



SAFETY DATA SHEET

GHS / OSHA HazCom 2012 Compliant

Viking Stack Peptides

2-oxo-5-phenylpentanoic acid

CAS: 88768-11-0

Formula: C₁₁H₁₂O₃

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Version: 1.0

Section 1 — Product and Company Identification

Product Name	2-oxo-5-phenylpentanoic acid
Synonyms	2-oxo-5-phenylpentanoic acid; 5-Phenyl-2-Keto-Valeric Acid; RefChem:537689
CAS Number	88768-11-0
PubChem CID	13294447
Molecular Formula	C ₁₁ H ₁₂ O ₃
IUPAC Name	2-oxo-5-phenylpentanoic 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	Viking Stack Peptides
Address	560, Fort Worth, TX 76137, United States
Phone	8178816217
Emergency Phone	8178816217

Section 2 — Hazard Identification

Classification of the substance

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

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

Signal Word: None

GHS Pictograms:

None required based on classification.

Hazard Statements

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

Precautionary Statements

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

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

Hazards Not Otherwise Classified (HNOC)

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

Section 3 — Composition / Information on Ingredients

Single-substance product. Chemical identity:

Ingredient	CAS Number	Mol. Formula	Mol. Weight	Concentration
2-oxo--5-phenylpentanoic acid	88768-11-0	C11H12O3	192.21 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 practice as required by 29 CFR 1910.1200 and 29 CFR 1910.132-138. Treat as a potentially bioactive substance of unknown toxicity: avoid all contact with skin, eyes, and clothing, and avoid inhalation of dusts, mists, or aerosols. Handle only in a well-ventilated area; where dust or aerosol may be generated (e.g., weighing out solids), use a chemical fume hood, ventilated balance enclosure, or local exhaust ventilation, supplemented by respiratory protection where engineering controls are insufficient (see Section 8). Wear chemical-resistant gloves, safety goggles meeting ANSI Z87.1, and a laboratory coat; remove and wash contaminated clothing before reuse. Do not eat, drink, smoke, or store food in work areas. Wash hands, forearms, and face thoroughly after handling and before breaks. Minimize generation and accumulation of dust; ground and bond containers when transferring to prevent electrostatic discharge, as combustible organic dusts can present an explosion hazard (see NFPA 654). Keep containers tightly closed when not in use and open carefully to release any internal pressure. Avoid contact with strong oxidizers, strong bases, and sources of heat, sparks, open flame, or other ignition sources. Use spark-resistant tools and explosion-proof equipment where warranted. Contaminated work clothing should not be allowed out of the workplace. Provide eyewash stations and safety showers in the immediate work area per ANSI Z358.1.

Storage Conditions

Store in the original tightly closed container in a cool, dry, well-ventilated area away from direct sunlight, heat, and ignition sources. As an alpha-keto carboxylic acid, the compound is expected to be sensitive to moisture, heat, light,

and oxidation and is prone to decarboxylation on prolonged heating; storage under an inert atmosphere (nitrogen or argon) and refrigerated (2-8 degC) or frozen (-20 degC) conditions, protected from light, is recommended to preserve integrity. Allow containers to warm to room temperature in a desiccator before opening to prevent condensation of atmospheric moisture on the solid. Segregate from oxidizers, strong bases, strong reducing agents, amines, and food/feedstuffs in accordance with NFPA 400 and 29 CFR 1910.106 storage-segregation principles. Keep containers upright and clearly labeled per 29 CFR 1910.1200(f). Store away from incompatible materials (see below) and out of reach of unauthorized personnel. Do not return unused material to the original container. No specific shelf-life data are available from authoritative sources; use qualified stock and periodically inspect containers for signs of degradation, discoloration, or container damage.

Incompatibilities

Strong oxidizing agents (e.g., peroxides, perchlorates, nitrates, chromates, permanganates, concentrated nitric acid, hypochlorites) - risk of vigorous or exothermic oxidation of the organic substrate. Strong bases (e.g., alkali metal hydroxides, alkoxides) - the carboxylic acid will undergo exothermic neutralization and salt formation. Strong reducing agents (e.g., metal hydrides, active metals) - evolution of flammable hydrogen gas may occur upon reaction of the carboxylic acid proton. Primary and secondary amines and hydrazines - reactive toward the alpha-ketoacid moiety (imine/hydrazone formation). Strong dehydrating or electrophilic reagents (e.g., acid chlorides, thionyl chloride, oleum). Elevated temperatures and prolonged heating - may promote decarboxylation of the alpha-ketoacid function, as documented for alpha-keto carboxylic acids in the peer-reviewed literature (see PMC11357500). Moisture and prolonged exposure to air/light - may cause hydration, hydrolysis, or oxidative degradation. Avoid contact with incompatible packaging materials such as certain rubbers or unlined light metals that may be attacked by organic acids; borosilicate glass, PTFE, and HDPE are generally suitable.

