B7-33

CAS: 1818415-56-3
Formula: C131H229N41O36S

Document ID: 297ae5ed
Revision Date: 2026-08-13
Version: 1.0

Section 1 — Product and Company Identification

Product Name	B7-33
Synonyms	CHEMBL4780098; orb2695021; orb2695397
CAS Number	1818415-56-3
Molecular Formula	C131H229N41O36S
IUPAC Name	(4S)-5-[[(2S)-1-[[(2S)-1-[[(2S)-1-[[(2S)-1-[[(2S)-5-amino-1-[[(2S,3S)-1-[[(2S)-1-[[(2S,3S)-1-[[(2S)-1-[[2-[[(2S)-1-[[(2S)-1-[[(2S,3R)-1-[[(2S)-1-[[(2S)-1-[[(2S)-6-amino-1-[[(2S)-1-[[(2S)-1-[[(2S)-1-amino-4-methyl-1-oxopentan-2-yl]amino]-3-hydroxy-1-oxopropan-2-yl]amino]-5-carbamimidamido-1-oxopentan-2-yl]amino]-1-oxohexan-2-yl]amino]-3-hydroxy-1-oxopropan-2-yl]amino]-3-(1H-indol-3-yl)-1-oxopropan-2-yl]amino]-3-hydroxy-1-oxobutan-2-yl]amino]-3-hydroxy-1-oxopropan-2-yl]amino]-4-methylsulfanyl-1-oxobutan-2-yl]amino]-2-oxoethyl]amino]-3-hydroxy-1-oxopropan-2-yl]amino]-3-methyl-1-oxopentan-2-yl]amino]-1-oxopropan-2-yl]amino]-3-methyl-1-oxopentan-2-yl]amino]-1,5-dioxopentan-2-yl]amino]-1-oxopropan-2-yl]amino]-5-carbamimidamido-1-oxopentan-2-yl]amino]-3-methyl-1-oxobutan-2-yl]amino]-4-methyl-1-oxopentan-2-yl]amino]-4-[[(2S)-2-[[2-[[(2S)-2-[[(2S)-2-[[(2S)-6-amino-2-[[(2S,3S)-2-[[(2S)-2-amino-3-methylbutanoyl]amino]-3-methylpentanoyl]amino]hexanoyl]amino]-4-methylpentanoyl]amino]-3-hydroxypropanoyl]amino]acetyl]amino]-5-carbamimidamidopentanoyl]amino]-5-oxopentanoic 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
B7-33	1818415-56-3	C131H229N41O36S	2986.5 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 Semax (CAS 1818415-56-3) in accordance with general good laboratory practice for research-grade peptides of unknown or incompletely characterized toxicity, consistent with OSHA HazCom 2012 (29 CFR 1910.1200) and the OSHA Laboratory Standard (29 CFR 1910.1450). Use only in a well-ventilated area, preferably within a chemical fume hood or, when weighing the dry lyophilized solid, in a balance enclosure or ventilated weighing station to control airborne particulates. Wear appropriate personal protective equipment as specified in Section 8, including chemical-resistant nitrile gloves, safety eyewear meeting ANSI Z87.1, and a laboratory coat; for operations that may generate dust or aerosols, wear a NIOSH-approved particulate respirator (e.g., N95 or higher) following a respiratory protection program compliant with 29 CFR 1910.134. Avoid inhalation of dust, ingestion, and contact with skin, eyes, and clothing. Do not eat, drink, smoke, or apply cosmetics in areas where the material is handled. Wash hands and exposed skin thoroughly with soap and water after handling and before breaks. As peptides are typically hygroscopic, allow sealed containers to equilibrate to room temperature inside a desiccator before opening to minimize moisture uptake and condensation, as recommended in general peptide-handling guidance. Minimize generation of dust; use closed transfer techniques and antistatic equipment where appropriate. Promptly clean up spills using HEPA-filtered vacuum or damp wiping rather than dry sweeping. Keep containers tightly closed when not in use, and label all dilutions and working solutions in accordance with 29 CFR 1910.1200(f). Treat as a biologically active substance with unknown human exposure hazards until additional toxicological data become available.

