Ruo.bio

PRL-8-53

CAS: 51352-87-5
Formula: C18H22ClNO2

Document ID: b06e9797
Revision Date: 2026-08-07
Version: 1.0

Section 1 — Product and Company Identification

Product Name	PRL-8-53
Synonyms	51352-87-5; Prl-8-53; Benzoic acid, 3-(2-(methyl(phenylmethyl)amino)ethyl)-, methyl ester, hydrochloride
CAS Number	51352-87-5
Molecular Formula	C18H22ClNO2
IUPAC Name	methyl 3-[2-[benzyl(methyl)amino]ethyl]benzoate; hydrochloride
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 Time

Section 2 — Hazard Identification

Classification of the substance

Not classified based on currently available data; however, data is limited and hazards cannot be fully characterized. The absence of classification should not be interpreted as a determination of the absence of hazard.

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: **None**

GHS Pictograms:
None required based on classification.

Hazard Statements
None. This substance is not classified for any GHS hazard class based on available data.

Precautionary Statements

- P261: Avoid breathing dust, fume, gas, mist, vapors, or spray.
- P264: Wash hands and exposed skin thoroughly after handling.
- P280: Wear protective gloves, protective clothing, and eye/face protection.
- P501: Dispose of contents and container in accordance with local, regional, national, and international regulations.

Precautionary statements are provided as best practice for handling substances with limited toxicological data, and are not a declaration of GHS classification.

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
PRL-8-53	51352-87-5	C18H22ClNO2	319.8 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
Rinse cautiously with water for several minutes. If irritation persists, seek medical advice.

Skin Contact
Wash with soap and water. Remove contaminated clothing and wash before reuse. If irritation persists, seek medical advice.

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 areas equipped with appropriate engineering controls (e.g., a certified chemical fume hood or glove box) and treat as a potentially bioactive substance of unknown toxicity in accordance with OSHA 29 CFR 1910.1200 and the general principles of OSHA 29 CFR 1910.1450 (Laboratory Standard). Use good industrial hygiene practices: wear the personal protective equipment specified in Section 8 (chemical-resistant gloves, safety eyewear, and protective laboratory clothing), avoid inhalation of dusts or aerosols, avoid contact with skin, eyes, and clothing, and avoid ingestion. Because the material is a fine solid (hydrochloride salt), minimize dust generation during weighing and transfer; use anti-static tools and, where feasible, work with pre-weighed aliquots or solutions to reduce airborne exposure. Do not eat, drink, smoke, or apply cosmetics in areas where the substance is handled. Wash hands, forearms, and face thoroughly after handling and before breaks and at the end of the workday. Keep containers tightly closed when not in use and open carefully in a well-ventilated area to release any pressure that may have developed. Ground and bond containers when transferring larger quantities to prevent static discharge. Promptly clean up spills using HEPA-filtered vacuum or damp wiping to avoid dust dispersion, and place waste in labeled, closed containers for disposal in accordance with Section 13. Keep away from sources of ignition, heat, sparks, and open flames as a general precaution for organic solids.

Storage Conditions

Store in the tightly closed original container, protected from light, moisture, and air, in a cool, dry, well-ventilated area dedicated to hazardous chemical storage in accordance with OSHA 29 CFR 1910.1450 and 29 CFR 1910.106 general laboratory storage practices. As a hydrochloride salt of a tertiary amine, the compound may be hygroscopic and can absorb atmospheric moisture; storage under an inert atmosphere (e.g., nitrogen or argon) and with a desiccant is recommended to preserve integrity. Recommended long-term storage of the neat solid is at -20 degC (or colder if specified by the certificate of analysis); short-term storage at 2-8 degC is generally acceptable, and containers should be equilibrated to room temperature before opening to prevent moisture condensation. Segregate from incompatible materials (see below) and store away from foodstuffs, direct sunlight, heat sources, and areas subject to temperature fluctuations. Use containers made of compatible materials such as amber borosilicate glass with PTFE-lined closures or high-density polyethylene. Label containers clearly with identity, date received, and date opened, and inspect periodically for signs of degradation, discoloration, or moisture uptake. Restrict access to trained personnel only.

Incompatibilities

Avoid contact with strong oxidizing agents (e.g., peroxides, perchlorates, nitrates, permanganates, chromates), which may cause exothermic decomposition of the organic framework. Avoid contact with strong bases (e.g., hydroxides, alkoxides, amides), which can liberate the free base from the hydrochloride salt and may generate heat. Avoid strong acids and acid chlorides, which may react with the ester or amine functionality. Avoid strong reducing agents. As a chloride-containing organic salt, avoid contact with strong dehydrating agents and elevated temperatures that could liberate hydrogen chloride gas. The methyl ester moiety is susceptible to hydrolysis on prolonged contact with water, aqueous acids, or aqueous bases and should be protected from moisture. Incompatible container materials include reactive metals (e.g., aluminum, zinc) that could be attacked by trace HCl in the presence of moisture. Hazardous decomposition products on heating or combustion may include carbon monoxide, carbon dioxide, hydrogen chloride, and nitrogen oxides (see Section 10).

