

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

Printing date 09.12.2022

Version number 4

Revision: 09.12.2022

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

· **1.1 Product identifier**

- **Trade name:** Dimethylformamide
- **Synonyma** DMF; DMFA



- **Article number:** 39756

- **CAS Number:**
68-12-2

- **EC number:**
200-679-5

- **Index number:**
616-001-00-X

- **Registration number** 01-2119475605-32

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

- **Process category** PROC15 Use as laboratory reagent
- **Application of the substance / the mixture:** 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:**

Medical Emergency Information in case of poisoning:
Poison Information Center Mainz - Phone: +49 (0) 6131 19240
(advisory service in German or English language)

SECTION 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.

· **2.2 Label elements**

- **Labelling according to Regulation (EC) No 1272/2008:**

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

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- **Hazard pictograms:** GHS02, GHS07, GHS08
- **Signal word:** Danger
- **Hazard statements:**
 - H226 Flammable liquid and vapour.
 - H312+H332 Harmful in contact with skin or if inhaled.
 - H319 Causes serious eye irritation.
 - H360D May damage the unborn child.
- **Precautionary statements**
 - P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 - P261 Avoid breathing mist/vapours/spray.
 - P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
 - P302+P352 IF ON SKIN: Wash with plenty of soap and water.
 - P304+P340 IF INHALED: Remove person to fresh air and keep 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.
- **Labelling of packages where the contents do not exceed 125 ml**
- **Hazard pictograms** GHS02, GHS07, GHS08
- **Signal word** Danger
- **Hazard statements**
 - H360D May damage the unborn child.
- **Precautionary statements**
 - P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
 - P302+P352 IF ON SKIN: Wash with plenty of soap and water.
 - P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- **2.3 Other hazards**
- **Results of PBT and vPvB assessment:**
- **PBT:** PBT - assessment not available.
- **vPvB:** vPvB - assessment not available.

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SECTION 3: Composition/information on ingredients

- **3.1 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

· SVHC

68-12-2	N,N-dimethylformamide
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SECTION 4: First aid measures

- **4.1 Description of first aid measures**
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:**
 - Immediately wash with water and soap and rinse thoroughly. Consult doctor if you feel unwell.

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- **After eye contact:**
Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing. Consult ophthalmologist in case of complaints.
- **After swallowing:**
Wash out mouth instantly. Drink copious amounts of water and provide fresh air. Call for doctor immediately.
- **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.

SECTION 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:**
Flammable substance, vapours are heavier than air and spread over the floor.
Vapours can form flammable and explosive mixtures with air.
In case of fire, the following can be formed, but not limited to:
Nitrogen oxides (NO_x)
Carbon monoxide and carbon dioxide
Formaldehyde
Ammonia (NH₃)
- **5.3 Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective clothing.
Ensure adequate ventilation
Avoid contact with the eyes and skin.
- **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up**
Dispose contaminated material as waste according to item 13.
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **6.4 Reference to other sections**
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling:** No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:**
Protect against electrostatic charges.
Keep ignition sources away - Do not smoke.
- **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:** Store away from oxidising agents.

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- **Further information about storage conditions:**
Store under lock and key and with access restricted to technical experts or their assistants only.
This product is hygroscopic.
Keep receptacle tightly sealed and store in dry conditions.
- **7.3 Specific end use(s):** No further relevant information available.

SECTION 8: Exposure controls/personal protection

· 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: 30 mg/m ³ , 10 ppm
	Long-term value: 15 mg/m ³ , 5 ppm
Sk	

· DNELs

workers: long term exposure-systemic effects, inhalative: 6 mg/m³
workers: long term exposure-systemic effects, dermal: 1,1 mg/kg bw/day

· PNECs

PNEC sewage treatment plant, short-term (single instance): 44 mg/l
PNEC fresh water sediment, short-term (single instance): 111 mg/kg
PNEC marine water sediment, short-term (single instance): 11,1 mg/kg

· Additional information:

resorbable by skin contact
The lists that were valid during the creation were used as basis.

· 8.2 Exposure controls

· Appropriate engineering controls: No further data; see item 7.

