic acid potassium salt (Potassium Clavulanate)/Avicel (1:1)

<b>Hazard statements</b>	H228 Flammable solid. H252 Self-heating in large quantities; may catch fire. H319 Causes serious eye irritation.
<b>Precautionary statements</b>	P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P235 Keep cool. P240 Ground and bond container and receiving equipment. P241 Use explosion-proof electrical equipment. P264 Wash contaminated skin thoroughly after handling. 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. P337+P313 If eye irritation persists: Get medical advice/ attention. P370+P378 In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish. P407 Maintain air gap between stacks or pallets. P413 Store bulk masses greater than kg/ lbs at temperatures not exceeding °C/°F. P420 Store separately.
<b>Supplemental label information</b>	EUH014 Reacts violently with water. EUH044 Risk of explosion if heated under confinement.

### 2.3. Other hazards

This substance is not classified as PBT or vPvB according to current EU criteria.

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

<b>Product name</b>	Clavulanic acid potassium salt (Potassium Clavulanate)/Avicel (1:1)
<b>CAS number</b>	61177-45-5
<b>EC number</b>	689-367-1
<b>Chemical formula</b>	C <sub>8</sub> H <sub>8</sub> KNO <sub>5</sub>

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

<b>General information</b>	Get medical attention if any discomfort continues. Show this Safety Data Sheet to the medical personnel.
<b>Inhalation</b>	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Loosen tight clothing such as collar, tie or belt. Get medical attention if symptoms are severe or persist.
<b>Ingestion</b>	Rinse mouth thoroughly with water. Get medical advice/attention if you feel unwell. Do not induce vomiting unless under the direction of medical personnel.
<b>Skin contact</b>	Rinse with water.
<b>Eye contact</b>	Rinse with water. Do not rub eye. Remove any contact lenses and open eyelids wide apart. Get medical attention if any discomfort continues.
<b>Protection of first aiders</b>	First aid personnel should wear appropriate protective equipment during any rescue.

### 4.2. Most important symptoms and effects, both acute and delayed

<b>General information</b>	The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
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## Clavulanic acid potassium salt (Potassium Clavulanate)/Avicel (1:1)

Inhalation	A single exposure may cause the following adverse effects: Temporary irritation.
Ingestion	May cause discomfort if swallowed.
Skin contact	Prolonged contact may cause dryness of the skin.
Eye contact	Irritating to eyes.

### 4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor	Treat symptomatically.
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## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media	The product is flammable. Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog. Use fire-extinguishing media suitable for the surrounding fire.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.

### 5.2. Special hazards arising from the substance or mixture

Specific hazards	Flammable solid. Dust may form explosive mixture with air. Fire-water run-off in sewers may create fire or explosion hazard.
Hazardous combustion products	Thermal decomposition or combustion products may include the following substances: Harmful gases or vapours.

### 5.3. Advice for firefighters

Protective actions during firefighting	Avoid breathing fire gases or vapours. Evacuate area. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. Control run-off water by containing and keeping it out of sewers and watercourses. If risk of water pollution occurs, notify appropriate authorities.
Special protective equipment for firefighters	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Firefighter's clothing conforming to European standard EN469 (including helmets, protective boots and gloves) will provide a basic level of protection for chemical incidents.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	Wear protective clothing as described in Section 8 of this safety data sheet. No action shall be taken without appropriate training or involving any personal risk. Do not touch or walk into spilled material. Evacuate area. Provide adequate ventilation. No smoking, sparks, flames or other sources of ignition near spillage. Promptly remove any clothing that becomes contaminated.
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### 6.2. Environmental precautions

