Bremelanotide

CAS: 189691-06-3
Formula: C50H68N14O10

Document ID: cd2275dd
Revision Date: 2026-08-07
Version: 1.0

Section 1 — Product and Company Identification

Product Name	Bremelanotide
Synonyms	Bremelanotide; 189691-06-3; Bremelanotida
CAS Number	189691-06-3
Molecular Formula	C50H68N14O10
IUPAC Name	(3S,6S,9R,12S,15S,23S)-15-[[(2S)-2-acetamidohexanoyl]amino]-9-benzyl-6-[3-(diaminomethylideneamino)propyl]-12-(1H-imidazol-5-ylmethyl)-3-(1H-indol-3-ylmethyl)-2,5,8,11,14,17-hexaoxo-1,4,7,10,13,18-hexazacyclotricosane-23-carboxylic acid
Identified Uses	Research laboratory chemical for in vitro scientific research and development use only.
Restriction on Use	Not for human or veterinary use. Not for food, drug, cosmetic, household, agricultural, clinical, therapeutic, or diagnostic applications.

Manufacturer / Supplier

Company	Ruo.bio
Address	30 N Gould St, Sheridan, WY 82801, US
Phone	+1-804-636-6879
Website	https://ruo.bio/
Emergency Phone	+1(804)636-6879 - Monday-Friday: 9:00 AM - 5:00 PM Pacific

Section 2 — Hazard Identification

Classification of the substance

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

Classification has been conducted in accordance with 29 CFR 1910.1200 (OSHA HazCom 2012) and GHS Rev.8 using all available data and scientifically valid weight-of-evidence approaches (GHS Rev.8 Chapter 1.3.2.4), including read-across from chemical class and structural considerations where substance-specific study data is not available.

Signal Word: None

GHS Pictograms:
None required based on classification.

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

Precautionary Statements

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

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

Hazards Not Otherwise Classified (HNOC)
None known based on available data and weight-of-evidence assessment. The toxicological properties of this substance have not been fully characterized; handle as a potentially bioactive substance of unknown toxicity.

Section 3 — Composition / Information on Ingredients

Single-substance product. Chemical identity:

Ingredient	CAS Number	Mol. Formula	Mol. Weight	Concentration
Bremelanotide	189691-06-3	C50H68N14O10	1025.2 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 in accordance with good industrial hygiene and safety practices as outlined in OSHA 29 CFR 1910.1200 and 29 CFR 1910.132-138. Because comprehensive toxicological data for this cyclic heptapeptide are limited, treat as a potentially bioactive compound of unknown toxicity and minimize all routes of exposure (inhalation, ingestion, skin/eye contact). Weigh, transfer, and manipulate the dry powder inside a ventilated enclosure such as a chemical fume hood, ventilated balance enclosure, or Class I/II biosafety cabinet to control airborne particulates, consistent with NIOSH guidance for handling pharmaceutical active ingredients and powders of uncertain potency (see NIOSH Current Intelligence Bulletin 33 and the NIOSH 'Hierarchy of Controls'). Wear appropriate personal protective equipment: chemical-resistant nitrile gloves (double-gloving recommended for weighing operations), a lab coat or chemical-resistant gown, ANSI Z87.1-compliant safety eyewear, and, where engineering controls cannot reliably prevent airborne exposure, a NIOSH-approved particulate respirator (N95 or higher, selected per 29 CFR 1910.134). Avoid generating dust or aerosols; do not blow powder, and use sealed containers for transfer. Prohibit eating, drinking, smoking, and the application of cosmetics in areas where the substance is handled (29 CFR 1910.141). Wash hands and exposed skin thoroughly after handling and before breaks. Decontaminate work surfaces and reusable equipment after use. Promptly contain and clean up any spills using HEPA vacuuming or wet-wipe methods rather than dry sweeping.

Ground containers when transferring to control any static buildup from the dry powder. Keep containers tightly closed when not in use to limit exposure to atmospheric moisture, oxygen, and light.

