

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 01.11.2012

Revision: 01.11.2012

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

- **Product identifier**
- **Trade name:** Dimethyl Formamide 99.9%
- **Article number:** 50-1409-25
- **CAS Number:**
68-12-2
- **EC number:**
200-679-5
- **Index number:**
616-001-00-X
- **Registration number** 01-2119475605-32
- **Relevant identified uses of the substance or mixture and uses advised against**
Industrial use resulting in manufacture of another substance; Use as laboratory chemical; Use as solvent.
- **Sector of Use**
SU0 Other
SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
SU9 Manufacture of fine chemicals
SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
SU24 Scientific research and development
- **Product category**
PC0 Other
PC19 Intermediate
PC21 Laboratory chemicals
- **Process category**
PROC1 Use in closed process, no likelihood of exposure
PROC2 Use in closed, continuous process with occasional controlled exposure
PROC3 Use in closed batch process (synthesis or formulation)
PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC15 Use as laboratory reagent
- **Environmental release category**
ERC1 Manufacture of substances
ERC2 Formulation of preparations
ERC4 Industrial use of processing aids in processes and products, not becoming part of articles
ERC6a Industrial use resulting in manufacture of another substance (use of intermediates)
- **Application of the substance / the preparation**
The substance has many industrial and professional applications.
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Severn Biotech Ltd.
Unit 2,
Park Lane,
Kidderminster,
Worcestershire.
DY11 6TJ
UK
Tel: 0044 1562 825286
Fax: 0044 1562 825284
email: info@severnbiotech.com

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- **Further information obtainable from:** Product safety department.
- **Emergency telephone number:** Tel: 0044 1562 825286 (not 24 hours)

2 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS02 flame

Flam. Liq. 3 H226 Flammable liquid and vapour.



GHS08 health hazard

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.



Xi; Irritant

R36: Irritating to eyes.

- **Information concerning particular hazards for human and environment:** Not applicable.

- **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+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/sparks/open flames/hot surfaces. - No smoking.

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

P260 Do not breathe mist/vapours/spray.

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

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

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

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description**
68-12-2 Dimethyl formamide
- **Identification number(s)**
- **EC number:** 200-679-5
- **Index number:** 616-001-00-X

4 First aid measures

- **Description of 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.
Use of alcoholic beverages may enhance toxic effects.
Symptoms following absorption could be delayed from several hours up to several days.
- **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:**
Immediately rinse with water.
If skin irritation continues, consult a doctor.
DO NOT DELAY!
- **After eye contact:**
Check for and remove any contact lenses.
Rinse opened eye for several minutes under running water. Then consult a doctor.
DO NOT DELAY!
- **After swallowing:**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; call for medical help immediately.
DO NOT DELAY!
Consider drinking a slurry of activated charcoal in case of significant ingestion.
- **Information for doctor:**
Indication of immediate medical attention and special treatment needed:
 - Biomonitoring possible at chronic exposure
 - Determination of formamide in blood at the end of the workday/workweek
 - Determination of formamide in urine at the end of the workday/workweek
 - Lab testing in blood for delayed effects
- **Most important symptoms and effects, both acute and delayed**
No further relevant information available.

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- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture**
Flammable. Gives off irritating or toxic fumes (or gases) in a fire.
Above 58 degs.C explosive vapour/air mixtures may be formed.
Vapours are heavier than air and may spread along floors
Vapours may form explosive mixture with air
Heating or fire can release toxic gas (Nitrogen oxides (NO_x), Carbon monoxide)
- **Advice for firefighters**
- **Protective equipment:**
Wear fully protective suit.
Wear self-contained respiratory protective device.
Do not inhale explosion gases or combustion gases.
- **Additional information** Cool endangered receptacles with water spray.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Keep ignition sources away - no smoking.
- **Environmental precautions:**
Do not allow to enter sewers/ surface or ground water.
Do not allow to penetrate the ground/soil.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Send for recovery or disposal in suitable receptacles.
Ensure adequate ventilation.
- **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.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Prevent formation of aerosols.
Only handle and refill product in closed systems.
Avoid direct contact (skin contact, ingestion and/or inhalation of fume/mist/dust) with the product.
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
- **Information about fire - and explosion protection:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Keep respiratory protective device available.

