



SAFETY DATA SHEET

GHS / OSHA HazCom 2012 Compliant

Viking Stack Peptides

Kisspeptin

CAS: 388138-21-4
Formula: C258H401N79O78

Document ID: bf64d1e2
Revision Date: 2026-09-11
Version: 1.0

Section 1 — Product and Company Identification

Product Name	Kisspeptin
Synonyms	Kisspeptin; Kisspeptins; KISS-1
CAS Number	388138-21-4
PubChem CID	71306396
Molecular Formula	C258H401N79O78
IUPAC Name	(4S)-4-[[[(2S)-1-[(2S)-1-[(2S)-2-[[[(2S)-2-[[[(2S)-2-[[[(2S,3R)-2-[(2-aminoacetyl)amino]-3-hydroxybutanoyl]amino]-3-hydroxypropanoyl]amino]-4-methylpentanoyl]amino]-3-hydroxypropanoyl]pyrrolidine-2-carbonyl]pyrrolidine-2-carbonyl]pyrrolidine-2-carbonyl]amino]-5-[[[(2S)-1-[[[(2S)-1-[[2-[[[(2S)-1-[[[(2S)-1-[[[(2S)-5-amino-1-[[[(2S)-5-amino-1-[(2S)-2-[[2-[[[(2S)-1-[[[(2S)-1-[[[(2S)-2-[[[(2S)-1-[[[(2S)-1-[[[(2S)-5-amino-1-[[[(2S,3S)-1-[(2S)-2-[[[(2S)-1-[(2S)-2-[[[(2S)-5-amino-1-[[2-[[[(2S)-1-[[[(2S)-1-[[[(2S)-1-[[[(2S)-1-[[[(2S)-5-amino-1-[[[(2S)-1-[[[(2S)-1-[[[(2S)-6-amino-1-[[[(2S)-1-[[[(2S)-1-[(2S)-2-[[[(2S)-4-amino-1-[[[(2S)-1-[[[(2S)-4-amino-1-[[[(2S)-1-[[[(2S)-4-amino-1-[[[(2S)-1-[[[(2S)-1-[[2-[[[(2S)-1-[[[(2S)-1-[[[(2S)-1-amino-1-oxo-3-phenylpropan-2-yl]amino]-5-carbamimidamido-1-oxopentan-2-yl]amino]-4-methyl-1-oxopentan-2-yl]amino]-2-oxoethyl]amino]-1-oxo-3-phenylpropan-2-yl]amino]-3-hydroxy-1-oxopropan-2-yl]amino]-1,4-dioxobutan-2-yl]amino]-3-(1H-indol-3-yl)-1-oxopropan-2-yl]amino]-1,4-dioxobutan-2-yl]amino]-3-(4-hydroxyphenyl)-1-oxopropan-2-yl]amino]-1,4-dioxobutan-2-yl]carbamoyl]pyrrolidin-1-yl]-4-methyl-1-oxopentan-2-yl]amino]-3-carboxy-1-oxopropan-2-yl]amino]-1-oxohexan-2-yl]amino]-4-c...
Identified Uses	[truncated — full value in PDF metadata] 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.
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Manufacturer / Supplier

Company	Viking Stack Peptides
Address	560, Fort Worth, TX 76137, United States
Phone	8178816217
Emergency Phone	8178816217

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
Kisspeptin	388138-21-4	C258H401N79O78	5857 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 (chemical fume hood or ventilated weighing enclosure) as recommended for research chemicals of unknown or incompletely characterized toxicity under the OSHA Laboratory Standard (29 CFR 1910.1450) and the Hazard Communication Standard (29 CFR 1910.1200). Because the lyophilized peptide is a fine powder that may generate airborne particulates when weighed or transferred, minimize dust formation and avoid inhalation, ingestion, and contact with skin, eyes, and clothing. Wear chemical-resistant nitrile gloves, chemical splash goggles, and a laboratory coat; use a NIOSH-approved particulate respirator (e.g., N95 or higher) if exposure limits have not been established and adequate local exhaust ventilation is not available, consistent with 29 CFR 1910.134. Do not eat, drink, smoke, or apply cosmetics in areas where the substance is handled. Wash hands, forearms, and face thoroughly with soap and water after handling and before breaks or leaving the work area. Keep containers tightly closed when not in use and open under conditions that limit exposure to moisture and atmospheric oxygen. Allow sealed vials removed from cold storage to equilibrate to room temperature before opening to prevent condensation on the hygroscopic powder. Reconstitute and aliquot in a clean, dedicated work area to avoid cross-contamination. Decontaminate work surfaces and reusable equipment after use, and manage all waste in accordance with EPA RCRA (40 CFR 260-273) and applicable state/local regulations. Treat as a potentially bioactive substance of unknown toxicity; follow prudent laboratory practices as described in the NRC publication "Prudent Practices in the Laboratory" (2011).

