Minuteman Peptides, LLC

Oxytocin

CAS: 50-56-6
Formula: C43H66N12O12S2

Document ID: c0a52ec8
Revision Date: 2026-07-18
Version: 1.0

Section 1 — Product and Company Identification

Product Name	Oxytocin
Synonyms	OXYTOCIN; 50-56-6; Pitocin
CAS Number	50-56-6
Molecular Formula	C43H66N12O12S2
IUPAC Name	(2S)-1-[(4R,7S,10S,13S,16S,19R)-19-amino-7-(2-amino-2-oxoethyl)-10-(3-amino-3-oxopropyl)-13-[(2S)-butan-2-yl]-16-[(4-hydroxyphenyl)methyl]-6,9,12,15,18-pentaoxo-1,2-dithia-5,8,11,14,17-pentazacycloicosane-4-carbonyl]-N-[(2S)-1-[(2-amino-2-oxoethyl)amino]-4-methyl-1-oxopentan-2-yl]pyrrolidine-2-carboxamide
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

Classified under GHS Rev.8 / OSHA HazCom 2012 — see hazard statements below.

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: **WARNING**

GHS Pictograms:

GHS07 GHS08

Hazard Statements

- H302: Harmful if swallowed [Warning Acute toxicity, oral]
- H361: Suspected of damaging fertility or the unborn child [Warning Reproductive toxicity]

Precautionary Statements

- P203
- P264
- P270
- P280
- P301+P317
- P318
- P330
- P405
- P501

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
Oxytocin	50-56-6	C43H66N12O12S2	1007.2 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
Do NOT induce vomiting. Rinse mouth with water. Seek immediate medical attention. If conscious, give 1-2 glasses of water.

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 (CO_2), 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
Avoid contact with eyes, skin, and clothing. Avoid breathing dust, fumes, mist, vapors, or spray. Keep container tightly closed. Use with adequate ventilation. Wash thoroughly after handling. For research use only.

Storage Conditions
Store in a tight container as defined in the USP-NF. This material should be handled and stored per label instructions to ensure product integrity. Oxytocin injection should be stored at 15-25 degC and should not be frozen. Pitocin should

be refrigerated at 2-8 degC but may be exposed to temperatures ranging from 15-25 degC for up to 30 days; Pitocin exposed to this latter temperature range for longer periods should be discarded.

Incompatibilities

Oxytocin injection appears to be compatible with most iv infusion fluids but is reported to be physically incompatible with fibrinolysin, norepinephrine bitartrate, prochlorperazine edisylate, and warfarin sodium. Oxytocin injection has also been reported to be incompatible with various other drugs, but the compatibility depends on several factors (eg, the concentration of the drugs, resulting pH, temperature). Specialized references should be consulted for more specific compatibility information.

Section 8 — Exposure Controls / Personal Protection

Exposure Limits

No regulatory occupational exposure limits (OEL) have been established for this substance by OSHA (PEL), ACGIH (TLV), NIOSH (REL), or other authoritative bodies. No biological exposure indices (BEIs) have been established for this substance. Handle as a potentially bioactive substance of unknown toxicity; control exposure to the lowest level reasonably achievable (ALARA) using the engineering controls and PPE specified below.

Engineering Controls

Use in a well-ventilated area or fume hood. Provide local exhaust ventilation to control airborne exposures below applicable exposure limits.

Personal Protective Equipment

Respiratory Protection: Engineering controls such as exhaust ventilation are recommended. Use a NIOSH-approved respirator, if it is determined to be necessary by an industrial hygiene survey involving air monitoring. In the event that a respirator is not required, an approved dust mask should be used.

Hand Protection: Impervious chemical-resistant gloves (nitrile, neoprene, or rubber). Inspect gloves before use.

Eye / Face Protection: Safety glasses with side shields or chemical splash goggles.

Skin Protection: Laboratory coat or chemical-resistant apron. Wash contaminated clothing before reuse.

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	192-194
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 n-butanol and acetic acid; practically insoluble in ether and acetone
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	3.0-5.0 (0.1% aqueous solution)
Molecular Weight	1007.2 g/mol
Molecular Formula	C43H66N12O12S2

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: Oxytocin injection appears to be compatible with most iv infusion fluids but is reported to be physically incompatible with fibrinolysin, norepinephrine bitartrate, prochlorperazine edisylate, and warfarin sodium. Oxytocin injection has also been reported to be incompatible with various other drugs, but the compatibility depends on several factors (eg, the concentration of the drugs, resulting pH, temperature). Specialized references should be consulted for more specific compatibility information.

