Minuteman Peptides, LLC

Tesamorelin

Formula: C227H354N48O69

Document ID: 85161d15
Revision Date: 2026-07-18
Version: 1.0

Section 1 — Product and Company Identification

Product Name	Tesamorelin
Synonyms	GLXC-27530
CAS Number	*Not determined*
Molecular Formula	C227H354N48O69
IUPAC Name	20-[[(1S)-4-[2-[2-[2-[[(5S)-5-amino-6-[[(5S)-5-[[(2S)-6-amino-2-[[(2S)-2-[[(2S)-2-[[(2S,3S)-2-[[(2S)-2-[[(2S)-2-[[(2S)-2-[[(2S,3R)-2-[[(2S)-2-[[(2S,3S)-2-[[2-[[(2S)-5-amino-2-[[2-[[(2S)-2-amino-3-(4-hydroxyphenyl)propanoyl]amino]-2-methylpropanoyl]amino]-5-oxopentanoyl]amino]acetyl]amino]-3-hydroxybutanoyl]amino]-3-phenylpropanoyl]amino]-3-hydroxybutanoyl]amino]-3-hydroxypropanoyl]amino]-3-carboxypropanoyl]amino]-3-(4-hydroxyphenyl)propanoyl]amino]-3-hydroxypropanoyl]amino]-3-methylpentanoyl]amino]-2,4-dimethylpentanoyl]amino]-4-methylpentanoyl]amino]-3-carboxypropanoyl]amino]hexanoyl]amino]-6-[[(2S)-1-[[(2S)-5-amino-1-[[1-[[(2S)-1-[[(2S)-1-[[(2S,3S)-1-[[(2S)-1-[[(2S)-1-[[(2S)-1-[[(2S)-1-[[2-[[2-[[(2S)-2-[[(2S)-1-[[(2S)-1-[[2-[[(2S)-1-[(2S)-2-[(2S)-2-[(2S)-2-[[(2S)-1-amino-3-hydroxy-1-oxopropan-2-yl]carbamoyl]pyrrolidine-1-carbonyl]pyrrolidine-1-carbonyl]pyrrolidin-1-yl]-1-oxopropan-2-yl]amino]-2-oxoethyl]amino]-3-hydroxy-1-oxopropan-2-yl]amino]-3-hydroxy-1-oxopropan-2-yl]carbamoyl]pyrrolidin-1-yl]-2-oxoethyl]amino]-2-oxoethyl]amino]-4-carboxy-1-oxobutan-2-yl]amino]-4-methyl-1-oxopentan-2-yl]amino]-4-methyl-1-oxopentan-2-yl]amino]-3-(4-hydroxyphenyl)-1-oxo… [truncated — full value in PDF metadata]
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	Minuteman Peptides, LLC
Address	53 Knox Trail, Suite 200, Acton, MA 01720, US
Phone	978-596-1533
Website	https://minutemanpeptides.com/
Emergency Contact	CHEMTREC
Emergency Phone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 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

Tesamorelin	Not determined	C227H354N48O69	4860 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 Tesamorelin as a potentially bioactive peptide of unknown toxicity in accordance with OSHA HazCom 2012 (29 CFR 1910.1200) and the principles of OSHA Laboratory Safety Guidance (OSHA 3404-11R 2011). Use only in well-ventilated areas, preferably within a certified chemical fume hood, biological safety cabinet, or local exhaust ventilation when weighing, opening containers, or reconstituting the lyophilized powder, to minimize generation and inhalation of airborne particulates. Wear personal protective equipment consistent with 29 CFR 1910.132 and 1910.138, including chemical-resistant nitrile gloves, a buttoned laboratory coat, and ANSI Z87.1-compliant safety eyewear; add a particulate respirator (e.g., NIOSH-approved N95 or higher) when engineering controls cannot adequately limit dust exposure. Avoid the formation of dusts, aerosols, and mists; do not pipette by mouth. Keep containers tightly closed when not in use and minimize exposure of the solid to atmospheric moisture and oxygen, which can promote hydrolysis and oxidation of peptide bonds and side chains (e.g., Met, Trp, Tyr). When reconstituting, add diluent gently down the wall of the vial and swirl rather than shaking vigorously, as mechanical agitation and air-liquid interface contact can promote aggregation and oxidative degradation of peptides. Do not eat, drink, smoke, or apply cosmetics in handling areas (29 CFR 1910.141 and 1910.1200). Wash hands and any exposed skin thoroughly with soap and water immediately after handling and before leaving the work area. Use good industrial hygiene practices and follow institutional procedures for handling research chemicals of undefined occupational toxicity; no OSHA PEL, NIOSH REL, or ACGIH TLV has been established for this substance.

