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

Catalogue Number	CS-T-04829
Product Name	Bendiocarb
CAS No.	22781-23-3
Category	Pesticide Standards
Synonyms	Methylcarbamic Acid 2,3-(Isopropylidenedioxy)phenyl Ester
Brand	Clearsynth Labs Ltd.
Identified uses	Laboratory Chemicals
Uses advised against	Not available
Company	Clearsynth Labs Ltd. Mumbai, India
Emergency Phone #	+91-22-245045900
REACH No.	Not available

SECTION 2: Hazards identification

Disclaimer: This is sample MSDS. Please email **sales@clearsynth.com** for more details.

2.1 Classification of the substance or mixture-Regulation (EC) No 1272/2008:

Acute toxicity (Category 4)

2.2 Label Elements

Signal Word: Warning

Hazard Statement(s)

Code	Statement
H300	Not available
H311	Not available
H331	Not available
H400	Not available

H410	Not available
H301	Not available
H311+H331	Not available
H312	Harmful in contact with skin.
H330	Not available
H361	Not available
H370	Not available
H372	Not available
H310	Not available
H320	Not available
H371	Not available

Precautionary Statement(s)

Code	Statement
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P262	Not available
P264	Wash hands thoroughly after handling.
P270	Not available
P271	Use only outdoors or in a well-ventilated area.
P273	Not available
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P316	Not available
P302+P352	IF ON SKIN: Wash with plenty of water and soap.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P316	Not available
P321	Specific treatment (see … on this label).
P330	Not available
P361+P364	Not available
P391	Not available
P403+P233	Store in a well-ventilated place. Keep container tightly closed.

P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulatio
P317	Not available
P362+P364	Take off contaminated clothing and wash it before reuse.
P203	Not available
P260	Not available
P284	Not available
P308+P316	Not available
P318	Not available
P319	Get medical help if you feel unwell.
P320	Not available
P264+P265	Not available
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if presen
P337+P317	If eye irritation persists: Get medical help.

SECTION 3: Composition / information on ingredients

3.1 Substance

Component : Bendiocarb
CAS Number : 22781-23-3
Molecular Formula : C11H13NO4
Molecular Weight : 223.23
Parent Chemical : -
Synonyms : Methylcarbamic Acid 2,3-(Isopropylidenedioxy)phenyl Ester
Concentration : Not available

SECTION 4: First aid measures

SECTION 4: First-aid measures

4.1 Description of first aid measures
General advice: Remove from exposure. Show this Safety Data Sheet to the physician in attendance.
Inhalation: Move person to fresh air. If breathing is difficult, seek medical attention.
Skin contact: Remove contaminated clothing and shoes. Wash skin with plenty of water and soap.
Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek medical attention if irritation persists.
Ingestion: Rinse mouth. Do NOT induce vomiting unless directed by medical personnel. Seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Not available.

4.3 Indication of any immediate medical attention and special treatment needed
Treat symptomatically. Not available.

SECTION 5: Firefighting measures

SECTION 5: Fire-fighting measures

5.1 Extinguishing media
Suitable extinguishing media: Water spray, alcohol-resistant foam, dry chemical, carbon dioxide.
Unsuitable extinguishing media: Not available.

5.2 Special hazards arising from the substance or mixture
May decompose under fire conditions to release hazardous fumes. Specific decomposition products: Not available.

5.3 Advice for firefighters
Wear self-contained breathing apparatus (SCBA) and full protective gear. Use water spray to cool unopened containers. Prevent fire-fighting water from entering drains or waterways.

SECTION 6: Accidental release measures

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Avoid breathing dust. Avoid contact with skin and eyes. Use appropriate personal protective equipment.

6.2 Environmental precautions
Avoid release to the environment. Prevent entry into drains, surface waters, and soil.

6.3 Methods and material for containment and cleaning up
For small spills: Avoid dust generation. Collect spilled material using suitable means (e.g., damp absorbent or HEPA-filtered vacuum) and place in a suitable container for disposal.
For large spills: Contain spill. Collect mechanically and transfer to properly labeled containers. Clean spill area.

6.4 Reference to other sections
See Section 8 for personal protective equipment and Section 13 for disposal considerations.

SECTION-7: Handling and storage

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Handle in accordance with good industrial hygiene and safety practice. Avoid formation of dust and aerosols. Avoid contact with skin, eyes, and clothing. Do not eat, drink, or smoke when using this product. Wash hands thoroughly after handling.

