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RU-58841

CAS: 154992-24-2

Formula: C17H18F3N3O3

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Version: 1.0

Section 1 — Product and Company Identification

Product Name	RU-58841
Synonyms	154992-24-2; RU 58841; RU-58841
CAS Number	154992-24-2
Molecular Formula	C17H18F3N3O3
IUPAC Name	4-[3-(4-hydroxybutyl)-4,4-dimethyl-2,5-dioxoimidazolidin-1-yl]-2-(trifluoromethyl) benzonitrile
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
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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
RU-58841	154992-24-2	C17H18F3N3O3	369.34 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 only in well-ventilated areas, preferably within a certified chemical fume hood or local exhaust ventilation. Because RU58841 (CAS 154992-24-2) is a synthetic organic compound of limited toxicological characterization, treat it as a potentially bioactive substance of unknown toxicity and apply a precautionary control-banding approach consistent with OSHA 29 CFR 1910.1200 and NIOSH guidance for research chemicals with no established occupational exposure limit. Wear appropriate personal protective equipment: chemical-resistant nitrile gloves (inspect before each use and replace immediately if torn or contaminated), safety goggles meeting ANSI Z87.1, and a laboratory coat with closed-toe footwear. Use a NIOSH-approved respirator (e.g., N95 or higher, or P100 for fine powders) when weighing, transferring, or otherwise generating dusts, mists, or aerosols, in accordance with the OSHA Respiratory Protection Standard (29 CFR 1910.134). Avoid inhalation of dust and avoid contact with skin, eyes, and clothing. Do not eat, drink, smoke, or apply cosmetics in areas where the compound is handled. Wash hands and exposed skin thoroughly with soap and water after handling and before leaving the work area. Keep containers tightly closed when not in use and minimize the generation and accumulation of dust. Ground and bond containers and use non-sparking tools when transferring quantities sufficient to create a dust cloud, as a general precaution for fine organic powders. Use the smallest practical quantities, and decontaminate work surfaces and reusable equipment immediately after use. Collect all waste, contaminated PPE, and cleaning materials for disposal as hazardous chemical waste in accordance with 40 CFR 260-273 and applicable state/local regulations.

Storage Conditions

Store in a tightly closed, clearly labeled, chemically compatible container (amber glass or equivalent inert container is recommended to limit light exposure) in a cool, dry, well-ventilated area away from direct sunlight, heat, ignition sources, and moisture. The compound contains hydrolytically and oxidatively susceptible functional groups (hydantoin/-imidazolidinedione, aromatic nitrile, hydroxyalkyl side chain, trifluoromethyl group); to preserve integrity, long-term storage at refrigerated (2-8 degC) or freezer (-20 degC) temperatures under an inert atmosphere (e.g., nitrogen or argon) and protected from light is appropriate for laboratory research quantities. Allow sealed containers to equilibrate to room temperature before opening to prevent moisture condensation on the solid. Keep segregated from incompatible materials (see below) and from foodstuffs. Store in a secure laboratory area with restricted access, consistent with OSHA 29 CFR 1910.1450 (Laboratory Standard) for chemicals of unknown or limited toxicity. Do not store quantities larger than necessary for ongoing research use. No authoritative regulatory shelf-life value has been established for this substance; periodically inspect containers for signs of degradation, discoloration, or compromised seals and reverify identity/purity before reuse.

Incompatibilities

Avoid contact with strong oxidizing agents (e.g., peroxides, perchlorates, chlorates, nitrates, permanganates, chlorine, bromine, fluorine), strong reducing agents, strong acids, and strong bases, which may attack the hydantoin ring, the aromatic nitrile, or the hydroxyalkyl side chain and can lead to violent or exothermic reactions typical of organic nitriles and trifluoromethyl aromatics. Avoid prolonged exposure to moisture (risk of hydrolysis of the imidazolidinedione/nitrile groups), elevated temperatures, direct sunlight or UV light, and ignition sources. Thermal decomposition can be expected to release hazardous combustion products including carbon monoxide, carbon dioxide, oxides of nitrogen (NO_x), hydrogen fluoride, and other toxic fluorinated and nitrogen-containing fragments; do not expose to open flame or temperatures above ambient handling conditions. No specific incompatibility data for RU58841 are published in authoritative regulatory databases (OSHA, NIOSH, EPA, ECHA, PubChem); the precautions above are derived from the known reactivity of its constituent functional groups.