· Individual protection measures, such as personal protective equipment:

· General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.
Store protective clothing separately.
Immediately remove all soiled and contaminated clothing
Avoid contact with the eyes and skin.
Wash hands before breaks and at the end of work.

· Breathing equipment:

Short term filter device:
Filter ABEK-P2

· Hand protection:

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/face protection: Tightly sealed goggles.

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

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

· General Information:

· Physical state:	Fluid
· Colour:	colorless to yellowish
· Odour:	Amine-like
· Odour threshold:	Not determined.
· Melting point/freezing point:	-61 °C
· Boiling point or initial boiling point and boiling range:	153 °C
· Flammability:	Flammable liquid and vapour according to GB CLP Regulation (EC) No. 1272/2008: Flam. Liq. 3 H226.
· Lower and upper explosion limit:	
· Lower:	2.2 Vol %
· Upper:	16 Vol %
· Flash point:	58 °C
· Decomposition temperature:	> 350 °C
· pH:	7
· Viscosity:	
· Kinematic viscosity at 20 °C:	0.8947 mm ² /s
· Dynamic viscosity at 20 °C:	0.85 mPas
· Solubility:	
· Water:	Fully miscible
· Partition coefficient n-octanol/water (log value):	no information available
· Vapour pressure at 20 °C:	3.77 hPa
· Density and/or relative density:	
· Density at 20 °C:	0.95 g/cm ³
· Relative density:	no information available

· 9.2 Other information

· Appearance:	
· Form:	Liquid
· Important information on protection of health and environment, and on safety:	
· Explosive properties:	Not determined.
· Molecular weight	73.1 g/mol

SECTION 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:** Reactions with strong oxidizing agents
- **10.4 Conditions to avoid:** Avoid high temperatures, flames, sparks
- **10.5 Incompatible materials:**
Avoid contact with:
different plastic materials
tin
Copper, copper alloys
- **10.6 Hazardous decomposition products:** In case of fire: See Section 5

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SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008:

· **Acute toxicity:** Harmful in contact with skin or if inhaled.

· LD/LC50 values that are relevant for classification:

Oral	LD50	3,010 mg/kg (rat)
Dermal	LD50	>3,160 mg/kg (rat)
Inhalative	LC50/4h	>5.85 mg/l (rat)

· **Skin corrosion/irritation:** Based on available data, the classification criteria are not met.

· **Serious eye damage/irritation:** Causes serious eye irritation.

· **Respiratory or skin sensitisation:** Based on available data, the classification criteria are not met.

· **Germ cell mutagenicity:** Based on available data, the classification criteria are not met.

· **Carcinogenicity:** Based on available data, the classification criteria are not met.

· **Reproductive toxicity:** May damage the unborn child.

· **STOT-single exposure:** Based on available data, the classification criteria are not met.

· **STOT-repeated exposure:** Based on available data, the classification criteria are not met.

· **Aspiration hazard:** Based on available data, the classification criteria are not met.

· Other information (about experimental toxicology)

The classification of N,N-dimethylformamide (DMF) as toxic to reproduction (Repr. 1B); H360D "May damage the unborn child"

according to Regulation (EC) No 1272/2008 (GB CLP Regulation) and the inclusion in Annex VI, part 3 (index number 616-001-00-X),

Table 3.1 (list of harmonised classification and labelling of hazardous substances) shows:

N,N-dimethylformamide meets the criterion for classification as toxic for reproduction in accordance with Article 57(c) of UK REACH.

(ECHA SVHC Support Document - DMF; 6)

11.2 Information on other hazards:

· **Endocrine disrupting properties:** Substance is not listed.

SECTION 12: Ecological information

12.1 Toxicity:

· Aquatic toxicity:

EC50/48h	13,100 mg/l (Daphnia magna)
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· **12.2 Persistence and degradability:** No further relevant information available.

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

12.3 Bioaccumulative potential:

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

Non significant accumulation in organisms

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

12.5 Results of PBT and vPvB assessment:

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

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

· **12.6 Endocrine disrupting properties:** For information on endocrine disrupting properties see section 11.

