ARA-290

CAS: 1208243-50-8
Formula: C51H84N16O21

Document ID: 194e67dd
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Version: 1.0

Section 1 — Product and Company Identification

Product Name	ARA-290
Synonyms	Cibinetide; 1208243-50-8; ARA290
CAS Number	1208243-50-8
Molecular Formula	C51H84N16O21
IUPAC Name	(4S)-5-[[(2S)-5-amino-1-[[(2S)-1-[[(2S)-1-[[(2S)-1-[[(2S)-1-[[(2S)-1-[[(2S)-4-amino-1-[[(2S)-1-[[(1S)-1-carboxy-2-hydroxyethyl]amino]-3-hydroxy-1-oxopropan-2-yl]amino]-1,4-dioxobutan-2-yl]amino]-4-methyl-1-oxopentan-2-yl]amino]-1-oxopropan-2-yl]amino]-5-(diaminomethylideneamino)-1-oxopentan-2-yl]amino]-4-carboxy-1-oxobutan-2-yl]amino]-4-methyl-1-oxopentan-2-yl]amino]-1,5-dioxopentan-2-yl]amino]-5-oxo-4-[[(2S)-5-oxopyrrolidine-2-carbonyl]amino]pentanoic acid
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

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
ARA-290	1208243-50-8	C51H84N16O21	1257.3 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 as a potentially bioactive substance of unknown toxicological profile in accordance with 29 CFR 1910.1200 (OSHA HazCom 2012) and general laboratory good practice (29 CFR 1910.1450). Use only in a well-ventilated area, preferably within a chemical fume hood or equivalent local exhaust ventilation when weighing, opening containers, or preparing solutions, to control airborne particulates of the lyophilized peptide. Wear appropriate personal protective equipment: chemical-resistant gloves (e.g., nitrile), safety goggles meeting ANSI Z87.1, and a laboratory coat. Use a NIOSH-approved particulate respirator (e.g., N95 or higher) when engineering controls are not sufficient to prevent inhalation of dusts. Avoid formation and inhalation of dust or aerosols; do not eat, drink, smoke, or apply cosmetics in areas where the substance is handled. Wash hands and exposed skin thoroughly with soap and water after handling and before breaks and at the end of the workday. To minimize peptide degradation during weighing, equilibrate sealed vials to room temperature in a desiccator before opening to prevent moisture condensation on the cold solid (general peptide handling practice). Reseal containers promptly under dry, inert conditions (e.g., dry nitrogen or argon) where feasible. Prevent release into drains, surface water, and the environment.

Storage Conditions

Store in tightly closed original containers, sealed and protected from moisture, in a cool, dry, well-ventilated area away from direct sunlight, heat, and ignition sources. For lyophilized peptides of this type, accepted laboratory practice is to store the solid at refrigerated temperatures for short-term use and at -20 degC (or colder, e.g., -80 degC) for long-term storage, with desiccant, to minimize hydrolysis, oxidation, and microbial degradation; allow vials to reach room temperature in a desiccator before opening to avoid condensation. Reconstituted aqueous solutions are generally less stable than the lyophilized form and should be aliquoted and frozen to avoid repeated freeze-thaw cycles. Keep segregated from incompatible materials (see below) and from food, beverages, and animal feed. Restrict access to trained personnel and maintain inventory in accordance with the employer's chemical hygiene plan (29 CFR 1910.1450). No specific shelf-life is established by an authoritative regulatory source for this substance; follow the expiration/retest date provided by the manufacturer on the certificate of analysis.

Incompatibilities

No specific incompatibilities for cibinetide have been published by authoritative regulatory sources (OSHA, NIOSH, EPA, ECHA, PubChem). Based on the chemical structure (a polyfunctional peptide containing amide, carboxylic acid, amine, hydroxyl, and guanidino groups), avoid contact with strong oxidizing agents, strong acids and strong bases, strong reducing agents, and strong electrophiles, all of which can degrade peptide bonds and side chains. Avoid prolonged exposure to moisture, heat, and light, which promote hydrolysis, oxidation (particularly relevant for peptides), and racemization. Avoid contact with proteases and microbial contamination in solution. Incompatible with materials that catalyze peptide degradation, such as certain metal ions (e.g., Fe, Cu) in the presence of oxygen.

Section 8 — Exposure Controls / Personal Protection

Exposure Limits

No regulatory occupational exposure limits (OEL) have been established by OSHA, ACGIH, NIOSH, or equivalent bodies for cibinetide (CAS 1208243-50-8). No biological exposure indices (BEIs) have been established. Handle as a potentially bioactive substance of unknown toxicity. Control exposure to the lowest level reasonably achievable (ALARA) using the engineering controls and PPE specified below.

