

β-Thionicotinamide Adenine Dinucleotide oxidized form free acid (β-Thio-NAD)

Catalog # **TN01-C59**

Lot # **K4488-10**

CAS 4090-29-3

Product Description

Molecular Formula: $C_{21}H_{27}N_7O_{13}P_2$

Molecular Weight: 679.49

Physical Appearance: Yellow powder

pH of Solution: 2.0-4.0 (100mg/ml water)

Alternative name(s)

β-Thionicotinamide Adenine Dinucleotide oxidized form free acid, β-Thio-NAD, Thionicotinamide-DPN oxidized form,

Thionicotinamide Adenine Dinucleotide oxidized form, sNAD

Storage and Stability

Transport product sealed, dry, and protected from light at ambient temperature. Store product dry and protected from light. For long term storage keep below -20°C.

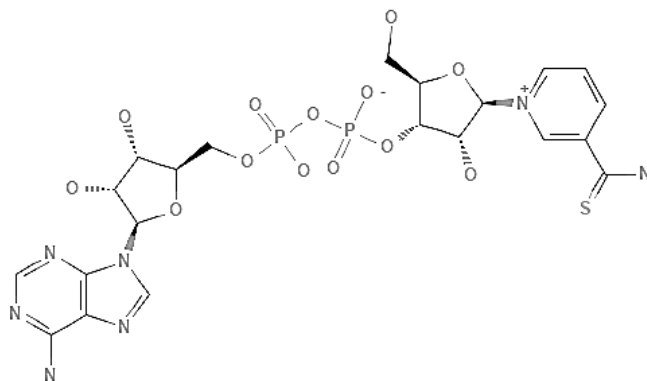
Scientific Background

β-thionicotinamide adenine dinucleotide (β-Thio-NAD) is an analog of the coenzyme nicotinamide adenine dinucleotide (NAD) (1). β-Thio-NAD is reduced to β thio-NADH. β-Thio-NAD It is used for various clinical chemistry applications including determining the levels of L-carnitine in serum by an enzymatic cycling method (2), ultrasensitive sandwich enzyme-linked immunosorbent assay (ELISA) assays for detection of infectious disease (3).

References

1. National Center for Biotechnology Information (2022). PubChem Compound Summary for CID 3081386, Thio-NAD. Retrieved October 24, 2022 from <https://pubchem.ncbi.nlm.nih.gov/compound/Thio-NAD>.
2. M Takahashi, S Ueda, H Misaki, N Sugiyama, K Matsumoto, N Matsuo, S Muraio, Carnitine determination by an enzymatic cycling method with carnitine dehydrogenase, *Clinical Chemistry*, Volume 40, Issue 5, 1 May 1994, Pages 817- 821, <https://doi.org/10.1093/clinchem/40.5.817>
3. Iha K, Inada M, Kawada N, Nakaishi K, Watabe S, Tan YH, Shen C, Ke LY, Yoshimura T, Ito E. Ultrasensitive ELISA Developed for Diagnosis. *Diagnostics* (Basel). 2019 Jul 18;9(3):78. doi: 10.3390/diagnostics9030078. PMID: 31323782; PMCID: PMC6787603.

Molecular Structure



Purity Analysis

Purity:	≥95% (HPLC)
Assay:	≥95% (UV) (calculated on a dry basis)
Sodium Content:	≤1%
Water Content:	≤5%

β-Thionicotinamide Adenine Dinucleotide oxidized form free acid (β-Thio-NAD)

Catalog #	TN01-C59
Cas#	4090-29-3
Lot #	K4488-10
Expiration Date	2024-02-28
Purity	≥95% (HPLC)
Format	Yellow powder
Stability	Two years
Storage & Shipping	Transport product sealed, dry, and protected from light at ambient temperature. Store product dry and protected from light. For long term storage keep below -20°C.

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SAFETY DATA SHEET

Article 1 - Product Identification

Product Name: β -Thionicotinamide Adenine Dinucleotide oxidized form free acid (β -Thio-NAD)

Catalog # TN01-C59

This product is sold only for research use by qualified laboratory personnel, and is not to be used as a drug, medical device, food additive, cosmetic, nor household chemical. It is not to be used in diagnostic, therapeutic, consumer, agricultural, nor pesticidal applications.

Supplier's Name: SignalChem Diagnostics Inc.
Street Address: 110-13120 Vanier Place
City, Prov. Postal Code: Richmond, BC, V6V 2J2
Country: Canada
Fax: 604-232-4601
EMERGENCY PHONE: 604-232-4600

Article 2 - Hazard Identification

Classification of Substance (GHS)

Not a hazardous substance or mixture.

Label Elements

Not a hazardous substance or mixture.

Other hazards: None

Article 3 - Composition/Information on Ingredients

Product Name(s): β -Thionicotinamide Adenine Dinucleotide oxidized form free acid (β -Thio-NAD)
Chemical Name: β -Thionicotinamide Adenine Dinucleotide oxidized form free acid
 β -Thio-NAD
Thionicotinamide-DPN oxidized form
Thionicotinamide Adenine Dinucleotide oxidized form
sNAD
Molecular Formula: $C_{21}H_{27}N_7O_{13}SP_2$
CAS Number: 4090-29-3
Concentration: $\geq 95\%$

Article 4 - First-aid Measures

- **General information:** Consult a physician and provide this SDS.
- **After inhalation:** Breathe in fresh air. If victim cannot breathe, give artificial respiration and consult a physician.
- **After skin contact:** Immediately wash with soap and plenty of water and rinse thoroughly. Consult a physician.
- **After eye contact:** Rinse opened eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do so. Consult a physician.
- **After swallowing:** Rinse mouth. If you feel unwell, seek medical advice.