12.7 Other adverse effects:

· Remark:

Acute toxicity to algae: EC50 (72 h, Desmodesmus subspicatus,) > 1000 mg/l

Acute toxicity to fish, LC50 (96h, Lepomis macrochirus): 7100 mg/l

Chronic toxicity to fish: NOEC (21d, growth, Oryzias latipes, OECD 204): > 102 mg/l

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

· Additional ecological information:

· General notes:

Do not allow product to reach ground water, water course or sewage system.

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Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water.

SECTION 13: Disposal considerations· **13.1 Waste treatment methods**· **Recommendation**

Disposal must be made according to official regulations.

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

· **Uncleaned packagings:**· **Recommendation:**

Disposal of uncleaned packagings must be made according to official regulations in the same manner as the product.

· **Recommended cleansing agent:** Water, if necessary with cleansing agents.**SECTION 14: Transport information**· **14.1 UN number or ID number**· **ADR, IMDG, IATA**

UN2265

· **14.2 UN proper shipping name**· **ADR**

2265 N,N-DIMETHYLFORMAMIDE

· **IMDG, IATA**

N,N-DIMETHYLFORMAMIDE

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

· **Hazard identification number (Kemler code):**

30

· **EMS Number:**

F-E,S-D

· **Stowage Category**

A

· **14.7 Maritime transport in bulk according to IMO instruments**

Not applicable.

· **Transport/Additional information:**· **ADR**· **Limited quantities (LQ)**

5L

· **Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· **Transport category**

3

· **Tunnel restriction code**

D/E

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- | | |
|--|---|
| <ul style="list-style-type: none"> · IMDG · Limited quantities (LQ) · Excepted quantities (EQ) | <p>5L</p> <p>Code: E1</p> <p>Maximum net quantity per inner packaging: 30 ml</p> <p>Maximum net quantity per outer packaging: 1000 ml</p> |
| <ul style="list-style-type: none"> · UN "Model Regulation": | <p>UN 2265 N,N-DIMETHYLFORMAMIDE, 3, III</p> |

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** Substance is not listed.
- **Seveso category P5c FLAMMABLE LIQUIDS**
- **Qualifying quantity (tonnes) for the application of lower-tier requirements** 5,000 t
- **Qualifying quantity (tonnes) for the application of upper-tier requirements** 50,000 t
- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3, 30, 40, 72, 76
- **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**
Substance is not listed.
- **REGULATION (EU) 2019/1148**
- **Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**
Substance is not listed.
- **Annex II - REPORTABLE EXPLOSIVES PRECURSORS** Substance is not listed.
- **Regulation (EC) No 273/2004 on drug precursors** Substance is not listed.
- **Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**
Substance is not listed.
- **National regulations:**
- **Information about limitation of use:**
Employment restrictions concerning pregnant and lactating women must be observed.
- **Water hazard class:** Water hazard class 1 (Assessment by list): slightly hazardous for water.
- **Substances of very high concern (SVHC) according to UK REACH**
- 68-12-2 N,N-dimethylformamide
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 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 SDS:** Product safety department
- **Contact:** +49 6221 13840-35
- **Date of previous version:** 03.12.2021
- **Abbreviations and acronyms:**
 - RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
 - ICAO: International Civil Aviation Organisation
 - PBT: persistent, bioaccumulative, toxic substance (UK REACH)
 - vPvB: very persistent, very bioaccumulative substance (UK REACH)
 - UK REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
 - GB CLP: Regulation on classification, labelling and packaging of substances and mixtures
 - bw: body weight
 - ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

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*IMDG: International Maritime Code for Dangerous Goods**IATA: International Air Transport Association**GHS: Globally Harmonised 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)**DNEL: Derived No-Effect Level (UK REACH)**PNEC: Predicted No-Effect Concentration (UK REACH)**LC50: Lethal concentration, 50 percent**LD50: Lethal dose, 50 percent**PBT: Persistent, Bioaccumulative and Toxic**vPvB: very Persistent and very Bioaccumulative**Flam. Liq. 3: Flammable liquids – Category 3**Acute Tox. 4: Acute toxicity – Category 4**Eye Irrit. 2: Serious eye damage/eye irritation – Category 2**Repr. 1B: Reproductive toxicity – Category 1B*

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