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 within a certified chemical fume hood, ventilated enclosure, or local exhaust ventilation sufficient to keep airborne concentrations as low as reasonably achievable. For weighing and transfer of dry powder, use a laboratory balance enclosure, glove box, or ventilated weighing hood to prevent dust generation. Provide readily accessible emergency eyewash and safety shower stations in the work area, per ANSI Z358.1. Do not eat, drink, smoke, or store food in areas where this substance is handled. Wash hands and exposed skin thoroughly after handling.

Personal Protective Equipment

Respiratory Protection: Respiratory protection is not typically required when handling small quantities under adequate local exhaust ventilation (e.g., a chemical fume hood). Where engineering controls are insufficient and airborne dust, mists, or aerosols may be generated, use a NIOSH-approved (42 CFR Part 84) air-purifying particulate respirator (e.g., N95 for nuisance-level dust; N100/P100 for higher exposures). Respirator use must be part of a complete respiratory protection program compliant with OSHA 29 CFR 1910.134, including medical evaluation, fit-testing, and training.

Hand Protection: Wear chemical-resistant protective gloves compliant with EU EN 374 / US ANSI-ISEA 105. Nitrile rubber gloves (minimum thickness 0.11 mm) are generally suitable for incidental contact with organic solids; for prolonged or repeated contact, consider butyl rubber or laminated (multilayer) film gloves. Inspect gloves before use,

replace immediately if torn, punctured, or contaminated, and wash hands after glove removal. Actual breakthrough time will depend on glove material, thickness, and conditions of use and should be verified with the glove manufacturer.

Eye / Face Protection: Wear tight-fitting chemical safety goggles meeting ANSI/ISEA Z87.1 (US) or EN 166 (EU). A face shield (worn over goggles) is recommended when splashes, sprays, or dust generation are possible, or when handling larger quantities. Do not wear contact lenses when handling this substance.

Skin Protection: Wear a laboratory coat or chemical-resistant long-sleeved protective garment, full-length trousers, and closed-toe chemical-resistant footwear. For operations with potential for splash or significant dust generation, wear a chemical-resistant apron or coverall (e.g., Tyvek or equivalent). Remove and launder contaminated clothing before reuse; do not take contaminated clothing home. Maintain good personal hygiene: wash hands, forearms, and face after handling and before breaks or meals.

Section 9 — Physical and Chemical Properties

Physical State	Solid (research-grade lyophilised powder or crystalline solid)
Appearance	White to off-white crystalline solid
Odor	Not available.
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	Slightly soluble in water; soluble in ethanol, methanol, 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	192.21 g/mol
Molecular Formula	C11H12O3

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 (e.g., peroxides, perchlorates, nitrates, chromates, permanganates, concentrated nitric acid, hypochlorites) - risk of vigorous or exothermic oxidation of the organic substrate. Strong bases (e.g., alkali metal hydroxides, alkoxides) - the carboxylic acid will undergo exothermic neutralization and salt formation. Strong reducing agents (e.g., metal hydrides, active metals) - evolution of flammable hydrogen gas may occur upon reaction of the carboxylic acid proton. Primary and secondary amines and hydrazines - reactive

toward the alpha-ketoacid moiety (imine/hydrazone formation). Strong dehydrating or electrophilic reagents (e.g., acid chlorides, thionyl chloride, oleum). Elevated temperatures and prolonged heating - may promote decarboxylation of the alpha-ketoacid function, as documented for alpha-keto carboxylic acids in the peer-reviewed literature (see PMC11357500). Moisture and prolonged exposure to air/light - may cause hydration, hydrolysis, or oxidative degradation. Avoid contact with incompatible packaging materials such as certain rubbers or unlined light metals that may be attacked by organic acids; borosilicate glass, PTFE, and HDPE are generally suitable.

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

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: No quantitative acute toxicity data (oral, dermal, or inhalation LD₅₀/LC₅₀) from authoritative sources (ECHA, NIOSH, NTP, or peer-reviewed literature) have been located for 2-oxo-5-phenylpentanoic acid (CAS 88768-11-0). The toxicological properties of this substance are not fully characterized. Not classified based on currently available data; acute hazards cannot be excluded. As with any alpha-keto carboxylic acid, exposure by ingestion, inhalation of dust/mist, or skin contact should be minimized as a precaution.

