

SAFETY DATA SHEET (SDS)

TrailBio[®] LDN-193189 Dihydrochloride

1. Identification

Product Name: TrailBio[®] LDN-193189 dihydrochloride

Synonyms: DM-3189 (dihydrochloride); LDN-193189 2HCl; 4-[6-[4-(1-Piperazinyl)phenyl]pyrazolo[1,5-a]pyrimidin-3-yl]quinoline dihydrochloride

Product Code: TB31976, TB86388

CAS No.: 1435934-00-1

Molecular Formula: C₂₅H₂₄Cl₂N₆

Molecular Weight: 479.40 g/mol

Product Use: For Research Use Only (RUO). Laboratory chemical; manufacture of substances.

Uses Advised Against: Any use other than the identified research use. Not for human or veterinary diagnostic or therapeutic use.

Distributed by: Trailhead Biosystems Inc.

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SDSs are available at the following website: www.trailbio.com

Company Phone Number: +1 (216) 490-3304

Emergency Telephone Number: +1-800-424-9300

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2. Hazard(s) Identification

Classification (OSHA HCS 2024, GHS Rev. 7; 29 CFR 1910.1200)

Acute toxicity, oral – Category 4, H302

Skin corrosion/irritation – Category 2, H315

Serious eye damage/eye irritation – Category 2A, H319

Specific target organ toxicity, single exposure; respiratory tract irritation – Category 3, H335

GHS Label Elements



Pictograms:

Signal Word: Warning

Hazard Statements

H302 – Harmful if swallowed

H315 – Causes skin irritation

H319 – Causes serious eye irritation

H335 – May cause respiratory irritation

Precautionary Statements – Prevention

P261 – Avoid breathing dust/fume/gas/mist/vapours/spray.

P264 – Wash hands thoroughly after handling. P270 – Do not eat, drink or smoke when using this

product. P271 – Use only outdoors or in a well-ventilated area. P280 – Wear protective gloves/protective clothing/eye protection/face protection.

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Precautionary Statements – Response

P301+P312 – IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. P330 – Rinse mouth.

P302+P352 – IF ON SKIN: Wash with plenty of soap and water. P304+P340 – IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P332+P313/P337+P313 – Get medical advice/attention if irritation persists. P362+P364 – Take off contaminated clothing and wash before reuse.

Precautionary Statements – Storage

P403+P233 – Store in a well-ventilated place. Keep container tightly closed. P405 – Store locked up.

P501 – Dispose of contents/container in accordance with local regulations.

3. Composition/Information on Ingredients

Substance

Chemical Name: LDN-193189 (dihydrochloride)

Synonyms: DM-3189 (dihydrochloride); LDN-193189 2HCl

CAS No.: 1435934-00-1

Molecular Formula: C₂₅H₂₄Cl₂N₆

Molecular Weight: 479.40 g/mol

Single substance supplied at ≥ 98% (as supplied). See Section 2 for hazard classification.

4. First-Aid Measures

Description of first-aid measures

Eye Contact

Remove any contact lenses, locate eye-wash station, and flush eyes immediately with large amounts of water. Separate eyelids with fingers to ensure adequate flushing. Promptly call a physician.

Skin Contact

Rinse skin thoroughly with large amounts of water. Remove contaminated clothing and shoes and call a physician. Wash contaminated clothing before reuse.

Inhalation

Immediately relocate self or casualty to fresh air. Keep comfortable for breathing. If breathing is difficult, give cardiopulmonary resuscitation (CPR). Avoid mouth-to-mouth resuscitation.

Ingestion

Wash out mouth with water; do NOT induce vomiting; call a physician or poison center if you feel unwell.

Most important symptoms/effects, acute and delayed

Harmful if swallowed. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. See Section 2.

Indication of immediate medical attention and special treatment needed

Treat symptomatically.

5. Fire-Fighting Measures

Suitable Extinguishing Media

Use water spray, dry chemical, foam, or carbon dioxide (CO₂) fire extinguisher.

Unsuitable Extinguishing Media

None known.

Specific hazards arising from the chemical

During combustion, may emit irritant fumes. Under fire conditions, may decompose and emit toxic fumes.

Hazardous Combustion Products

Toxic and irritant fumes, including carbon oxides, nitrogen oxides, and hydrogen chloride/chlorine-containing decomposition products under fire conditions.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. Accidental Release Measures

Personal precautions, protective equipment, and emergency procedures

Use full personal protective equipment. Avoid breathing vapors, mist, dust, or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Refer to protective measures listed in Section 8.

Environmental precautions

Try to prevent further leakage or spillage. Keep the product away from drains or water courses.

Methods and materials for containment and cleaning up

Methods for Containment

Prevent further leakage or spillage if safe to do so.

Avoid dust formation.

Methods for Cleaning Up

Sweep up or collect mechanically without creating

dust. Place in suitable, closed containers for disposal. Dispose of contaminated material according to Section 13.

7. Handling and Storage

Precautions for safe handling

Avoid inhalation and contact with eyes and skin. Avoid dust and aerosol formation. Use only in areas with appropriate exhaust ventilation. Wear personal protective equipment.

Conditions for safe storage, including any incompatibilities

Keep container tightly sealed in a cool, dry, well-ventilated area. Keep away from direct sunlight and sources of ignition. Keep away from strong oxidising agents and incompatible materials.

Recommended storage temperature (powder): Follow product label and lot-specific Certificate of Analysis.