Environmental precautions	Avoid discharge into drains or watercourses or onto the ground.
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### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up	Wear protective clothing as described in Section 8 of this safety data sheet. Clear up spills immediately and dispose of waste safely. Eliminate all ignition sources if safe to do so. No smoking, sparks, flames or other sources of ignition near spillage. Do not allow material to enter confined spaces, due to the risk of explosion. Collect spillage with a shovel and broom, or similar and reuse, if possible. Collect and place in suitable waste disposal containers and seal securely. Flush contaminated area with plenty of water. Wash thoroughly after dealing with a spillage. For waste disposal, see Section 13.
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## Clavulanic acid potassium salt (Potassium Clavulanate)/Avicel (1:1)

### 6.4. Reference to other sections

**Reference to other sections** For personal protection, see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

**Usage precautions** Read and follow manufacturer's recommendations. Wear protective clothing as described in Section 8 of this safety data sheet. Keep away from food, drink and animal feeding stuffs. Keep container tightly sealed when not in use. Risk of explosion if heated under confinement. The product is flammable. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not handle until all safety precautions have been read and understood. Do not handle broken packages without protective equipment. Do not reuse empty containers.

**Advice on general occupational hygiene** Wash promptly if skin becomes contaminated. Take off contaminated clothing. Wash contaminated clothing before reuse.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage precautions** Store away from incompatible materials (see Section 10). Store away from other materials. Keep away from oxidising materials, heat and flames. Keep only in the original container. Keep container tightly closed, in a cool, well ventilated place. Keep containers upright. Protect containers from damage. Maintain air gap between stacks/pallets. Store at temperatures between 2°C/35.6°F and 8°C/46.4°F. Protect from moisture. Heat sensitive.

**Storage class** Flammable solid storage.

### 7.3. Specific end use(s)

**Specific end use(s)** The identified uses for this product are detailed in Section 1.2.

## SECTION 8: Exposure controls/Personal protection

### 8.1. Control parameters

STEL

TWA

### 8.2. Exposure controls

**Protective equipment**



**Appropriate engineering controls** Provide adequate ventilation. Observe any occupational exposure limits for the product or ingredients.

**Eye/face protection** Wear tight-fitting, chemical splash goggles or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

**Hand protection** No specific hand protection recommended.

**Other skin and body protection** Wear appropriate clothing to prevent repeated or prolonged skin contact.

## Clavulanic acid potassium salt (Potassium Clavulanate)/Avicel (1:1)

<b>Hygiene measures</b>	Wash after use and before eating, smoking and using the toilet. Do not eat, drink or smoke when using this product.
<b>Respiratory protection</b>	Ensure all respiratory protective equipment is suitable for its intended use and is 'CE'-marked. Check that the respirator fits tightly and the filter is changed regularly. Gas and combination filter cartridges should comply with European Standard EN14387. Full face mask respirators with replaceable filter cartridges should comply with European Standard EN136. Half mask and quarter mask respirators with replaceable filter cartridges should comply with European Standard EN140.
<b>Environmental exposure controls</b>	Keep container tightly sealed when not in use.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

<b>Appearance</b>	Powder.
<b>Colour</b>	White/off-white.
<b>Odour</b>	Not known.
<b>Odour threshold</b>	No information available.
<b>pH</b>	No information available.
<b>Melting point</b>	153°C/307.4°F
<b>Initial boiling point and range</b>	No information available.
<b>Flash point</b>	No information available.
<b>Evaporation rate</b>	No information available.
<b>Flammability (solid, gas)</b>	No information available.
<b>Upper/lower flammability or explosive limits</b>	No information available.
<b>Vapour pressure</b>	No information available.
<b>Vapour density</b>	No information available.
<b>Relative density</b>	No information available.
<b>Solubility(ies)</b>	DMSO
<b>Partition coefficient</b>	No information available.
<b>Auto-ignition temperature</b>	No information available.
<b>Decomposition Temperature</b>	No information available.

