

SAFETY DATA SHEET



Revision date: 25-Sep-2024

Revision Number 1

Section 1: Identification

Product identifier

Product Name L-ISOLEUCINE

Product Code(s) 000000032627

Other means of identification

CAS No. 73-32-5

Synonyms L-Isoleucine Feed Additive

Recommended use of the chemical and restrictions on use

Recommended use Feed additive.

Uses advised against No information available.

Details of manufacturer or importer

Supplier

Ixom Operations Pty Ltd (Bronson & Jacobs division) - incorporated in Australia
ABN:51 600 546 512
70 Marple Avenue
Villawood NSW 2163
Australia

Telephone Number: +61 2 8717 2929

Facsimile: +61 2 9755 9611

Emergency telephone number

Emergency telephone number **1 800 033 111 (ALL HOURS)**

Please ensure you refer to the limitations of this Safety Data Sheet as set out in the "Other Information" section at the end of this Data Sheet.

Section 2: Hazard identification

Not classified as a hazardous substance in accordance with the criteria of Safe Work Australia - Globally Harmonized System (GHS).

Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for transport by Road and Rail; NON-DANGEROUS GOODS.

GHS Classification

Label elements

Signal word

None

Other hazards which do not result in classification

May form combustible dust concentrations in air.

Section 3: Composition and information on ingredients

| Chemical name | CAS No. | Weight-% |
|---------------|---------|----------|
| L-Isoleucine | 73-32-5 | >=97.5 |

Section 4: First aid measures**Description of first aid measures**

| | |
|-----------------------|---|
| General advice | For advice, contact a Poisons Information Centre (e.g. phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor. |
| Inhalation | IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. (Call a physician if symptoms occur). |
| Eye contact | Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician. |
| Skin contact | Wash skin with soap and water. Get medical attention if irritation develops and persists. |
| Ingestion | Clean mouth with water and drink afterwards plenty of water. Do NOT induce vomiting. Get medical attention if symptoms occur. |

Most important symptoms and effects, both acute and delayed

Symptoms No information available.

Effects of Exposure No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

Section 5: Firefighting measures**Suitable Extinguishing Media**

Suitable extinguishing media Dry chemical. Carbon dioxide (CO₂). Foam.

Unsuitable extinguishing media High volume water jet.

Specific hazards arising from the chemical

Specific hazards arising from the chemical Combustible solid. On burning will emit toxic fumes, including those of oxides of carbon. In the event of fire, cool tanks with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Most organic dusts are combustible and according to the circumstances under which the combustion

process occurs, such materials may cause fires and/or dust explosions. Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions). Dusts in the form of a cloud are only ignitable over a range of concentrations; in principle, the concepts of lower explosive limit (LEL) and upper explosive limit (UEL) are applicable to dust clouds but only the LEL is of practical use; - this is because of the inherent difficulty of achieving homogeneous dust clouds at high temperatures (for dusts the LEL is often called the "Minimum Explosible Concentration", MEC).

When processed with flammable liquids/vapors/mists, ignitable (hybrid) mixtures may be formed with combustible dusts. Ignitable mixtures will increase the rate of explosion pressure rise and the Minimum Ignition Energy (the minimum amount of energy required to ignite dust clouds - MIE) will be lower than the pure dust in air mixture. The Lower Explosive Limit (LEL) of the vapour/dust mixture will be lower than the individual LELs for the vapors/mists or dusts.

Usually the initial or primary explosion takes place in a confined space such as plant or machinery, and can be of sufficient force to damage or rupture the plant. If the shock wave from the primary explosion enters the surrounding area, it will disturb any settled dust layers, forming a second dust cloud, and often initiate a much larger secondary explosion. All large-scale explosions have resulted from chain reactions of this type. Dry dust can be charged electrostatically by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport. Build-up of electrostatic charge may be prevented by bonding and grounding. Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting. A sudden release of statically charged materials from storage or process equipment, particularly at elevated temperatures and/ or pressure, may result in ignition especially in the absence of an apparent ignition source. One important effect of the particulate nature of powders is that the surface area and surface structure (and often moisture content) can vary widely from sample to sample, depending on how the powder was manufactured and handled which means that it is virtually impossible to use flammability data published in the literature for dusts.

Hazardous combustion products Oxides of carbon. Oxides of nitrogen.

Special protective actions for fire-fighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Evacuate personnel to safe areas. Ensure adequate ventilation. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with skin, eyes or clothing. Do not touch or walk through spilled material. Wash thoroughly after handling. Keep people away from and upwind of spill/leak. Use personal protective equipment as required.

For emergency responders Shut off ignition sources. Clear area of all unprotected personnel. Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so. Refer to protective measures listed in Sections 7 and 8.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Do not touch or walk through spilled material. Remove

ignition sources. Provide adequate ventilation. Dike far ahead of spill to collect runoff water. Soak up condensate with inert absorbent material and collect in ventilated waste container for disposal.