7.2 Conditions for safe storage, including any incompatibilities
Store tightly closed in original container in a cool, dry, well-ventilated place. Protect from moisture. Keep away from incompatible materials. Incompatibilities: Not available.

7.3 Specific end use(s)
Pesticide standard / laboratory use. Not available.

SECTION 8: Exposure controls / personal protection

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
Occupational exposure limits: Not available.
Biological limit values: Not available.

8.2 Exposure controls
Engineering controls: Use local exhaust ventilation or general ventilation to minimize airborne concentrations.
Personal protective equipment (PPE):
- Eye/face protection: Safety glasses with side shields or chemical splash goggles.
- Skin protection: Protective gloves (material not available). Wear protective clothing.
- Respiratory protection: If ventilation is inadequate or dust is generated, use a suitable particulate respirator.
Specific respirator type: Not available.
- Hygiene measures: Wash hands after handling. Remove contaminated clothing and wash before reuse.
Environmental exposure controls: Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Test	Result
Appearance	No data available
IR spectrum	No data available
pH	No data available
Solubility	No data available

Property	Value
a) Physical State	No data available
b) Color	No data available
c) Odor	No data available
d) pH	No data available
e) Vapour Pressure	No data available
f) Viscosity	No data available
g) Initial Boiling Point and boiling range	No data available
h) Melting Point / Freezing Point	No data available

Property	Value
i) Auto Ignition Temperature	No data available
j) Flash Point	No data available
k) Explosion Limit, Lower	No data available
l) Explosion Limit, Upper	No data available
m) Decomposition Temperature	No data available
n) Loss on Drying	No data available
o) Relative Density	No data available
p) Solubility (in DMSO)	No data available
q) Oxidizing Properties	No data available

SECTION 10: Stability and reactivity

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
Heat, open flames, and sources of ignition. Avoid dust formation. Other conditions: Not available.

10.5 Incompatible materials
Not available.

10.6 Hazardous decomposition products
Not available.

SECTION 11: Toxicological information

11.1 Information on toxicological effects
- Acute toxicity: Acute exposure to cholinesterase inhibitors can cause a cholinergic crisis characterized by severe nausea/vomiting, salivation, sweating, bradycardia, hypotension, collapse, and convulsions. Increasing muscle weakness is a possibility and may result in death if respiratory muscles are involved. Accumulation of ACh at motor nerves causes overstimulation of nicotinic expression at the neuromuscular junction. When this occurs symptoms such as muscle weakness, fatigue, muscle cramps, fasciculation, and paralysis can be seen. When there is an accumulation of ACh at autonomic ganglia this causes overstimulation of nicotinic expression in the sympathetic system. Symptoms associated with this are hypertension, and hypoglycemia. Overstimulation of nicotinic acetylcholine receptors in the central nervous system, due to accumulation of ACh, results in anxiety, headache,

