

Nicotinamide Adenine Dinucleotide Phosphate Reduced Form (NADPH) tetrasodium salt

Catalog # NR01-C59

Lot # K4488-14

CAS 2646-71-1

Product Description

 Molecular Formula: C₂₁H₂₆N₇Na₄O₁₇P₃

Molecular Weight: 833.35

Physical Appearance: White to yellowish powder

pH of Solution: 8.0-11.0 (100mg/mL)

Alternative name(s)

β-nicotinamide adenine dinucleotide phosphate reduced form tetrasodium salt, reduced coenzyme II tetrasodium salt, β-NADPH tetrasodium salt

Storage and Stability

Transport product sealed, dry, and protected from light at ambient temperature. Store product at <-20°C in a tightly closed container protected from humidity.

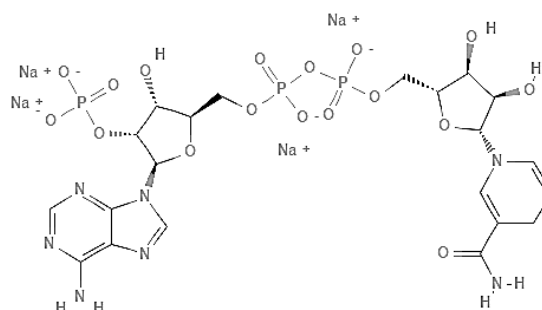
Scientific Background

Reduced nicotinamide adenine dinucleotide phosphate (NADPH) is an essential reducing agent and electron donor found in all forms of life (1). It serves as a cofactor in anabolic reactions driving the biosynthesis of all major cell components (ie lipid and nucleic acid synthesis) and the generation of reactive oxygen species (2). It plays an essential role in the activity of NADPH-dependent biosynthetic enzymes (3). Scientific applications of this product include enzymatic reactions, and pharmacological studies. It can be used as a cofactor in various diagnostic tests (e.g., ammonia, urea, creatine).

References

1. Spaans SK, Weusthuis RA, van der Oost J, Kengen SW. NADPH-generating systems in bacteria and archaea. *Front Microbiol.* 2015 Jul 29;6:742. doi: 10.3389/fmicb.2015.00742. PMID: 26284036; PMCID: PMC4518329.
2. Nakamura M, Bhatnagar A, Sadoshima J. Overview of pyridine nucleotides review series. *Circ Res.* 2012 Aug 17;111(5):604-10. doi: 10.1161/CIRCRESAHA.111.247924. PMID: 22904040; PMCID: PMC3523884.
3. Papagianni M. Recent advances in engineering the central carbon metabolism of industrially important bacteria. *Microb Cell Fact.* 2012 Apr 30;11:50. doi: 10.1186/1475-2859-11-50. PMID: 22545791; PMCID: PMC3461431.
4. National Center for Biotechnology Information (2022). PubChem Compound Summary for CID 52945042, Nadph tetrasodium salt. Retrieved October 24, 2022 from <https://pubchem.ncbi.nlm.nih.gov/compound/52945042>.

Molecular Structure



Purity Analysis

Purity:	≥95% (HPLC)
Assay:	≥90% (UV) (calculated on sodium free and dry basis)
Sodium Content:	10.0±2.0%
Water Content:	≤8%
Triethylamine:	≤1%
Ethanol:	≤1%

Nicotinamide Adenine Dinucleotide Phosphate Reduced Form (NADPH) tetrasodium salt

Catalog #	NR01-C59
Cas#	2646-71-1
Lot #	K4488-14
Expiration Date	2024-07-11
Purity	≥95% (HPLC)
Format	White to yellowish powder
Stability	Two years
Storage & Shipping	Transport product sealed, dry, and protected from light at ambient temperature. Store product at <-20°C in a tightly closed container protected from humidity.

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SAFETY DATA SHEET

Article 1 - Product Identification

Product Name: Nicotinamide Adenine Dinucleotide Phosphate Reduced Form (NADPH) tetrasodium salt

Catalog # NR01-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): Nicotinamide Adenine Dinucleotide Phosphate Reduced Form (NADPH) tetrasodium salt
 β -nicotinamide adenine dinucleotide phosphate reduced form tetrasodium salt
reduced coenzyme II tetrasodium salt
 β -NADPH tetrasodium salt
NADPH tetrasodium salt

Chemical Name: Nicotinamide Adenine Dinucleotide Phosphate Reduced Form (NADPH) tetrasodium salt

Molecular Formula: $C_{21}H_{26}N_7Na_4O_{17}P_3$

CAS Number: 2646-71-1

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:** Not expected to present a significant ingestion hazard under anticipated conditions of normal use. If you feel unwell, seek medical advice.

Article 5 - Fire-fighting Measures

- **Suitable extinguishing media:** Use water spray, extinguishing powder, carbon dioxide, or other appropriate measure that is suitable to the environment.
- **Specific hazards arising from the substance or mixture:** Thermal decomposition can lead to release of irritating gases and vapors
Nitrogen oxides (NO_x),
Carbon monoxide (CO),
Carbon dioxide (CO₂),
Oxides of phosphorus
- **Special protective equipment and precautions for fire-fighters:** Self-contained breathing apparatus.

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Article 6 – Accidental Release Measures

- **Personal precautions, protective equipment and emergency procedures:** Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.
- **Environmental precautions:** Should not be released into the environment.
- **Methods and materials for containment and cleaning up:** Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

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. Avoid dust formation.
- **Conditions for safe storage:** Store in a dry and well-ventilated place in -70 °C. Keep container upright and tightly closed.

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:
In case of contact through splashing, wear nitrile rubber gloves with thickness >0.11mm and break through time > 30 min. In case of full contact, wear butyl rubber gloves with thickness >0.4mm and break through time > 480 min. 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: White to yellowish powder	Danger of explosion: Product does not present an explosion hazard.
Odour/Odour Threshold: odorless	Explosion limits: No data available.
pH: Not applicable.	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: Not applicable	Relative density: No data available.
Flammability (solid, gaseous): Sustains combustion	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: soluble

Article 10 - Stability and Reactivity

- **Reactivity:** Stable under recommended transport and storage conditions.
- **Chemical stability:** Stable under recommended transport and storage conditions.
- **Possible hazardous reactions:** No dangerous reaction known under conditions of normal use. No decomposition if stored and applied as directed.
- **Conditions to avoid:** Heat, flames, and sparks.
- **Incompatible materials:** Strong oxidizing agents.
- **Hazardous decomposition products:** In case of fire hazardous decomposition products may be produced such as:
Nitrogen oxides (NOx)
Oxides of phosphorus
Carbon oxides
Sodium oxides

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Article 11 - Toxicological Information

- **Acute toxicity:** Not classified based on available information.
- **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:** No data 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:** Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company. Can be disposed as wastewater, when in compliance with local regulations.
- **Contaminated packaging:** Empty remaining contents. Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers

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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