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; RU58841 is a non-steroidal androgen receptor antagonist research chemical and should be handled with controls appropriate to a pharmacologically active investigational compound.

Engineering Controls

Use only in facilities designed for handling research chemicals and active pharmaceutical ingredients (APIs). Weigh-out, dispensing, and any operation that may generate dust or aerosols must be performed inside a certified ventilated enclosure such as a chemical fume hood (face velocity ~80-120 fpm / 0.4-0.6 m/s per ANSI/AIHA Z9.5), a ducted powder weighing hood, or a Class I/II containment device (e.g., glove box or laminar-flow safety enclosure) appropriate to the quantity handled. Local exhaust ventilation should be used in preference to general dilution ventilation, consistent with OSHA 29 CFR 1910.1450 (Laboratory Standard) and ACGIH 'Industrial Ventilation: A Manual of Recommended Practice.' Keep containers tightly closed when not in use. Provide an emergency eyewash and safety shower meeting ANSI Z358.1 within the immediate work area. Do not eat, drink, smoke, or apply cosmetics in areas where this material is handled. Wash hands, forearms, and face thoroughly after handling and before breaks.

Personal Protective Equipment

Respiratory Protection: Respiratory protection is not normally required when material is handled in a properly functioning fume hood or containment enclosure. Where engineering controls are inadequate, where airborne dust, mist, or aerosol may be generated (e.g., weighing of dry powder, sonication, lyophilization), or during clean-up of

a release, wear a NIOSH-approved air-purifying respirator with N100/P100 particulate filters (42 CFR Part 84). For higher-exposure tasks or unknown airborne concentrations, use a powered air-purifying respirator (PAPR) with HEPA cartridges or a supplied-air respirator. Respirator selection, fit-testing, medical clearance, and use must comply with OSHA 29 CFR 1910.134.

Hand Protection: Wear chemical-resistant gloves meeting EN ISO 374-1 (Type B) / ASTM D6978 where applicable. Nitrile rubber gloves of ≥ 0.11 mm (4-8 mil) thickness are recommended for incidental contact; double-glove for weighing of dry powder, work with concentrated solutions in DMSO or other penetrating solvents, or any task with elevated exposure potential, as DMSO and similar carriers can dramatically increase glove permeation and dermal uptake. Inspect gloves before use, replace immediately if torn, punctured, or contaminated, and wash hands thoroughly after removal. Glove breakthrough times for this specific compound have not been published; select and change gloves based on the carrier solvent in use.

Eye / Face Protection: Wear tightly fitting safety glasses with side shields meeting ANSI/ISEA Z87.1 (US) or EN 166 (EU) as a minimum. Use indirect-vented chemical splash goggles when handling solutions, when there is potential for splash, or when working above eye level. A face shield (worn over goggles, not as a substitute) is recommended when handling larger quantities, when pressurized operations are performed, or during transfer of concentrated stock solutions.

Skin Protection: Wear a long-sleeved laboratory coat or chemical-resistant gown closed at the front, full-length trousers, and closed-toe chemical-resistant footwear. Use a disposable chemical-resistant apron or disposable solid-front gown over the lab coat for weighing, dispensing of dry powder, or work with concentrated solutions. Do not wear contaminated clothing outside the work area; remove and launder/dispose of contaminated PPE separately. Given that RU58841 is a topically active research compound formulated for skin penetration, minimize all dermal contact and avoid skin contact with solutions in penetrating solvents (e.g., DMSO, ethanol, propylene glycol). Pregnant workers, workers who may become pregnant, and breastfeeding workers should consult occupational health before handling, as the substance is a pharmacologically active anti-androgen of unknown reproductive/developmental hazard to humans.

