Safety Data Sheet

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision date: 11.04.2018 Version: 6.1 Print date: 11.04.2018

SECTION 1: Identification

Product identifier

Trade name/designation: NADH disodium salt trihydrate REAGENT GRADE
Blanket with nitrogen.
Product No.: 0384
Synonyms: no data available
CAS No.: 606-68-8
Other means of identification:

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

Recommended Use: For Further Manufacturing Use Only
Uses advised against: Not for Human or Animal Drug Use

Details of the supplier of the safety data sheet

Supplier

VWR International LLC
Street 100 Matsonford Road Radnor Corporate Center,
Building One, Suite 200 P. O. Box 6660
Postal code/city Radnor, PA 19087
Telephone +1-800-932-5000 toll-free within US/Canada
+1-610-386-1700
Telefax: +1-610-728-2103
SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
GHS Classification in accordance with 29 CFR 1910.1200 (OSHA HCS)

<table>
<thead>
<tr>
<th>Hazard classes and hazard categories</th>
<th>Hazard statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye irritation, category 2</td>
<td>H319</td>
</tr>
<tr>
<td>Skin irritation, category 2</td>
<td>H315</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure), category 3, vascular</td>
<td>H335</td>
</tr>
</tbody>
</table>

2.2 Label elements
Labelling in accordance with 29 CFR 1910.1200 (OSHA HCS)

**Hazard pictograms**

Signal word: Warning

<table>
<thead>
<tr>
<th>Hazard statements</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H319</td>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td>H315</td>
<td>Causes skin irritation.</td>
</tr>
<tr>
<td>H335</td>
<td>May cause respiratory irritation.</td>
</tr>
</tbody>
</table>
**Precautionary statements**

<table>
<thead>
<tr>
<th>P280</th>
<th>Wear protective gloves/protective clothing/eye protection/face protection.</th>
</tr>
</thead>
<tbody>
<tr>
<td>P302+P352</td>
<td>IF ON SKIN: Wash with plenty of water/…</td>
</tr>
<tr>
<td>P304+P340</td>
<td>IF INHALED: Remove person to fresh air and keep comfortable for breathing.</td>
</tr>
<tr>
<td>P305+P351+P338</td>
<td>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</td>
</tr>
<tr>
<td>P308+P311</td>
<td>IF exposed or concerned: Call a POISON CENTER/doctor/…</td>
</tr>
</tbody>
</table>

**Hazards not otherwise classified (HNOC)**

none/none

### SECTION 3: Composition / information on ingredients

**3.1 Substances**

<table>
<thead>
<tr>
<th>Substance name</th>
<th>β-Dihydronicotinamide adenine dinucleotide disodium salt trihydrate (NADH-Na2 trihydrate, reduced form)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular formula</td>
<td>C21H27O14N7P2Na2.3H2O</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>763.0 g/mol</td>
</tr>
<tr>
<td>CAS No.</td>
<td>606-68-8</td>
</tr>
</tbody>
</table>

### SECTION 4: First aid measures

**4.1 General information**

IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician. If unconscious place in recovery position and seek medical advice. Never give anything by mouth to an unconscious person or a person with cramps. Change contaminated, saturated clothing. Do not leave affected person unattended.

**After inhalation**

Call a POISON CENTER/doctor. Remove casualty to fresh air and keep warm and at rest. If breathing is irregular or stopped, administer artificial respiration.

**In case of skin contact**

After contact with skin, wash immediately with plenty of water and soap. Remove contaminated, saturated clothing immediately. In case of skin reactions, consult a physician.

**After eye contact**

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Protect uninjured eye. Remove contact lenses, if present and easy to do. Continue rinsing.

**In case of ingestion**

If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention. Do NOT induce vomiting. Give nothing to eat or drink.

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

no data available

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

no data available
4.4 Self-protection of the first aider
First aider: Pay attention to self-protection!

4.5 Information to physician
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing media
The product itself does not burn. Co-ordinate fire-fighting measures to the fire surroundings.

Extinguishing media which must not be used for safety reasons
No restriction

5.2 Specific hazards arising from the chemical
In case of fire may be liberated:
- Carbon monoxide
- Carbon dioxide (CO2)
- Nitrogen oxides (NOx)
- Phosphorus oxides

5.3 Advice for firefighters
Do NOT fight fire when fire reaches explosives.
Protective equipment and precautions for firefighters
Wear a self-contained breathing apparatus and chemical protective clothing.

Additional information
Do not allow run-off from fire-fighting to enter drains or water courses.
Do not inhale explosion and combustion gases.
Use water spray/stream to protect personnel and to cool endangered containers.
In case of fire: Evacuate area.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Avoid dust formation.

6.2 Environmental precautions
Do not allow to enter into surface water or drains.

6.3 Methods and material for containment and cleaning up
Spilled product must never be returned to the original container for recycling. Clean contaminated articles and floor according to the environmental legislation. Collect in closed and suitable containers for disposal.

6.4 Additional information
Clear spills immediately.
SECTION 7: Handling and storage

7.1 Precautions for safe handling
All work processes must always be designed so that the following is as low as possible: Inhalation skin contact Eye contact Use extractor hood (laboratory). If handled uncovered, arrangements with local exhaust ventilation have to be used. If local exhaust ventilation is not possible or not sufficient, the entire working area must be ventilated by technical means.

7.2 Conditions for safe storage, including any incompatibilities
Recommended storage temperature: -20°C
Keep container tightly closed and in a well-ventilated place. Keep/Store only in original container.

7.3 Specific end use(s)
no data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
Does not contain substances above concentration limits fixing an occupational exposure limit.

8.2 Engineering controls

Appropriate engineering controls
Technical measures and the application of suitable work processes have priority over personal protection equipment. If handled uncovered, arrangements with local exhaust ventilation have to be used.