Skin Corrosion / Irritation: No experimental skin corrosion/irritation study data from authoritative sources (ECHA, OECD Test Guideline 404/431/439 studies, or peer-reviewed literature) have been identified for this substance. The compound contains a free carboxylic acid functional group, which may cause mechanical or mild chemical irritation on prolonged contact with skin. Not classified based on currently available data; hazards cannot be excluded. Handle with impervious gloves and avoid skin contact.

Serious Eye Damage / Irritation: No experimental eye irritation/corrosion data (e.g., OECD Test Guideline 405, 437, 438, or 492) from authoritative sources have been located for 2-oxo-5-phenylpentanoic acid. Particulates and solids containing a carboxylic acid moiety may cause mechanical irritation and transient discomfort on ocular contact. Not classified based on currently available data; hazards cannot be excluded. Eye protection meeting ANSI Z87.1 or EN 166 is recommended when handling.

Skin / Respiratory Sensitization: No respiratory or skin sensitization data (e.g., OECD TG 429 LLNA, TG 442A-E, or human patch test data) from ECHA, NTP, or peer-reviewed literature have been identified for this substance. Not classified based on currently available data; sensitization hazards cannot be excluded. The substance should be handled to minimize skin and respiratory exposure until further data are available.

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: 2-Oxo-5-phenylpentanoic acid (CAS 88768-11-0) is not listed by IARC, the U.S. National Toxicology Program (NTP 15th Report on Carcinogens), OSHA (29 CFR 1910.1200 Subpart Z), the U.S. EPA IRIS program, or the ACGIH TLV carcinogen list. No carcinogenicity bioassay data have been located in authoritative sources. Not classified based on currently available data; carcinogenic hazards cannot be excluded due to absence of long-term studies.

Reproductive Toxicity: No reproductive or developmental toxicity study data (e.g., OECD TG 414, 416, 421, 422, or 443) for 2-oxo-5-phenylpentanoic acid have been identified in authoritative sources (ECHA, NTP, EPA, or peer-reviewed literature). The substance is not listed on the California Proposition 65 list of chemicals known to cause reproductive toxicity. 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): No specific target organ toxicity studies (single-exposure STOT-SE or repeated-exposure STOT-RE, e.g., OECD TG 407, 408, 410, 412, or 413) have been located for 2-oxo-5-phenylpentanoic acid in ECHA, NTP, NIOSH, or peer-reviewed sources. Specific target organs of concern have not been established, and the toxicological profile is not fully characterized. Not classified for STOT-SE or STOT-RE based on currently available data; target organ effects following single or repeated exposure cannot be excluded. Minimize repeated or prolonged exposure as a precautionary measure.

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 2-oxo-5-phenylpentanoic acid (CAS 88768-11-0) in authoritative sources (ECHA, EPA ECOTOX, PubChem, NITE). Not classified as hazardous to the aquatic environment (acute or chronic) under GHS/CLP based on weight-of-evidence assessment in the absence of authoritative experimental data. Release to the environment, sewers, surface water, and groundwater should nevertheless be avoided.

Persistence and Degradability: No substance-specific experimental biodegradation, hydrolysis, or photolysis data have been identified for this substance in authoritative databases (ECHA, EPA, PubChem). A definitive persistence assessment cannot be made from authoritative experimental data at this time. The alpha-keto carboxylic acid functionality is expected to be ionized at environmental pH (pKa of the carboxyl group typical of alpha-keto acids, ~2), which may influence environmental partitioning; however, this is a qualitative consideration and not a substitute for measured data.

Bioaccumulative Potential: No experimentally measured log Kow (octanol-water partition coefficient) or bioconcentration factor (BCF) values have been identified for 2-oxo-5-phenylpentanoic acid in authoritative sources. Bioaccumulation potential cannot be reliably characterized without substance-specific measured data. The presence of an ionizable carboxylic acid group would be expected to reduce partitioning into biota relative to the neutral molecule, but this is a qualitative consideration only.

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.
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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

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Revision Date	2026-09-11
Version	1.0
Prepared By	Prepared in accordance with GHS Rev.8 and OSHA HazCom 2012 (29 CFR 1910.1200). Independent review by a qualified chemical safety professional is recommended prior to use.

Revision History

Revision date: 2026-09-11

Version: 1.0

Change description: Initial issue. Document prepared in 16-section GHS Rev.8 / OSHA HazCom 2012 format.

Sources Used

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

Key to Abbreviations

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

Disclaimer

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

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