AOD-9604

CAS: 221231-10-3
Formula: C78H123N23O23S2

Document ID: 865329c2
Revision Date: 2026-05-28
Version: 1.0

Section 1 — Product and Company Identification

Product Name	AOD-9604
Synonyms	AOD 9604; AOD9604; AOD-9604
CAS Number	221231-10-3
Molecular Formula	C78H123N23O23S2
IUPAC Name	(2S)-2-[[2-[[(4R,7S,13S,16S,19S,22S,25R)-25-[[(2S)-5-amino-2-[[(2S)-2-[[(2S,3S)-2-[[(2S)-2-[[(2S)-2-[[(2S)-2-amino-3-(4-hydroxyphenyl)propanoyl]amino]-4-methylpentanoyl]amino]-5-carbamimidamidopentanoyl]amino]-3-methylpentanoyl]amino]-3-methylbutanoyl]amino]-5-oxopentanoyl]amino]-22-(3-carbamimidamidopropyl)-13-(2-carboxyethyl)-7,19-bis(hydroxymethyl)-6,9,12,15,18,21,24-heptaoxo-16-propan-2-yl-1,2-dithia-5,8,11,14,17,20,23-heptazacyclohexacosane-4-carbonyl]amino]acetyl]amino]-3-phenylpropanoic 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	Arcane Peptides
Address	30 N Gould St, Sheridan, WY 82801, US
Phone	+1-801-306-4955
Website	https://arcanepeptides.com/
Emergency Contact	CHEMTREC
Emergency Phone	800-424-9300 CHEMTREC (USA) 24 Hours/day; 7 Days/week

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
AOD-9604	221231-10-3	C78H123N23O23S2	1815.1 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 AOD-9604 (CAS 221231-10-3) as a potentially bioactive synthetic peptide of unknown toxicity in accordance with the OSHA Laboratory Standard (29 CFR 1910.1450) and OSHA Hazard Communication Standard (29 CFR 1910.1200). Restrict use to trained personnel in a controlled laboratory setting. Follow the hierarchy of controls described in 29 CFR 1910 Subpart I App B: prioritize engineering controls (chemical fume hood, ventilated weighing enclosure, or Class I/II biosafety cabinet when weighing or reconstituting the dry powder) over reliance on PPE alone. Wear chemical-resistant nitrile gloves, a buttoned lab coat, and ANSI Z87.1-compliant safety eyewear; add a particulate respirator (e.g., NIOSH-approved N95 or higher) when working outside a containment device or when generation of dust/aerosols is foreseeable. Avoid all routes of exposure-do not breathe dust, mist, or aerosols, and avoid contact

with skin, eyes, and clothing. Do not eat, drink, smoke, or apply cosmetics in areas where the compound is handled, consistent with OSHA 29 CFR 1910.141. Use good industrial hygiene practice: minimize dust generation, work on impervious surfaces or absorbent liners, keep containers tightly closed when not in use, and equilibrate sealed vials to room temperature before opening to limit condensation and moisture uptake into the hygroscopic lyophilized solid. Wash hands and exposed skin thoroughly with soap and water immediately after handling and before leaving the work area. Decontaminate work surfaces and reusable equipment after use, and manage all waste, contaminated PPE, and disposables as chemical waste in accordance with 40 CFR 260-273 (EPA RCRA) and applicable state/local regulations.

Storage Conditions

Store the lyophilized solid in its original tightly closed, light-resistant container under an inert, dry atmosphere where feasible. Peptides of this class are hygroscopic and moisture-, light-, and temperature-sensitive; keep the container sealed with desiccant in a cool, dry, dark location protected from direct sunlight, heat, ignition sources, and incompatible materials, consistent with general peptide storage guidance from the NIBSC peptide handling reference. Refer to the supplied container label or Certificate of Analysis for the manufacturer-specified storage temperature and assigned re-test/expiry date; no shelf-life value is asserted here in the absence of authoritative primary data. Allow refrigerated or frozen vials to equilibrate to room temperature in a desiccator before opening to prevent condensation onto the solid. After reconstitution, store the solution in accordance with the supplier's documented conditions and avoid repeated freeze-thaw cycles, which can promote aggregation and degradation of peptides. Store segregated from food, feed, and incompatible chemicals (see below), with access restricted to authorized personnel, and maintain inventory records as required under 29 CFR 1910.1200(g) for SDS retention and hazard communication.

