

Trade name:

**NAD  $\geq$ 97.5%, for biochemistry**

Chemical name: Nicotinamide adenine dinucleotide

PRINTING DATE:

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**09.04.2026****SECTION 1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING****1.1 Product identifier**Trade name: NAD  $\geq$ 97.5%, for biochemistry

Chemical name: Nicotinamide adenine dinucleotide

Other names: NAD<sup>+</sup>;  $\beta$ -NAD; Co-enzyme I; Diphosphopyridine nucleotide (DPN)

CAS Number: 53-84-9

EINECS Number: 200-184-4

Index number: -

Registration number:

Registration number for this substance has not yet been assigned or the substance is manufactured / imported in a volume that does not require its registration.

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Sector of Use: SU24 — Scientific research and development

Application of the substance / mixture:

Laboratory chemical for biochemical and analytical use.

Uses advised against:

Do not use for private purposes (household). Not for use in food, drink or animal feedingstuffs.

**1.3 Details of the supplier of the safety data sheet**

Manufacturer / Supplier:

ViraChem j.d.o.o.

Savska cesta 42

10000 Zagreb, Croatia

OIB: 73782597071 | MBS: 060500406

E-mail: info@virachemical.com

Web: virachemical.com

Further information obtainable from: info@virachemical.com

**1.4 Emergency telephone number**

Poisons Centres in Europe (consultation in case of acute intoxication):

<https://poisoncentres.echa.europa.eu/appointed-bodies>**SECTION 2 HAZARDS IDENTIFICATION****2.1 Classification of the substance or mixture**

Classification according to Regulation (EC) No 1272/2008

The substance is not classified, according to the CLP regulation.
Additional information:
Although the product is not classified as dangerous, it may show signs of danger (see sections 9-12 SDS). May be harmful if swallowed (GHS of the United Nations, Annex 4).
<b>2.2 Label elements</b>
Labelling according to Regulation (EC) No 1272/2008: Not required.
Hazard pictograms: Void
Signal word: Void
Hazard statements: Void
Precautionary statements: Void
Additional information: EUH210 — Safety data sheet available on request.
<b>2.3 Other hazards</b>
Results of PBT and vPvB assessment
PBT: According to the results of its assessment, this substance is not a PBT — persistent, bioaccumulative and toxic.
vPvB: According to the results of its assessment, this substance is not a vPvB — very persistent, very bioaccumulative.
Determination of endocrine-disrupting properties:
Does not contain an endocrine disruptor (ED) at a concentration of >= 0.1%.

## SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

<b>3.1 Substances</b>
CAS No.: 53-84-9
EINECS: 200-184-4
Description: Nicotinamide adenine dinucleotide
Additional information:
Formula: $C_{21}H_{27}N_7O_{14}P_2$
Molecular weight: 663.4 g/mol
Purity: >=97.5%

## SECTION 4 FIRST AID MEASURES

<b>4.1 Description of first aid measures</b>
General information:
Remove contaminated clothing. In case of any uncertainty or if symptoms occur, seek medical assistance. Treatment is symptomatic.
After inhalation:
Provide fresh air. Consult a doctor in case of complaints.
After skin contact:
Rinse skin with water / shower. If irritation persists, consult a doctor.
After eye contact:
Rinse cautiously with water for several minutes. If irritation persists, consult a doctor.
After swallowing:
Rinse mouth. Do not induce vomiting unless directed by medical personnel. Call a doctor if you feel unwell.



**4.2 Most important symptoms and effects, both acute and delayed**

Symptoms and effects are not known to date.

**4.3 Indication of any immediate medical attention and special treatment needed**

No special measures required. Treatment is symptomatic.

**SECTION 5 FIREFIGHTING MEASURES****5.1 Extinguishing media**

Suitable extinguishing agents:

Co-ordinate firefighting measures to the fire surroundings. Use water spray, foam, alcohol-resistant foam, dry extinguishing powder (ABC-powder) or carbon dioxide (CO<sub>2</sub>).