#### 9.2. Other information

<b>Molecular weight</b>	237.25
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### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

<b>Reactivity</b>	See the other subsections of this section for further details.
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#### 10.2. Chemical stability

<b>Stability</b>	Stable under the prescribed storage conditions. Store at temperatures between 2°C/35.6°F and 8°C/46.4°F.
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## Clavulanic acid potassium salt (Potassium Clavulanate)/Avicel (1:1)

### 10.3. Possibility of hazardous reactions

**Possibility of hazardous reactions** The following materials may react strongly with the product: Oxidising agents.

### 10.4. Conditions to avoid

**Conditions to avoid** Avoid heat, flames and other sources of ignition. Static electricity and formation of sparks must be prevented.

### 10.5. Incompatible materials

**Materials to avoid** Oxidising materials. Acids - oxidising. Reacts violently with water.

### 10.6. Hazardous decomposition products

**Hazardous decomposition products** Does not decompose when used and stored as recommended. Thermal decomposition or combustion products may include the following substances: Harmful gases or vapours.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

#### Acute toxicity - oral

**Summary** Based on available data the classification criteria are not met.

#### Acute toxicity - dermal

**Summary** Based on available data the classification criteria are not met.

#### Acute toxicity - inhalation

**Summary** Based on available data the classification criteria are not met.

#### Skin corrosion/irritation

**Summary** Based on available data the classification criteria are not met.

#### Serious eye damage/irritation

**Summary** Causes serious eye irritation.

#### Respiratory sensitisation

**Summary** Based on available data the classification criteria are not met.

#### Skin sensitisation

**Summary** Based on available data the classification criteria are not met.

#### Germ cell mutagenicity

**Summary** Based on available data the classification criteria are not met.

#### Carcinogenicity

**Summary** Based on available data the classification criteria are not met.

#### IARC carcinogenicity

None of the ingredients are listed or exempt.

#### Reproductive toxicity

**Summary** Based on available data the classification criteria are not met.

#### Specific target organ toxicity - single exposure

**Summary** Based on available data the classification criteria are not met.

#### Specific target organ toxicity - repeated exposure

**Summary** Based on available data the classification criteria are not met.

#### Aspiration hazard

**Summary** Not relevant. Solid.

## Clavulanic acid potassium salt (Potassium Clavulanate)/Avicel (1:1)

<b>General information</b>	The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
<b>Inhalation</b>	A single exposure may cause the following adverse effects: Temporary irritation.
<b>Ingestion</b>	May cause discomfort if swallowed.
<b>Skin contact</b>	Prolonged contact may cause dryness of the skin.
<b>Eye contact</b>	Irritating to eyes.
<b>Route of exposure</b>	Ingestion Inhalation Skin and/or eye contact
<b>Target organs</b>	No specific target organs known.

### SECTION 12: Ecological information

<b>Ecotoxicity</b>	Not regarded as dangerous for the environment. However, large or frequent spills may have hazardous effects on the environment.
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#### 12.1. Toxicity

##### Acute aquatic toxicity

<b>Summary</b>	Based on available data the classification criteria are not met.
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##### Chronic aquatic toxicity

<b>Summary</b>	Based on available data the classification criteria are not met.
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#### 12.2. Persistence and degradability

<b>Persistence and degradability</b>	The degradability of the product is not known.
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#### 12.3. Bioaccumulative potential

<b>Bioaccumulative potential</b>	No data available on bioaccumulation.
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<b>Partition coefficient</b>	No information available.
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#### 12.4. Mobility in soil

<b>Mobility</b>	No data available.
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#### 12.5. Results of PBT and vPvB assessment

#### 12.6. Other adverse effects

<b>Other adverse effects</b>	None known.
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### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

<b>General information</b>	The generation of waste should be minimised or avoided wherever possible. Reuse or recycle products wherever possible. This material and its container must be disposed of in a safe way. When handling waste, the safety precautions applying to handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Empty containers or liners may retain some product residues and hence be potentially hazardous.
<b>Disposal methods</b>	Do not empty into drains. Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in designated containers, labelled with their contents. Incineration or landfill should only be considered when recycling is not feasible.