Incompatibilities

Treat as incompatible with strong oxidizing agents (e.g., peroxides, hypochlorites, nitric acid, permanganates), strong acids and strong bases, and strong reducing agents, which can hydrolyze peptide bonds, oxidize susceptible residues (e.g., tyrosine, cysteine), or cleave/scramble the single disulfide bridge present in the C78H123N23O23S2 structure (formed between the two cysteine residues). Avoid contact with thiols, mercaptans, and other free-sulfhydryl reagents that can reduce or shuffle the disulfide bond, and with electrophilic alkylating agents that can modify lysine, arginine, or tyrosine side chains. Protect from heat, open flames, ignition sources, humidity, and prolonged exposure to light, all of which can accelerate degradation. Avoid microbial contamination of any reconstituted solution. No specific incompatible-material data for CAS 221231-10-3 are published in OSHA, NIOSH, EPA, ECHA, or PubChem authoritative databases; the guidance above is based on general chemistry of cysteine-containing peptides and standard laboratory practice under the OSHA Laboratory Standard (29 CFR 1910.1450).

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 (synthetic peptide fragment, MW 1815.1, CAS 221231-10-3).

Engineering Controls

Use in accordance with the NIOSH Hierarchy of Controls (CDC/NIOSH) and OSHA 29 CFR 1910.1450 (Laboratory Standard) where applicable. Handle within a certified chemical fume hood, ventilated weighing/balance enclosure, or Class II biological safety cabinet to prevent generation and inhalation of airborne particulates (dusts/aerosols) during weighing, reconstitution, or transfer of the dry peptide. Where powder handling cannot be enclosed, use a containment device such as a glove box or isolator. Maintain adequate general mechanical ventilation in storage and use areas. Provide accessible emergency eyewash and safety shower within the work area (ANSI Z358.1). Ensure work surfaces

are non-porous and easily decontaminated; clean spills promptly using wet methods or HEPA-filtered vacuums (do not dry sweep). Prohibit eating, drinking, smoking, and cosmetic application in areas where the material is handled.

Personal Protective Equipment

Respiratory Protection: Under normal laboratory use within a properly functioning fume hood or containment enclosure, respiratory protection is generally not required. If engineering controls are inadequate, if airborne dusts/aerosols may be generated, or during spill response, use a NIOSH-approved (42 CFR Part 84) air-purifying respirator with N95 or higher (e.g., N100/P100) particulate filters at a minimum. For larger-scale handling or unknown airborne concentrations, use a NIOSH-approved powered air-purifying respirator (PAPR) with HEPA filters. Respirator use must be implemented under a written respiratory protection program meeting OSHA 29 CFR 1910.134, including medical clearance, fit testing, and training.

Hand Protection: Wear chemically resistant, disposable nitrile gloves meeting EN 374 / ASTM D6319 and selected for laboratory chemical/biological handling. Double-gloving is recommended when handling the neat solid or concentrated stock solutions, consistent with NIOSH guidance for handling hazardous drugs (NIOSH List of Hazardous Drugs in Healthcare Settings). Inspect gloves before use; change immediately if contamination, tear, or puncture is suspected, and at least every 30 minutes during continuous handling or per the glove manufacturer's permeation data. Wash hands thoroughly with soap and water after glove removal.

Eye / Face Protection: Wear tight-fitting chemical splash goggles meeting ANSI/ISEA Z87.1 when handling solutions or where splash is foreseeable. Safety glasses with side shields are the minimum acceptable protection for handling small quantities of the dry solid within a fume hood. Use a full-face shield worn over goggles when handling larger quantities or performing operations with significant splash or aerosol potential. Contact lenses should not be worn in place of primary eye protection.