Unsuitable extinguishing agents: Water jet (full stream).

**5.2 Special hazards arising from the substance or mixture**

Combustible. In case of fire may be liberated: Nitrogen oxides (NO<sub>x</sub>), Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Phosphorus oxides (P<sub>x</sub>O<sub>y</sub>).

**5.3 Advice for firefighters**

Protective equipment: Wear self-contained breathing apparatus. In case of fire and/or explosion do not breathe fumes.

Additional information:

Fight fire with normal precautions from a reasonable distance. Cool containers exposed to heat with water spray. Collect contaminated firefighting water separately; do not allow it to enter the drainage system.

**SECTION 6 ACCIDENTAL RELEASE MEASURES****6.1 Personal precautions, protective equipment and emergency procedures****6.1.1 For non-emergency personnel:**

Control of dust. Avoid breathing dust. Ensure adequate ventilation. See section 8 for personal protective equipment.

**6.1.2 For emergency responders:**

More info in section 5.

**6.2 Environmental precautions**

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

**6.3 Methods and material for containment and cleaning up**

Cover drains. Take up mechanically. Place in appropriate containers for disposal. See section 13 for disposal considerations.

**6.4 Reference to other sections**

Hazardous combustion products: see section 5. | PPE: see section 8. | Incompatible materials: see section 10. | Disposal: see section 13.

**SECTION 7 HANDLING AND STORAGE****7.1 Precautions for safe handling**

No special measures are necessary if used appropriately.

General hygiene advice: Keep away from food, drink and animal feedingstuffs.

Fire and explosion protection: No special measures required.

**7.2 Conditions for safe storage, including any incompatibilities**

Storage requirements:



Store in a dry place. Keep in a cool place.
Keep container tightly closed until ready for use.
Recommended storage temperature: 2 - 8 °C
Common storage facility:
Use local and general ventilation.
Observe hints for combined storage. Do not store with incompatible materials (see section 10).
<b>7.3 Specific end use(s)</b>
No information available beyond laboratory and analytical use.

## SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

Occupational exposure limit values:

Nuisance dusts — TWA: 10 mg/m<sup>3</sup> (inhalable fraction) — source: EU / national WES.

STEL: Not established for this substance.

### 8.2 Exposure controls

#### 8.2.1 Appropriate engineering controls:

Use local and general ventilation. Ensure laboratory is equipped with a safety shower and eye wash station.

#### 8.2.2 Individual protection measures — personal protective equipment:

Respiratory protection: Respiratory protection necessary at dust formation. Particulate filter device (EN 143), P1 (filters at least 80% of airborne particles, colour code: White).

Hand protection: Chemical-resistant gloves tested to EN 374. Recommended material: NBR (Nitrile rubber), thickness >0.11 mm, breakthrough time >480 minutes (permeation level 6). Take recovery periods for skin regeneration; use barrier creams.

Eye / face protection: Safety goggles with side protection (EN 166).

Skin / body protection: Appropriate protective clothing. Wash contaminated clothing before reuse.

Thermal hazards: Void.

#### 8.2.3 Environmental exposure controls:

Keep away from drains, surface and ground water.

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Solid

Colour: White

Odour: Odourless.

Odour threshold: Not determined.

Melting point / freezing point: 140 - 142 °C

Boiling point / initial boiling point: Not determined.

Flammability: Combustible, but will not ignite readily.

Lower explosion limit: Not relevant (solid).

Upper explosion limit: Not relevant (solid).

Flash point: Not applicable.

