Emoxypine Succinate

CAS: 127464-43-1
Formula: C12H17NO5

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Version: 1.0

Section 1 — Product and Company Identification

Product Name	Emoxypine Succinate
Synonyms	127464-43-1; mexidol; Emoxypine succinate
CAS Number	127464-43-1
Molecular Formula	C12H17NO5
IUPAC Name	butanedioic acid;2-ethyl-6-methylpyridin-3-ol
Identified Uses	Research laboratory chemical for in vitro scientific research and development use only.
Restriction on Use	Not for human or veterinary use. Not for food, drug, cosmetic, household, agricultural, clinical, therapeutic, or diagnostic applications.

Manufacturer / Supplier

Company	Ruo.bio
Address	30 N Gould St, Sheridan, WY 82801, US
Phone	+1-804-636-6879
Website	https://ruo.bio/
Emergency Phone	+1(804)636-6879 - Monday-Friday: 9:00 AM - 5:00 PM Pacific

Section 2 — Hazard Identification

Classification of the substance

Classified under GHS Rev.8 / OSHA HazCom 2012 — see hazard statements below.

Classification has been conducted in accordance with 29 CFR 1910.1200 (OSHA HazCom 2012) and GHS Rev.8 using all available data and scientifically valid weight-of-evidence approaches (GHS Rev.8 Chapter 1.3.2.4), including read-across from chemical class and structural considerations where substance-specific study data is not available.

Signal Word: **WARNING**

GHS Pictograms:

GHS07

Hazard Statements

- H315: Causes skin irritation [Warning Skin corrosion/irritation]
- H319: Causes serious eye irritation [Warning Serious eye damage/eye irritation]

Precautionary Statements

- P264
- P264+P265
- P280
- P302+P352
- P305+P351+P338
- P321
- P332+P317
- P337+P317
- P362+P364

Hazards Not Otherwise Classified (HNOC)

None known based on available data and weight-of-evidence assessment. The toxicological properties of this substance have not been fully characterized; handle as a potentially bioactive substance of unknown toxicity.

Section 3 — Composition / Information on Ingredients

Single-substance product. Chemical identity:

Ingredient	CAS Number	Mol. Formula	Mol. Weight	Concentration
Emoxypine Succinate	127464-43-1	C12H17NO5	255.27 g/mol	>98% (research grade)

Impurities

No hazardous impurities known to be present above the GHS classification thresholds specified in 29 CFR 1910.1200 Appendix A. Residual synthesis reagents, solvents, and counter-ions may be present at levels consistent with research-grade (>98% purity) material. Balance: non-hazardous impurities. Refer to the accompanying Certificate of Analysis (CoA) for the lot-specific impurity profile.

Section 4 — First Aid Measures

Eye Contact

Immediately flush eyes with large amounts of water for at least 15 minutes, lifting the upper and lower eyelids. Remove contact lenses if present and easy to do. Seek immediate medical attention.

Skin Contact

Remove contaminated clothing immediately. Wash affected area with soap and water for at least 15 minutes. Seek medical attention if irritation or symptoms develop.

Inhalation

Move affected person to fresh air. If symptoms develop, seek medical advice.

Ingestion
Rinse mouth thoroughly with water. If large amounts are swallowed or if symptoms develop, seek medical advice. Do not induce vomiting unless directed by medical personnel.

Note to Physician
Treat symptomatically. No specific antidote known.

Section 5 — Fire Fighting Measures

Flash Point: *Not determined*

Suitable Extinguishing Media
Use extinguishing media appropriate to the surrounding fire conditions. Carbon dioxide (CO2), dry chemical powder, foam, or water spray.

Special Hazards
May produce toxic gases upon combustion. Carbon monoxide and other combustion products may be generated.

Protective Equipment for Firefighters
Wear self-contained breathing apparatus (SCBA) and full protective gear. Do not enter fire area without proper protective equipment.

Section 6 — Accidental Release Measures

Personal Precautions
Avoid dust formation. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Use personal protective equipment as described in Section 8.

Environmental Precautions
Prevent further leakage or spillage if safe to do so. Do not allow the product to enter drains, sewers, or waterways.

Containment and Cleanup
Sweep up and shovel. Keep in suitable, closed containers for disposal. Avoid raising dust. Clean contaminated surface thoroughly. Dispose of waste in accordance with local regulations (see Section 13).