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.

Engineering Controls

Use only in a well-ventilated area. Handle in a chemical fume hood or ventilated enclosure providing local exhaust ventilation (LEV) sufficient to control airborne concentrations of dust or aerosols to ALARA levels. For weighing, transfer, or manipulation of the dry solid, a HEPA-filtered containment device (e.g., glove box, ventilated balance enclosure, or Class I/II biosafety-style containment) is recommended to prevent generation and dispersion of respirable particulates. Ensure eyewash stations and safety showers are accessible in work areas per ANSI Z358.1. Prohibit eating, drinking, smoking, and cosmetic application in areas of use. Provide procedures for decontamination of surfaces, equipment, and personnel following handling.

Personal Protective Equipment

Respiratory Protection: Where engineering controls (fume hood, LEV, or containment enclosure) maintain airborne particulate below ALARA levels, additional respiratory protection is generally not required. Where dust, mist, or aerosol may be generated outside a containment device, wear a NIOSH-approved (42 CFR Part 84) air-purifying respirator equipped with N100/P100 particulate filters. For higher-exposure operations or when airborne concentrations are unknown, use a powered air-purifying respirator (PAPR) with HEPA filters or a supplied-air respirator. Respirator selection, fit-testing, and use must comply with the OSHA Respiratory Protection Standard (29 CFR 1910.134).

Hand Protection: Wear chemically resistant, impervious gloves compliant with EN ISO 374 / ASTM F739. Nitrile rubber gloves of at least 0.11 mm thickness are recommended for incidental contact; consider double-gloving for prolonged manipulation of the neat solid or concentrated solutions. Because no permeation data specific to this substance are published, inspect gloves before use and replace immediately on any sign of contamination, degradation, or breakthrough. Wash hands thoroughly with soap and water after removing gloves and before eating, drinking, or leaving the work area.

Eye / Face Protection: Wear tight-fitting chemical safety goggles meeting ANSI/ISEA Z87.1 (US) or EN 166 (EU) whenever handling the solid or its solutions. A face shield worn over goggles is recommended when there is potential for splashing, aerosol generation, or when handling larger quantities. Contact lenses should not be worn unless required and used together with appropriate eye protection.

Skin Protection: Wear a laboratory coat or chemical-resistant lab apron over long-sleeved clothing to prevent skin contact. For operations with splash or dust-generation potential, wear a chemical-resistant impervious garment (e.g., Tyvek or equivalent) and closed-toe chemical-resistant footwear. Remove and launder contaminated clothing separately before reuse; discard heavily contaminated disposable garments as hazardous waste. Wash exposed skin promptly with soap and water. Do not wear contaminated clothing outside the work area.

Section 9 — Physical and Chemical Properties

Physical State	Solid (research-grade lyophilised powder or crystalline solid)
Appearance	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	Soluble in water; soluble in methanol and 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	*Not determined*
Molecular Weight	319.8 g/mol
Molecular Formula	C18H22ClNO2

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: Avoid contact with strong oxidizing agents (e.g., peroxides, perchlorates, nitrates, permanganates, chromates), which may cause exothermic decomposition of the organic framework. Avoid contact with strong bases (e.g., hydroxides, alkoxides, amides), which can liberate the free base from the hydrochloride salt and may generate heat. Avoid strong acids and acid chlorides, which may react with the ester or amine functionality. Avoid strong reducing agents. As a chloride-containing organic salt, avoid contact with strong dehydrating agents and elevated temperatures that could liberate hydrogen chloride gas. The methyl ester moiety is susceptible to hydrolysis on prolonged contact with water, aqueous acids, or aqueous bases and should be protected from moisture. Incompatible container materials include reactive metals (e.g., aluminum, zinc) that could be attacked by trace HCl in the presence of moisture. Hazardous decomposition products on heating or combustion may include carbon monoxide, carbon dioxide, hydrogen chloride, and nitrogen oxides (see Section 10).

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

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: Comprehensive acute toxicity data for PRL-8-53 hydrochloride (CAS 51352-87-5) in humans are not fully characterized. Published pharmacology literature (Hansl NR, Behavioral Biology, 1974) reports an oral LD50 in mice of approximately 860 mg/kg for the parent compound; this value is derived from animal studies and has not been independently verified by OSHA, NIOSH, EPA, or ECHA. No acute inhalation LC50 or dermal LD50 values are available from authoritative regulatory bodies (OSHA, NIOSH, ECHA, EPA). Based on the single reported oral LD50 in rodents, the substance does not meet GHS acute oral toxicity Category 1-4 numeric criteria; however, hazards from acute inhalation of dust/aerosol and dermal absorption cannot be excluded on the available data. Not classified based on currently available data; hazards cannot be excluded. Handle in accordance with prudent laboratory practice for substances of undetermined toxicity per NIH/NRC guidance.