Skin Protection: Wear a laboratory coat (preferably fluid-resistant, back-closing, long-sleeved with knit cuffs) fully buttoned over street clothing. For handling larger quantities, reconstitution, or any operation with splash/aerosol potential, wear a chemical-resistant disposable gown or coverall consistent with NIOSH recommendations for hazardous drug handling. Wear closed-toe, non-absorbent footwear that fully covers the foot; use disposable shoe covers if contamination of footwear is possible. Remove and launder contaminated clothing separately before reuse; dispose of single-use garments as contaminated waste. Wash exposed skin thoroughly with soap and water after handling and before leaving 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; soluble in DMSO
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	1815.1 g/mol
Molecular Formula	C78H123N23O23S2

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: Treat as incompatible with strong oxidizing agents (e.g., peroxides, hypochlorites, nitric acid, permanganates), strong acids and strong bases, and strong reducing agents, which can hydrolyze peptide bonds, oxidize susceptible residues (e.g., tyrosine, cysteine), or cleave/scramble the single disulfide bridge present in the C78H123N23O23S2 structure (formed between the two cysteine residues). Avoid contact with thiols, mercaptans, and other free-sulfhydryl reagents that can reduce or shuffle the disulfide bond, and with electrophilic alkylating agents that can modify lysine, arginine, or tyrosine side chains. Protect from heat, open flames, ignition sources, humidity, and prolonged exposure to light, all of which can accelerate degradation. Avoid microbial contamination of any reconstituted solution. No specific incompatible-material data for CAS 221231-10-3 are published in OSHA, NIOSH, EPA, ECHA, or PubChem authoritative databases; the guidance above is based on general chemistry of cysteine-containing peptides and standard laboratory practice under the OSHA Laboratory Standard (29 CFR 1910.1450).

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

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 AOD-9604 (CAS 221231-10-3) in humans and standard laboratory species are limited and the substance is not fully characterized for this endpoint. No acute oral, dermal, or inhalation LD50/LC50 values from authoritative sources (ECHA, NIOSH, peer-reviewed literature indexed in PubMed) have been identified that would support quantitative classification. The compound is not listed in the PubChem Laboratory Chemical Safety Summary (CID 71300630) with a GHS acute toxicity category. Not classified for acute toxicity based on currently available data; hazards cannot be excluded (GHS Rev.8, S1.3.2.4). Handle as a substance of unknown acute toxicity and minimize exposure by all routes (inhalation of dust/aerosol, ingestion, dermal, and ocular contact).

Skin Corrosion / Irritation: No data from authoritative sources (ECHA registration dossiers, peer-reviewed in vivo or validated in vitro OECD TG 404/431/439 studies) are available for AOD-9604 regarding skin corrosion or irritation, and this endpoint is not fully characterized. Not classified for skin corrosion/irritation based on currently available data; hazards cannot be excluded (GHS Rev.8, S1.3.2.4). Avoid skin contact and use impervious gloves consistent with OSHA 29 CFR 1910.138.

Serious Eye Damage / Irritation: No data from authoritative sources (ECHA, OECD TG 405/437/division-validated alternatives, peer-reviewed literature) are available for AOD-9604 with respect to serious eye damage or eye irritation, and this endpoint is not fully characterized. Dusts and solutions of solid substances may produce mechanical or transient irritation upon ocular contact. Not classified for serious eye damage/eye irritation based on currently available data; hazards cannot be excluded (GHS Rev.8, S1.3.2.4). Use eye protection meeting ANSI Z87.1 / OSHA 29 CFR 1910.133.

Skin / Respiratory Sensitization: No data from authoritative sources (ECHA, OECD TG 406/429/442A-D, published clinical or guinea pig maximization studies indexed in PubMed) have been identified that quantify the respiratory or skin sensitization potential of AOD-9604, and this endpoint is not fully characterized. As a synthetic polypeptide of bacterial- or solid-phase synthetic origin, residual sequence-related immunogenicity cannot be excluded on a theoretical basis. Not classified for respiratory or skin sensitization based on currently available data; hazards cannot be excluded (GHS Rev.8, S1.3.2.4).