## Clavulanic acid potassium salt (Potassium Clavulanate)/Avicel (1:1)

### SECTION 14: Transport information

**General** For limited quantity packaging/limited load information, consult the relevant modal documentation using the data shown in this section.

#### 14.1. UN number

UN No. (ADR/RID)	1325
UN No. (IMDG)	1325
UN No. (ICAO)	1325
UN No. (ADN)	1325

#### 14.2. UN proper shipping name

Proper shipping name (ADR/RID)	FLAMMABLE SOLID, ORGANIC, N.O.S. (Clavulanic acid potassium salt (Potassium Clavulanate)/Avicel (1:1))
Proper shipping name (IMDG)	FLAMMABLE SOLID, ORGANIC, N.O.S. (Clavulanic acid potassium salt (Potassium Clavulanate)/Avicel (1:1))
Proper shipping name (ICAO)	FLAMMABLE SOLID, ORGANIC, N.O.S. (Clavulanic acid potassium salt (Potassium Clavulanate)/Avicel (1:1))
Proper shipping name (ADN)	FLAMMABLE SOLID, ORGANIC, N.O.S. (Clavulanic acid potassium salt (Potassium Clavulanate)/Avicel (1:1))

#### 14.3. Transport hazard class(es)

ADR/RID class	4.1
ADR/RID classification code	F1
ADR/RID label	4.1
IMDG class	4.1
ICAO class/division	4.1
ADN class	4.1

#### Transport labels



#### 14.4. Packing group

ADR/RID packing group	III
IMDG packing group	III
ICAO packing group	III
ADN packing group	III

#### 14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant  
No.

#### 14.6. Special precautions for user

Always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.



## Clavulanic acid potassium salt (Potassium Clavulanate)/Avicel (1:1)

EmS	F-A, S-G
ADR transport category	3
Emergency Action Code	1Z
Hazard Identification Number (ADR/RID)	40
Tunnel restriction code	(E)

### 14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

## SECTION 15: Regulatory information

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

National regulations	Health and Safety at Work etc. Act 1974 (as amended). The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (SI 2009 No. 1348) (as amended) ["CDG 2009"]. EH40/2005 Workplace exposure limits.
EU legislation	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended). Commission Regulation (EU) No 2015/830 of 28 May 2015. Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

### Inventories

#### EU - EINECS/ELINCS

None of the ingredients are listed or exempt.

## SECTION 16: Other information

Abbreviations and acronyms used in the safety data sheet	ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road. ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways. RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail. IATA: International Air Transport Association. ICAO: Technical Instructions for the Safe Transport of Dangerous Goods by Air. IMDG: International Maritime Dangerous Goods. CAS: Chemical Abstracts Service. ATE: Acute Toxicity Estimate. LC <sub>50</sub> : Lethal Concentration to 50 % of a test population. LD <sub>50</sub> : Lethal Dose to 50% of a test population (Median Lethal Dose). EC <sub>50</sub> : 50% of maximal Effective Concentration. PBT: Persistent, Bioaccumulative and Toxic substance. vPvB: Very Persistent and Very Bioaccumulative.
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**Clavulanic acid potassium salt (Potassium Clavulanate)/Avicel (1:1)**

<b>Classification abbreviations and acronyms</b>	Flam. Sol. = Flammable solid Self-heat. = Self-heating Eye Irrit. = Eye irritation
<b>Classification procedures according to Regulation (EC) 1272/2008</b>	Eye Irrit. 2 - H319: : Expert judgement. Flam. Sol. 2 - H228: Self-heat. 2 - H252: : Expert judgement.
<b>Training advice</b>	Only trained personnel should use this material.
<b>Revision date</b>	16/09/2021
<b>Revision</b>	1
<b>SDS number</b>	325
<b>Hazard statements in full</b>	H228 Flammable solid. H252 Self-heating in large quantities; may catch fire. H319 Causes serious eye irritation.

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.