Storage Conditions

Store the lyophilized solid in tightly closed, original containers, protected from light, moisture, heat, and oxygen, in a dry, well-ventilated area accessible only to authorized personnel. Per PubChem (CID 16137828) and the FDA-approved product labeling for tesamorelin, the lyophilized substance is to be kept refrigerated; long-term storage of the dry powder is typically at -20 degC or colder for laboratory research quantities, while the commercial drug product is stored at 2-8 degC and protected from freezing. Allow sealed containers to equilibrate to room temperature before opening to prevent condensation onto the hygroscopic peptide. After reconstitution, store the resulting solution refrigerated at 2-8 degC, protected from light, and do not freeze; use within the period validated by the user's laboratory, as peptide solutions are subject to hydrolytic and microbial degradation. Store separately from strong oxidizers, strong acids and bases, and incompatible materials (see below). Use containers of inert materials such as Type I borosilicate glass or polypropylene; ensure secondary containment is provided. Storage area should comply with general laboratory chemical storage requirements under 29 CFR 1910.1450 (where applicable) and 1910.1200.

Incompatibilities

Avoid contact with strong oxidizing agents (e.g., peroxides, perchlorates, hypochlorites, nitric acid, chromates), which can oxidize susceptible amino acid residues (methionine, tryptophan, tyrosine, lysine) and degrade the peptide backbone. Avoid strong acids and strong bases, which catalyze peptide bond hydrolysis and deamidation of asparagine and glutamine residues. Avoid strong reducing agents and free-radical initiators. Avoid prolonged exposure to elevated temperatures, ultraviolet/visible light, atmospheric moisture, and repeated freeze-thaw cycles in solution, all of which can promote chemical degradation, aggregation, and precipitation of the peptide. No hazardous polymerization is expected. Hazardous decomposition products under fire conditions may include carbon oxides (CO, CO2) and nitrogen oxides (NOx), consistent with the elemental composition (C227H354N48O69) reported for this peptide.

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 44-amino-acid peptide analog of growth hormone-releasing hormone).

Engineering Controls

Use in a laboratory environment with adequate general dilution ventilation in accordance with OSHA 29 CFR 1910.1450 (Laboratory Standard) and ANSI/AIHA Z9.5 ventilation guidelines. Weighing, transfer, and dissolution of the dry peptide powder-operations with the greatest potential to generate airborne particulate-should be conducted inside a certified chemical fume hood, ventilated balance enclosure, Class II biological safety cabinet, or containment isolator/glovebox. Provide local exhaust ventilation at points of dust generation. Maintain enclosures under negative pressure relative to the surrounding workspace. Provide readily accessible emergency eyewash and safety shower in the work area meeting ANSI Z358.1. Prohibit eating, drinking, smoking, and cosmetic application in areas where this material is handled (29 CFR 1910.1450). Decontaminate work surfaces after use and before maintenance; collect waste in closed, labeled containers.

Personal Protective Equipment

Respiratory Protection: Respiratory protection is not normally required when handling small quantities within a properly functioning fume hood, ventilated enclosure, or biosafety cabinet. Where engineering controls are inadequate, dust may be generated (e.g., weighing the lyophilized powder outside containment), or airborne exposure cannot be characterized, wear a NIOSH-approved (42 CFR Part 84) air-purifying respirator with N95 or higher-efficiency particulate filter at minimum; use a P100 filter or powered air-purifying respirator (PAPR) for larger-scale operations or where higher protection factors are warranted. Respirator selection, fit testing, medical clearance, and training must follow the OSHA Respiratory Protection Standard (29 CFR 1910.134).