Section 7 — Handling and Storage

Handling Precautions
Handle only in well-ventilated areas, preferably within a certified chemical fume hood or local exhaust ventilation, to minimize generation and inhalation of airborne dust. Treat as a potentially bioactive substance of incompletely characterized toxicity; apply the principles of OSHA 29 CFR 1910.1450 (Laboratory Standard) and follow the hierarchy of controls. Wear appropriate personal protective equipment as specified in Section 8, including chemical-resistant nitrile gloves, safety eyewear meeting ANSI Z87.1, and a lab coat; use a NIOSH-approved particulate respirator (e.g., N95 or higher) when handling open quantities of dry powder where engineering controls cannot adequately limit airborne exposure. Avoid contact with skin, eyes, and clothing; avoid inhalation of dust, mists, or aerosols and avoid ingestion. Do not eat, drink, smoke, or apply cosmetics in work areas. Use anti-static tools and ground/bond containers when transferring larger quantities, as fine organic powders may generate electrostatic charge and form combustible dust-air mixtures. Keep containers tightly closed when not in use and minimize dust generation by weighing in a balance

enclosure or glove box. Wash hands, forearms, and face thoroughly after handling and before breaks or leaving the work area. Decontaminate work surfaces and reusable equipment after use. Promptly clean up spills using HEPA-filtered vacuum or damp wipe methods rather than dry sweeping, and manage waste in accordance with Section 13 and applicable EPA/RCRA and local regulations.

Storage Conditions

Store in tightly closed, clearly labeled original containers in a cool, dry, well-ventilated area away from direct sunlight, heat, ignition sources, and incompatible materials (see below). Recommended storage temperature should follow the manufacturer's certificate of analysis; in the absence of vendor guidance, refrigerated storage (2-8 degC) or storage at -20 degC in a desiccated, light-protected (amber glass or foil-wrapped) container is typical for hygroscopic, light-sensitive hydroxypyridine/succinate organic salts. Protect from moisture and atmospheric humidity; consider use of desiccant. Keep containers upright and segregated from foodstuffs, feeds, and incompatible chemicals. Storage areas should have impervious, chemically resistant flooring with secondary containment, restricted access, and clear hazard signage in accordance with 29 CFR 1910.1200(f). Allow refrigerated/frozen containers to equilibrate to room temperature in a desiccator before opening to prevent condensation of moisture onto the solid. Do not return unused material to the original container.

Incompatibilities

Keep away from strong oxidizing agents (e.g., peroxides, perchlorates, concentrated nitric acid, chlorates, permanganates), which may react vigorously with the hydroxypyridine and carboxylic-acid functionalities. Avoid contact with strong acids and strong bases, which can react with the basic pyridine nitrogen and the acidic carboxylic acid groups of the succinate moiety, respectively (analogous incompatibilities are documented for succinic acid by reference SDS data). Avoid strong reducing agents, strong electrophiles (e.g., acid halides, anhydrides, alkyl halides), and sources of ignition, heat, and open flame. Protect from prolonged exposure to air, moisture, and light, which may promote oxidation of the hydroxypyridine group. Hazardous decomposition under fire conditions may yield carbon monoxide, carbon dioxide, and oxides of nitrogen (NOx). Incompatible container/contact materials are not specifically established; use chemically resistant glass or compatible inert plastic (e.g., HDPE, PTFE) and avoid reactive metals in the presence of moisture.

Section 8 — Exposure Controls / Personal Protection

Exposure Limits

No regulatory occupational exposure limits (OEL) have been established by OSHA, ACGIH, NIOSH, or equivalent bodies. No biological exposure indices (BEIs) have been established. Control exposure to the lowest level reasonably achievable (ALARA) using the engineering controls and PPE specified below. Handle as a potentially bioactive substance of unknown toxicity (pharmaceutical active ingredient: an antioxidant/succinate salt of 2-ethyl--6-methylpyridin-3-ol).

Engineering Controls

Use in accordance with OSHA 29 CFR 1910.1200 and good industrial hygiene practice. Handle in a well-ventilated area. For weighing, transfer, and other dust- or aerosol-generating operations, use local exhaust ventilation such as a certified chemical fume hood, ventilated balance enclosure (powder weighing hood), or Class II biosafety cabinet to keep airborne concentrations as low as reasonably achievable. Where containment cannot be assured, use a HEPA-filtered glove box or isolator. Provide emergency eyewash and safety shower in the immediate work area as required by ANSI Z358.1. Prohibit eating, drinking, smoking, and application of cosmetics in handling areas. Wash hands and exposed skin thoroughly after handling.