Skin Corrosion / Irritation: No study data on skin corrosion or irritation for PRL-8-53 hydrochloride are available from ECHA, NIOSH, or peer-reviewed toxicology literature. As a substituted tertiary amine hydrochloride salt, aqueous solutions may be mildly acidic and could produce transient irritation on contact with abraded skin, but no experimental data confirm this endpoint. Not classified based on currently available data; hazards cannot be excluded. Avoid skin contact and use impervious gloves as a precautionary measure.

Serious Eye Damage / Irritation: No experimental eye irritation or serious eye damage data (e.g., OECD TG 405, 437, 438, 491, 492) have been identified from ECHA, EPA, or peer-reviewed sources for CAS 51352-87-5. Fine particulates of a hydrochloride salt may cause mechanical and mild acidic irritation to ocular tissues upon direct contact. Not classified based on currently available data; hazards cannot be excluded. Use appropriate eye protection (safety goggles meeting ANSI Z87.1) when handling.

Skin / Respiratory Sensitization: No respiratory or skin sensitization data (OECD TG 429, 442A/B/C/D/E, or human patch-test data) for PRL-8-53 hydrochloride are available from ECHA, NIOSH, or peer-reviewed literature. Structural alerts for sensitization have not been formally evaluated for this substance in authoritative databases. Not classified based on currently available data; sensitization potential cannot be excluded, and pre-existing sensitized individuals may respond to structurally related benzylamine derivatives.

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: PRL-8-53 hydrochloride (CAS 51352-87-5) is not listed by the International Agency for Research on Cancer (IARC), the U.S. National Toxicology Program (NTP 15th Report on Carcinogens), OSHA (29 CFR 1910.1003), the U.S. EPA IRIS program, or the ACGIH TLV carcinogen classifications. No long-term rodent bioassays have been identified in the peer-reviewed literature. Not classified based on currently available data; carcinogenic hazard cannot be excluded due to the absence of chronic study data.

Reproductive Toxicity: No reproductive toxicity, developmental toxicity, fertility, or lactation-effect studies (OECD TG 414, 416, 421, 422, 443) have been identified for PRL-8-53 hydrochloride from ECHA, EPA, NTP, or the peer-reviewed literature. The substance is not listed on the California Proposition 65 list of chemicals known to cause reproductive toxicity. Not classified based on currently available data; hazards to fertility or the developing offspring cannot be excluded. Women of childbearing potential and pregnant workers should treat the substance as a potential reproductive hazard until further data are available.

Specific Target Organ Toxicity (STOT): No specific target-organ toxicity data from single exposure (STOT-SE) or repeated exposure (STOT-RE) studies compliant with OECD TG 407, 408, 410, 412, or 413 have been identified for CAS 51352-87-5 in ECHA, NIOSH, EPA, or peer-reviewed sources. Published rodent pharmacology reports (Hansl NR, 1974) note transient central nervous system effects (decreased motor activity) at high acute doses and brief hypotensive effects in dogs above 8 mg/kg, but these are pharmacologic observations rather than validated STOT endpoints and are not used here to derive a GHS classification. STOT-SE and STOT-RE: Not classified based on currently available data; target-organ hazards from single or repeated exposure cannot be excluded. Minimize inhalation and dermal exposure as a precautionary measure.

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 PRL-8-53 hydrochloride (CAS 51352-87-5) in authoritative databases such as ECHA, US EPA ECOTOX, or PubChem. The substance is not listed on the US EPA TSCA Inventory as an ecotoxicity-classified chemical and does not appear on the ECHA Candidate List of Substances of Very High Concern. Not classified as hazardous to the aquatic environment based on weight-of-evidence assessment (no authoritative experimental data identified). Release to the environment should nevertheless be avoided; the tertiary amine and aromatic ester moieties suggest potential for aquatic organism exposure if released, and the material should be treated as potentially harmful to aquatic life until substance-specific data are available.

Persistence and Degradability: No substance-specific ready-biodegradability data (OECD 301 series) or hydrolysis/-photolysis half-lives have been identified for PRL-8-53 hydrochloride in authoritative sources (ECHA registration dossiers, US EPA, PubChem). The molecule contains a methyl ester group that is expected to undergo abiotic hydrolysis under environmental conditions, but the benzylamine substructure is not indicative of rapid biodegradation. In the absence of experimental data, persistence in the environment cannot be reliably predicted and the substance should be assumed to be potentially persistent for risk-management purposes.

Bioaccumulative Potential: No experimentally determined bioconcentration factor (BCF) or measured log Kow (octanol-water partition coefficient) has been identified for PRL-8-53 hydrochloride (CAS 51352-87-5) in authoritative databases (ECHA, US EPA, PubChem). As a protonated tertiary-amine hydrochloride salt, the compound is expected to be water-soluble and predominantly ionized at environmentally relevant pH, which typically limits partitioning into

lipid phases; however, in the absence of substance-specific experimental data, bioaccumulation potential cannot be definitively characterized.

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

Document ID	b06e9797-fb94-488b-84e6-98570a6698c1
Revision Date	2026-08-07
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: 2026-08-07
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).

PEPSDS.AI