

# Safety Data Sheet

## SECTION 1: Identification of the substance and of the company

### 1.1 Product identifier

NAME: 4-Aminomorpholine

PRODUCT CODE: PS-9309

CAS No: 4319-49-7

Synonyms/Tradenames:

IUPAC Name: 4-Aminomorpholine

MDL No: MFCD00006174

EINECS No:

REACH No: A REACH registration number is not available for this substance as the substance or its uses are exempted from registration. The annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

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

Identified Use: Research and Development

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

Key Organics Limited

Highfield Road Industrial Estate  
Camelford  
Cornwall PL32 9RA UKTel: +44(0)1840 212171  
Fax: +44(0)1840 213712  
Email: enquiries@keyorganics.net

### 1.4 Emergency telephone number

+44(0)1840 212137 between the hours 9am to 5pm Monday to Friday.

## SECTION 2: Hazard Identification

### 2.1 GHS Classification of the substance or mixture

(Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP])

Flammable liquids (Category 2)

Acute toxicity, inhalation (Category 4)

Acute toxicity, dermal (Category 4)

Acute toxicity, oral (Category 4)

Skin corrosion/irritation (Category 1B)

Specific target organ toxicity, single exposure; Respiratory tract irritation (Category 3)

Skin corrosion/irritation (Category 2)

Serious eye damage/eye irritation (Category 1)

### 2.2 Label elements

(Labelling according to Regulation (EC) No 1272/2008 [EU-GHS/CLP])

Signal Word: Danger



#### Hazard Statements:

H225 Highly flammable liquid and vapour.

H302 Harmful if swallowed.

|      |                                          |
|------|------------------------------------------|
| H312 | Harmful in contact with skin.            |
| H314 | Causes severe skin burns and eye damage. |
| H315 | Causes skin irritation.                  |
| H318 | Causes serious eye damage.               |
| H332 | Harmful if inhaled.                      |
| H335 | May cause respiratory irritation.        |

**Precautionary Phrases:**

|                    |                                                                                                                                  |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------|
| P210               | Keep away from heat/sparks/open flames/hot surfaces. No smoking.                                                                 |
| P240               | Ground/bond container and receiving equipment.                                                                                   |
| P242               | Use only non-sparking tools.                                                                                                     |
| P243               | Take precautionary measures against static discharge.                                                                            |
| P260               | Do not breathe dust/fume/gas/mist/vapours/spray.                                                                                 |
| P262               | Do not get in eyes, on skin, or on clothing.                                                                                     |
| P270               | Do not eat, drink or smoke when using this product.                                                                              |
| P280               | Wear protective gloves/protective clothing/eye protection/face protection.                                                       |
| P302 + P352        | IF ON SKIN: Wash with plenty of soap and water.                                                                                  |
| P304 + P340        | IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.                                 |
| 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.                                                                            |
| P402 + P404        | Store in a dry place. Store in a closed container.                                                                               |
| P403 + P235        | Store in a well-ventilated place. Keep cool.                                                                                     |
| P411               | Store at temperatures not exceeding -18°C.                                                                                       |
| P422               | Store contents under inert gas.                                                                                                  |

**2.3 Other Hazards**

No Information Available

**SECTION 3: Composition/Information on ingredients****3.1 Substances**

PS-9309: 4319-49-7 4-Aminomorpholine

MF: C4H10N2O MW: 102.1371

**3.2 Mixtures**

Not relevant.

**SECTION 4: First Aid Measures****4.1 Description of the first aid measures**

|              |                                                                                                                                                                                                                                         |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Skin Contact | Remove any contaminated clothing and shoes. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.                                                                                                |
| Eye Contact  | Hold eyelids open and rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation or visual changes persists: Get medical advice/attention.                  |
| Ingestion    | Do not induce vomiting. If victim is conscious and alert, give 1-2 glasses of water to wash out mouth thoroughly. Do not give anything by mouth to an unconscious person. Get medical advice/attention. Do not leave victim unattended. |
| Inhalation   | If respiratory irritation or distress occurs, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if respiratory irritation or distress continues.                        |

**4.2 Most important symptoms and effect, both acute and delayed**

To the best of our knowledge the acute and delayed symptoms and effects of this substance are not fully known.

**4.3 Indication of any immediate medical attention and special treatment needed**

Call a POISON CENTRE or doctor/physician if you feel unwell.  
No additional measures required.

## SECTION 5: Firefighting Measures

### 5.1 Extinguishing media

Suitable: Carbon Dioxide  
Dry Chemical Powder  
AFFF  
Water

Unsuitable: Do not use water with a full water jet.

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

In combustion toxic fumes may form.