Storage Conditions

Store the lyophilized (powder) form in tightly sealed, original containers, desiccated and protected from light and moisture. Long-term storage is recommended at -20 degC or colder (-80 degC for extended storage), consistent with general storage guidance for synthetic peptides. Keep away from heat, direct sunlight, and sources of ignition. After reconstitution in a suitable aqueous or buffered solvent, store working solutions refrigerated at 2-8 degC for short-term use and aliquot and freeze at ≤ -20 degC for longer-term storage; avoid repeated freeze-thaw cycles, which can degrade peptide integrity. Ensure storage areas are clearly labeled per 29 CFR 1910.1200(f), access-restricted to trained personnel, and equipped with secondary containment. Do not store with incompatible materials (see below) or with food, beverages, or animal feed.

Incompatibilities

As a polypeptide containing hydroxyl-, amide-, and amine-bearing amino acid residues, the substance is chemically incompatible with strong oxidizing agents (which can oxidize methionine, tryptophan, cysteine, and tyrosine residues, if present), strong reducing agents, strong acids and strong bases (which can promote hydrolysis of peptide bonds and side-chain deamidation), and alkaline conditions above approximately pH 8, which can accelerate degradation of peptides in solution. Avoid contact with moisture and humid air (hygroscopic; promotes hydrolysis), elevated temperatures, and prolonged exposure to light. Incompatible with heavy-metal ions and reactive electrophiles that may modify amino acid side chains. No specific hazardous decomposition or incompatibility data are listed for this substance in OSHA, NIOSH, EPA, ECHA, or PubChem authoritative databases; the above guidance is derived from the general chemistry of peptides.

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 in a well-ventilated laboratory area in accordance with OSHA 29 CFR 1910.1450 (Occupational Exposure to Hazardous Chemicals in Laboratories). Weighing, reconstitution, and manipulation of the dry peptide powder should be performed inside a certified ventilated enclosure such as a chemical fume hood, ventilated balance enclosure, or Class II biological safety cabinet to minimize inhalation of airborne particulate. Where dust generation is possible, use containment consistent with ISPE/NIOSH guidance for handling potent or bioactive powders of unknown toxicity. Provide readily accessible emergency eyewash and safety shower stations meeting ANSI/ISEA Z358.1 within the work area. Do not eat, drink, smoke, or store food in areas where this material is handled. Wash hands and exposed skin thoroughly after handling.

Personal Protective Equipment

Respiratory Protection: Under normal laboratory conditions with adequate local exhaust ventilation (fume hood or ventilated enclosure), respiratory protection is not typically required. If engineering controls cannot contain airborne particulate during weighing or handling of the dry powder, wear 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 operations. Respirator use must comply with OSHA 29 CFR 1910.134, including written program, fit-testing, and medical clearance.

Hand Protection: Wear chemically resistant, disposable laboratory gloves compliant with EN ISO 374-5/ASTM D6319 (nitrile is generally suitable for handling aqueous peptide solutions and powders). Double-gloving is recommended when handling the dry powder or concentrated stock solutions. Inspect gloves before use, replace immediately if contamination, tearing, or degradation is observed, and remove using aseptic technique. Wash hands thoroughly with soap and water after glove removal. Glove selection should be verified for the specific solvent system used (e.g., DMSO stocks may require additional breakthrough consideration per ASTM F739).

Eye / Face Protection: Wear tightly fitting safety glasses with side shields meeting ANSI/ISEA Z87.1-2020. Chemical splash goggles are required when handling solutions, performing reconstitution, or whenever there is a risk of splash, aerosol, or eye contact. A face shield worn over goggles is recommended for operations with elevated splash potential. Do not wear contact lenses when handling this material unless additional eye protection is used.