Personal protection equipment (PPE)
Wear suitable protective clothing. When handling with chemical substances, protective clothing must be worn.

Eye/face protection
Eye glasses with side protection

Skin protection
Wear suitable gloves. When handling with chemical substances, protective gloves must be worn. In the case of wanting to use the gloves again, clean them before taking off and air them well. Check leak tightness/impermeability prior to use.

By short-term hand contact
- Suitable material: NBR (Nitrile rubber)
- Thickness of the glove material: 0,12 mm
- Breakthrough time (maximum wearing time): > 480 min

By long-term hand contact
- Suitable material: NBR (Nitrile rubber)
- Thickness of the glove material: 0,38 mm
- Breakthrough time (maximum wearing time): > 480 min

Respiratory protection
Respiratory protection necessary at: aerosol or mist formation If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn.

Additional information
Wash hands before breaks and after work. Avoid contact with skin and eyes. When using do not eat, drink or smoke. Provide eye shower and label its location conspicuously.
SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

(a) Appearance
   Physical state: solid
   Color: beige

(b) Odour: no data available

(c) Odour threshold: no data available

Safety relevant basic data

(d) pH: no data available

(e) Melting point/freezing point: no data available

(f) Initial boiling point and boiling range: no data available

(g) Flash point: no data available

(h) Evaporation rate: no data available

(i) Flammability (solid, gas): not applicable

(j) Flammability or explosive limits
   Lower explosion limit: no data available
   Upper explosion limit: no data available

(k) Vapour pressure: no data available

(l) Vapour density: no data available

(m) Relative density: no data available

(n) Solubility(ies)
   Water solubility (g/L): no data available
   Soluble (g/L) in Ethanol: no data available

(o) Partition coefficient: n-octanol/water: no data available

(p) Auto-ignition temperature: no data available

(q) Decomposition temperature: no data available

(r) Viscosity
   Kinematic viscosity: no data available
   Dynamic viscosity: no data available

(s) Explosive properties: not applicable

(t) Oxidising properties: not applicable

9.2 Other information

Bulk density: no data available

Refraction index: no data available

Dissociation constant: no data available

Surface tension: no data available

Henry constant: no data available
SECTION 10: Stability and reactivity

10.1 Reactivity
no data available

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature).

10.3 Possibility of hazardous reactions
no data available

10.4 Conditions to avoid
no data available

10.5 Incompatible materials
no data available

10.6 Hazardous decomposition products
no data available

10.7 Additional information
no data available

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute effects
Acute oral toxicity:
no data available

Acute dermal toxicity:
no data available

Acute inhalation toxicity:
no data available

Irritant and corrosive effects
Primary irritation to the skin:
Causes skin irritation.

Irritation to eyes:
Causes serious eye irritation.

Irritation to respiratory tract:
May cause respiratory irritation.
Respiratory or skin sensitization
In case of skin contact: not sensitising
After inhalation: not sensitising

STOT-single exposure
May cause respiratory irritation.

STOT-repeated exposure
not applicable

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)
Carcinogenicity
The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th></th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>no data available</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Germ cell mutagenicity
No indications of human germ cell mutagenicity exist.

Reproductive toxicity
No indications of human reproductive toxicity exist.

Aspiration hazard
not applicable

Other adverse effects
no data available

Additional information
no data available

SECTION 12: Ecological information

12.1 Ecotoxicity

Fish toxicity:
no data available

Daphnia toxicity:
no data available

Algae toxicity:
no data available

Bacteria toxicity:
no data available

12.2 Persistence and degradability
no data available
12.3 Bioaccumulative potential
   Partition coefficient: n-octanol/water: no data available

12.4 Mobility in soil:
   no data available

12.5 Results of PBT/vPvB assessment
   no data available

12.6 Other adverse effects
   no data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

   Appropriate disposal / Product
   Dispose according to legislation. Consult the appropriate local waste disposal expert about waste disposal.

   Waste code product: no data available

   Appropriate disposal / Package
   Dispose according to legislation. Handle contaminated packages in the same way as the substance itself.

   Additional information
   no data available

SECTION 14: Transport information

Land transport (DOT)

   No dangerous good in sense of this transport regulation.

Sea transport (IMDG)

   No dangerous good in sense of this transport regulation.

   Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code not relevant

Air transport (ICAO-TI / IATA-DGR)

   No dangerous good in sense of this transport regulation.
SECTION 15: Regulatory information

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

SARA 313 Components
Not listed.

Massachusetts Right To Know Components
Not listed.

Pennsylvania Right To Know Components
Not listed.

New Jersey Right To Know Components
Not listed.

California Prop. 65 Components
Not listed.
SECTION 16: Other information

Abbreviations and acronyms

ACGIH - American Conference of Governmental Industrial Hygienists
DOT - Department of Transportation
IARC - International Agency for Research on Cancer
IATA-DGR - International Air Transport Association-Dangerous Goods Regulations
ICAO-TI - International Civil Aviation Organization-Technical Instructions
IMDG - International Maritime Code for Dangerous Goods
LTV - Long Term Value
NIOSH - National Institute for Occupational Safety and Health
NTP - National Toxicology Program
OSHA - Occupational Safety & Health Administration
PBT - Persistent, Bioaccumulative and Toxic
PEL - Permissible Exposure Limit
STV - Short Term Value
SVHC - Substances of Very High Concern
TDG - Transport of Dangerous Goods
TLV - Threshold Limit Value
vPvB - very Persistent, very Bioaccumulative

Additional information

Indication of changes: general update

The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guidance. The information in this document is based on the present state knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. VWR International and his Affiliates shall not be held liable for any damage resulting from handling.