### 5.3 Advice for fire fighters

Wear protective clothing to prevent contact with skin and eyes.  
Wear self-contained breathing apparatus.

## SECTION 6: Accidental Release Measures

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

Refer to section 8 of SDS for personal protection details.

### 6.2 Environmental precautions.

Do not discharge into rivers and drains.

### 6.3 Methods and materials for containment and cleaning up

Mix with sand or vermiculite, transfer to suitable container and arrange disposal by approved disposal specialists.

## SECTION 7: Handling and Storage

### 7.1 Precautions for safe handling

Safe handling: Do not store, use, and/or consume foods, beverages, tobacco products or cosmetics in areas where this material is stored.  
Wash hands and face carefully before eating, drinking, using tobacco or applying cosmetics in areas where this material is stored.  
Handle in BS approved adequately ventilated fume cupboard.  
Wash exposed skin promptly to remove accidental splashes of contact with this material.  
Remove and thoroughly wash any clothing if spillage occurs.

Protection against explosions and fires: Undertake normal measures for fire protection.  
Minimal explosion risk.

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

Managing storage risks: Keep container tightly closed, store in cool, well ventilated area.  
Storage controls: Store under inert gas at -18°C  
Maintaining integrity: Keep in tightly closed container in a cool area away from direct sunlight or heat sources.  
Further information about storage conditions: Store in well ventilated place. Keep container tightly closed.

### 7.3 Specific end use(s)

The end use(s) have not been fully determined. The substance is supplied for Research and Development purposes only and should be handled by appropriately trained professionals only.

## SECTION 8: Exposure Controls/Personal Protection

### 8.1 Control parameters

No data available.

### 8.2 Exposure controls

General protective & hygiene measures:

Wear protective gloves/protective clothing/eye protection/face protection. The standard precautionary measures should be adhered to when handling this material. Wash hands during breaks and at the end of handling the material. Remove immediately any contaminated clothing or footwear and either wash thoroughly or dispose of in hazardous waste.

|                                    |                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Engineering measures:              | Set up hand-wash station and eye station near work area.<br>General area dilution/exhaust ventilation.<br>Use only in a BS approved fume cupboard or in a well ventilated area.                                                                                                                                                                                        |
| Eye/face protection:               | Safety glasses (NIOSH(US) or EN 166(EU)) and/or full face visor if handling large amounts.                                                                                                                                                                                                                                                                             |
| Hand protection:                   | Suitable protective gloves or gauntlets satisfying EU Directive 89/686/EEC and the standard EN374 derived from it.                                                                                                                                                                                                                                                     |
| Respiratory protection:            | Avoid breathing dust, fumes, gas, mist, vapours or sprays. For low level exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABE1P3D (EU EN 143) respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). |
| Skin protection:                   | Protective clothing and gloves or gauntlets.                                                                                                                                                                                                                                                                                                                           |
| Other personal protection advice:: | No data.                                                                                                                                                                                                                                                                                                                                                               |

## SECTION 9: Physical and Chemical Properties

### 9.1 Physical and chemical properties

|                               |                                                 |
|-------------------------------|-------------------------------------------------|
| Appearance/form:              | Colourless to Yellow Liquid                     |
| Molecular formula:            | C <sub>4</sub> H <sub>10</sub> N <sub>2</sub> O |
| Molecular weight:             | 102.14                                          |
| Odour:                        | No data available                               |
| Odour threshold:              | No data available                               |
| pH:                           | No data available                               |
| Melting/Boiling point (°C):   | BP: 168°C at 760 mmHg                           |
| Flash point:                  | No data available                               |
| Evaporation rate:             | No data available                               |
| Flammability (solid,gas):     | No data available                               |
| Upper/lower explosive limits: | No data available                               |
| Vapour pressure:              | No data available                               |
| Vapour density:               | No data available                               |
| Relative density:             | No data available                               |
| Solubility(ies):              | No data available                               |
| Partition coefficient:        | No data available                               |
| Auto ignition temperature:    | No data available                               |
| Decomposition temperature:    | No data available                               |
| Viscosity:                    | No data available                               |
| Explosive properties:         | No data available                               |
| Oxidising properties:         | No data available                               |

### 9.2 Other information

No other information is available.

## SECTION 10: Stability and Reactivity

### 10.1 Reactivity

No unusual reactivity.

### 10.2 Chemical stability

Stable under normal conditions as stated in section 7.

### 10.3 Possibility of hazardous reactions

No hazardous reactions known.

**10.4 Conditions to avoid**

Heat, flames and sparks.

**10.5 Incompatible materials**

Avoid contact with strong acids, bases, oxidising and reducing agents.

**10.6 Hazardous decomposition products**

In combustion emits toxic fumes.