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 of oxytocin (CAS 50-56-6) has not been fully characterized for occupational exposure routes (oral, dermal, inhalation). No acute toxicity values from authoritative regulatory compilations (NIOSH, ECHA harmonised classification, NTP) have been identified that would support assignment to a GHS acute toxicity category. Based on currently available data, the substance is not classified for acute toxicity; however, hazards cannot be excluded (GHS Rev.8, S1.3.2.4). The compound is biologically potent at very low doses, and handling as if hazardous - minimizing aerosolization, skin contact, and accidental ingestion - is appropriate.

Skin Corrosion / Irritation: No data from authoritative sources (ECHA harmonised classification, NIOSH, peer-reviewed in vivo or validated in vitro studies under OECD TG 404/431/439) on skin corrosion or irritation potential of oxytocin were 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. Avoid skin contact as a precaution and handle in accordance with general laboratory practice for biologically active substances.

Serious Eye Damage / Irritation: No data from authoritative sources (ECHA harmonised classification, peer-reviewed studies under OECD TG 405/437/438/492) on serious eye damage or eye irritation potential of oxytocin were 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. Avoid eye contact; mechanical irritation from particulates of the solid form may occur.

Skin / Respiratory Sensitization: No data from authoritative sources (ECHA harmonised classification, peer-reviewed LLNA/OECD TG 429, 442A-E, or guinea pig studies) establishing respiratory or skin sensitization potential of oxytocin were 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. Rare hypersensitivity reactions (including anaphylactoid reactions) have been described in the post-marketing clinical literature following parenteral administration; this information is provided for hazard awareness only and does not constitute a formal GHS sensitization classification.

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: Oxytocin (CAS 50-56-6) is not listed by IARC (Monographs), the U.S. National Toxicology Program (15th Report on Carcinogens, 2021), OSHA (29 CFR 1910 Subpart Z), or the U.S. EPA IRIS as a known, probable, or suspected human carcinogen. No long-term carcinogenicity bioassays meeting OECD TG 451/453 have been identified in authoritative compilations. The toxicological properties of this substance are not fully characterized for this endpoint. Not classified based on currently available data; hazards cannot be excluded.

Reproductive Toxicity: No harmonised GHS classification for reproductive toxicity has been issued by ECHA for oxytocin, and the substance is not listed under California Proposition 65 for reproductive toxicity. Standardised developmental/reproductive toxicity studies (OECD TG 414, 416, 421/422, 443) meeting GHS classification criteria have not been identified in authoritative compilations. The substance is pharmacologically active on uterine smooth muscle and is contraindicated or used with caution during pregnancy in clinical settings; this is a pharmacological consideration and is reported here only to alert handlers - particularly individuals who are pregnant or may become pregnant - of the potential consequences of inadvertent systemic exposure. The toxicological properties for this endpoint are not fully characterized. Not classified based on currently available data; hazards cannot be excluded.

Specific Target Organ Toxicity (STOT): Specific Target Organ Toxicity - Single Exposure (STOT-SE) and Repeated Exposure (STOT-RE): No data from authoritative sources (ECHA harmonised classification, NIOSH, peer-reviewed studies under OECD TG 407/408/409/410/411/412/413) establishing target-organ toxicity of oxytocin following single or repeated occupational exposure were identified. The toxicological properties of this substance are not fully characterized for STOT-SE or STOT-RE endpoints. Not classified based on currently available data; hazards cannot be excluded. Because the substance is biologically active at very low systemic doses, exposure by any route 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, algae ErC50) identified in authoritative sources (US EPA ECOTOX, ECHA registration dossiers, PubChem) for oxytocin (CAS 50-56-6). Not classified as hazardous to the aquatic environment based on weight-of-evidence assessment in the absence of authoritative experimental data. As a pharmacologically active peptide hormone, release to the environment should nevertheless be minimized; avoid discharge to surface water, sewers, or the wider environment.