Storage Conditions

Store the lyophilized solid tightly sealed in the original container under an inert atmosphere (nitrogen or argon headspace recommended) in a cool, dry, well-ventilated area protected from light, heat, ignition sources, and moisture. For long-term storage of the dry powder, freezer storage at or below -18 degC (preferably -20 degC or lower) in a desiccated, light-protected environment is appropriate for lyophilized research peptides; reconstituted aqueous solutions should be aliquoted to avoid repeated freeze-thaw cycles. Use containers of compatible materials such as borosilicate glass or polypropylene with chemically resistant closures (e.g., PTFE-lined caps). Keep away from oxidizing agents, strong acids and bases, and direct sunlight or UV radiation, which can promote peptide degradation. Do not store with food, feed, or drinking water. Ensure storage areas are equipped with secondary containment and are accessible only to trained personnel. No specific shelf-life is established by an authoritative regulatory source for this compound; users should verify identity and purity prior to use after extended storage.

Incompatibilities

Avoid contact with strong oxidizing agents, strong acids, strong bases, and strong reducing agents, which may cause hydrolysis, oxidation (particularly at the methionine residue containing sulfur, consistent with the molecular formula C37H51N9O10S), or other degradation of peptide bonds. Avoid prolonged exposure to moisture, elevated temperatures, and ultraviolet or intense visible light, all of which can accelerate peptide decomposition. Protect from microbial contamination when in solution. No specific incompatibilities for this compound are listed in authoritative regulatory databases (OSHA, NIOSH, EPA, ECHA, PubChem); the cautions above reflect general chemical compatibility principles for polypeptides of this composition. Hazardous decomposition products under fire conditions may include carbon oxides (CO, CO2), nitrogen oxides (NO), and sulfur oxides (SO) - see Section 10.

Section 8 — Exposure Controls / Personal Protection

Exposure Limits

No regulatory occupational exposure limits (OEL) have been established by OSHA, ACGIH, NIOSH, or equivalent bodies for Semax (CAS 1818415-56-3). 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 area. Handle weighing and manipulation of the dry powder inside a containment primary engineering control such as a ventilated balance enclosure, laboratory fume hood, or Class II biological safety cabinet to minimize generation of airborne particulates and aerosols, consistent with the general principles in OSHA's guidance on controlling occupational exposure to hazardous drugs and NIOSH-recommended practices for handling active pharmaceutical ingredients of unknown toxicity. Provide local exhaust ventilation at points of dust generation. An accessible emergency eyewash station and safety shower should be available in the work area (per ANSI/ISEA Z358.1). Do not eat, drink, smoke, or apply cosmetics in areas where this material is handled. Wash hands thoroughly after handling.

Personal Protective Equipment

Respiratory Protection: Under normal laboratory use within a properly functioning fume hood or containment enclosure, additional respiratory protection is generally not required. If engineering controls are insufficient to control airborne particulates, or if dust or aerosols may be generated during weighing or transfer outside a containment device, use a NIOSH-approved (42 CFR Part 84) air-purifying particulate respirator equipped with N95 or higher (e.g., N100/P100) filters. Respirator selection and use must follow a written respiratory protection program meeting OSHA 29 CFR 1910.134, including medical clearance, fit testing, and training.

Hand Protection: Wear chemically resistant, powder-free disposable gloves meeting EN ISO 374 / ASTM D6978 (the ASTM standard for assessing resistance of medical gloves to chemotherapy drug permeation is applied here as a conservative reference for a bioactive peptide of unknown toxicity). Nitrile gloves of appropriate thickness are generally suitable for handling small quantities of solid peptide. Inspect gloves before use, change immediately if contamination, degradation, or tearing is suspected, and double-glove when handling the bulk powder or concentrated solutions. Wash hands with soap and water after glove removal.

Eye / Face Protection: Wear tight-fitting chemical splash goggles meeting ANSI/ISEA Z87.1 when handling the solid or solutions. A face shield worn over goggles is recommended when there is a risk of splashing, spraying, or generation of airborne particulates outside of a containment enclosure. Do not wear contact lenses when handling this material unless protective eyewear is also used.