Personal Protective Equipment

Respiratory Protection: If engineering controls cannot maintain airborne concentrations below ALARA levels, use a NIOSH-approved (42 CFR Part 84) air-purifying respirator equipped with N100/P100 particulate filters for dust/powder

handling. For larger-scale operations or where exposure potential is uncertain, use a powered air-purifying respirator (PAPR) with HEPA cartridges. Respirator use must be implemented under a written respiratory protection program complying with OSHA 29 CFR 1910.134, including fit-testing, medical evaluation, and training. Respirators are not required where adequate containment (e.g., closed system or ventilated enclosure) is maintained.

Hand Protection: Wear chemically resistant gloves compliant with EN 374 / ANSI-ISEA 105. Nitrile rubber gloves (minimum thickness 0.11 mm) are recommended for incidental contact; for prolonged or repeated contact, double-glove with nitrile or use butyl rubber gloves. Inspect gloves before use, and replace immediately if torn, punctured, or contaminated. Glove selection should be confirmed with the glove manufacturer based on specific use conditions, as no breakthrough data have been published for this compound by an authoritative source. Wash hands with soap and water after glove removal.

Eye / Face Protection: Wear tightly fitting safety goggles meeting ANSI/ISEA Z87.1 (or EN 166 equivalent) when handling the solid or solutions. A full-face shield worn over goggles is recommended when splash, spray, or dust dispersion is foreseeable. Contact lenses should not be worn when handling this material. An emergency eyewash station meeting ANSI Z358.1 must be accessible within 10 seconds of the work area.

Skin Protection: Wear a long-sleeved laboratory coat or chemical-resistant apron over closed-toe shoes and full-length trousers. For operations with splash or significant dust generation potential, wear chemical-resistant outer garments (e.g., Tyvek or equivalent) and impervious shoe covers. Remove and launder contaminated clothing before reuse; dispose of grossly contaminated disposable garments as chemical waste. Decontaminate skin promptly with soap and water following any contact. Handle as a potentially bioactive substance of unknown toxicity and minimize all routes of dermal exposure.

Section 9 — Physical and Chemical Properties

Physical State	Solid (research-grade lyophilised powder or crystalline solid)
Appearance	White to off-white crystalline powder
Odor	Odorless
Odor Threshold	Not available.
Boiling Point	*Not determined*
Melting Point	*Not determined*
Flash Point	*Not determined*
Auto-ignition Temperature	No data available.
Decomposition Temperature	No experimental data available.
Vapor Pressure	*Not determined*
Vapor Density	*Not determined*
Specific Gravity	*Not determined*
Partition Coefficient (log Kow)	No experimental data available.
Solubility	Freely soluble in water; slightly soluble in ethanol
Stability in Solution	Subject to hydrolytic and oxidative degradation typical of the chemical class; store reconstituted solutions refrigerated or frozen, protect from light, and use within the stability window indicated on the Certificate of Analysis.
pH	4.0-6.0 (1% aqueous solution)
Molecular Weight	255.27 g/mol
Molecular Formula	C12H17NO5

Section 10 — Stability and Reactivity

Chemical Stability: Stable under normal conditions of use, storage, and transport.

Conditions to Avoid: Excessive heat, open flames, sparks, incompatible materials.

Incompatible Materials: Keep away from strong oxidizing agents (e.g., peroxides, perchlorates, concentrated nitric acid, chlorates, permanganates), which may react vigorously with the hydroxypyridine and carboxylic-acid functionalities. Avoid contact with strong acids and strong bases, which can react with the basic pyridine nitrogen and the acidic carboxylic acid groups of the succinate moiety, respectively (analogous incompatibilities are documented for succinic acid by reference SDS data). Avoid strong reducing agents, strong electrophiles (e.g., acid halides, anhydrides, alkyl halides), and sources of ignition, heat, and open flame. Protect from prolonged exposure to air, moisture, and light, which may promote oxidation of the hydroxypyridine group. Hazardous decomposition under fire conditions may yield carbon monoxide, carbon dioxide, and oxides of nitrogen (NOx). Incompatible container/contact materials are not specifically established; use chemically resistant glass or compatible inert plastic (e.g., HDPE, PTFE) and avoid reactive metals in the presence of moisture.