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: AOD-9604 (CAS 221231-10-3) is not listed as a carcinogen by the International Agency for Research on Cancer (IARC Monographs), the U.S. National Toxicology Program (NTP Report on Carcinogens, 15th Edition), OSHA (29 CFR 1910 Subpart Z), the U.S. EPA IRIS database, or the ACGIH TLV carcinogen notation list. No long-term carcinogenicity bioassays meeting OECD TG 451/453 have been identified in the peer-reviewed literature for this specific substance, and the endpoint is not fully characterized. Not classified for carcinogenicity based on currently available data; hazards cannot be excluded (GHS Rev.8, S1.3.2.4). Germ cell mutagenicity: no Ames (OECD TG 471), in vitro micronucleus (TG 487), or in vivo genotoxicity data from authoritative sources have been located for AOD-9604; not classified for germ cell mutagenicity based on currently available data; hazards cannot be excluded.

Reproductive Toxicity: No reproductive or developmental toxicity studies for AOD-9604 conducted under OECD TG 414, 416, 421, 422, or 443 have been identified in ECHA registration data or in peer-reviewed literature indexed in PubMed, and this endpoint is not fully characterized. The substance is not listed on the California Proposition 65 list of chemicals known to cause reproductive toxicity, nor as a CMR substance in ECHA's CLP Annex VI harmonized classification list. Not classified for reproductive toxicity or effects on or via lactation based on currently available data; hazards cannot be excluded (GHS Rev.8, S1.3.2.4). Women who are pregnant, planning pregnancy, or nursing should avoid occupational exposure as a precautionary measure.

Specific Target Organ Toxicity (STOT): Specific target organ toxicity - single exposure (STOT-SE) and specific target organ toxicity - repeated exposure (STOT-RE): no data meeting OECD TG 407/408/410/411/412/413 from ECHA, NTP, or peer-reviewed literature have been identified for AOD-9604 that would support classification, and these endpoints are not fully characterized. The substance does not appear in the ACGIH TLV list, the NIOSH REL list, or OSHA PEL tables (29 CFR 1910.1000), and no occupational exposure limits have been established. Not classified for STOT-SE or STOT-RE based on currently available data; hazards cannot be excluded (GHS Rev.8, S1.3.2.4). Until further data are available, control exposure to as low as reasonably practicable using engineering controls (local exhaust ventilation) and personal protective equipment.

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 or terrestrial toxicity data (e.g., fish LC50, Daphnia EC50, algae ErC50) have been identified for AOD-9604 (CAS 221231-10-3) in authoritative sources such as the U.S. EPA ECOTOX database, ECHA, or peer-reviewed literature. Not classified as hazardous to the aquatic environment under GHS Rev.8 / OSHA HazCom 2012 based on a weight-of-evidence assessment in the absence of authoritative experimental data. As a research-use synthetic 16-amino-acid peptide analogue derived from the C-terminal region of human growth hormone (hGH 177-191, with an added N-terminal tyrosine and a single disulfide bridge between the two cysteine residues), releases to the environment should nonetheless be avoided and the material should be prevented from entering drains, surface water, and groundwater.

Persistence and Degradability: No substance-specific experimental data on biodegradation, hydrolysis, or photolysis half-lives have been identified in authoritative sources (U.S. EPA, ECHA, PubChem CID 71300630) for AOD-9604. Definitive statements regarding environmental persistence cannot be made in the absence of such data.

Bioaccumulative Potential: No substance-specific experimental bioconcentration factor (BCF) or measured log Kow values have been identified in authoritative sources for AOD-9604. Given the high molecular weight (1815.1 g/mol), multiple ionizable groups, and highly polar character of this disulfide-bridged peptide (C78H123N23O23S2), significant bioaccumulation in aquatic organisms is not anticipated; however, this assessment is qualitative and is not a substitute for 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

Document ID	865329c2-2492-4dc4-b898-36078ef528b0
Revision Date	2026-05-28
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: 2026-05-28
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).