Skin Protection: Wear a long-sleeved laboratory coat or chemical-resistant gown (low-permeability, closed-front, with knit or elastic cuffs) over street clothing, closed-toe chemically resistant footwear, and full-length trousers to prevent skin contact. For handling of bulk quantities or activities likely to generate splash or dust, wear a disposable chemical-resistant outer garment and replace immediately if contaminated. Contaminated clothing should be removed promptly, segregated, and either disposed of as chemical waste or decontaminated before reuse. Do not take contaminated clothing home for laundering.

Section 9 — Physical and Chemical Properties

Physical State	Solid (research-grade lyophilised powder or crystalline solid)
Appearance	White to off-white lyophilized powder
Odor	Odorless
Odor Threshold	Not available.
Boiling Point	*Not determined*
Melting Point	*Not determined*
Flash Point	*Not determined*
Auto-ignition Temperature	No data available.
Decomposition Temperature	No experimental data available.
Vapor Pressure	*Not determined*

Vapor Density	*Not determined*
Specific Gravity	*Not determined*
Partition Coefficient (log Kow)	No experimental data available.
Solubility	Soluble in water
Stability in Solution	Subject to hydrolytic and oxidative degradation typical of the chemical class; store reconstituted solutions refrigerated or frozen, protect from light, and use within the stability window indicated on the Certificate of Analysis.
pH	*Not determined*
Molecular Weight	2986.5 g/mol
Molecular Formula	C131H229N41O36S

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, strong acids, strong bases, and strong reducing agents, which may cause hydrolysis, oxidation (particularly at the methionine residue containing sulfur, consistent with the molecular formula C37H51N9O10S), or other degradation of peptide bonds. Avoid prolonged exposure to moisture, elevated temperatures, and ultraviolet or intense visible light, all of which can accelerate peptide decomposition. Protect from microbial contamination when in solution. No specific incompatibilities for this compound are listed in authoritative regulatory databases (OSHA, NIOSH, EPA, ECHA, PubChem); the cautions above reflect general chemical compatibility principles for polypeptides of this composition. Hazardous decomposition products under fire conditions may include carbon oxides (CO, CO2), nitrogen oxides (NO), and sulfur oxides (SO) - see Section 10.
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 Semax (CAS 1818415-56-3) are not fully characterized. No reliable acute oral, dermal, or inhalation LD50/LC50 values for this substance have been published by authoritative sources (ECHA, NIOSH, NTP, or peer-reviewed primary literature indexed in PubMed). The substance is not classified for acute toxicity based on currently available data; however, hazards cannot be excluded, and the material should be handled as if potentially hazardous in accordance with GHS Rev.8 S1.3.2.4 (weight-of-evidence approach). Routes of exposure of concern under laboratory handling include inhalation of dust/aerosol, skin and eye contact, and accidental ingestion.
Skin Corrosion / Irritation: Substance-specific skin corrosion/irritation data for Semax are not available from ECHA, NTP, or peer-reviewed primary literature. Not classified for skin corrosion or irritation based on currently available data; hazards cannot be excluded. Direct contact with the solid or with concentrated solutions may cause mechanical or transient irritation. Skin contact should be avoided and appropriate PPE (impervious gloves, lab coat) used in accordance with OSHA 29 CFR 1910.132-138.
Serious Eye Damage / Irritation: Substance-specific serious eye damage/eye irritation data for Semax are not available from ECHA, NTP, or peer-reviewed primary literature. Not classified for serious eye damage or eye irritation

based on currently available data; hazards cannot be excluded. Particulates and solutions may cause mechanical irritation on direct contact with the eye. Eye protection meeting ANSI Z87.1 is recommended when handling the substance.

Skin / Respiratory Sensitization: No substance-specific data identifying Semax as a respiratory or skin sensitizer have been located in ECHA registration dossiers, NTP reports, or peer-reviewed primary literature. Not classified for respiratory or skin sensitization based on currently available data; hazards cannot be excluded. As proteinaceous and oligopeptide materials can in some cases elicit hypersensitivity responses on repeated exposure, inhalation of dust and skin contact should be minimized as a precaution.

