SAFETY DATA SHEET

GHS / OSHA HazCom 2012 Compliant

Minuteman Peptides, LLC

Melanotan-I

Formula: C78H111N21O19

Document ID: 1b41ce72
Revision Date: 2026-07-18
Version: 1.0

Section 1 — Product and Company Identification

Product Name	Melanotan-I
Synonyms	Melanotan-I; [Nle4,D-Phe7]-alpha-MSH; [Nle4,D-Phe7]-?-MSH
CAS Number	*Not determined*
Molecular Formula	C78H111N21O19
IUPAC Name	4-[2-[[2-[[2-[(2-acetamido-3-hydroxypropanoyl)amino]-3-(4-hydroxyphenyl)propanoyl]amino]-3-hydroxypropanoyl]amino]hexanoylamino]-5-[[1-[[1-[[1-[[1-[[2-[[6-amino-1-[2-[(1-amino-3-methyl-1-oxobutan-2-yl)carbamoyl]pyrrolidin-1-yl]-1-oxohexan-2-yl]amino]-2-oxoethyl]amino]-3-(1H-indol-3-yl)-1-oxopropan-2-yl]amino]-5-carbamimidamido-1-oxopentan-2-yl]amino]-1-oxo-3-phenylpropan-2-yl]amino]-3-(1H-imidazol-4-yl)-1-oxopropan-2-yl]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	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
Melanotan-I	Not determined	C78H111N21O19	1646.8 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 as a potentially bioactive substance of unknown toxicity. Use only in a well-ventilated area or a certified chemical fume hood/biosafety cabinet, in accordance with OSHA 29 CFR 1910.1450 (Laboratory Standard) and 29 CFR 1910.1200 (HazCom 2012). Wear appropriate PPE as specified in Section 8 (chemical-resistant gloves, safety eyewear, lab coat). Avoid generation and inhalation of dusts, aerosols, and mists during weighing and reconstitution; manipulate the lyophilized powder in a balance enclosure or HEPA-filtered weighing station where feasible. Avoid contact with skin, eyes, and clothing. Do not eat, drink, smoke, or apply cosmetics in areas where the substance is handled (29 CFR 1910.1200 and 29 CFR 1910.141). Wash hands, forearms, and exposed skin thoroughly after handling and before breaks. Peptides are typically hygroscopic; allow sealed containers to equilibrate to room temperature in a desiccator

prior to opening to minimize moisture uptake and condensation, then reseal under dry inert atmosphere (e.g., nitrogen or argon) when practical. Minimize repeated freeze-thaw cycles of reconstituted solutions by preparing single-use aliquots. Use clean, dedicated labware to prevent cross-contamination. Decontaminate work surfaces, balances, and tools after use, and manage all waste in accordance with 40 CFR 260-273 (EPA RCRA) and applicable local regulations.

Storage Conditions

Store the lyophilized solid tightly sealed in its original container, protected from light, moisture, and air, in a cool, dry, well-ventilated area away from incompatible materials. For long-term storage of the dry powder, maintain at -20 degC (or colder) in a desiccated, dark environment; short-term storage at 2-8 degC is generally acceptable for handling purposes. Reconstituted solutions should be stored frozen in single-use aliquots and protected from light; avoid repeated freeze-thaw cycles. Keep containers clearly labeled in accordance with OSHA HazCom 2012 (29 CFR 1910.1200(f)), and segregate from food, feed, and incompatible chemicals. Restrict access to trained personnel. No specific manufacturer- or regulator-defined shelf life is established here; refer to the certificate of analysis or lot-specific documentation for expiration information.

Incompatibilities

Avoid contact with strong oxidizing agents, strong acids, and strong bases, which can degrade or hydrolyze the peptide backbone. Avoid exposure to moisture/humidity (hygroscopic), elevated temperatures, ultraviolet/visible light, and proteolytic enzymes or microbial contamination, all of which may promote hydrolysis, oxidation (particularly at tryptophan and tyrosine residues), or aggregation. Avoid reducing agents and reactive electrophiles unless required by an approved procedure. No specific incompatibility data for this exact substance are published by OSHA, NIOSH, EPA, or ECHA; the above precautions are based on general handling guidance for lyophilized synthetic 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 area. Handle weighing and transfer operations involving the dry powder inside a ventilated enclosure such as a laboratory fume hood, ventilated balance enclosure, glove box, or Class II biosafety cabinet to prevent generation of and exposure to airborne particulates/aerosols. Where dust generation cannot be eliminated, apply principles consistent with OSHA's guidance on controlling occupational exposure to hazardous drugs (29 CFR 1910.1450 'Laboratory Standard' and OSHA Technical Manual Section VI, Chapter 2) and NIOSH containment recommendations for active pharmaceutical ingredients of unknown potency. Provide eyewash stations and emergency safety showers (ANSI/ISEA Z358.1) in the immediate work area. Prohibit eating, drinking, smoking, and cosmetic application in areas where the material is handled. Decontaminate work surfaces after use.

