

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 24.11.2011

Version number 1

Revision: 24.11.2011

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

1.1. Product identifier

- Trade name: Dimethylformamide
- Synonyma DMF; DMFA

SERVA
Electrophoresis

- Article number: 20270

- CAS Number:

68-12-2

- EC number:

200-679-5

- Index number:

616-001-00-X

- Registration number 01-2119475605-32-XXXX

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

- Application of the substance / the preparation Laboratory chemicals

1.3. Details of the supplier of the safety data sheet

· Manufacturer/Supplier:

SERVA Electrophoresis GmbH

Carl-Benz-Str. 7

D-69115 Heidelberg

Tel.: +49 6221 13840-0

FAX: +49 6221 13840-10

msds.info@serva.de

- Information department: Product Safety department Tel.: +49 6221 13840-35

- 1.4. Emergency telephone number: +49 6131 19240 (university hospital Mainz)

2 Hazards identification

2.1. Classification of the substance or mixture

- Classification according to Regulation (EC) No 1272/2008



GHS02

Flam. Liq. 3 H226 Flammable liquid and vapour.



GHS08

Repr. 1B H360D May damage the unborn child.



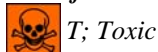
GHS07

Acute Tox. 4 H312 Harmful in contact with skin.

Acute Tox. 4 H332 Harmful if inhaled.

Eye Irrit. 2 H319 Causes serious eye irritation.

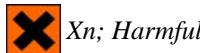
- Classification according to Directive 67/548/EEC or Directive 1999/45/EC



T; Toxic

Repr. Cat. 2

R61: May cause harm to the unborn child.



Xn; Harmful

R20/21: Harmful by inhalation and in contact with skin.

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**Xi; Irritant**

R36: Irritating to eyes.

R10: Flammable.

Classification system:

The classification was made according to the latest editions of the EU-lists, and expanded upon from company and literature data.

2.2. Label elements**Labelling according to Regulation (EC) No 1272/2008**

The substance is classified and labelled according to the CLP regulation.

Hazard pictograms GHS02, GHS07, GHS08**Signal word Danger****Hazard statements**

H226 Flammable liquid and vapour.

H312 Harmful in contact with skin.

H332 Harmful if inhaled.

H319 Causes serious eye irritation.

H360D May damage the unborn child.

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405 Store locked up.

2.3. Other hazards**Results of PBT and vPvB assessment**

PBT: PBT - assessment not available.

vPvB: vPvB - assessment not available.

3 Composition/information on ingredients

3.1. 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**Description:****Empirical formula:** C₃H₇N O**MW:** 73,1

4 First aid measures

4.1. Description of first aid measures**General information**

Remove contaminated clothing.

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 and to be sure call for a doctor.

After skin contact Immediately wash with water and soap and rinse thoroughly.

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- **After eye contact**
Rinse opened eye for several minutes under running water. If symptoms persist, consult doctor.
- **After swallowing** Drink copious amounts of water and provide fresh air. Call for doctor immediately.
- **Information for doctor**
- **4.2. Most important symptoms and effects, both acute and delayed**
Headache
Dizziness
Gastric or intestinal disorders.
Nausea
- **4.3. Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Firefighting measures

- **5.1. Extinguishing media**
- **Suitable extinguishing agents**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **5.2. Special hazards arising from the substance or mixture**
In case of fire, the following can be released:
Nitrogen oxides (NO_x)
Carbon monoxide and carbon dioxide
- **5.3. Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

- **6.1. Personal precautions, protective equipment and emergency procedures** Wear protective clothing.
- **6.2. Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **6.3. 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.
- **6.4. Reference to other sections**
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling**
- **7.1. Precautions for safe handling**
Ensure good interior ventilation, especially at floor level. (Fumes are heavier than air).
Open and handle receptacle with care.
- **Information about protection against explosions and fires:**
Keep respiratory protective device available.
Protect against electrostatic charges.
- **7.2. Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** Store only in the original receptacle.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Store under lock and key and with access restricted to technical experts or their assistants only.
Keep receptacle tightly sealed.
- **7.3. Specific end use(s)** No further relevant information available.

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8 Exposure controls/personal protection

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

· 8.1. Control parameters

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

68-12-2 N,N-dimethylformamide (80-100%)

WEL ()	Short-term value: 61 mg/m ³ , 20 ppm Long-term value: 30 mg/m ³ , 10 ppm Sk
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· **Additional information:** The lists that were valid during the creation were used as basis.

· 8.2. Exposure controls

· 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:

Short term filter device:

Filter A/P2.

· Protection of hands:

Rubber gloves

Neoprene gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· 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.

· **For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:**

Butyl rubber, BR

· **Eye protection:** Tightly sealed goggles.

· **Body protection:** Protective work clothing.