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Above 58 degs. C (explosive vapour/air mixtures may be formed) use a closed system and ventilation.

- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Prevent any seepage into the ground.
- **Information about storage in one common storage facility:**
 - Store away from oxidizing agents.
 - Store away from foodstuffs.
- **Further information about storage conditions:**
 - Keep container tightly sealed.
 - Store in a banded area.
 - Store in cool, dry conditions in well sealed receptacles.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

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

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

68-12-2 Dimethyl formamide

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

- **DNELs**

WORKERS

Acute / short-term exposure - systemic effects

Dermal DN(M)EL

- DNEL (Derived No Effect Level): 26.3 mg/kg bw/day

Inhalation DN(M)EL

- DNEL (Derived No Effect Level): 30 mg/m³

Acute / short-term exposure - local effects

Dermal DN(M)EL

- DNEL (Derived No Effect Level): 5900 µg/cm²

Inhalation DN(M)EL

- DNEL (Derived No Effect Level): 30 mg/m³

Long-term exposure - systemic effects

Dermal DN(M)EL

- DNEL (Derived No Effect Level): 3.31 mg/kg bw/day

Inhalation DN(M)EL

- DNEL (Derived No Effect Level): 15 mg/m³

Long-term exposure - local effects

Dermal DN(M)EL

- DNEL (Derived No Effect Level): 446 µg/cm²

Inhalation DN(M)EL

- DNEL (Derived No Effect Level): 15 mg/m³

- **PNECs**

PNEC aqua (freshwater): 30 mg/L

PNEC aqua (marine water): 3 mg/L

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- PNEC aqua (intermittent releases): 30 mg/L
 PNEC STP: 123 mg/L
 PNEC sediment (freshwater): 25.05 mg/kg sediment dw
 PNEC sediment (marine water): No exposure of sediment expected
 PNEC soil: 16.235 mg/kg soil dw
 PNEC oral: No potential for bioaccumulation
- **Additional information:** The lists valid during the making were used as basis.

- **Exposure controls**

- **Personal protective equipment:**

Select PPE appropriate for the operations taking place taking into account the product properties.

- **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.

Ensure that eyewash stations and safety showers are close to the workstation location.

Do not inhale gases / fumes / aerosols.

Pregnant women should strictly avoid inhalation or skin contact.

Avoid alcohol consumption while working with the product.

Do not eat, drink, smoke or sniff while working.

Be sure to clean skin thoroughly after work and before breaks.

Storing food in the working area is prohibited.

A safe system of work must be formulated and followed to ensure that workers who may be pregnant or breastfeeding do not come into direct contact with the product.

A safe system of work must be formulated and followed to ensure safe working with this product.

Relevant workers must receive suitable and sufficient training and supervision.

Take note of assigned Workplace Exposure Limits.

- **Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

- **Protection of hands:**



Protective gloves

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

Hand Protection:

- Solvent-resistant gloves (butyl-rubber)
- Neoprene gloves

- **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:**



Tightly sealed goggles

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· **Body protection:** Solvent resistant protective clothing

9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

Form:	Fluid
Colour:	Colourless
Odour:	Amine-like
Odour threshold:	Not determined.

· **pH-value (200 g/l) at 20 °C:** 7

· Change in condition

Melting point/Melting range:	-61 °C
Boiling point/Boiling range:	152 °C

· **Flash point:** 58 °C· **Flammability (solid, gaseous):** Not applicable.· **Ignition temperature:** 435 °C· **Decomposition temperature:** Not determined.· **Self-igniting:** Not determined.· **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:** 3.8 hPa

Density at 20 °C:	0.95 g/cm ³
Relative density	Not determined.
Vapour density	Not determined.
Evaporation rate	Not determined.

