

SAFETY DATA SHEET (SDS)

Retinoic Acid

1. Identification

Product Name: Retinoic Acid

Product Code: TB94198

CAS No.: 302-79-4

Molecular Formula: C₂₀H₂₈O₂

Molecular Weight: 300.44

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

Uses Advised Against: Any use other than the identified research use.

Distributed by: Trailhead Biosystems Inc.

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

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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

Reproductive toxicity – Category 1B, H360

Hazardous to the aquatic environment, long-term hazard – Category 1, H410

Hazards not otherwise classified (HNOC)

None.

GHS Label Elements

Pictogram:



Signal Word: Danger

Hazard Statements

H302 – Harmful if swallowed

H315 – Causes skin irritation

H360 – May damage fertility or the unborn child

H410 – Very toxic to aquatic life with long lasting effects

Precautionary Statements – Prevention

P264 – Wash hands thoroughly after handling.

P270 – Do not eat, drink or smoke when using this product.

P273 – Avoid release to the environment.

P280 – Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary Statements – Response

P302+P352 – IF ON SKIN: Wash with plenty of soap and water

P330 – Rinse mouth.

P362+P364 – Take off contaminated clothing and wash before reuse.

P391 – Collect spillage.

Precautionary Statements – Storage

P405 – Store locked up.

Precautionary Statements – Disposal

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

3. Composition/Information on Ingredients

Substance

Chemical Name: Vitamin A acid; all-trans-Retinoic acid; ATRA

CAS No.: 302-79-4

Molecular Formula: C₂₀H₂₈O₂

Molecular Weight: 300.44

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.

Inhalation

Immediately relocate self or casualty to fresh air. If breathing is difficult, give cardiopulmonary resuscitation (CPR). Avoid mouth-to-mouth resuscitation. Promptly call a physician.

Ingestion

Wash out mouth with water; Do NOT induce vomiting; call a physician.

Most important symptoms/effects, acute and delayed

The most important known symptoms and effects are described in the labelling (see Section 2). See Section 2 for hazard classification.

Indication of immediate medical attention and special treatment needed

Treat symptomatically.

5. Fire-Fighting Measures

Suitable Extinguishing Media

Carbon dioxide (CO₂), alcohol-resistant foam, dry chemical powder, or water spray.

Unsuitable Extinguishing Media

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None known.

Specific hazards arising from the chemical

During combustion, may emit irritant fumes.

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. Remove undamaged containers from fire area if safe to do so.

6. Accidental Release Measures

Personal precautions, protective equipment, and emergency procedures

Use full personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Keep personnel away from spill/leak. Refer to protective measures listed in Section 8.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Prevent product from entering drains, waterways, or sewer systems. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up

Methods for Containment

Prevent further leakage or spillage if safe to do so.
Remove all sources of ignition.

Methods for Cleaning Up

Absorb spilled material with an inert absorbent (e.g. sand, silica gel, vermiculite) before transferring into an airtight container. Decontaminate surfaces and equipment by scrubbing with alcohol. Dispose of appropriately according to local regulations.

7. Handling and Storage

Precautions for safe handling

Wear appropriate personal protective equipment. Use only under a chemical fume hood. Avoid inhalation, contact with eyes and skin. Avoid dust and aerosol formation. Use only in areas with appropriate exhaust ventilation. Avoid contact with skin, eyes and clothing. For precautions see section 2.

Conditions for safe storage, including any incompatibilities

Keep container tightly sealed in a cool, well-ventilated area. Keep away from direct sunlight and sources of ignition.

Recommended storage temperature (powder): 20 °C – 3 years (sealed storage, away from moisture and light)

Recommended storage temperature (in solvent): –80 °C – 6 months; –20 °C – 1 month (sealed storage, away from moisture and light)

Shipping: Ambient temperature if less than 2 weeks.

8. Exposure Controls/Personal Protection

Control parameters

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Exposure Guidelines

This product contains no substances with established occupational exposure limit (OEL) values.

Appropriate engineering controls

Use only under a chemical fume hood ensuring adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation.