9 Physical and chemical properties

· 9.1. Information on basic physical and chemical properties

· General Information

· Appearance:

Form:	Liquid
Colour:	Colourless
· Odour:	Amine-like

· pH-value (200 g/l) at 20°C:	7
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· Change in condition

Melting point/Melting range:	- 61°C
Boiling point/Boiling range:	153°C

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· Flash point:	58°C
· Ignition temperature:	410°C (DIN 51794)
· Danger of explosion:	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· Explosion limits:	
Lower:	2.2 Vol %
Upper:	16 Vol %
· Vapour pressure at 20°C:	3.77 hPa
· Density at 20°C:	0.95 g/cm ³
· Solubility in / Miscibility with Water:	Fully miscible
· Segregation coefficient (n-octanol/water) at 25°C:	-0.85 log POW
· 9.2. Other information	No further relevant information available.

10 Stability and reactivity

- **10.1. Reactivity** No further relevant informations available
- **10.2. Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3. Possibility of hazardous reactions**
Reacts with strong oxidizing agents
Reacts with halogenated compounds
- **10.4. Conditions to avoid** No further relevant information available.
- **10.5. Incompatible materials:** nitrates
- **10.6. Hazardous decomposition products:**
Nitrogen oxides
Carbon monoxide and carbon dioxide
Formaldehyde
dimethylamine

11 Toxicological information

- **11.1. Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

Oral	LD50	2000 mg/kg (rat)
Dermal	LD50	4720 mg/kg (rbt)
Inhalative	LC50/4h	5.91 mg/l (rat)
	LC50/96h	6300 mg/l (Fish)

- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:** Product is suspected to cause damage to the unborn child.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
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12 Ecological information

· 12.1. Toxicity

· Aquatic toxicity:

EC50/48h	> 100 mg/l (Daphnia magna)
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· 12.2. **Persistence and degradability** No further relevant information available.

· **Other information:** The product is easily biodegradable.

· **Behaviour in environmental systems:**

· 12.3. Bioaccumulative potential

Bioconcentrationfactor: 0,3-1,2 (56 d), Cyprinus carpio (OECD TG 305 C)

Not worth-mentioning accumulating in organisms

· 12.4. **Mobility in soil** No further relevant information available.

· **Ecotoxicological effects:**

· **Remark:** EC50 / 96 h (Scenedesmus subspicatus): > 500 mg / l

· **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.

· 12.5. **Results of PBT and vPvB assessment**

· **PBT:** PBT - assessment not available.

· **vPvB:** vPvB - assessment not available.

· 12.6. **Other adverse effects** No further relevant information available.

13 Disposal considerations

· 13.1. **Waste treatment methods**

· **Recommendation**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packaging:**

· **Recommendation:** Disposal must be made according to official regulations.

· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· 14.1. **UN-Number**

· **ADR, IMDG, IATA**

UN2265

· 14.2. **UN proper shipping name**

· **ADR**

2265 N,N-DIMETHYLFORMAMIDE

· **IMDG**

N,N-DIMETHYLFORMAMIDE

· **IATA**

N,N-Dimethylformamide

· 14.3. **Transport hazard class(es)**

· **ADR**



· **Class**

3 Flammable liquids.

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· Label	3
· IMDG, IATA	
	
· Class	3 Flammable liquids.
· Label	3
· 14.4. Packing group	
· ADR, IMDG, IATA	III
· 14.5. Environmental hazards:	
· Marine pollutant:	No
· 14.6. Special precautions for user	Warning: Flammable liquids.
· Danger code (Kemler):	30
· EMS Number:	F-E,S-D
· 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· ADR	
· Tunnel restriction code	D/E
· UN "Model Regulation":	UN2265, N,N-DIMETHYLFORMAMIDE, 3, III

15 Regulatory information

- **15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **National regulations**
- **Information about limitation of use:**
Employment restrictions concerning pregnant and lactating women must be observed.
- **Technical instructions (air):**

Class	Share in %
NK	80-100
- **Water hazard class:** Water hazard class 1 (Assessment by list): slightly hazardous for water.
- **15.2. Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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:** Product safety department
- **Contact:** +49 6221 13840-35
- **Abbreviations and acronyms:**
 PBT: persistent, bioaccumulative, toxic substance (REACH)
 vPvB: very persistent, very bioaccumulative substance (REACH)
 REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
 CLP: Regulation on classification, labelling and packaging of substances and mixtures
 ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
 RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
 IMDG: International Maritime Code for Dangerous Goods
 IATA: International Air Transport Association

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*ICAO: International Civil Aviation Organization**GHS: Globally Harmonized System of Classification and Labelling of Chemicals**EINECS: European Inventory of Existing Commercial Chemical Substances**CAS: Chemical Abstracts Service (division of the American Chemical Society)**LC50: Lethal concentration, 50 percent**LD50: Lethal dose, 50 percent**** Data compared to the previous version altered.**

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