

**Material Safety Data Sheet**

Printing date 09/29/2011

Reviewed on 09/29/2011

**1 Identification of the substance/mixture and of the company/undertaking**

- **Product identifier**
- **Trade name:** NHS-Biotin
- **Catalog or product number:** 1706529, 1706529EDU
- **CAS Number:**  
68-12-2
- **EC number:**  
200-679-5
- **Index number:**  
616-001-00-X
- **Application of the substance / the preparation** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Bio-Rad Laboratories, Life Science Group  
2000 Alfred Nobel Drive  
Hercules, California 94547 (510)741-1000
- **Information department:** Technical services, customer support.
- **Emergency telephone number:**  
1(800)424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.  
510-741-1000

**2 Composition/information on ingredients**

- **Chemical characterization:** Substances
- **CAS No. Description:**  
68-12-2 N,N-dimethylformamide
- **Identification number(s):**
- **EC number:** 200-679-5
- **Index number:** 616-001-00-X
- **Additional information:** For the wording of the listed risk phrases refer to section 15.

· **Listing of dangerous and non-hazardous components:**

7732-18-5	water	2.5-5%
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**3 Hazards identification**

- **Classification of the substance or mixture**
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**  
Irritant to skin.  
Contains a component that may be fetotoxic and/or teratogenic.  
T; Toxic  
R61: May cause harm to the unborn child.  
Xn; Harmful  
R20/21: Harmful by inhalation and in contact with skin.
- **Classification system:**  
The classification was made according to OSHA 29CFR 1910.1200 and 1910.1030, and is expanded upon from company and/or literature information.

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· **Label elements**· **Labelling according to EU guidelines:**

The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials

· **Code letter and hazard designation of product:**

Repr. Cat. 2  
T Toxic

· **Risk phrases:**

61 May cause harm to the unborn child  
20/21 Also harmful by inhalation and in contact with skin.

· **Safety phrases:**

53 Avoid exposure - obtain special instructions before use.  
36/37/39 Wear suitable protective clothing, gloves and eye/face protection.  
45 In case of accident or if you feel unwell, seek medical advice immediately.  
60 This material and its container must be disposed of as hazardous waste.

· **Emergency overview:**· **Routes of exposure:**

Inhalation  
Skin

\* **4 First aid measures**· **General information**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· **After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.  
In case of unconsciousness place patient stably in side position for transportation.

· **After skin contact** Generally the product does not irritate the skin.· **After eye contact** Rinse opened eye for several minutes under running water.· **After swallowing** Induce vomiting and call for medical help.\* **5 Firefighting measures**· **Suitable extinguishing agents**

CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

· **Special hazards arising from the substance or mixture** No further relevant information available.· **Protective equipment:**

Mount respiratory protective device.  
Wear self-contained respiratory protective device.

\* **6 Accidental release measures**· **Personal precautions, protective equipment and emergency procedures**

Wear protective equipment (See section 8). Keep unprotected persons away.

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- **Environmental precautions:**  
Dilute with plenty of water.  
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.
- **Reference to other sections**  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

**7 Handling and storage**

- **Handling**
- **Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace.  
Open and handle receptacle with care.  
No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:** Keep respiratory protective device available.
- **Storage**
- **Requirements to be met by storerooms and receptacles:** According to product specification
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

**8 Exposure controls/personal protection**

- **Additional information about design of technical systems:** No further data; see item 7.

- **Components with limit values that require monitoring at the workplace:**

**68-12-2 N,N-dimethylformamide**

PEL ()	30 mg/m <sup>3</sup> , 10 ppm Skin
REL ()	30 mg/m <sup>3</sup> , 10 ppm Skin
TLV ()	30 mg/m <sup>3</sup> , 10 ppm Skin; BEI

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures**  
Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing  
Wash hands before breaks and at the end of work.  
Store protective clothing separately.  
Avoid contact with the eyes and skin.
- **Breathing equipment:**  
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Protection of hands:** Protective gloves.
- **Material of gloves** Synthetic gloves

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- **Penetration time of glove material**  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Safety glasses

**9 Physical and chemical properties**

- **General Information**
- **Appearance:**
  - Form: liquid
  - Color: Colorless
  - Odor: Amine-like
- **pH-value at 20°C:** 7
- **Change in condition**
  - Melting point/Melting range: -61°C
  - Boiling point/Boiling range: 152°C
- **Flash point:** > 55°C
- **Ignition temperature:** 440°C
- **Danger of explosion:** Product does not present an explosion hazard.
- **Explosion limits:**
  - Lower: 2.2 Vol %
  - Upper: 16 Vol %
- **Vapor pressure at 20°C:** 3.5 hPa
- **Density at 20°C:** 0.95 g/cm<sup>3</sup>
- **Solubility in / Miscibility with**
  - Water: Fully miscible
  - Organic solvents: 0.0 %
  - Water: 3.0 %
- **Other information** No further relevant information available.

**10 Stability and reactivity**

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known

**11 Toxicological information**

- **Acute toxicity:**
- **LD/LC50 values for hazardous components per OSHA criteria:**

**68-12-2 N,N-dimethylformamide**

Oral	LD50	7600 mg/kg (rat)
Dermal	LD50	5000 mg/kg (rbt)

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Inhalative LC50/4 h 9400 mg/l (mus)

- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritant effect.
- **Sensitization:** No sensitizing effects known.
- **Target organs:**  
Skin.  
Respiratory tract.

**12 Ecological information**

- **Acquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water.  
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

**13 Disposal considerations**

- **Waste treatment methods**
- **Recommendation**  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.  
Hand over to hazardous waste disposers.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

**14 Transport information**

- **UN-Number**
- **DOT** UN2265
- **ADR, IMDG, IATA** 2265
- **UN proper shipping name**
- **DOT, IMDG, IATA** N,N-DIMETHYLFORMAMIDE, solution
- **ADR** 2265 N,N-DIMETHYLFORMAMIDE, solution
- **Transport hazard class(es)**
- **DOT, IMDG, IATA**
- **Class** 3 Flammable liquids.
- **Label** 3
- **ADR**
- **Class** 3 Flammable liquids
- **Label** 3

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- **Packing group**  
· **DOT, ADR, IMDG, IATA** III
- **Environmental hazards:**  
· **Marine pollutant:** No
- **Special precautions for user** Warning: Flammable liquids  
· **Danger code (Kemler):** 30  
· **EMS Number:** F-E,S-D
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

**15 Regulatory information**

· **SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)**

· **Section 302/304 (40CFR355.30 / 40CFR355.40):**

Substance not listed.

· **Section 313 (40CFR372.65):**

68-12-2 | N,N-dimethylformamide

· **TSCA (Toxic Substances Control Act):**

Substance is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

Substance is not listed.

· **IARC (International Agency for Research on Cancer)**

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· **NTP (National Toxicology Program)**

Substance is not listed.

· **TLV (Threshold Limit Value established by ACGIH)**

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A4

· **MAK (German Maximum Workplace Concentration)**

Substance is not listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is not listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

· **National regulations**

· **Technical instructions (air):**

Class	Share in %
II	50-100

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- **Water hazard class:** Water hazard class 1 (Assessment by list): slightly hazardous for water.

**16 Other information**

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

- **Department issuing MSDS:** Environmental Health and Safety.

- **Contact:**

*Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 741-1000*

*Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 724-7000*

- \* **Data compared to the previous version altered.**