Hand Protection: Wear chemically resistant, disposable laboratory gloves meeting EN ISO 374-5 / ASTM D6978. Nitrile gloves (minimum 4 mil / 0.1 mm thickness) are recommended for routine handling; double-gloving is advised when handling the dry powder or stock solutions. Inspect gloves before use for defects, change immediately upon visible contamination or suspected breakthrough, and remove using proper aseptic doffing technique. Wash hands thoroughly with soap and water after glove removal and before leaving the work area. Glove selection should follow guidance in OSHA 29 CFR 1910.138.

Eye / Face Protection: Wear ANSI/ISEA Z87.1-compliant safety glasses with side shields as a minimum. Use tight-fitting chemical splash goggles when handling solutions or where a splash hazard exists. A full-face shield worn over goggles is recommended when handling larger quantities, performing transfers outside containment, or working with pressurized systems. Eye protection requirements are specified in OSHA 29 CFR 1910.133.

Skin Protection: Wear a laboratory coat or chemical-resistant gown with long sleeves, full-length pants/trousers, and closed-toe chemical-resistant footwear. Use disposable sleeve covers and an impervious apron when handling the dry powder or large solution volumes outside containment. Remove contaminated PPE promptly and do not wear it outside the work area. Launder reusable garments separately from personal clothing; dispose of disposable PPE as contaminated pharmaceutical waste in accordance with applicable federal, state, and local regulations. General PPE requirements are set forth in OSHA 29 CFR 1910.132.

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 and aqueous buffers
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	4860 g/mol
Molecular Formula	C227H354N48O69

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, hypochlorites, nitric acid, chromates), which can oxidize susceptible amino acid residues (methionine, tryptophan, tyrosine, lysine) and degrade the peptide backbone. Avoid strong acids and strong bases, which catalyze peptide bond hydrolysis and deamidation of asparagine and glutamine residues. Avoid strong reducing agents and free-radical initiators. Avoid prolonged exposure to elevated temperatures, ultraviolet/visible light, atmospheric moisture, and repeated freeze-thaw cycles in solution, all of which can promote chemical degradation, aggregation, and precipitation of the peptide. No hazardous polymerization is expected. Hazardous decomposition products under fire conditions may include carbon oxides (CO, CO2) and nitrogen oxides (NOx), consistent with the elemental composition (C227H354N48O69) reported for this peptide.

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: No acute toxicity values (LD50/LC50) for Tesamorelin (C227H354N48O69, MW ~4860) have been established by OSHA, NIOSH, EPA, ECHA, or peer-reviewed authoritative sources. The toxicological properties of this substance are not fully characterized. Per the FDA-approved prescribing information for EGRIFTA/EGRIFTA SV (tesamorelin for injection), repeat-dose toxicity studies in rats up to 26 weeks have been conducted, but no published

oral, dermal, or inhalation LD50 values are available. Not classified for acute toxicity based on currently available data; hazards cannot be excluded (GHS Rev.8, Chapter 1.3.2.4). Treat as potentially hazardous and minimize exposure.

Skin Corrosion / Irritation: No standardized in vitro (OECD 431/439) or in vivo (OECD 404) skin corrosion/irritation data for Tesamorelin have been identified in authoritative regulatory sources. Clinical use via subcutaneous injection has been associated with localized injection-site reactions (erythema, pruritus, pain, irritation, rash) as reported in the FDA-approved EGRIFTA prescribing information, but these reflect parenteral administration and are not a substitute for a dermal corrosion/irritation study. Not classified for skin corrosion/irritation based on currently available data; hazards cannot be excluded (GHS Rev.8, Chapter 1.3.2.4).

Serious Eye Damage / Irritation: No standardized eye irritation or serious eye damage data (OECD 405/437/438/492) for Tesamorelin have been identified in OSHA, NIOSH, EPA, ECHA, or peer-reviewed authoritative sources. The toxicological properties of this substance with respect to ocular exposure are not fully characterized. Not classified for serious eye damage/eye irritation based on currently available data; hazards cannot be excluded (GHS Rev.8, Chapter 1.3.2.4). Avoid eye contact.

Skin / Respiratory Sensitization: No guideline-compliant skin sensitization (OECD 406/429/442) or respiratory sensitization data for Tesamorelin have been identified in authoritative regulatory sources. The FDA-approved EGRIFTA prescribing information notes that hypersensitivity reactions (including pruritus, rash, and urticaria) have been reported in clinical use; the prescribing information also identifies hypersensitivity to tesamorelin as a contraindication. These post-marketing observations are not a substitute for guideline sensitization studies. Not classified for skin or respiratory sensitization based on currently available data; hazards cannot be excluded (GHS Rev.8, Chapter 1.3.2.4).