Article 5 - Fire-fighting Measures

- **Suitable extinguishing media:** Use water spray, extinguishing powder, carbon dioxide, foam or other appropriate measure that is suitable to the environment.
- **Specific hazards arising from the substance or mixture:** May decompose upon combustion or in high temperatures to generate poisonous fume. These products include: Carbon oxides Nitrogen oxides Sulfur oxides Phosphates. Closed containers may explode from heat of a fire.
- **Special protective equipment and precautions for fire-fighters:** Self-contained breathing apparatus.

Article 6 - Accidental Release Measures

- **Personal precautions, protective equipment and emergency procedures:** Apply standard laboratory practices and personal protective equipment. Avoid breathing vapors, mist, dust, or gas. Ensure adequate ventilation.
- **Environmental precautions:** Do not allow to enter drains.
- **Methods and materials for containment and cleaning up:** Sweep dust to collect it into an airtight container, taking care not to disperse it. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

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Article 7 - Handling and Storage

- **Precautions for safe handling:** Wear chemical safety goggles and compatible chemical-resistant gloves. Avoid inhalation, contact with eyes, skin or clothing. Handle in a well-ventilated place. Use a local exhaust if dust or aerosol will be generated. Prevent dispersion of dust. Wash hands and face thoroughly after handling.
- **Conditions for safe storage:** Keep container tightly closed. Store away from incompatible materials such as oxidizing agents. Heat-sensitive.

Article 8 - Exposure Controls/Personal Protection

- **Components with limit monitoring values at workplace:**
Contains no substances with occupational exposure limit values.
- **Appropriate engineering controls:**
Apply adequate ventilation including mechanical exhaust or laboratory fume hood. Follow standard laboratory practices.
- **Individual protection measures:**
Respiratory protection:
Use appropriate respirator if there is inadequate ventilation by following the government standards.
Hand protection:
Wear gloves and use proper glove removal technique to avoid skin contact. Discard gloves after use by following the applicable laboratory regulations. Wash and dry hands.
Eye/face protection:
Safety goggles with side-shields approved under appropriate government standards.
Skin/body protection:
Use appropriate clothing, footwear and any additional protection measures to protect from splashing or contamination.

Article 9 – Physical and Chemical Properties

Appearance: Yellow powder	Danger of explosion: No data available.
Odour/Odour Threshold: No data available.	Explosion limits: No data available.
pH: No data available.	Decomposition temperature: No data available.
Melting point/freezing point: No data available.	Vapor pressure at 20 °C: No data available.
Boiling point/Boiling range: No data available.	Density: No data available.
Flash point: No data available.	Relative density: No data available.
Flammability (solid, gaseous): No data available.	Vapor density: No data available.
Ignition temperature: No data available.	Evaporation rate: No data available.
Auto-igniting: Product is not self-igniting.	Solubility in / Miscibility with Water: No data available.

Article 10 - Stability and Reactivity

- **Reactivity:** No data available.
- **Chemical stability:** Stable under recommended transport and storage conditions.
- **Possible hazardous reactions:** No dangerous reactions known.
- **Conditions to avoid:** Heat and moisture.
- **Incompatible materials:** Oxidizing agents
- **Hazardous decomposition products:** Carbon dioxide, Carbon monoxide, Nitrogen oxides (NO_x), Phosphorus oxides, Sulfur oxides

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Article 11 - Toxicological Information

- **Acute toxicity:** No data available.
- **LD/LC50:** No data available.
- **Skin corrosion/irritation:** No data available.
- **Serious eye damage/eye irritation:** No data available.
- **Respiratory or skin sensitization:** No data available.
- **Germ cell mutagenicity:** No data available.
- **Carcinogenicity:** No data available.
- **Reproductive toxicity:** No data available.
- **Teratogenicity:** No data available.
- **Specific target organ toxicity - single exposure/ - repeated exposure (GHS):** No data available.
- **Aspiration hazard:** No data available.
- **Potential health effects:**
 - Inhalation: No data available
 - Ingestion: No data available
 - Skin: No data available
 - Eyes: No data available
- **Signs and Symptoms of Exposure:** No data available
- **Synergistic effects:** Not available.

Article 12 - Ecological Information

- **Eco-toxicity:** No data available.
- **Biodegradability:** No data available.
- **Bio-accumulative potential:** No data available.
- **Mobility in soil:** No data available.
- **PBT and vPvB assessment:** No data available.
- **Other adverse effects:** No data available.

Article 13 - Disposal Considerations

- **Disposal methods:** In accordance with applicable national, regional, or local laws and regulations. For additional handling information and protection of employees please refer to Article 7 and 8.
- **Contaminated packaging:** Disposal should be made in accordance with official regulations. Use water or cleansing agents to clean the area.

Article 14 - Transport Information

- **DOT:** Not dangerous goods.
- **IMDG:** Not dangerous goods.
- **IATA:** Not dangerous goods.

Article 15 - Regulatory Information

- **WHMIS Classification:** Non-hazardous.
- **GHS label elements:** Not applicable.
- **Signal word:** Not applicable.
- **Hazard statements:** Not applicable.

Article 16 - Other Information

The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. SignalChem shall not be held liable for any damage resulting from handling or from contact with the above product. See the Technical Specification, Packing Slip, Invoice, and Product Catalog for additional terms and conditions of sale.

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