Auto-ignition temperature: 140 °C (ECHA, relative self-ignition temperature for solids)



Decomposition temperature: Not relevant.
pH: Not applicable.
Kinematic viscosity: Not relevant.
Solubility in water: ~1,000 g/l at 20 °C (ECHA)
Partition coefficient n-octanol/water (log KOW): -3.68 (TOXNET)
Vapour pressure: Not determined.
Vapour density: Not relevant (solid).
Density: 1.6 g/cm <sup>3</sup> at 20 °C (ECHA)
Relative density: Not relevant (solid).
Particle characteristics: No data available.
Explosive properties: Not relevant (physical hazard class).
Oxidising properties: None.
Surface tension: 73 mN/m at 20 °C (ECHA)
VOC (EC): Not determined.

## SECTION 10 STABILITY AND REACTIVITY

### 10.1 Reactivity

The product in its delivered form is not dust explosion capable; however, the enrichment of fine dust leads to the danger of dust explosion.

**10.2 Chemical stability: The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.**

**10.3 Possibility of hazardous reactions: Violent reaction with: strong oxidisers.**

**10.4 Conditions to avoid: No specific conditions known which have to be avoided.**

**10.5 Incompatible materials: No additional information. See section 10.3 for reactivity notes.**

**10.6 Hazardous decomposition products: Hazardous combustion products: see section 5.**

## SECTION 11 TOXICOLOGICAL INFORMATION

### 11.1 Information on hazard classes — Regulation (EC) No 1272/2008

This substance does not meet the criteria for classification.

Acute toxicity

Classification: Shall not be classified as acutely toxic.

Note (GHS UN Annex 4): May be harmful if swallowed.

Oral LD50: >2,000 mg/kg (rat) — source: ECHA

Skin corrosion/irritation: Shall not be classified as corrosive/irritant to skin.

Serious eye damage/irritation: Shall not be classified as seriously damaging to the eye or eye irritant.

Respiratory or skin sensitisation: Shall not be classified as a respiratory or skin sensitiser.

Germ cell mutagenicity: Shall not be classified as germ cell mutagenic.

Carcinogenicity: Shall not be classified as carcinogenic.

Reproductive toxicity: Shall not be classified as a reproductive toxicant.

STOT-single exposure: Shall not be classified as a specific target organ toxicant (single exposure).

STOT-repeated exposure: Shall not be classified as a specific target organ toxicant (repeated exposure).



Aspiration hazard: Shall not be classified as presenting an aspiration hazard.
Symptoms related to the physical, chemical and toxicological characteristics
If swallowed: Data are not available.
If in eyes: Data are not available.
If inhaled: Data are not available.
If on skin: Data are not available.
Other information: Health effects are not known.
<b>11.2 Endocrine disrupting properties</b>
Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0.1\%$ .

## SECTION 12 ECOLOGICAL INFORMATION

<b>12.1 Aquatic toxicity</b>
Harmful to aquatic life.
EC50 (aquatic invertebrates, 48 h): $>100$ mg/l — source: ECHA
ErC50 (algae, 72 h): $>51$ mg/l — source: ECHA
<b>12.2 Persistence and degradability</b>
The substance is readily biodegradable.
Theoretical Oxygen Demand (without nitrification): 0.7777 mg/mg
Theoretical Oxygen Demand (with nitrification): 1.04 mg/mg
Theoretical Carbon Dioxide: 1.393 mg/mg
Biodegradation (CO <sub>2</sub> generation): 60% in 10 days
<b>12.3 Bioaccumulative potential</b>
Does not significantly accumulate in organisms.
log KOW (n-octanol/water): -3.68 (TOXNET)
<b>12.4 Mobility in soil: Data are not available.</b>
<b>12.5 Results of PBT and vPvB assessment</b>
PBT / vPvB: According to the results of its assessment, this substance is neither PBT nor vPvB.
<b>12.6 Endocrine disrupting properties: Does not contain an endocrine disruptor (ED) at a concentration of <math>\geq 0.1\%</math>.</b>
<b>12.7 Other adverse effects</b>
Data are not available.
Do not allow product to reach groundwater, water courses or sewage systems, even in small quantities.