Personal Protective Equipment

Respiratory Protection: Respiratory protection is not normally required when handling small quantities under adequate local exhaust ventilation. If engineering controls do not prevent airborne exposure (e.g., during weighing of dry powder outside a containment enclosure, or in the event of a spill), use a NIOSH-approved (42 CFR Part 84) air-purifying respirator equipped with N100, P100, or HEPA particulate filters. For larger-scale operations or where exposure potential is unknown, use a NIOSH-approved powered air-purifying respirator (PAPR) with HEPA cartridges. Respirator use must comply with the OSHA Respiratory Protection Standard (29 CFR 1910.134), including medical clearance, fit-testing, and a written respiratory protection program.

Hand Protection: Wear chemically resistant, impervious gloves meeting EN ISO 374 / ASTM D6978 (the latter is the recognized standard for gloves used with hazardous pharmaceutical agents). Nitrile gloves of minimum 0.11 mm (4 mil) thickness are generally suitable for incidental contact; double-gloving is recommended when handling the dry powder or concentrated solutions. Inspect gloves before use and replace immediately if torn, punctured, or contaminated. Wash hands thoroughly with soap and water after removing gloves and before leaving the work area.
Eye / Face Protection: Wear tight-fitting safety glasses with side shields meeting ANSI/ISEA Z87.1 (US) or EN 166 (EU) as a minimum. Where splash potential exists (handling solutions, dissolution, or reconstitution), wear chemical splash goggles. A face shield (worn over goggles, not as a substitute) is recommended when handling open quantities of dry powder outside a containment enclosure or when there is risk of splashing. An emergency eyewash station meeting ANSI/ISEA Z358.1 must be readily accessible.
Skin Protection: Wear a laboratory coat or chemical-resistant gown with long sleeves and closed cuffs. For handling dry powder or larger quantities, a disposable, low-permeability gown (e.g., polyethylene-coated or equivalent meeting ASTM D6978 where applicable) is recommended; do not re-use disposable gowns. Wear full-length trousers and closed-toe, chemically resistant footwear; shoe covers are recommended in primary handling areas. Remove and launder or dispose of contaminated clothing before reuse. Do not wear contaminated PPE outside the designated work area.

Section 9 — Physical and Chemical Properties

Physical State	Solid (research-grade lyophilised powder or crystalline solid)
Appearance	White to off-white lyophilized powder
Odor	Odorless
Odor Threshold	Not available.
Boiling Point	*Not determined*
Melting Point	*Not determined*
Flash Point	*Not determined*
Auto-ignition Temperature	No data available.
Decomposition Temperature	No experimental data available.
Vapor Pressure	*Not determined*
Vapor Density	*Not determined*
Specific Gravity	*Not determined*
Partition Coefficient (log Kow)	No experimental data available.
Solubility	Soluble in water; soluble in dilute aqueous acetic acid and 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	1646.8 g/mol
Molecular Formula	C78H111N21O19

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, and strong bases, which can degrade or hydrolyze the peptide backbone. Avoid exposure to moisture/humidity (hygroscopic), elevated temperatures, ultraviolet/visible light, and proteolytic enzymes or microbial contamination, all of which may promote hydrolysis, oxidation (particularly at tryptophan and tyrosine residues), or aggregation. Avoid reducing agents and reactive electrophiles unless required by an approved procedure. No specific incompatibility data for this exact substance are published by OSHA, NIOSH, EPA, or ECHA; the above precautions are based on general handling guidance for lyophilized synthetic peptides.

Hazardous Decomposition Products: Upon combustion or decomposition may produce: carbon monoxide (CO), carbon dioxide (CO_2), 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 data for Melanotan-I (afamelanotide; [Nle4,D-Phe7]-alpha-MSH, CID 16154396) are not fully characterized. No oral, dermal, or inhalation LD50/LC50 values from authoritative sources (ECHA, NIOSH, NTP, or peer-reviewed primary literature) have been identified for this specific substance. Toxicologic evaluation in laboratory animals reported by Dawson et al. (Life Sciences, 1988; PMID 2852652) described this melanotropin analogue as resistant to biodegradation and pharmacologically potent, but did not establish a definitive lethal-dose endpoint suitable for GHS acute toxicity classification. Acute hazards therefore cannot be excluded; treat as not classified based on currently available data and handle in accordance with prudent laboratory practice for biologically active research chemicals of unknown acute toxicity (Prudent Practices in the Laboratory, NRC 2011).

Skin Corrosion / Irritation: No data from authoritative sources (ECHA, OECD TG 404/431/439, or peer-reviewed primary literature) on skin corrosion or irritation potential of Melanotan-I have been identified. The toxicological properties of this substance are not fully characterized for this endpoint. Not classified based on currently available data; hazards cannot be excluded. Skin contact should be avoided and standard PPE (nitrile gloves, lab coat) used.