Methods for cleaning up

Dam up. Soak up with inert absorbent material. Vacuum or sweep material and place in a disposal container. Avoid generation of dust. Pick up and transfer to properly labeled containers.

Section 7: Handling and storage**Precautions for safe handling****Advice on safe handling**

Avoid breathing dust or spray mist. Avoid contact with skin, eyes or clothing. Use personal protection equipment. Keep away from open flames, hot surfaces and sources of ignition. Use according to package label instructions. In common with many organic chemicals, may form flammable dust clouds in air. Take precautionary measures against static discharges. Handle in accordance with good industrial hygiene and safety practice.

General hygiene considerations

Regular cleaning of equipment, work area and clothing is recommended. Wash hands and face before breaks and immediately after handling the product. Wear suitable gloves and eye/face protection.

Conditions for safe storage, including any incompatibilities**Storage Conditions**

Keep containers tightly closed in a cool, well-ventilated place. Protect from sunlight. Protect from moisture. Store away from sources of heat or ignition. Store away from incompatible materials described in Section 10. Keep container closed when not in use.

Incompatible materials

Strong oxidizing agents.

Section 8: Exposure controls and personal protection**Control parameters****Exposure Limits**

No value assigned for this specific material by Safe Work Australia. However, Workplace Exposure Standard(s) for particulates:

Dusts not otherwise classified: 8hr TWA = 10 mg/m³

As published by Safe Work Australia Workplace Exposure Standards for Airborne Contaminants.

TWA - The time-weighted average airborne concentration of a particular substance when calculated over an eight-hour working day, for a five-day working week.

These Workplace Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These workplace exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

Appropriate engineering controls**Engineering controls**

Ensure adequate ventilation, especially in confined areas. Apply technical measures to comply with the occupational exposure limits.

If in the handling and application of this material, safe exposure levels could be exceeded, the use of engineering controls such as local exhaust ventilation must be considered and the results documented. If achieving safe exposure levels does not require engineering controls, then a detailed and documented risk assessment using the relevant Personal

Protective Equipment (PPE) (refer to PPE section below) as a basis must be carried out to determine the minimum PPE requirements.

Individual protection measures, such as personal protective equipment

The selection of PPE is dependent on a detailed risk assessment. The risk assessment should consider the work situation, the physical form of the chemical, the handling methods, and environmental factors.

OVERALLS, SAFETY SHOES, SAFETY GLASSES, GLOVES, DUST MASK.



| | |
|--|--|
| Eye/face protection | Glasses. |
| Skin and body protection | Wear suitable protective clothing. Boots. Overalls. |
| Hand protection | Impervious gloves. |
| Respiratory protection | If determined by a risk assessment an inhalation risk exists, wear a dust mask/respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716. |
| Environmental exposure controls | No information available. |
| Thermal hazards | No information available. |

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

| | |
|-----------------------|--------------------------|
| Physical state | Solid |
| Appearance | Crystalline Powder |
| Color | No information available |
| Odor | Characteristic Faint |
| Odor threshold | No information available |

| <u>Property</u> | <u>Values</u> | <u>Remarks • Method</u> |
|---|--------------------------|-------------------------|
| pH | 4.5-7 (aqueous solution) | None known |
| pH (as aqueous solution) | No data available | None known |
| Melting point / freezing point | 288 °C | None known |
| Boiling point / boiling range | No data available | None known |
| Flash point | Not Applicable | None known |
| Evaporation rate | No data available | None known |
| Flammability (solid, gas) | No data available | None known |
| Flammability Limit in Air | | None known |
| Upper flammability or explosive limits | No data available | |
| Lower flammability or explosive limits | No data available | |
| Vapor pressure | No data available | None known |
| Vapor density | No data available | None known |
| Relative density | Not Applicable | None known |
| Water solubility | No data available | None known |
| Solubility(ies) | Slightly soluble | None known |
| Partition coefficient | No data available | None known |
| Autoignition temperature | No data available | None known |

| | | |
|----------------------------------|-------------------|------------|
| Decomposition temperature | No data available | None known |
| Kinematic viscosity | No data available | None known |
| Dynamic viscosity | No data available | None known |

Other information**Section 10: Stability and reactivity**Reactivity

Reactivity No information available.

Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge Fine dust dispersed in air, in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Conditions to avoid

Conditions to avoid Avoid exposure to heat, sources of ignition, and open flame. Avoid contact with combustible substances. Direct sunlight. Protect from moisture.

Incompatible materials

Incompatible materials Strong oxidizing agents.

Hazardous decomposition products

Hazardous decomposition products Oxides of carbon. Oxides of nitrogen.

Section 11: Toxicological informationInformation on likely routes of exposure

Product Information No adverse health effects expected if the chemical is handled in accordance with this Safety Data Sheet and the chemical label. Symptoms or effects that may arise if the chemical is mishandled and overexposure occurs are:

Inhalation May cause irritation.

Eye contact May cause irritation. Dust contact with the eyes can lead to mechanical irritation.

Skin contact May cause irritation.

Ingestion Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Symptoms No information available.