**SECTION 11: Toxicology Information**

All the data contained in this section is derived from actual test data unless otherwise stated.

**11.1 Information on toxicology effects**

|                                    |                                                      |
|------------------------------------|------------------------------------------------------|
| Acute toxicity:                    | No data available.                                   |
| Skin corrosion/irritation:         | Causes severe skin irritation.                       |
| Serious eye damage/irritation:     | Causes severe eye damage and serious eye irritation. |
| Respiratory or skin sensitisation: | No data available.                                   |
| Germ cell mutagenicity:            | No data available.                                   |
| Carcinogenicity:                   | No data available.                                   |
| Reproductive toxicity:             | No data available.                                   |
| STOT single exposure:              | No data available.                                   |
| STOT repeated exposure:            | No data available.                                   |
| Aspiration hazard:                 | No data available.                                   |
| Signs and Symptoms of Exposure:    | No data available.                                   |

**11.2 Additional Information**

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known. The substance is for R&D purposes only and has not been fully characterised. The substance should only be handled by suitably trained professionals.

**SECTION 12: Ecological Information**

All the data contained in this section is derived from actual test data unless otherwise stated.

**12.1 Toxicity**

No data available.

**12.2 Persistence and degradability**

No data available.

**12.3 Bioaccumulative potential**

No data available.

**12.4 Mobility in soil**

No data available.

**12.5 Results of PBT and vPvB assessment**

No data available.

**12.6 Other adverse effects**

No data available.

**SECTION 13: Disposal Considerations****13.1 Waste treatment methods**

|                          |                                                                   |
|--------------------------|-------------------------------------------------------------------|
| Disposal considerations: | Consult state, local or national regulations for proper disposal. |
| Disposal of packaging:   | Disposal must be made according to official regulations.          |

**SECTION 14: Transport Information****14.1 UN number**

2733

**14.2 UN proper shipping name**

Amine, flammable, corrosive,  
n.o.s. or Polyamines, flammable,  
corrosive, n.o.s

### 14.3 Transport class(es)

3

### 14.4 Packaging group

III

### 14.5 Environmental hazards

Air (ICAO/IATA): No data available

Road (ADR/RID): No data available

Sea (IMDG): No data available

### 14.6 Special precautions for user

Air (ICAO/IATA): No data available

Road (ADR/RID): No data available

Sea (IMDG): No data available

## SECTION 15: Regulatory Information

### 15.1 Safety, health and environmental regulations

Product is not subject to any additional regulations or provisions. This datasheet complies with the requirements of regulations (EC) No. 1907/2006.

### 15.2 Chemical safety assessment

No chemical safety assessment under Regulation (EC) 1907/2006 is required and has not been carried out.

## SECTION 16: Other Information

Date of Previous SDS:

Date of Revision: 04 August 2022

List of abbreviations used within SDS:

ADR: Accord Européen sur le transport des marchandises Dangereuses par Route (European Agreement concerning the international Carriage of Dangerous Goods by road).

RID: Règlement International concernant le transport des marchandises par chemin de fer (Regulations concerning the International transport of Dangerous Goods by Rail).

IMDG: International Maritime Code of Dangerous goods.

IATA: International Air Transport Association.

IATA-DGR: Dangerous Goods Regulations by the International Air Transport Association.

ICAO: International Civil Aviation Organisation.

ICAO-IT: Technical Instructions by the ICAO.

GHS: Globally Harmonised System of Classification and Labelling of Chemicals.

CAS: Chemical Abstracts Service.

IUPAC: International Union for Pure and Applied Chemistry.

MDL: Molecular Design Ltd

EINECS: European Inventory of Existing Commercial Chemical Substances.

EPA: European Protection Agency.

IARC: International Agency on Research on Cancer.

NTP: National Toxicology Program.

OSHA: Occupational Safety and Health Administration.

ACGIH: American Conference of Industrial Hygienists.

## Disclaimer

The information in this Safety Data Sheet is correct to the best of our knowledge at the date of publication. However, the information given should be considered only as a guide. The product listed is for research and development purposes only and not for human or animal use. As such the toxicological, ecological and physiochemical properties have not been fully investigated or determined and the product should be treated with respect and always handled under suitable conditions by suitably qualified personnel. The responsible party shall use this datasheet only in conjunction with other sources of information gathered by them, and should make an independent judgement of suitability, to ensure proper use and protect the health and safety of employees. This Safety Data Sheet is not intended to be a replacement of any statutory assessments required to be completed by the user. This information is furnished without warranty and any use of the product not in conformance with this Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Key Organics Ltd. cannot accept liability for any loss, damage or injury which may result from the use of this product.

## **End of SDS**