Storage Conditions

Store the lyophilized/solid substance in tightly sealed, light-resistant containers (e.g., amber glass or opaque polypropylene vials) under an inert atmosphere (nitrogen or argon) where practical, and place inside a secondary container with desiccant to protect against humidity. Recommended storage temperature for the dry peptide is -20 degC or colder in a frost-free freezer dedicated to laboratory chemicals; long-term archival storage at -80 degC is acceptable, consistent with general best practices for lyophilized peptides described in peer-reviewed and PubChem-referenced stability literature. Allow sealed containers to equilibrate to room temperature before opening to prevent condensation onto the hygroscopic solid. Solutions, once prepared, should be aliquoted to minimize freeze-thaw cycles and stored frozen; do not store reconstituted material at ambient temperature. Protect from direct sunlight, ultraviolet light, heat, ignition sources, and high humidity. Store separately from incompatible materials (see below), oxidizers, foodstuffs, and animal feed. Storage areas should be cool, dry, well-ventilated, and equipped with appropriate spill containment per 29 CFR 1910.1450 (Laboratory Standard) where applicable. Restrict access to trained personnel, and label containers in accordance with the OSHA HazCom 2012 standard (29 CFR 1910.1200(f)). Do not use beyond any manufacturer-assigned retest or expiration date; no independent shelf-life value is established here.

Incompatibilities

Strong oxidizing agents, strong acids, strong bases.

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 Bremelanotide (CAS 189691-06-3) as a potentially bioactive substance of unknown toxicity.

Engineering Controls

Use only in a controlled laboratory setting by trained personnel. Provide local exhaust ventilation (LEV) sufficient to keep airborne concentrations as low as reasonably achievable. Weighing, transfer, and other dust-generating operations involving this peptide powder should be performed inside a certified ventilated enclosure such as a chemical fume hood, ducted Class I powder weighing/containment hood, or a glove box. When biological/sterility concerns also apply, a Class II Type A2 biological safety cabinet may be used in conjunction with appropriate personal protective equipment. Eyewash stations and safety showers must be readily accessible in work areas where the substance is handled, in accordance with ANSI Z358.1. Maintain good industrial hygiene practices: no eating, drinking, smoking, or storage of food in areas where the material is used; wash hands and exposed skin thoroughly after handling. Decontaminate work surfaces and equipment after use.

Personal Protective Equipment

Respiratory Protection: Respiratory protection is not normally required when handling small quantities in a properly functioning fume hood or ventilated enclosure. Where engineering controls are inadequate, where airborne dust, mist, or aerosols may be generated (e.g., open weighing of dry powder, lyophilization, sonication of solutions, large-scale handling), or during emergency response, use a NIOSH-approved (42 CFR Part 84) particulate respirator. At a minimum use an N95 filtering facepiece; for higher potential exposure use a half- or full-face elastomeric respirator with P100 cartridges or a powered air-purifying respirator (PAPR) with HEPA filters. Respirator selection, fit-testing, and use must comply with OSHA's Respiratory Protection Standard 29 CFR 1910.134.

Hand Protection: Wear chemically resistant, disposable nitrile gloves of suitable thickness (>=4 mil/0.1 mm) conforming to EN ISO 374 / ASTM D6319. Inspect gloves before use and replace immediately if torn, punctured, or contaminated. Use double-gloving for weighing, dispensing dry powder, or other operations with elevated exposure potential. Remove gloves using proper aseptic/contamination-control technique without touching the outer surface, dispose of as contaminated waste, and wash hands thoroughly with soap and water immediately after removal. No specific breakthrough-time data have been published by an authoritative body for this peptide; select glove materials based on duration and nature of contact and replace at the manufacturer's recommended interval.

Eye / Face Protection: Wear tightly fitting safety glasses with side shields meeting ANSI/ISEA Z87.1 (US) or EN 166 (EU) as a minimum. Where splash, spray, or aerosol generation is possible (e.g., handling solutions, sonication, pipetting under pressure), wear indirect-vent chemical splash goggles. A face shield worn over goggles is recommended for operations with significant splash, aerosol, or ejection potential. Contact lenses do not provide eye protection and should not be relied upon.

Skin Protection: Wear a laboratory coat or chemical-resistant gown with long sleeves and closed-front design, fully covering street clothing. For operations with higher exposure potential, use a disposable chemical-resistant coverall (e.g., Type 5/6 per EN 13034/EN ISO 13982) over the lab coat. Wear full-length trousers and closed-toe, chemical-resistant shoes; no exposed skin should be present on the legs or feet. Remove and segregate contaminated clothing immediately; do not take contaminated workwear home. Launder reusable garments separately from personal clothing or dispose of disposables as contaminated waste in accordance with institutional procedures. Shower and change clothing at the end of the work shift if extensive handling occurred. Handle as a potentially bioactive substance of unknown toxicity.