## SECTION 13 DISPOSAL CONSIDERATIONS

<b>13.1 Waste treatment methods</b>
Product:
Consult the appropriate local waste disposal expert about waste disposal. Waste shall be separated into categories that can be handled separately by local or national waste management facilities. Respect the relevant national or regional provisions.
Sewage disposal:
Do not empty into drains.



Contaminated packaging:
Handle contaminated packages in the same way as the substance itself. Completely emptied packages can be recycled. Non-contaminated packages may be recycled.
European waste catalogue
16 03 06: Organic wastes other than those mentioned in 16 03 05
15 01 02: Plastic packaging
20 01 39: Plastics

## SECTION 14 TRANSPORT INFORMATION

Not subject to transport regulations (UN RTDG, IMDG, ICAO-IATA/DGR, ADR/RID).

**14.1 UN number: Not subject to transport regulations.**

**14.2 UN proper shipping name: Not assigned.**

**14.3 Transport hazard class(es): Not assigned.**

**14.4 Packing group: Not assigned.**

**14.5 Environmental hazards: Non-environmentally hazardous according to the dangerous goods regulations.**

**14.6 Special precautions for user: No additional information.**

**14.7 Maritime transport in bulk (IMO instruments): The cargo is not intended to be carried in bulk.**

## SECTION 15 REGULATORY INFORMATION

### 15.1 Safety, health and environmental regulations / legislation specific for the substance or mixture

Directive 2012/18/EU — Major-accident hazards involving dangerous substances:

Named dangerous substances — ANNEX I: Substance is not listed.

Regulation (EU) 2019/1148 — Explosives precursors:

Annex I (Restricted): Substance is not listed.

Annex II (Reportable): Substance is not listed.

Regulation (EC) No 273/2004 — Drug precursors: Substance is not listed.

Regulation (EC) No 111/2005 — Drug precursors trade monitoring: Substance is not listed.

Employment restrictions:

Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers. Directive 94/33/EC on the protection of young people at work.

European legislation applicable

REGULATION (EC) No 1272/2008 (CLP) — Classification, labelling and packaging of substances and mixtures.

REGULATION (EC) No 1907/2006 (REACH) — Registration, Evaluation, Authorisation and Restriction of Chemicals.

COMMISSION REGULATION (EU) No 2020/878 — Amending Annex II to REACH.

Commission Regulation (EU) 2018/605 — Scientific criteria for endocrine disrupting properties.

DIRECTIVE 2008/98/EC — Waste framework directive.

**15.2 Chemical safety assessment: No Chemical Safety Assessment has been carried out for this substance.**

## SECTION 16 OTHER INFORMATION

This information is based on our present knowledge. It shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

This material must only be handled by suitably qualified and experienced scientists in appropriately equipped and authorised facilities.
Training hints: Workers must be trained in accordance with local provisions. Users should be trained in safe laboratory practice and good industrial hygiene.
Abbreviations and acronyms
CAS: Chemical Abstracts Service
CLP: Classification, Labelling and Packaging — Regulation 1272/2008/EC
EC50: Effective Concentration 50%: concentration causing 50% change in response in test organisms
EINECS: European Inventory of Existing Commercial Chemical Substances
ErC50: EC50 based on growth rate reduction (algae test)
GHS: Globally Harmonized System of Classification and Labelling of Chemicals (UN)
IATA: International Air Transport Association
IMDG: International Maritime Code for Dangerous Goods
KOW: Partition coefficient n-octanol/water
LD50: Lethal dose, 50% of test population (median lethal dose)
PBT: Persistent, Bioaccumulative and Toxic
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals — Reg. 1907/2006/EC
RID: Regulations Concerning the International Transport of Dangerous Goods by Rail
SDS: Safety Data Sheet
STEL: Short-term exposure limit
STOT: Specific Target Organ Toxicity
TWA: Time-weighted average (long-term exposure limit, 8-hour reference period)
vPvB: Very Persistent and Very Bioaccumulative
VOC: Volatile Organic Compounds