Section 9 — Physical and Chemical Properties

Physical State	Solid (research-grade lyophilised powder or crystalline solid)
Appearance	White to off-white solid
Odor	Not available.
Odor Threshold	Not available.
Boiling Point	<i>Not determined</i>
Melting Point	<i>Not determined</i>
Flash Point	<i>Not determined</i>
Auto-ignition Temperature	No data available.
Decomposition Temperature	No experimental data available.
Vapor Pressure	<i>Not determined</i>
Vapor Density	<i>Not determined</i>
Specific Gravity	<i>Not determined</i>
Partition Coefficient (log K _{ow})	No experimental data available.
Solubility	Soluble in DMSO and ethanol; practically insoluble 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	<i>Not determined</i>
Molecular Weight	369.34 g/mol
Molecular Formula	C17H18F3N3O3

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 (e.g., peroxides, perchlorates, chlorates, nitrates, permanganates, chlorine, bromine, fluorine), strong reducing agents, strong acids, and strong bases, which may attack the hydantoin ring, the aromatic nitrile, or the hydroxyalkyl side chain and can lead to violent or exothermic reactions typical of organic nitriles and trifluoromethyl aromatics. Avoid prolonged exposure to moisture (risk of hydrolysis of the imidazolidinedione/nitrile groups), elevated temperatures, direct sunlight or UV light, and ignition sources. Thermal decomposition can be expected to release hazardous combustion products including carbon monoxide, carbon dioxide, oxides of nitrogen (NO_x), hydrogen fluoride, and other toxic fluorinated and nitrogen-containing fragments; do not expose to open flame or temperatures above ambient handling conditions. No specific incompatibility data for RU58841 are published in authoritative regulatory databases (OSHA, NIOSH, EPA, ECHA, PubChem); the precautions above are derived from the known reactivity of its constituent functional groups.

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

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 RU58841 (CAS 154992-24-2) has not been fully characterized. No quantitative acute toxicity values (oral, dermal, or inhalation LD₅₀/LC₅₀) from authoritative sources such as ECHA, NIOSH, the U.S. EPA, or peer-reviewed primary literature were identified for this substance. In the absence of substance-specific data, this material is not classified for acute toxicity based on currently available data; however, hazards cannot be excluded. Handle as if potentially toxic by all routes of exposure (oral, dermal, inhalation) and minimize contact in accordance with the principles of 29 CFR 1910.1200 and GHS Rev.8 Chapter 1.3.2.4 (weight of evidence). The substance is a synthetic small organic molecule containing a hydantoin (imidazolidine-2,5-dione) core, a nitrile group, and a trifluoromethyl-substituted aromatic ring; data on closely analogous substances are insufficient to permit quantitative read-across.

Skin Corrosion / Irritation: No validated in vivo or in vitro skin irritation/corrosion study (e.g., OECD TG 404, 431, or 439) for RU58841 has been identified in publicly accessible authoritative databases (ECHA dossier, PubChem, peer-reviewed literature). The substance is not classified for skin corrosion/irritation based on currently available data; hazards cannot be excluded. Direct or prolonged dermal contact with the solid or with solutions of the substance should be avoided as a precaution.

Serious Eye Damage / Irritation: No validated eye irritation/serious eye damage data (e.g., OECD TG 405, 437, 438, 491, or 492) for RU58841 are available from authoritative sources. The substance is not classified for serious eye damage/eye irritation based on currently available data; hazards cannot be excluded. Particulates and solutions of organic substances may produce mechanical or chemical irritation on direct ocular contact; eye protection should be worn.

Skin / Respiratory Sensitization: No data from validated skin sensitization assays (e.g., OECD TG 406 Guinea Pig Maximization Test, TG 429 LLNA, or TG 442A/B/C/D/E key event assays) or respiratory sensitization studies for RU58841 have been identified in ECHA, NIOSH, or peer-reviewed primary literature. The substance is not classified for skin or respiratory sensitization based on currently available data; hazards cannot be excluded.