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: Semax (CAS 1818415-56-3) is not listed as a carcinogen by the International Agency for Research on Cancer (IARC Monographs Volumes 1-141), the U.S. National Toxicology Program 15th Report on Carcinogens, OSHA (29 CFR 1910 Subpart Z), or the U.S. EPA IRIS database. No long-term carcinogenicity bioassays for this substance have been identified in the peer-reviewed literature. Carcinogenic potential has not been fully characterized; not classified for carcinogenicity based on currently available data, and hazards cannot be excluded.

Reproductive Toxicity: No substance-specific reproductive or developmental toxicity studies for Semax have been identified in ECHA registration dossiers, the NTP Developmental and Reproductive Toxicology database, or peer-reviewed primary literature sufficient to support a GHS classification. Not classified for reproductive toxicity based on currently available data; hazards cannot be excluded. Reproductive and developmental endpoints are not fully characterized.

Specific Target Organ Toxicity (STOT): Specific Target Organ Toxicity - Single Exposure (STOT-SE): No substance--specific data are available from ECHA, NTP, NIOSH, or peer-reviewed primary literature to identify target organs following a single exposure to Semax. Not classified for STOT-SE based on currently available data; hazards cannot be excluded. Specific Target Organ Toxicity - Repeated Exposure (STOT-RE): No substance-specific repeated-dose toxicity studies adequate for GHS classification have been located in authoritative sources. Not classified for STOT-RE based on currently available data; hazards cannot be excluded. Toxicological properties following single and repeated exposure are 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 Semax (CAS 1818415-56-3) in authoritative regulatory databases (ECHA, EPA ECOTOX, OECD eChemPortal) or in PubChem. Not classified as hazardous to the aquatic environment based on a weight--of-evidence assessment in the absence of authoritative experimental data. Semax is a heptapeptide (Met-Glu-His--Phe-Pro-Gly-Pro, molecular formula C37H51N9O10S, MW ~ 813.9 g/mol) containing a sulfur-bearing methionine residue, which may undergo abiotic and biotic oxidation in environmental compartments. Prevent release to soil, surface water, groundwater, and sewer systems.

Persistence and Degradability: No substance-specific ready-biodegradability (e.g., OECD 301 series) or simulation test (OECD 308/309) data have been identified in authoritative sources for this substance. Environmental half-lives in

water, soil, sediment, and air have not been established by a recognized regulatory body. A quantitative persistence (P/vP) determination under REACH Annex XIII criteria cannot be made from the information available.

Bioaccumulative Potential: No experimentally determined bioconcentration factor (BCF) or measured log Kow (octanol-water partition coefficient) has been identified for this substance in authoritative databases (ECHA, EPA CompTox, PubChem). Given the very high molecular weight, the high number of ionizable and hydrogen-bonding functional groups, and the polypeptide-like backbone, significant bioaccumulation in aquatic organisms is not anticipated; however, a definitive B/vB classification under REACH Annex XIII cannot be assigned in the absence of 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	297ae5ed-2a00-4c28-9a52-ba5f91269bee
Revision Date	2026-08-13
Version	1.0
Prepared By	Prepared in accordance with GHS Rev.8 and OSHA HazCom 2012 (29 CFR 1910.1200). Independent review by a qualified chemical safety professional is recommended prior to use.

Revision History

Revision date: 2026-08-13
Version: 1.0
Change description: Initial issue. Document prepared in 16-section GHS Rev.8 / OSHA HazCom 2012 format.

Sources Used

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

Key to Abbreviations

CAS = Chemical Abstracts Service; GHS = Globally Harmonized System of Classification and Labelling of Chemicals; OSHA = U.S. Occupational Safety and Health Administration; HazCom = Hazard Communication Standard; REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals; CLP = Classification, Labelling and Packaging Regulation; TSCA = Toxic Substances Control Act; WHMIS = Workplace Hazardous Materials Information System; OEL = Occupational Exposure Limit; PEL = Permissible Exposure Limit; TLV = Threshold Limit Value; REL = Recommended Exposure Limit; STOT = Specific Target Organ Toxicity; LD50 =

Median Lethal Dose; LC50 = Median Lethal Concentration; PPE = Personal Protective Equipment; SCBA = Self-Contained Breathing Apparatus; R&D = Research and Development.

Disclaimer

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

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