Acute toxicityNumerical measures of toxicity - Product Information

| Chemical name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|---------------|-----------|-------------|--------------------------------------|
| L-Isoleucine | - | - | > 5410 mg/m ³ (Rat) 4 h |

See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

| | |
|--|---------------------------|
| Skin corrosion/irritation | No information available. |
| Serious eye damage/eye irritation | No information available. |
| Respiratory or skin sensitization | No information available. |
| Germ cell mutagenicity | No information available. |
| Carcinogenicity | No information available. |
| Reproductive toxicity | No information available. |
| STOT - single exposure | No information available. |
| STOT - repeated exposure | No information available. |
| Aspiration hazard | No information available. |

Section 12: Ecological information

Ecotoxicity

Aquatic ecotoxicity Avoid contaminating waterways.

Terrestrial ecotoxicity There is no data for this product.

Persistence and degradability

Persistence and degradability (1). Readily biodegradable.

Bioaccumulative potential

Bioaccumulation There is no data for this product.

Component Information

| Chemical name | Partition coefficient |
|---------------|-----------------------|
| L-Isoleucine | -1.72 |

Mobility

Mobility No information available.

Other adverse effects

Other adverse effects No information available.

Section 13: Disposal considerations**Waste treatment methods**

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Dispose of in accordance with federal, state and local regulations.

See section 8 for more information

Section 14: Transport information

ADG Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for transport by Road and Rail; NON-DANGEROUS GOODS.

IATA Not classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air; NON-DANGEROUS GOODS.

IMDG Not classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; NON-DANGEROUS GOODS.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

No information available

Section 15: Regulatory information**Safety, health and environmental regulations/legislation specific for the substance or mixture****National regulations****Australia**

Not classified as a hazardous substance in accordance with the criteria of Safe Work Australia - Globally Harmonized System (GHS).

Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for transport by Road and Rail; NON-DANGEROUS GOODS.

See section 8 for national exposure control parameters

Standard for Uniform Scheduling of Medicines and Poisons (SUSMP)

No poisons schedule number allocated

Poison Schedule Number Not applicable

Australian Industrial Chemicals Introduction Scheme (AICIS)

| Chemical name | Australian Industrial Chemicals Introduction Scheme (AICIS) | Additional information |
|------------------------|---|------------------------|
| L-Isoleucine - 73-32-5 | Present | - |

Illicit Drug Precursors/Reagents

This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list.

International Inventories

| | |
|----------------------|--|
| AIIC | This material is listed on the Australian Inventory of Industrial Chemicals. |
| NZIoC | Contact supplier for inventory compliance status. |
| TSCA | Contact supplier for inventory compliance status. |
| DSL/NDSL | Contact supplier for inventory compliance status. |
| EINECS/ELINCS | Contact supplier for inventory compliance status. |
| ENCS | Contact supplier for inventory compliance status. |
| IECSC | Contact supplier for inventory compliance status. |
| KECL | Contact supplier for inventory compliance status. |
| PICCS | Contact supplier for inventory compliance status. |

Legend:

AIIC AIIC- Australian Inventory of Industrial Chemicals

NZIoC - New Zealand Inventory of Chemicals

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

Section 16: Other information

(1) Supplier Safety Data Sheet 01/ 2024

Reason(s) For Issue: Reissue of an obsolete SDS

Prepared By This Safety Data Sheet has been prepared by IXOM Operations Pty Ltd (Toxicology and SDS Services).

Revision date: 25-Sep-2024

Revision Note:

The symbol (*) in the margin of this SDS indicates that this line has been revised.

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend

SVHC: Substances of Very High Concern for Authorization:
PBT: Persistent, Bioaccumulative, and Toxic (PBT) Substances
vPvB: Very Persistent and very Bioaccumulative (vPvB) Substances
STOT: Specific Target Organ Toxicity
ATE: Acute Toxicity Estimate
LC50: 50% Lethal Concentration
LD50: 50% Lethal Dose

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

| | | | |
|---------|-----------------------------|------|----------------------------------|
| TWA | TWA (time-weighted average) | STEL | STEL (Short Term Exposure Limit) |
| Ceiling | Maximum limit value | * | Skin designation |
| C | Carcinogen | | |

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
Environmental Protection Agency
Acute Exposure Guideline Level(s) (AEGl(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
Australian Industrial Chemicals Introduction Scheme (AICIS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Disclaimer

This SDS summarises to our best knowledge at the date of issue, the chemical health and safety hazards of the material and general guidance on how to safely handle the material in the workplace. Since Ixom Operations Pty Ltd cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, assess and control the risks arising from its use of the material.

If clarification or further information is needed, the user should contact their Bronson & Jacobs representative or Ixom Operations Pty Ltd at the contact details on page 1.

Ixom Operations Pty Ltd's responsibility for the material as sold is subject to the terms and conditions of sale, a copy of which is available upon request.

Bronson and Jacobs incorporating the businesses of Woods and Woods and Keith Harris and Australian Botanical Products.

End of Safety Data Sheet