

# Safety Data Sheet

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

### 1.1 Product identifier

NAME: Benzonitrile

PRODUCT CODE: LS-13256

CAS No: 100-47-0

Synonyms/Tradenames:

IUPAC Name: Benzonitrile

MDL No: MFCD00001770

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])

Acute toxicity, inhalation (Category 4)

Acute toxicity, dermal (Category 4)

Acute toxicity, oral (Category 4)

### 2.2 Label elements

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

Signal Word: Warning



#### Hazard Statements:

H302 Harmful if swallowed.

H312 Harmful in contact with skin.

H332 Harmful if inhaled.

#### Precautionary Phrases:

P232 Protect from moisture.

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

P264 Wash hands thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a well-ventilated area.

P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of water. Call a POISON CENTRE/Doctor if you feel unwell.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P363	Wash contaminated clothing before reuse.
P402 + P404	Store in a dry place. Store in a closed container.
P422	Store contents under inert gas.
P501	Dispose of contents/container to an approved waste disposal plant.

## 2.3 Other Hazards

No Information Available

## SECTION 3: Composition/Information on ingredients

### 3.1 Substances

LS-13256: 100-47-0 Benzonitrile  
MF: C7H5N MW: 103.1240

### 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, Hygroscopic
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. General area dilution/exhaust ventilation. 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:	
Molecular formula:	C7H5N
Molecular weight:	103.12
Odour:	No data available
Odour threshold:	No data available
pH:	No data available
Melting/Boiling point (°C):	MP: -13°C BP: 191 °C - lit.
Flash point:	70 °C - closed cup
Evaporation rate:	No data available
Flammability (solid,gas):	No data available
Upper/lower explosive limits:	Upper explosion limit: 7.2 %(V) Lower explosion limit: 1.4 %(V)
Vapour pressure:	1 hPa at 20 °C 122 hPa at 122.5 °C
Vapour density:	3.56 - (Air = 1.0)
Relative density:	Density 1.000 g/cm3 Relative density 1.005
Solubility(ies):	Water solubility 0.001 g/l at 25 °C - slightly soluble
Partition coefficient:	log Pow: 1.5 at 20 °C- Bioaccumulation is not expected
Auto ignition temperature:	ca.615 °C at 1,013 hPa
Decomposition temperature:	No data available
Viscosity:	Viscosity, dynamic: 1.24 mPa.s at 25 °C Viscosity, kinematic: 1.051 mm2/s at 27.78 °C
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

Forms explosive mixtures with air on intense heating.  
A range from approx. 15 Kelvin below the flash point is to be rated as critical

### 10.2 Chemical stability

Stable under normal conditions as stated in section 7.

### 10.3 Possibility of hazardous reactions

Violent reactions possible with:  
Strong oxidizing agents  
acids

### 10.4 Conditions to avoid

Avoid Moisture. Do not heat over: 30°C

### 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:

	LD50 Oral - Rat - male and female - 1,000 mg/kg (OECD Test Guideline 401) Symptoms: Nausea, Vomiting Acute toxicity estimate Oral - 1,000 mg/kg (ATE value derived from LD50/LC50 value) Inhalation: No data available LD50 Dermal - Rabbit - male and female - 1,400 mg/kg Remarks: (ECHA) Acute toxicity estimate Dermal - 1,400 mg/kg (ATE value derived from LD50/LC50 value)
Skin corrosion/irritation:	Causes skin irritation.Skin - Rabbit Result: Mild skin irritation - 24 h Remarks: (ECHA) Remarks: Possible damages: slight irritation
Serious eye damage/irritation:	Causes serious eye irritation.Eyes - Rabbit Result: No eye irritation Remarks: (ECHA)
Respiratory or skin sensitisation:	Patch test: - Human Result: negative Remarks: (IUCLID)
Germ cell mutagenicity:	Test Type: Ames test Test system: S. typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative
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

After absorption:

Vertigo

Headache

Drowsiness

confusion

Impairment of vision

drop in blood pressure

respiratory paralysis

Coma

Unconsciousness

Convulsions

The following applies to cyanogen compounds/ nitriles in general: utmost caution! Release of hydrocyanic acid is possible - blockade of cellular respiration. Cardiovascular disorders, dyspnoea, unconsciousness.

Handle in accordance with good industrial hygiene and safety practice.

## SECTION 12: Ecological Information

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

### 12.1 Toxicity

Toxicity to fish LC50 - Oncorhynchus mykiss (rainbow trout) - 32 mg/l - 96 h

Remarks: (External MSDS)

Toxicity to algae Cell multiplication inhibition test IC50 - Chlorella vulgaris (Fresh water algae) - 231 mg/l - 6 h

Remarks: (IUCLID)

(benzotrile)

Toxicity to bacteria Remarks: (IUCLID)

(benzotrile)

### 12.2 Persistence and degradability

Biodegradability aerobic - Exposure time 28 d

Result: 100 % - Readily biodegradable

### 12.3 Bioaccumulative potential

No data available.

### 12.4 Mobility in soil

No data available.

### 12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### 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

2224

### 14.2 UN proper shipping name

BENZONITRILE

### 14.3 Transport class(es)

6.1

### 14.4 Packaging group

II

### 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: 14 March 2022

Date of Revision: 23 September 2025

List of abbreviations used within SDS:

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

RID: Reglement 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.

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**End of SDS**