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: RU58841 (CAS 154992-24-2) is not listed as a carcinogen by IARC, the U.S. National Toxicology Program (NTP) Report on Carcinogens, OSHA (29 CFR 1910 Subpart Z), the U.S. EPA IRIS program, or the ACGIH TLV carcinogen notations. No long-term carcinogenicity bioassay (e.g., OECD TG 451/453) for this substance has been identified in publicly accessible authoritative sources. The substance is not classified for carcinogenicity based on currently available data; hazards cannot be excluded due to the absence of long-term studies.

Reproductive Toxicity: No OECD TG 414 (prenatal developmental toxicity), TG 416/443 (one-generation/extended one-generation reproductive toxicity), or TG 421/422 screening studies for RU58841 have been identified in ECHA registration records or peer-reviewed primary literature. The substance is not classified for reproductive or developmental toxicity based on currently available data; hazards cannot be excluded. As a precautionary measure, exposure should be minimized, particularly for individuals who are pregnant, breastfeeding, or planning a pregnancy.

Specific Target Organ Toxicity (STOT): Specific target organ toxicity - single exposure (STOT-SE, GHS Category 1-3) and specific target organ toxicity - repeated exposure (STOT-RE, GHS Category 1-2) endpoints for RU58841 have not been fully characterized. No subacute (OECD TG 407), subchronic (TG 408/411), or chronic (TG 452) repeated-dose toxicity studies sufficient to establish a guidance value under GHS Rev.8 Chapter 3.9 are available from authoritative sources. The substance is not classified for STOT-SE or STOT-RE based on currently available data; hazards cannot be excluded. Repeated or prolonged exposure should be avoided as a precaution.

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 RU58841 (CAS 154992-24-2) in authoritative regulatory databases (ECHA, EPA ECOTOX, PubChem) or in the peer-reviewed literature. The substance is a non-steroidal androgen receptor antagonist investigated for pharmacological research and is not registered under REACH; consequently no standardized OECD ecotoxicity studies have been located. Not classified as hazardous to the aquatic environment (acute or chronic) under GHS/CLP based on a weight-of-evidence assessment in the absence of authoritative experimental data. Because the molecule contains a trifluoromethyl group and an aromatic nitrile, release to surface water, soil, drains, or sewers should be avoided as a precautionary measure.

Persistence and Degradability: No experimental biodegradation studies (e.g., OECD 301 series ready biodegradability tests) or hydrolysis/photolysis half-life data specific to RU58841 have been identified in ECHA, EPA, or PubChem records, and no peer-reviewed environmental fate studies were located. The molecule is a non-peptide small organic compound containing a hydantoin (imidazolidine-2,5-dione) core, an aromatic nitrile, and an aryl-CF₃ substituent; aryl-CF₃ moieties are generally recognized in the environmental chemistry literature as resistant to microbial cleavage, but no substance-specific degradation rate constants are available to support a definitive persistence classification. Treat as potentially persistent pending substance-specific data.

Bioaccumulative Potential: No measured bioconcentration factor (BCF), bioaccumulation factor (BAF), or experimental log K_{ow} has been identified for RU58841 in authoritative sources (ECHA, EPA, PubChem). In the absence of authoritative experimental partitioning or bioconcentration data, the bioaccumulation potential cannot be reliably assessed and the substance is not classified for bioaccumulation under GHS/CLP based on a weight-of-evidence approach.

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	6445fd3e-ce30-4c02-97be-8bc6b8573801
Revision Date	2026-08-07
Version	1.0
Prepared By	Prepared in accordance with GHS Rev.8 and OSHA HazCom 2012 (29 CFR 1910.1200). Independent review by a qualified chemical safety professional is recommended prior to use.

Revision History

Revision date: 2026-08-07

Version: 1.0

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

Sources Used

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

Key to Abbreviations

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

Disclaimer

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

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