Hazardous Decomposition Products: Upon combustion or decomposition may produce: carbon monoxide (CO), carbon dioxide (CO2), nitrogen oxides (NOx).

Hazardous Polymerization: Will not occur.

Section 11 — Toxicological Information

The toxicological properties of this substance have not been fully characterized. Where no authoritative study data was identified, endpoint classifications are based on a weight-of-evidence approach using read-across from the compound's chemical class and structural features, per GHS Rev.8 Chapter 1.3.2.4. “Not classified” entries below mean “not classified based on currently available data” — hazards cannot be excluded.

Acute Toxicity: Acute toxicity endpoints for Mexidol (emoxypine succinate, CAS 127464-43-1) have not been fully characterized in authoritative regulatory databases (OSHA, NIOSH, ECHA, NTP). No quantitative oral, dermal, or inhalation LD50/LC50 values from peer-reviewed primary literature or regulatory dossiers (ECHA REACH, NIOSH RTECS) are available for citation. In the absence of substance-specific data, acute toxicity hazards cannot be excluded; the substance is not classified based on currently available data, and exposure should be minimized in accordance with general laboratory chemical hygiene practice (29 CFR 1910.1450). Routes of exposure of concern include inhalation of dust/aerosols, ingestion, and skin or eye contact.

Skin Corrosion / Irritation: Based on available hazard classification data (PubChem), Mexidol is classified as causing skin irritation (H315, Category 2) under GHS. No validated in vivo (OECD 404) or in vitro (OECD 431/439) skin corrosion or irritation studies for Mexidol have been identified in primary peer-reviewed literature, but the classification reflects the irritant potential of the substance. The substance contains a free phenolic hydroxyl on the pyridinol moiety and a dicarboxylic acid (succinic acid) component, both structural features consistent with mild-to-moderate irritant potential. Handle with impermeable gloves and avoid skin contact.

Serious Eye Damage / Irritation: Based on available hazard classification data (PubChem), Mexidol is classified as causing serious eye irritation (H319, Category 2A) under GHS. No validated eye irritation/serious eye damage data (OECD 405, 437, 438, 491, or 492) for Mexidol have been identified in ECHA or peer-reviewed primary literature, but the classification reflects the eye irritant potential of the substance. Particulate or solution contact with the eye may cause mechanical or chemical irritation and serious eye irritation. Use appropriate eye protection (ANSI Z87.1-compliant safety eyewear) when handling.

Skin / Respiratory Sensitization: No skin sensitization (OECD 406 guinea pig maximization, OECD 429 LLNA, or OECD 442B/442C/442D/442E in chemico/in vitro key-event assays) or respiratory sensitization data for Mexidol are available in authoritative regulatory sources (ECHA, NIOSH, PubChem). Skin and respiratory sensitization are not

classified based on currently available data; sensitization hazards cannot be excluded in the absence of testing. Avoid repeated or prolonged exposure.

Germ Cell Mutagenicity / Genotoxicity: Not classified based on currently available data; hazards cannot be excluded. Weight-of-evidence assessment applied using read-across from chemical class and structural considerations (GHS Rev.8 Chapter 1.3.2.4); no authoritative substance-specific study data identified.

Carcinogenicity: Mexidol (CAS 127464-43-1) is not listed by IARC, the U.S. National Toxicology Program (NTP 15th Report on Carcinogens), OSHA (29 CFR 1910.1003), the U.S. EPA IRIS database, or ACGIH as a known, probable, or possible human carcinogen. No long-term carcinogenicity bioassays meeting OECD 451/453 have been identified in the peer-reviewed primary literature. Carcinogenicity is not classified based on currently available data; however, carcinogenic potential cannot be excluded due to the absence of chronic study data.

Reproductive Toxicity: No reproductive or developmental toxicity studies conducted under OECD 414, 415, 416, 421, 422, or 443 guidelines have been located for Mexidol in authoritative sources (ECHA, NTP, EPA). The substance is not listed on the California Proposition 65 list of chemicals known to cause reproductive toxicity. Reproductive and developmental toxicity are not classified based on currently available data; hazards (including effects on fertility, the unborn child, or lactation) cannot be excluded. Women who are pregnant, planning pregnancy, or nursing should avoid handling.