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: Per the FDA-approved EGRIFTA prescribing information (most recently confirmed in the 2024 label revision), life-time carcinogenicity studies in rodents have not been conducted with tesamorelin acetate. Tesamorelin is not listed by IARC, NTP (Report on Carcinogens), OSHA (29 CFR 1910.1003), or the ACGIH TLV carcinogen classification. The toxicological properties of this substance with respect to carcinogenicity are not fully characterized. Not classified for carcinogenicity based on currently available data; hazards cannot be excluded (GHS Rev.8, Chapter 1.3.2.4).

Reproductive Toxicity: Per the FDA-approved EGRIFTA/EGRIFTA SV prescribing information: tesamorelin acetate had no effect on fertility in male or female rats at subcutaneous doses up to 0.6 mg/kg. Administration to pregnant rats during organogenesis produced developmental effects (including hydrocephaly) at exposures exceeding the clinical exposure on an AUC basis. The prescribing information advises against use in pregnancy on the basis of potential fetal harm. Genotoxicity testing reported in the FDA label (Ames assay, in vitro mammalian gene mutation, and in vivo assays) did not reveal mutagenic potential. The substance has not been formally classified for reproductive toxicity by ECHA (CLP) or other authoritative regulatory bodies. Not classified for reproductive toxicity under GHS based on currently available data; however, the developmental findings reported in the FDA label indicate that hazards to the developing fetus cannot be excluded. Women of reproductive potential should avoid exposure.

Specific Target Organ Toxicity (STOT): No specific target organ toxicity (STOT) classifications (single or repeated exposure) have been assigned to Tesamorelin by OSHA, ECHA, or other authoritative regulatory bodies. In the 26-week repeat-dose subcutaneous toxicity study in rats summarized in the FDA-approved EGRIFTA prescribing information, findings were observed at doses approximately 16-25 times the clinical exposure in females; no human occupational exposure limits (OSHA PEL, NIOSH REL, ACGIH TLV) have been established. The toxicological properties of this substance with respect to STOT-SE and STOT-RE are not fully characterized. Not classified for STOT-SE or STOT-RE based on currently available data; hazards cannot be excluded (GHS Rev.8, Chapter 1.3.2.4).

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) for tesamorelin (C227H354N48O69; MW ~4860) have been identified in authoritative regulatory sources (OSHA, EPA, ECHA, NIOSH, PubChem). Not classified as hazardous to the aquatic environment (acute or chronic) under GHS/CLP based on a weight-of-evidence assessment, as no authoritative experimental ecotoxicity data have been identified. Tesamorelin is a synthetic 44-amino-acid analog of human growth hormone-releasing factor (hGRF) and is expected, by analogy to other large polypeptides, to have low environmental mobility and low intrinsic aquatic toxicity, but this has not been experimentally verified. Prevent release of bulk material or solutions into surface water, groundwater, soil, or sewer systems.

Persistence and Degradability: No substance-specific experimental biodegradation or abiotic degradation data (e.g., OECD 301-series ready biodegradability, hydrolysis half-life, photolysis) have been identified for tesamorelin in authoritative regulatory databases (ECHA, EPA, PubChem). As a high-molecular-weight (~4860 Da) polypeptide composed exclusively of alpha-amino acid residues, susceptibility to enzymatic and chemical hydrolysis of peptide bonds in environmental compartments is plausible, but no validated experimental persistence data are available to support a regulatory classification.

Bioaccumulative Potential: No experimental bioconcentration factor (BCF), bioaccumulation factor (BAF), or measured log Kow has been identified for tesamorelin in authoritative sources (ECHA, EPA, PubChem). Owing to its very high molecular weight (~4860 Da, well above the ~700 Da cutoff often cited in ECHA REACH guidance R.11 for steric hindrance of membrane permeation), high polarity, and ionizable functional groups, significant bioaccumulation in aquatic organisms is not anticipated; however, this conclusion is based on read-across reasoning rather than substance-specific experimental 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	85161d15-42d9-41f1-b46a-aebecd831895
Revision Date	2026-07-18
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: 2026-07-18
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).