Serious Eye Damage / Irritation: No data from authoritative sources (ECHA, OECD TG 405/437/438/492, or peer-reviewed primary literature) on serious eye damage or eye irritation potential of Melanotan-I have been identified. The toxicological properties of this substance are not fully characterized for this endpoint. Not classified based on currently available data; hazards cannot be excluded. Eye protection (safety goggles) should be worn during handling.

Skin / Respiratory Sensitization: No data from authoritative sources (ECHA, OECD TG 406/429/442A-D, or peer-reviewed primary literature) specifically characterizing respiratory or skin sensitization potential of Melanotan-I have been identified. The toxicological properties of this substance are not fully characterized for this endpoint. Not classified based on currently available data; hazards cannot be excluded. As a biologically active synthetic alpha-MSH analogue containing multiple amino acid residues, sensitization potential upon repeated dermal or inhalation exposure cannot be excluded and exposure should be minimized.

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: Melanotan-I is not listed as a carcinogen by IARC, NTP (15th Report on Carcinogens), OSHA (29 CFR 1910.1003), ACGIH, or the U.S. EPA IRIS database. No long-term carcinogenicity bioassays from authoritative sources have been identified for this substance. Not classified based on currently available data; carcinogenic hazard cannot be excluded in the absence of chronic study data. The toxicological properties of this substance are not fully characterized for this endpoint.

Reproductive Toxicity: No reproductive toxicity, developmental toxicity, or effects-on-or-via-lactation data from authoritative sources (ECHA dossier, OECD TG 414/416/421/422/443, NTP, or peer-reviewed primary literature) have been identified for Melanotan-I. The toxicological properties of this substance are not fully characterized for this endpoint. Not classified based on currently available data; reproductive and developmental hazards cannot be excluded. Women who are pregnant, planning pregnancy, or breastfeeding should avoid exposure as a precaution.

Specific Target Organ Toxicity (STOT): Specific target organ toxicity - single exposure (STOT-SE) and repeated exposure (STOT-RE): No STOT-SE or STOT-RE studies from authoritative sources (ECHA, OECD TG 407/408/410/-411/412/413, NTP) have been identified for Melanotan-I. The toxicological properties of this substance are not fully characterized for these endpoints. Not classified based on currently available data; target organ effects following single or repeated exposure cannot be excluded. Case reports in the published literature describing systemic toxicity (including rhabdomyolysis and renal dysfunction) following self-administration of structurally related melanocortin analogues (e.g., Hopkins et al., Clin Toxicol, 2012; PMID 23121206) indicate that adverse systemic effects from synthetic alpha-MSH analogues administered parenterally have been documented; while these reports concern a related analogue rather than Melanotan-I specifically, the read-across cannot be excluded and exposure 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 ecotoxicity data (e.g., fish LC50, Daphnia EC50, algal ErC50) for Melanotan-I (afamelanotide; [Nle4,D-Phe7]-alpha-MSH; CAS 75921-69-6) were identified in authoritative regulatory databases (ECHA registration dossiers, US EPA ECOTOX, OECD eChemPortal) or in peer-reviewed literature. The substance is not listed on the ECHA Candidate List, the EPA Toxic Substances Control Act (TSCA) priority lists, or the OSPAR List of Substances of Possible Concern. Not classified as hazardous to the aquatic environment (acute or chronic) under GHS / Regulation (EC) 1272/2008 based on a weight-of-evidence assessment, given the absence of authoritative experimental aquatic toxicity data and the high molecular weight (1646.8 g/mol) and polar, ionizable peptide structure, which limit bioavailability to aquatic organisms. Release to surface waters, drains, or the environment should nevertheless be avoided.

Persistence and Degradability: No substance-specific experimental data on ready biodegradability (OECD 301 series), inherent biodegradability (OECD 302), hydrolysis (OECD 111), or phototransformation (OECD 316) were identified for Melanotan-I in authoritative sources. The molecule is a 13-residue synthetic alpha-melanocyte-stimulating hormone analog containing a non-natural D-phenylalanine residue and a norleucine substitution; Dawson et al. (Pharmacol. Toxicol., 1988, PMID 2852652) reported that the analog is 'very slowly biodegraded in vivo,' which suggests proteolytic stability may be greater than for the native peptide, but in vivo metabolic data are not a reliable surrogate for environmental degradation. No authoritative half-life values in water, soil, or sediment have been established.

Bioaccumulative Potential: No experimentally measured octanol/water partition coefficient (log Kow / log Pow per OECD 107, 117, or 123), bioconcentration factor (BCF, OECD 305), or bioaccumulation factor (BAF) was identified for Melanotan-I in authoritative regulatory databases or peer-reviewed literature. Significant bioaccumulation in aquatic organisms is not expected on the basis of the substance's high molecular weight (1646.8 g/mol, well above the ~700 g/mol threshold commonly applied in ECHA REACH Annex XIII guidance for likely bioaccumulation potential), its multiple ionizable groups, and its hydrophilic peptide character; however, this is a weight-of-evidence consideration 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	1b41ce72-c6cc-4889-8e37-b47bc9fdc4bc
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).