Specific Target Organ Toxicity (STOT): Specific target organ toxicity following single exposure (STOT-SE) and following repeated exposure (STOT-RE) for Mexidol have not been characterized in authoritative regulatory sources (ECHA, NIOSH, NTP) and no subchronic (OECD 408) or chronic (OECD 452) repeated-dose toxicity studies meeting GHS classification criteria have been identified in peer-reviewed primary literature for the substance as supplied. STOT-SE and STOT-RE are not classified based on currently available data; target-organ hazards from single or repeated occupational exposure cannot be excluded. Exposure by all routes should be minimized as a precaution.

Aspiration Hazard: Not classified based on currently available data; hazards cannot be excluded. Weight-of-evidence assessment applied using read-across from chemical class and structural considerations (GHS Rev.8 Chapter 1.3.2.4); no authoritative substance-specific study data identified.

Derived No-Effect Level (DNEL): No data available — no substance-specific DNEL has been derived.

Predicted No-Effect Concentration (PNEC): No data available — no substance-specific PNEC has been derived.

Section 12 — Ecological Information

No authoritative substance-specific ecotoxicity study data was identified. In the absence of experimental data, adverse environmental effects cannot be fully excluded.

Ecotoxicity: No substance-specific experimental aquatic toxicity data (e.g., fish LC50, Daphnia EC50, algal ErC50) have been identified for Mexidol (emoxypine succinate, CAS 127464-43-1) in authoritative sources (ECHA, EPA ECOTOX, PubChem, NTP). The substance is a 1:1 salt of 2-ethyl-6-methylpyridin-3-ol (emoxypine) and succinic acid; in aqueous environments it is expected to dissociate into its constituent ions. Succinic acid is a naturally occurring dicarboxylic acid and intermediate of the tricarboxylic acid (TCA/Krebs) cycle, with low intrinsic aquatic toxicity, whereas the toxicological profile of the emoxypine cation in environmental compartments has not been characterized. Based on a weight-of-evidence assessment in the absence of authoritative experimental data, the compound is not currently classified as hazardous to the aquatic environment (acute or chronic) under GHS Rev.8 / 29 CFR 1910.1200 Appendix A. Release to the environment should nonetheless be avoided.

Persistence and Degradability: No substance-specific experimental data on ready biodegradability (e.g., OECD 301 series) or abiotic degradation (hydrolysis, photolysis) have been identified for Mexidol (CAS 127464-43-1) in authoritative sources. The compound contains an ionizable phenolic hydroxyl on a pyridine ring together with a succinate counter-ion; estimations have not been verified against substance-specific testing. No reliable conclusion regarding environmental persistence can be drawn at this time.

Bioaccumulative Potential: No experimentally determined bioconcentration factor (BCF) or measured log Kow has been identified for Mexidol (CAS 127464-43-1) in authoritative sources (ECHA, PubChem, EPA). Given that the substance is a water-soluble organic salt that dissociates into the emoxypine cation and succinate anion in aqueous media, significant bioaccumulation in aquatic organisms is not anticipated; however, this assessment is qualitative and is not based on substance-specific experimental BCF data.

Mobility in Soil: No substance-specific experimental data identified.

Other Adverse Effects: No other adverse environmental effects identified. The substance is not included on the Montreal Protocol list of ozone-depleting substances.

Section 13 — Disposal Considerations

Dispose of contents and container in accordance with all local, state, and federal regulations. Do not dispose of this material into sewers or waterways. Contact a licensed waste disposal company for disposal guidance.

US: Dispose in accordance with 40 CFR Parts 261-270 (RCRA). **EU:** Dispose according to Directive 2008/98/EC (Waste Framework Directive).

Section 14 — Transport Information

DOT (US)	Not regulated as dangerous goods under DOT (49 CFR) based on current classification.
IATA	Not regulated as dangerous goods under IATA Dangerous Goods Regulations based on current classification.
IMDG	Not regulated as dangerous goods or as a marine pollutant under the IMDG Code based on current classification.
UN Number	Not applicable.

Transport classifications above are based on the substance's intrinsic hazard classification; the shipper must independently verify the classification, packaging, labelling, and documentation requirements for their specific shipment configuration, quantity, and carrier (including airline policies) prior to dispatch.