Skin Protection: Wear a fastened, long-sleeved laboratory coat and full-length trousers with closed-toe, non-absorbent footwear that fully covers the feet, in accordance with OSHA 29 CFR 1910.132 and 1910.1450. For operations involving larger quantities, dust generation, or elevated splash potential, use a chemical-resistant apron or a disposable, low-linting coverall (e.g., Tyvek-type) over the lab coat. Remove and launder contaminated clothing before reuse; do not take contaminated clothing home. Handle as a potentially bioactive substance of unknown toxicity and minimize skin contact.

Section 9 — Physical and Chemical Properties

Physical State	Solid (research-grade lyophilised powder or crystalline solid)
Appearance	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	<i>Not determined</i>
Vapor Density	<i>Not determined</i>
Specific Gravity	<i>Not determined</i>
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	<i>Not determined</i>
Molecular Weight	5857 g/mol
Molecular Formula	C258H401N79O78

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: As a polypeptide containing hydroxyl-, amide-, and amine-bearing amino acid residues, the substance is chemically incompatible with strong oxidizing agents (which can oxidize methionine, tryptophan, cysteine, and tyrosine residues, if present), strong reducing agents, strong acids and strong bases (which can promote hydrolysis of peptide bonds and side-chain deamidation), and alkaline conditions above approximately pH 8, which can accelerate degradation of peptides in solution. Avoid contact with moisture and humid air (hygroscopic; promotes hydrolysis), elevated temperatures, and prolonged exposure to light. Incompatible with heavy-metal ions and reactive electrophiles that may modify amino acid side chains. No specific hazardous decomposition or incompatibility data are listed for this substance in OSHA, NIOSH, EPA, ECHA, or PubChem authoritative databases; the above guidance is derived from the general chemistry of peptides.

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

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 Kisspeptin (CAS 388138-21-4) have not been fully characterized. No LD₅₀ or LC₅₀ values from authoritative sources (ECHA, NIOSH, CDC, or peer-reviewed literature) are available for oral, dermal, or inhalation routes for this specific substance. PubChem CID 71306396 does not list a GHS acute toxicity classification. In the absence of substance-specific data, the material is Not classified based on currently available data; hazards cannot be excluded (GHS Rev.8, S1.3.2.4). As a high-molecular-weight polypeptide (MW ~ 5857 g/mol), inhalation exposure is most plausible from dust or aerosol generation during handling of the lyophilized solid; handle to minimize inhalation and skin/eye contact.

Skin Corrosion / Irritation: No experimental skin irritation or corrosion data from authoritative sources (ECHA, OECD Test Guideline 404/431/439 studies, or peer-reviewed literature) are available for Kisspeptin (CAS 388138-21-4).

PubChem does not report a GHS skin corrosion/irritation classification for this substance. Not classified based on

currently available data; hazards cannot be excluded (GHS Rev.8, S1.3.2.4). Direct contact with the solid or with solutions should be avoided as a precaution.

Serious Eye Damage / Irritation: No experimental serious eye damage or eye irritation data from authoritative sources (ECHA, OECD Test Guideline 405/437/438/492 studies, or peer-reviewed literature) are available for Kisspeptin (CAS 388138-21-4). PubChem does not report a GHS eye damage/irritation classification for this substance. Not classified based on currently available data; hazards cannot be excluded (GHS Rev.8, S1.3.2.4). Particulate matter may cause mechanical irritation to the eye; use appropriate eye protection.

Skin / Respiratory Sensitization: No respiratory or skin sensitization data from authoritative sources (ECHA, OECD Test Guideline 429/442A-E studies, or peer-reviewed literature) are available for Kisspeptin (CAS 388138-21-4). PubChem does not report a GHS sensitization classification for this substance. Not classified based on currently available data; hazards cannot be excluded (GHS Rev.8, S1.3.2.4). Polypeptides of foreign biological origin can, as a general class, present a theoretical potential for immunological sensitization upon repeated exposure; this endpoint has not been experimentally evaluated for this substance.

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: Kisspeptin (CAS 388138-21-4) is not listed as a carcinogen by IARC, the U.S. National Toxicology Program (NTP 15th Report on Carcinogens), OSHA (29 CFR 1910.1003), ACGIH, or the EU CLP Annex VI. PubChem does not report a GHS carcinogenicity classification for this substance. Not classified based on currently available data; hazards cannot be excluded (GHS Rev.8, S1.3.2.4). Long-term carcinogenicity bioassays meeting OECD Test Guideline 451 have not been reported for this substance.