Engineering Controls

Handle in a well-ventilated area, preferably within a certified chemical fume hood, ventilated weighing enclosure, or Class II biological safety cabinet when weighing, opening containers, or otherwise generating dusts or aerosols of the solid peptide, or when preparing solutions. For larger-scale operations, use closed-system transfers, local exhaust ventilation, and HEPA-filtered containment consistent with NIOSH guidance for handling pharmaceutical active ingredients of unknown potency (see NIOSH Publication No. 2004-165, 'Preventing Occupational Exposures to Antineoplastic and Other Hazardous Drugs in Health Care Settings,' as a general framework). Provide accessible

eyewash stations and safety showers (ANSI Z358.1) in work areas. Avoid generation of dust and aerosols. Do not eat, drink, smoke, or apply cosmetics in work areas. Wash hands and exposed skin thoroughly after handling and before breaks.

Personal Protective Equipment

Respiratory Protection: Where engineering controls (fume hood, ventilated enclosure, glove box) adequately contain the material, additional respiratory protection is generally not required. If airborne dusts, mists, or aerosols may be generated outside of containment, or if exposure cannot otherwise be characterized, use a NIOSH-approved (42 CFR Part 84) air-purifying respirator equipped with N100/P100 particulate filters, or a powered air-purifying respirator (PAPR) with HEPA filters for higher-exposure tasks. Respirator selection, fit testing, and use must comply with the OSHA Respiratory Protection Standard (29 CFR 1910.134).

Hand Protection: Wear chemically resistant, disposable nitrile gloves conforming to EN 374 / ASTM D6319. Inspect gloves before use and replace immediately if torn, punctured, or contaminated. Double-gloving is recommended when handling the neat solid or concentrated solutions, consistent with general practice for pharmaceutical active ingredients of unknown potency. Wash hands thoroughly with soap and water after glove removal. Because no specific permeation/breakthrough data are available for this peptide, follow the manufacturer's breakthrough recommendations for the glove material and replace at minimum every 2-4 hours or sooner if contamination is suspected.

Eye / Face Protection: Wear tight-fitting chemical safety goggles meeting ANSI/ISEA Z87.1 (or EN 166 equivalent) when handling the solid or solutions. Use a face shield worn over goggles when there is a risk of splashing, spraying, or aerosol generation. Contact lenses should not be worn unless protected by appropriate eyewear. An emergency eyewash station meeting ANSI Z358.1 must be readily accessible.

Skin Protection: Wear a long-sleeved laboratory coat or chemical-resistant gown closed at the wrists and neck over standard work clothing. Use disposable sleeve covers and a chemical-resistant apron for tasks with splash potential or when handling larger quantities. Wear closed-toe, chemical-resistant footwear; use disposable shoe covers when handling the neat solid. Remove and segregate contaminated clothing immediately; launder or dispose of as chemical waste rather than wearing home. A safety shower (ANSI Z358.1) must be accessible in the work area.

Section 9 — Physical and Chemical Properties

Physical State	Solid (research-grade lyophilised powder or crystalline solid)
Appearance	White to off-white lyophilized 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

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	1257.3 g/mol
Molecular Formula	C51H84N16O21

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: No specific incompatibilities for cibinetide have been published by authoritative regulatory sources (OSHA, NIOSH, EPA, ECHA, PubChem). Based on the chemical structure (a polyfunctional peptide containing amide, carboxylic acid, amine, hydroxyl, and guanidino groups), avoid contact with strong oxidizing agents, strong acids and strong bases, strong reducing agents, and strong electrophiles, all of which can degrade peptide bonds and side chains. Avoid prolonged exposure to moisture, heat, and light, which promote hydrolysis, oxidation (particularly relevant for peptides), and racemization. Avoid contact with proteases and microbial contamination in solution. Incompatible with materials that catalyze peptide degradation, such as certain metal ions (e.g., Fe, Cu) in the presence of oxygen.
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 data for cibinetide (CAS 1208243-50-8) in standard OECD test species (oral, dermal, inhalation) are not available in authoritative public sources (ECHA registration dossier, NIOSH, NTP, or peer-reviewed literature indexed in PubChem CID 91810664). No LD50 or LC50 values from authoritative sources have been identified. The substance has been administered to humans in Phase 1 and Phase 2 clinical trials (published in peer-reviewed literature), but those data address pharmacological exposure and are not equivalent to occupational acute toxicity endpoints under GHS Rev.8 Chapter 3.1. Not classified for acute toxicity (oral, dermal, or inhalation) based on currently available data; hazards cannot be excluded, and the toxicological properties of this substance are not fully characterized. Handle as if toxic until further information is available.
Skin Corrosion / Irritation: No data from in vivo (OECD 404) or validated in vitro (OECD 431/439) skin corrosion/-irritation studies on cibinetide are available in authoritative public sources. Not classified for skin corrosion or irritation based on currently available data; hazards cannot be excluded per GHS Rev.8 Chapter 3.2. Avoid skin contact as a precaution.
Serious Eye Damage / Irritation: No data from in vivo (OECD 405) or validated in vitro (OECD 437/438/491/492) eye irritation/serious eye damage studies on cibinetide are available in authoritative public sources. Not classified for serious eye damage or eye irritation based on currently available data; hazards cannot be excluded per GHS Rev.8 Chapter 3.3. Avoid eye contact as a precaution.
Skin / Respiratory Sensitization: No data from guideline studies for respiratory sensitization (no validated GHS-accepted test) or skin sensitization (OECD 406 Guinea Pig Maximisation Test, OECD 429 LLNA, or OECD 442B/442C/442D/442E key event assays) on cibinetide are available in authoritative public sources. As a synthetic oligopeptide containing multiple reactive functional groups (free amino, carboxyl, guanidino, and hydroxyl moieties),