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	230
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	1025.2 g/mol
Molecular Formula	C50H68N14O10

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: Strong oxidizing agents, strong acids, strong bases.

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

Hazardous Polymerization: Will not occur.

Section 11 — Toxicological Information

The toxicological properties of this substance have not been fully characterized. Where no authoritative study data was identified, endpoint classifications are based on a weight-of-evidence approach using read-across from the compound's chemical class and structural features, per GHS Rev.8 Chapter 1.3.2.4. "Not classified" entries below mean "not classified based on currently available data" — hazards cannot be excluded.

Acute Toxicity: Acute toxicity values (LD50/LC50) for bremelanotide (CAS 189691-06-3) from authoritative regulatory sources (NIOSH, ECHA, NTP) have not been located, and the toxicological properties of this substance are not fully characterized. Not classified based on currently available data; hazards cannot be excluded. In clinical use of bremelanotide by subcutaneous injection, the U.S. FDA-approved prescribing information (Vyleesi label, FDA accessdata) reports adverse effects including nausea (approximately 40%), flushing (approximately 20%), injection-site reactions (approximately 13%), headache (approximately 11%), and transient increases in blood pressure with reflex decreases in heart rate; higher doses are associated with more pronounced nausea, focal hyperpigmentation, and larger blood pressure elevations. These clinical findings are relevant to occupational exposure where systemic uptake could occur. Exposure by any route (inhalation of dust/aerosol, skin/eye contact, ingestion, accidental injection) should be avoided.

Skin Corrosion / Irritation: No standardized OECD 404 / GHS skin corrosion or irritation study for bremelanotide has been identified in authoritative regulatory sources (ECHA, NTP, EPA). Not classified based on currently available data; hazards cannot be excluded. The toxicological profile of this substance is not fully characterized for this endpoint, and the material should be handled to avoid skin contact.

Serious Eye Damage / Irritation: No standardized OECD 405 / GHS serious eye damage or eye irritation study for bremelanotide has been identified in authoritative regulatory sources (ECHA, NTP, EPA). Not classified based on currently available data; hazards cannot be excluded. As a fine solid, mechanical irritation of the eye is possible; eye contact should be avoided.

Skin / Respiratory Sensitization: No standardized respiratory or skin sensitization study (OECD 406/429/442) for bremelanotide has been identified in authoritative regulatory sources (ECHA, NTP). Not classified based on currently available data; hazards cannot be excluded. The U.S. FDA-approved Vyleesi prescribing information notes hypersensitivity-type reactions reported in clinical use (including reports of hives and swelling of face, lips, tongue, or throat), which warrants precaution against repeated occupational exposure.

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: Bremelanotide is not listed by IARC, the U.S. National Toxicology Program (NTP) Report on Carcinogens, OSHA (29 CFR 1910 Subpart Z), or the ACGIH TLV carcinogen notations. No long-term rodent carcinogenicity bioassay results for this substance have been identified in authoritative regulatory databases. Not classified based on currently available data; hazards cannot be excluded; the carcinogenic potential of this substance is not fully characterized.

Reproductive Toxicity: The U.S. FDA-approved prescribing information for Vyleesi (bremelanotide injection; FDA accessdata, NDA 210557) states that, based on findings in animal studies, use in pregnancy may be associated with the potential for fetal harm and that there is a drug-associated risk for major birth defects, miscarriage, or adverse maternal or fetal outcomes. As reported in the FDA label and DailyMed monograph, in mice subcutaneously dosed with bremelanotide during pregnancy and lactation, developmental effects were observed in offspring at exposures greater than or equal to 125-times the maximum recommended human dose (based on AUC); the lowest dose associated with fetal harm was not identified. Women of reproductive potential should avoid occupational exposure. Formal GHS classification for reproductive toxicity from ECHA has not been located; hazards cannot be excluded on the basis of these animal developmental findings.

Specific Target Organ Toxicity (STOT): Specific target organ toxicity - single exposure (STOT-SE): No formal GHS STOT-SE classification has been established for bremelanotide by authoritative regulatory bodies (ECHA, OSHA). Clinical data summarized in the U.S. FDA-approved Vyleesi prescribing information indicate transient cardiovascular effects (increases in blood pressure with reflex decreases in heart rate) and gastrointestinal effects (nausea) following a single subcutaneous dose; relevance to occupational single-exposure scenarios has not been formally evaluated. Not classified for STOT-SE based on currently available data; hazards cannot be excluded. Specific target organ toxicity - repeated exposure (STOT-RE): No formal GHS STOT-RE classification has been established. The FDA-approved label notes findings of focal hyperpigmentation with repeated dosing. Repeat-dose toxicology data from authoritative regulatory dossiers are limited in the public domain, and the toxicological properties of this substance are not fully characterized for repeated exposure. Not classified for STOT-RE based on currently available data; hazards cannot be excluded.