convulsions, ataxia, depression of respiration and circulation, tremor, general weakness, and potentially coma. When there is expression of muscarinic overstimulation due to excess acetylcholine at muscarinic acetylcholine receptors symptoms of visual disturbances, tightness in chest, wheezing due to bronchoconstriction, increased bronchial secretions, increased salivation, lacrimation, sweating, peristalsis, and urination can occur. Chronically high (>10 years) exposure leads to neuropsychological consequences including disturbances in perception and visuo-motor processing (A15321). LD50: 50 mg/kg (Oral, Rat); LD50: 700 mg/kg (Dermal, Rat); LD50 35-40 mg/kg (Oral, Rabbits); LD50: 35 mg/kg (Oral, Guinea Pigs) (L2049)
- Skin corrosion/irritation: No data available.
- Serious eye damage/eye irritation: No data available.
- Respiratory or skin sensitization: No data available.
- Germ cell mutagenicity: No data available.
- Carcinogenicity: Cancer Classification: Group E Evidence of Non-carcinogenicity for Humans
- Reproductive toxicity: /BIRDS and MAMMALS/ Bendiocarb is toxic to birds, it does not affect the reproductive performance of avian species. ...
- STOT-single exposure: No data available.
- STOT-repeated exposure: Acute exposure to cholinesterase inhibitors can cause a cholinergic crisis characterized by severe nausea/vomiting, salivation, sweating, bradycardia, hypotension, collapse, and convulsions. Increasing muscle weakness is a possibility and may result in death if respiratory muscles are involved. Accumulation of ACh at motor nerves causes overstimulation of nicotinic expression at the neuromuscular junction. When this occurs symptoms such as muscle weakness, fatigue, muscle cramps, fasciculation, and paralysis can be seen. When there is an accumulation of ACh at autonomic ganglia this causes overstimulation of nicotinic expression in the sympathetic system. Symptoms associated with this are hypertension, and hypoglycemia. Overstimulation of nicotinic acetylcholine receptors in the central nervous system, due to accumulation of ACh, results in anxiety, headache, convulsions, ataxia, depression of respiration and circulation, tremor, general weakness, and potentially coma. When there is expression of muscarinic overstimulation due to excess acetylcholine at muscarinic acetylcholine receptors symptoms of visual disturbances, tightness in chest, wheezing due to bronchoconstriction, increased bronchial secretions, increased salivation, lacrimation, sweating, peristalsis, and urination can occur. Chronically high (>10 years) exposure leads to neuropsychological consequences including disturbances in perception and visuo-motor processing (A15321). /LABORATORY ANIMALS: Subchronic or Prechronic Exposure/ ... Technical bendiocarb ... was fed in diet to 5 male rats/dose ... at 0, 200, 400, 800 and 1600 ppm (equivalent to 0, 22, 42, 84 or 161 mg/kg/day) for 15 days. NOEL < 200 ppm (depression /as percent of control/ of plasma acetylcholinesterase: 77%, 81%, 75% and 58% and brain cholinesterase: 55%, 55%, 41% and 39% at 200, 400, 800 and 1600 ppm respectively; 4/5 animals showed reduced muscle tone on day 14 at >800 ppm--piloerection was also shown at 1600 ppm). ...
- Aspiration hazard: No data available.

Likely routes of exposure
- Bendiocarb is highly toxic if it is ingested or if it is absorbed through the skin. Absorption through the skin is the most likely route of exposure. Individuals exposed under conditions of high temperature and humidity are at the greatest risk because these conditions promote rapid absorption of bendiocarb across the skin... Irritation and pain, blurred vision, tearing, muscle spasms and unresponsive pupils (to changes in light) may all occur if bendiocarb gets in the eye(s). These effects are due to anti-cholinesterase activity.

Symptoms related to the physical, chemical and toxicological characteristics
- Bendiocarb is highly toxic if it is ingested or if it is absorbed through the skin. Absorption through the skin is the most likely route of exposure. Individuals exposed under conditions of high temperature and humidity are at the greatest risk because these conditions promote rapid absorption of bendiocarb across the skin... Irritation and pain,

blurred vision, tearing, muscle spasms and unresponsive pupils (to changes in light) may all occur if bendiocarb gets in the eye(s). These effects are due to anti-cholinesterase activity.

SECTION 12: Ecological information

SECTION 12: Ecological information

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
Not available.

12.6 Endocrine disrupting properties
Not available.

12.7 Other adverse effects
Not available.

SECTION 13: Disposal considerations

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Dispose of contents/container in accordance with local/regional/national/international regulations. Do not discharge to drains.
Product: Dispose of as hazardous waste if required by regulations. Specific waste code: Not available.
Contaminated packaging: Dispose of as unused product or according to local requirements.

SECTION 14: Transport information

SECTION 14: Transport information

14.1 UN number
Not available.

14.2 UN proper shipping name
Not available.

14.3 Transport hazard class(es)
Not available.

14.4 Packing group
Not available.

14.5 Environmental hazards
Not available.

14.6 Special precautions for user
Not available.

14.7 Maritime transport in bulk according to IMO instruments
Not available.

SECTION 15: Regulatory information

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Not available.

15.2 Chemical safety assessment
Not available.

SECTION 16: Other information

SECTION 16: Other information

Product name: Bendiocarb
Catalog no.: CS-T-04829
CAS no.: 22781-23-3
Synonyms: Methylcarbamic Acid 2,3-(Isopropylidenedioxy)phenyl Ester
Supplier: Clearsynth Labs Ltd., Mumbai, India
Emergency phone: +91-22-245045900

Revision date: Not available.
Disclaimer: The information provided is believed to be accurate based on available product information; however, it is provided without warranty. Users are responsible for determining suitability for their particular application and for compliance with applicable regulations.

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