Recommended storage temperature (in solvent): Follow product label and lot-specific Certificate of Analysis.

Shipping: Follow supplier shipping conditions and applicable transport requirements.

8. Exposure Controls/Personal Protection

Control parameters

Exposure Guidelines This product contains no substances with established occupational exposure limit (OEL) values in the supplied SDS.

Appropriate engineering controls

Ensure adequate ventilation. Provide accessible safety shower and eye-wash station. Use certified chemical fume hood or local exhaust ventilation where dust/aerosol may be generated.

Individual protection measures, such as personal protective equipment

Eye/face protection Safety goggles with side-shields or chemical splash goggles as appropriate.

Hand protection Protective impervious gloves selected according to compatibility, breakthrough time, and workplace conditions.

Skin and body protection Impervious clothing/lab coat appropriate for laboratory use.

Respiratory protection Suitable NIOSH-approved respirator where exposure may occur (e.g., dust/aerosol generation).

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice. Wash hands thoroughly after handling.

9. Physical and Chemical Properties

Appearance: Solid

Odor: No data available

Odor Threshold: No data available

pH: No data available

Melting point/freezing point: No data available

Boiling point/boiling range: No data available

Flash Point: No data available

Evaporation Rate: No data available

Flammability (solid, gas): No data available

Upper/lower flammability or explosive limits: No data available

Vapor Pressure: No data available

Vapor Density: No data available

Relative Density: No data available

Solubility: No data available in supplier SDS

Partition Coefficient (n-octanol/water): No data available

Autoignition temperature: No data available

Decomposition temperature: No data available

Viscosity: No data available

Explosive properties: No data available

Oxidizing properties: No data available

Molecular Weight: 479.40 g/mol

Physical State at 20 °C: Solid

10. Stability and Reactivity

Reactivity

No data available.

Chemical Stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

No data available.

Conditions to avoid

Direct sunlight and sources of ignition. Dust and aerosol formation. Exposure to incompatible materials.

Incompatible Materials

Strong oxidising agents and other incompatible materials.

Hazardous Decomposition Products

Under fire conditions, may decompose and emit toxic fumes, including carbon oxides, nitrogen oxides, and hydrogen chloride/chlorine-containing decomposition products.

11. Toxicological Information

Information on toxicological effects

Acute toxicity

Numerical LD50 data not available in the supplier SDS.

Oral Category 4 (H302); harmful if swallowed.

Skin corrosion/irritation

Skin irritation Category 2 (H315); causes skin irritation.

Serious eye damage/irritation
irritation.

Eye irritation Category 2A (H319); causes serious eye

Respiratory or skin sensitization

No classification identified in the supplier SDS.

Germ cell mutagenicity

No classification identified in the supplier SDS.

Reproductive Toxicity

No classification identified in the supplier SDS.

STOT – single exposure
cause respiratory irritation.

Category 3, respiratory tract irritation (H335); may

STOT – repeated exposure

No classification identified in the supplier SDS.

Aspiration hazard

No classification identified in the supplier SDS.

Target Organ Effects

Respiratory tract irritation.

Carcinogenicity

IARC, ACGIH, NTP, and OSHA: No component of this product present at a level equal to or greater than 0.1% is identified as a probable, possible, or confirmed human carcinogen by these bodies.

Additional information

RTECS No.: No data available. This information is based on current knowledge; the chemical, physical, and toxicological properties have not been completely investigated.

12. Ecological Information

Ecotoxicity

No data available.

Persistence and degradability

No data available.

Bioaccumulative potential

No data available.

Mobility in soil

No data available.

Results of PBT and vPvB assessment

PBT/vPvB assessment unavailable as chemical safety assessment not required or not conducted.

Other adverse effects

No data available. Avoid release to the environment.

13. Disposal Considerations

Waste treatment methods

Dispose of substance in accordance with prevailing country, federal, state, and local regulations.

Contaminated packaging

Conduct recycling or disposal in accordance with prevailing country, federal, state, and local regulations.

14. Transport Information

DOT: Not regulated (Not dangerous goods).

TDG: Not determined

MEX: Not determined

ICAO: Not determined

IATA: Not regulated (Not dangerous goods).

IMDG: Not regulated (Not dangerous goods).

ADR/RID: Not determined

ADN: Not determined

15. Regulatory Information

U.S. Federal Regulations

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313: This material does not contain any chemical components above De Minimis reporting levels under SARA Title III, Section 313.

SARA 311/312 Hazard Categories – Health Hazards: Acute toxicity (oral); skin irritation; serious eye irritation; specific target organ toxicity – single exposure (respiratory tract irritation). Physical Hazards: None known.

US State Regulations

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California Proposition 65: No listed components identified in the supplier SDS.

Massachusetts Right to Know: No components subject to the Massachusetts Right to Know Act identified in the supplier SDS.

Pennsylvania Right to Know: No components subject to the Pennsylvania Right to Know Act identified in the supplier SDS.

New Jersey Right to Know: No components subject to the New Jersey Right to Know Act identified in the supplier SDS.

16. Other Information

Prepared By	Trailhead Biosystems
Preparation Date	2026-06-10
Revision Date	2026-06-10
Revision Note	No Information available

Disclaimer: The information provided in this Safety Data Sheet (SDS) is correct to the best of our knowledge. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered a warranty or quality specification. This product is For Research Use Only and must be handled only by suitably qualified, experienced personnel in appropriately equipped facilities. The burden of safe use of this material rests with the user. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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