sensitization potential cannot be excluded a priori. Not classified for skin or respiratory sensitization based on currently available data; hazards cannot be excluded per GHS Rev.8 Chapter 3.4.

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: Cibinetide is not listed by IARC, the U.S. National Toxicology Program (NTP) Report on Carcinogens, OSHA (29 CFR 1910 Subpart Z), the U.S. EPA Integrated Risk Information System (IRIS), or the ACGIH TLV carcinogen notations. No long-term carcinogenicity bioassay (OECD 451/453) data on cibinetide are available in authoritative public sources. Not classified for carcinogenicity based on currently available data; hazards cannot be excluded per GHS Rev.8 Chapter 3.6, and the carcinogenic potential has not been fully characterized.

Reproductive Toxicity: No data from OECD 414 (prenatal developmental toxicity), OECD 416/443 (reproduction toxicity), or OECD 421/422 (reproduction/developmental screening) studies on cibinetide are available in authoritative public sources (ECHA, NTP, peer-reviewed literature indexed in PubChem CID 91810664). Not classified for reproductive toxicity or effects on or via lactation based on currently available data; hazards cannot be excluded per GHS Rev.8 Chapter 3.7. The reproductive and developmental toxicity profile is not fully characterized; women who are pregnant or breastfeeding should avoid exposure as a precaution.

Specific Target Organ Toxicity (STOT): No specific target organ toxicity has been identified for cibinetide in authoritative regulatory sources. No guideline-compliant single-dose (OECD 420/423/425) or repeated-dose (OECD 407/408/409/411/412/413) toxicity studies adequate for STOT-SE (GHS Rev.8 Chapter 3.8) or STOT-RE (GHS Rev.8 Chapter 3.9) classification are available in the public domain. Not classified for STOT-SE or STOT-RE based on currently available data; hazards cannot be excluded, and the toxicological properties of this substance are not fully characterized. Minimize all routes of occupational exposure 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 cibinetide (CAS 1208243-50-8) in authoritative regulatory databases (ECHA, EPA, PubChem) or in the peer-reviewed literature. The substance is not listed on the ECHA Candidate List or in EPA ECOTOX with experimental endpoints. Not classified as hazardous to the aquatic environment under GHS (Acute or Chronic) based on a weight-of-evidence assessment in the absence of authoritative experimental data. Release to the environment should nevertheless be avoided.

Persistence and Degradability: No substance-specific experimental biodegradation studies (e.g., OECD 301 series) for cibinetide have been identified in authoritative sources. A definitive persistence classification cannot be assigned. As a high-molecular-weight (1257.3 g/mol), highly polar oligopeptide consisting solely of L-alpha-amino-acid residues (C, H, N, O only), environmental degradation pathways are expected to include hydrolytic and microbial proteolytic cleavage; however, this is a qualitative inference and is not a substitute for experimental ready-biodegradability data.

Bioaccumulative Potential: No experimentally measured log Kow (octanol/water partition coefficient) or bioconcentration factor (BCF) for cibinetide has been identified in authoritative sources (ECHA, EPA, PubChem experimental properties). Given the molecule's large size (MW 1257.3), high content of ionizable and hydrogen-bonding functional groups (multiple amide, carboxyl, hydroxyl, amino, and guanidino moieties), and expected high water

solubility, significant bioaccumulation in aquatic organisms is not anticipated; however, no authoritative BCF data are available to formally support a non-bioaccumulative (non-B) classification under CLP/GHS criteria.

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	194e67dd-ed45-4b14-8e46-dbc590eed595
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).