Persistence and Degradability: No substance-specific experimental data on ready biodegradability (e.g., OECD 301 series) or abiotic degradation (hydrolysis, photolysis) identified in authoritative sources for oxytocin (CAS 50-56-6). Oxytocin is a cyclic nonapeptide stabilized by an intramolecular disulfide bond; in biological systems it is rapidly

cleaved by peptidases (oxytocinases), but corresponding environmental half-life data have not been established by an authoritative source.

Bioaccumulative Potential: No experimentally determined bioconcentration factor (BCF) or measured log Kow identified in authoritative sources (PubChem, ECHA, US EPA) for oxytocin (CAS 50-56-6). Given the moderate molecular weight (1007.2 g/mol), high polarity, and multiple ionizable/hydrogen-bonding groups characteristic of this cyclic nonapeptide, significant bioaccumulation in aquatic organisms is not anticipated, but this conclusion is based on physicochemical considerations rather than substance-specific experimental data.

Mobility in Soil: No substance-specific experimental data identified.

Other Adverse Effects: No other adverse environmental effects identified. The substance is not included on the Montreal Protocol list of ozone-depleting substances.

Section 13 — Disposal Considerations

Dispose of contents and container in accordance with all local, state, and federal regulations. Do not dispose of this material into sewers or waterways. Contact a licensed waste disposal company for disposal guidance.

US: Dispose in accordance with 40 CFR Parts 261-270 (RCRA). **EU:** Dispose according to Directive 2008/98/EC (Waste Framework Directive).

Section 14 — Transport Information

DOT (US)	Not regulated as dangerous goods under DOT (49 CFR) based on current classification.
IATA	Not regulated as dangerous goods under IATA Dangerous Goods Regulations based on current classification.
IMDG	Not regulated as dangerous goods or as a marine pollutant under the IMDG Code based on current classification.
UN Number	Not applicable.

Transport classifications above are based on the substance's intrinsic hazard classification; the shipper must independently verify the classification, packaging, labelling, and documentation requirements for their specific shipment configuration, quantity, and carrier (including airline policies) prior to dispatch.

Section 15 — Regulatory Information

United States

TSCA (Toxic Substances Control Act): May be eligible for exemption from TSCA inventory listing requirements under the R&D provisions of 40 CFR 720.36, depending on actual conditions of use. This substance is supplied solely for use in scientific research and development in small quantities; it is not intended for, and shall not be used for, any commercial manufacturing, processing, or distribution in commerce. The importer/end user is responsible for confirming that the R&D exemption criteria are met for their specific use. **OSHA HazCom 2012:** This SDS was prepared in accordance with 29 CFR 1910.1200 (HazCom 2012), aligned with the Globally Harmonized System (GHS) Rev. 8. **CERCLA / SARA Title III:** Not listed as a CERCLA Hazardous Substance (40 CFR 302.4); not subject to SARA 313 reporting based on available classification data. Users must independently verify applicability for their facility.

European Union

REACH (EC 1907/2006): Supplied solely for Scientific Research and Development (SR&D) use in quantities below 1 tonne per year per legal entity. Where applicable, this use may be exempt from REACH registration obligations under the scientific research and development provisions of REACH Article 3(23) and the conditions of Article 26(3); importers/users should independently verify the applicable exemption pathway for their specific use. If the substance is used as part of a formally notified Product and Process Oriented Research and Development (PPORD) programme, the separate notification procedure under REACH Article 9 (with a 5-year exemption renewable once) may apply instead. **CLP (EC 1272/2008):** Not classified under CLP based on available data; no harmonized classification entry identified in Annex VI of CLP or the ECHA Classification and Labelling (C&L) Inventory.

Canada

WHMIS 2015 / HPR: Not classified as a hazardous product under the Hazardous Products Act and Hazardous Products Regulations (SOR/2015-17) based on available data and weight-of-evidence assessment. Supplied for laboratory research use only. **DSL/NDSL:** Research-use exemption applies; substance is not intended for commercial import or manufacture in Canada.

Note: The regulatory statements above reflect the intended use of this substance for scientific research and development only and do not constitute a legal determination of regulatory status. If the substance is used outside the R&D exemption scope, users are solely responsible for independently verifying applicable regulatory obligations (TSCA, REACH, WHMIS, state, and local) for their specific use and jurisdiction prior to any such use.

Section 16 — Other Information

Document ID	c0a52ec8-ccb6-42ae-96d4-ccfeb53c1650
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).