Reproductive Toxicity: No reproductive or developmental toxicity studies conducted under OECD Test Guidelines 414, 416, 421, 422, or 443 are available from authoritative sources (ECHA, EPA, or peer-reviewed literature) for Kisspeptin (CAS 388138-21-4). PubChem does not report a GHS reproductive toxicity classification. Not classified based on currently available data; hazards cannot be excluded (GHS Rev.8, S1.3.2.4). Given the limited hazard characterization, exposure of pregnant or nursing workers should be minimized as a precaution.

Specific Target Organ Toxicity (STOT): Specific Target Organ Toxicity - Single Exposure (STOT-SE, GHS S3.8): No data from authoritative sources are available identifying target organs following a single exposure to Kisspeptin (CAS 388138-21-4). Not classified based on currently available data; hazards cannot be excluded (GHS Rev.8, S1.3.2.4). Specific Target Organ Toxicity - Repeated Exposure (STOT-RE, GHS S3.9): No subacute, subchronic, or chronic repeated-dose toxicity studies conducted under OECD Test Guidelines 407, 408, 409, or 452 are available from authoritative sources (ECHA, EPA, NTP) for this substance. PubChem CID 71306396 does not report a GHS STOT-RE classification. Not classified based on currently available data; hazards cannot be excluded. The toxicological profile of this substance is not fully characterized; exposure by all routes should be minimized.

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 kisspeptin (CAS 388138-21-4) in authoritative sources including PubChem (CID 71306396), ECHA, EPA ECOTOX, or NIOSH. The substance is not listed on ECHA's Candidate List of Substances of Very High

Concern or the EPA Toxic Substances Control Act (TSCA) inventory with ecotoxicity endpoints. Not classified as hazardous to the aquatic environment (acute or chronic) under GHS Rev.8 based on weight-of-evidence assessment (no authoritative experimental data identified). Kisspeptin is a large (MW 5857) polypeptide composed exclusively of proteinogenic amino-acid residues (C, H, N, O only); it is a biologically active hypothalamic neuropeptide (KISS-1 gene product) and, given its receptor selectivity for GPR54/KISS1R in vertebrates, potential endocrine-mediated effects on aquatic vertebrate reproduction cannot be excluded - peer-reviewed literature (e.g., Tena-Sempere and colleagues; PMID 23550019) has documented that the kisspeptin/GPR54 system is a sensitive target of endocrine-disrupting chemicals, but no reciprocal data on environmental release of exogenous kisspeptin were located. Release to the environment should be avoided as a precautionary measure.

Persistence and Degradability: No substance-specific ready-biodegradability studies (e.g., OECD 301 series) or simulation test data (OECD 307/308/309) have been identified in authoritative databases (ECHA registration dossiers, PubChem, EPA). Hydrolysis and photolysis half-lives in environmental matrices have not been experimentally determined for this substance. As a linear polypeptide constructed solely of natural L-amino-acid residues linked by peptide bonds (molecular formula C₂₅₈H₄₀₁N₇₉O₇₈, no halogen, sulfur, phosphorus, or aromatic-halide substituents), the compound is expected on structural grounds to be susceptible to enzymatic proteolysis and microbial breakdown in biologically active environmental compartments; however, this is a qualitative structural inference and not a substitute for measured degradation endpoints. No authoritative classification for persistence (P/vP under REACH Annex XIII) has been assigned.

Bioaccumulative Potential: No experimentally determined log K_{ow} (octanol/water partition coefficient), bioconcentration factor (BCF), or bioaccumulation factor (BAF) has been identified for kisspeptin (CAS 388138-21-4) in PubChem, ECHA, or EPA sources. Given the substance's high molecular weight (5857 g/mol, well above the MW > 700 Da threshold at which passive membrane permeation and BCF are typically low per ECHA REACH Guidance R.11), its highly polar, ionizable, multi-hydrogen-bond-donor polypeptide structure, and expected proteolytic lability in biological systems, significant bioaccumulation in aquatic organisms is not anticipated. The substance has not been classified as bioaccumulative (B) or very bioaccumulative (vB) under REACH Annex XIII criteria by any authoritative body; this determination is qualitative and based on physicochemical read-across rather than measured 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.
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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	bf64d1e2-8868-4b3b-bf08-66e8871fb9d1
Revision Date	2026-09-11
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: 2026-09-11

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).