Section 15 — Regulatory Information

United States

TSCA (Toxic Substances Control Act): May be eligible for exemption from TSCA inventory listing requirements under the R&D provisions of 40 CFR 720.36, depending on actual conditions of use. This substance is supplied solely for use in scientific research and development in small quantities; it is not intended for, and shall not be used for, any commercial manufacturing, processing, or distribution in commerce. The importer/end user is responsible for confirming that the R&D exemption criteria are met for their specific use. **OSHA HazCom 2012:** This SDS was prepared in accordance with 29 CFR 1910.1200 (HazCom 2012), aligned with the Globally Harmonized System (GHS) Rev. 8. **CERCLA / SARA Title III:** Not listed as a CERCLA Hazardous Substance (40 CFR 302.4); not subject to SARA 313 reporting based on available classification data. Users must independently verify applicability for their facility.

European Union

REACH (EC 1907/2006): Supplied solely for Scientific Research and Development (SR&D) use in quantities below 1 tonne per year per legal entity. Where applicable, this use may be exempt from REACH registration obligations

under the scientific research and development provisions of REACH Article 3(23) and the conditions of Article 26(3); importers/users should independently verify the applicable exemption pathway for their specific use. If the substance is used as part of a formally notified Product and Process Oriented Research and Development (PPORD) programme, the separate notification procedure under REACH Article 9 (with a 5-year exemption renewable once) may apply instead. **CLP (EC 1272/2008):** Not classified under CLP based on available data; no harmonized classification entry identified in Annex VI of CLP or the ECHA Classification and Labelling (C&L) Inventory.

Canada

WHMIS 2015 / HPR: Not classified as a hazardous product under the Hazardous Products Act and Hazardous Products Regulations (SOR/2015-17) based on available data and weight-of-evidence assessment. Supplied for laboratory research use only. **DSL/NDSL:** Research-use exemption applies; substance is not intended for commercial import or manufacture in Canada.

Note: The regulatory statements above reflect the intended use of this substance for scientific research and development only and do not constitute a legal determination of regulatory status. If the substance is used outside the R&D exemption scope, users are solely responsible for independently verifying applicable regulatory obligations (TSCA, REACH, WHMIS, state, and local) for their specific use and jurisdiction prior to any such use.

Section 16 — Other Information

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Revision Date	2026-08-13
Version	1.0
Prepared By	Prepared in accordance with GHS Rev.8 and OSHA HazCom 2012 (29 CFR 1910.1200). Independent review by a qualified chemical safety professional is recommended prior to use.

Revision History

Revision date: 2026-08-13
Version: 1.0
Change description: Initial issue. Document prepared in 16-section GHS Rev.8 / OSHA HazCom 2012 format.

Sources Used

- PubChem (U.S. National Library of Medicine / NCBI) — https://pubchem.ncbi.nlm.nih.gov
- Peer-reviewed chemistry and toxicology literature (class-based read-across and weight-of-evidence assessment per GHS Rev.8 Chapter 1.3.2.4)
- OSHA HazCom 2012 / 29 CFR 1910.1200 Appendix A–C; GHS Rev.8; OECD Test Guidelines

Key to Abbreviations

CAS = Chemical Abstracts Service; GHS = Globally Harmonized System of Classification and Labelling of Chemicals; OSHA = U.S. Occupational Safety and Health Administration; HazCom = Hazard Communication Standard; REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals; CLP = Classification, Labelling and Packaging Regulation; TSCA = Toxic Substances Control Act; WHMIS = Workplace Hazardous Materials Information System; OEL = Occupational Exposure Limit; PEL = Permissible Exposure Limit; TLV = Threshold Limit Value; REL = Recommended Exposure Limit; STOT = Specific Target Organ Toxicity; LD50 = Median Lethal Dose; LC50 = Median Lethal Concentration; PPE = Personal Protective Equipment; SCBA = Self-Contained Breathing Apparatus; R&D = Research and Development.

Disclaimer

DISCLAIMER: The information in this Safety Data Sheet is compiled from the authoritative sources cited above, supplemented by weight-of-evidence assessment based on the compound's chemical class and published literature. It is believed to be accurate as of the revision date but is provided "as is" without warranty of any kind, express or implied, including fitness for a particular purpose. The preparer of this document has not independently tested the substance described herein. Users bear sole responsibility for verifying all information, ensuring safe handling, and compliance with all applicable federal, state, provincial, and local regulations. This SDS is not a substitute for independent chemical safety assessment by a qualified professional. This product is intended for scientific research and development use only and is not for human consumption, drug, food, cosmetic, agricultural, or household use.

This SDS complies with GHS Revision 8 / UN GHS Rev.8 and OSHA HazCom 2012 (29 CFR 1910.1200).