Individual protection measures, such as personal protective equipment

Eye/face protection	Safety goggles with side-shields.
Hand protection	Protective (impervious) gloves.
Skin and body protection	Impervious clothing.
Respiratory protection	Suitable respirator where dust, aerosol or fume may be generated.
General Hygiene Considerations	Handle in accordance with good industrial hygiene and safety practice. Wash hands before and after use. Do not eat, drink or smoke when using this product.
Environmental exposure controls	Avoid discharge into the environment. Keep product away from drains, water courses, and soil. Clean spillages safely as soon as possible.

9. Physical and Chemical Properties

Appearance: Solid
Odor: No data available
Odor Threshold: No data available
pH: No data available
Melting point/freezing point: 179-184°C
Boiling point/boiling range: 462.8 at 760 mmHg
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
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: 300.44

10. Stability and Reactivity

Reactivity

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No data available.

Chemical Stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

No data available.

Conditions to avoid

No data available.

Incompatible Materials

Strong acids/alkalis, strong oxidizing/reducing agents.

Hazardous Decomposition Products

Under fire conditions, may decompose and emit toxic fumes.

11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute oral toxicity: LD50 (Rat): 2 g/kg
Acute toxicity (other routes of administration):
LD50 (Rat): 75 mg/kg
Application Route: Intraperitoneal injection
LD50 (Rat): 96 mg/kg
Application Route: Intravenous

Skin corrosion/irritation

Classified as Category 2 (H315); see Section 2.

Serious eye damage/irritation

No toxicological data available for this product.

Respiratory or skin sensitization

No toxicological data available for this product.

Germ cell mutagenicity

No toxicological data available for this product.

Reproductive Toxicity

Classified as Category 1B (H360); see Section 2.

STOT – single exposure

No toxicological data available for this product.

STOT – repeated exposure

No toxicological data available for this product.

Aspiration hazard

No toxicological data available for this product.

Carcinogenicity

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

ACGIH: No component of this product present at a level equal to or greater than 0.1% is identified as a potential or confirmed carcinogen by ACGIH.

NTP: No component of this product present at a level equal to or greater than 0.1% is identified as a anticipated or confirmed carcinogen by NTP.

OSHA: No component of this product present at a level equal to or greater than 0.1% is identified as a potential or confirmed carcinogen by OSHA.

Additional information

RTECS No.: Not available.

Systemic effects: Dizziness; Other dangerous properties cannot be excluded. Handle in accordance with

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good industrial hygiene and safety practice.

This information is based on current knowledge; the chemical, physical, and toxicological properties have not been completely investigated.

12. Ecological Information

Ecotoxicity

Classified as Category 1 (H410); see Section 2.

Persistence and degradability

No Ecological data available for this product.

Bioaccumulative potential

No Ecological data available for this product.

Mobility in soil

No Ecological data available for this product.

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.

13. Disposal Considerations

Waste treatment methods

Ensure product is disposed of by licensed waste carriers 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:

Proper shipping name: ENVIRONMENT-ALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S

UN number: 3077

Class: 9

Packing group: III

TDG: Not determined

MEX: Not determined

ICAO: Not determined

IATA:

Proper shipping name: ENVIRONMENT-ALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S

UN number: 3077

Class: 9

Packing group: III

IMDG:

Proper shipping name: ENVIRONMENT-ALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S

UN number: 3077

Class: 9

Packing group: III

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 with known CAS numbers above De Minimis reporting levels under SARA Title III, Section 313.

SARA 311/312 Hazards: No SARA Hazards.

US State Regulations

California Proposition 65: This product contains a chemical known to the state of California to cause developmental harm.

Massachusetts Right to Know: No components subject to the Massachusetts Right to Know Act.

Pennsylvania Right to Know: No components subject to the Pennsylvania Right to Know Act.

New Jersey Right to Know: No components subject to the New Jersey Right to Know Act.

16. Other Information

Prepared By	Trailhead Biosystems
Preparation Date	2026-09-09
Revision Date	2026-09-09
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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