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 bremelanotide (CAS 189691-06-3) in authoritative sources including PubChem, ECHA, or U.S. EPA ECOTOX. The substance is not currently listed on ECHA's harmonized classification and labelling inventory (Annex VI of CLP) with an environmental hazard classification. Based on a weight-of-evidence assessment in the absence of authoritative experimental data, the substance is not classified as hazardous to the aquatic environment under GHS/CLP criteria. Release to the environment should nevertheless be avoided as a matter of prudent practice.

Persistence and Degradability: No substance-specific experimental data on environmental persistence, ready biodegradability (e.g., OECD 301 series), or abiotic degradation (hydrolysis, photolysis) have been identified for bremelanotide (CAS 189691-06-3) in PubChem, ECHA, or U.S. EPA sources. A degradation profile cannot be reliably assigned from authoritative data at this time.

Bioaccumulative Potential: No substance-specific experimental bioconcentration factor (BCF) or measured n-octanol/water partition coefficient (log Kow) has been identified for bremelanotide (CAS 189691-06-3) in PubChem, ECHA, or U.S. EPA sources. Given the high molecular weight (1025.2 g/mol), polar functional groups (multiple amide bonds, guanidino, imidazole, indole, and carboxylic acid moieties), and zwitterionic character expected at environmental pH, significant bioaccumulation is not anticipated; however, this prediction is not supported by authoritative 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	cd2275dd-45c2-4312-b8d7-8f8d58b25660
Revision Date	2026-08-07
Version	1.0
Prepared By	Prepared in accordance with GHS Rev.8 and OSHA HazCom 2012 (29 CFR 1910.1200). Independent review by a qualified chemical safety professional is recommended prior to use.

Revision History

Revision date: 2026-08-07
Version: 1.0
Change description: Initial issue. Document prepared in 16-section GHS Rev.8 / OSHA HazCom 2012 format.

Sources Used

- PubChem (U.S. National Library of Medicine / NCBI) — https://pubchem.ncbi.nlm.nih.gov
- Peer-reviewed chemistry and toxicology literature (class-based read-across and weight-of-evidence assessment per GHS Rev.8 Chapter 1.3.2.4)
- OSHA HazCom 2012 / 29 CFR 1910.1200 Appendix A–C; GHS Rev.8; OECD Test Guidelines

Key to Abbreviations

CAS = Chemical Abstracts Service; GHS = Globally Harmonized System of Classification and Labelling of Chemicals; OSHA = U.S. Occupational Safety and Health Administration; HazCom = Hazard Communication Standard; REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals; CLP = Classification, Labelling and Packaging Regulation; TSCA = Toxic Substances Control Act; WHMIS = Workplace Hazardous Materials Information System; OEL = Occupational Exposure Limit; PEL = Permissible Exposure Limit; TLV = Threshold Limit Value; REL = Recommended Exposure Limit; STOT = Specific Target Organ Toxicity; LD50 = Median Lethal Dose; LC50 = Median Lethal Concentration; PPE = Personal Protective Equipment; SCBA = Self-Contained Breathing Apparatus; R&D = Research and Development.

Disclaimer

DISCLAIMER: The information in this Safety Data Sheet is compiled from the authoritative sources cited above, supplemented by weight-of-evidence assessment based on the compound's chemical class and published literature. It is believed to be accurate as of the revision date but is provided "as is" without warranty of any kind, express or implied, including fitness for a particular purpose. The preparer of this document has not independently tested the substance described herein. Users bear sole responsibility for verifying all information, ensuring safe handling, and compliance with all applicable federal, state, provincial, and local regulations. This SDS is not a substitute for independent chemical

safety assessment by a qualified professional. This product is intended for scientific research and development use only and is not for human consumption, drug, food, cosmetic, agricultural, or household use.

This SDS complies with GHS Revision 8 / UN GHS Rev.8 and OSHA HazCom 2012 (29 CFR 1910.1200).