· **Solubility in / Miscibility with water:** Fully miscible.· **Partition coefficient (n-octanol/water):** -1.01 log POW

· Viscosity:

Dynamic at 20 °C:	0.8 mPas
Kinematic:	Not determined.

· **Other information** No further relevant information available.

10 Stability and reactivity

· Reactivity

· Chemical stability

· Thermal decomposition / conditions to be avoided:

No decomposition if used and stored according to specifications.

· **Possibility of hazardous reactions** Above 58 degs. C explosive vapour/air mixtures may be formed.· **Conditions to avoid** No further relevant information available.

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- **Incompatible materials:**
 - Strong acids and oxidising agents
 - Tin, Zinc, Copper, Aluminum
 - Halogenated hydrocarbons
- **Hazardous decomposition products:**
 - Carbon monoxide and carbon dioxide
 - Nitrogen oxides (NO_x)
 - Ammonia

11 Toxicological information

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

- **LD/LC50 values relevant for classification:**

Oral	LD50	>2000 mg/kg (rat)
Dermal	LD50	4720 mg/kg (rabbit)
Inhalative	LC50/4 h	>5.85 mg/l (mouse)

- **Primary irritant effect:**
 - **on the skin:** No irritant effect.
 - **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Subacute to chronic toxicity:**
 - Effects of long-term or repeated exposure: The substance may have effects on the liver. This may result in impaired functions. Animal tests show that this substance possibly causes toxic effects upon human reproduction.
 - Regular medical monitoring recommended.
- **Additional toxicological information:**
 - Most important symptoms and effects, both acute and delayed:
 - Use of alcoholic beverages may enhance toxic effects
 - Pregnant women or women of child-bearing age should not be exposed to this product
 - May cause harm to the unborn child
 - Lachrymation
 - Causes eye, skin, and respiratory tract irritation
 - Harmful if absorbed through skin
 - Harmful if inhaled
 - H373 - May cause damage to organs through prolonged or repeated exposure
 - Ingestion or inhalation of high concentrations may cause injuries to gastrointestinal tract, liver, kidneys and central nervous system
 - Chronic intensive skin contact may cause dermatitis
 - Exposure may result in reddening, tears and itching of the eyes and soreness in the nose and throat, together with coughing
 - Prolonged exposure can be harmful for certain organs, e.g. liver, kidneys, blood, nervous system and skin
 - nausea
 - Diarrhea
 - Vomiting
 - Dizziness
 - Abdominal pain
 - headache
 - Dermal absorption possible
 - Stomach cramps

Routes of exposure: The substance can be absorbed into the body by inhalation and through the skin.
Inhalation risk

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A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20 degs.C.

Effects of short-term exposure: The substance is irritating to the eyes. The substance may cause effects on the liver. This may result in jaundice. .

- **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**
- Repr. 1B

12 Ecological information

- **Toxicity**

- **Aquatic toxicity:**

EC50	13100 mg/kg (daphnia)
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- **Persistence and degradability** biodegradable
- **Behaviour in environmental systems:**
- **Bioaccumulative potential** Product is not expected to bioaccumulate.
- **Mobility in soil** 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.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
Used, degraded or contaminated product may be classified as hazardous waste. Anyone classifying hazardous waste and determining its fate must be qualified in accordance with state and international legislation.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

14 Transport information

- | | |
|----------------------------------|----------------------------|
| · UN-Number | |
| · ADR, IMDG, IATA | UN2265 |
| · UN proper shipping name | |
| · ADR | 2265 N,N-DIMETHYLFORMAMIDE |
| · IMDG, IATA | N,N-DIMETHYLFORMAMIDE |

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· **Transport hazard class(es)**

· **ADR, IMDG, IATA**



· **Class** 3 Flammable liquids.
 · **Label** 3

· **Packing group**

· **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.

· **Transport/Additional information:**

· **ADR**

· **Limited quantities (LQ)** 5L

· **Transport category** 3

· **Tunnel restriction code** D/E

· **UN "Model Regulation":** UN2265, N,N-DIMETHYLFORMAMIDE, 3, III

15 Regulatory information

· **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.