

1: Identification of substance / mixture

1. Product Identifier

Substance

Product Name **Dimethylformamide, 99.8%**
Product Code 035911
CAS Number 68-12-2
Other Names DMF
N,N-Dimethylformamide
IUPAC
MFCN Number MFCD00003284
EC/EINECS 200-679-5
REACH Number

Index-No

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

Research and Development

3. Details of the supplier of the safety data sheet

Fluorochem Ltd
Unit 14, Graphite Way
Hadfield
Derbyshire
SK13 1QH
UK

Telephone: +44(0)1457 860111
Fax: +44(0)1457 892799
Email: sds@fluorochem.co.uk



4. Emergency telephone number

+44(0)7855 268577 -

2. Hazards Identification

1. Classification of the substance or mixture

H226	Flam. Liq. 3	
H312	Acute Tox. 4	
H319	Eye Irrit. 2	
H332	Acute Tox. 4	
H360D	Repr. 1B	

2. Label elements

Signal Word **Danger**



Hazard Statements

H226	Flammable liquid and vapour.
H312	Harmful in contact with skin.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H360D	May damage the unborn child

Precautionary Phrases

P202	Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264	Wash hands and face thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P363	Wash contaminated clothing before reuse.
P501	Dispose of contents/container to hazardous or special waste collection point.

3. Other Hazards

Additional precautionary phrases are located throughout the safety data sheet

3. Composition / Information on Ingredients

1. Substances

Product Name	Hazards	Concentration
Dimethylformamide, 99.8%		
CAS Number: 68-12-2 EC/EINECS: 200-679-5	H226, H312, H319, H332, H360D Acute Tox. 4, Eye Irrit. 2, Flam. Liq. 3, Repr. 1B	<=100%

4. First Aid Measures

1. Description of first aid measures

<i>Skin Contact</i>	P302 + P352: IF ON SKIN: Wash with plenty of soap and water.
<i>Eye Contact</i>	P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313: If eye irritation persists: Get medical advice/attention.
<i>Ingestion</i>	Wash out mouth with water.
<i>Inhalation</i>	P304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

2. Most important symptoms and effects

P308 + P313: IF exposed or concerned: Get medical advice/attention.
There may be irritation and redness.

3. Indication of any immediate medical attention

P312: Call a POISON CENTER or doctor/physician if you feel unwell.
P322: Specific measures (see ' First aid on this label).
No additional measures required

5. Firefighting measures

1. Extinguishing Media

<i>Suitable</i>	no data
<i>Unsuitable</i>	no data

2. Special Hazards arising from the substance or mixture

In combustion toxic fumes may form.

3. Advice for Fire Fighters

Wear self-contained breathing apparatus.
Wear protective clothing to prevent contact with skin and eyes.

6. Accidental Release Measures

1. Personal Precautions

Eliminate all sources of ignition.
Do not attempt to take action without suitable protective clothing – see section 8 of SDS.

2. Environmental Precautions

Do not discharge into drains or rivers.
Contain the spillage using bunding.

3. Methods & Materials

Mix with sand or vermiculite.
Transfer to a closable, labelled salvage container for disposal by an appropriate method.

4. Preventing the occurrence of secondary hazards.

No Special Measures Required

7. Handling and Storage

1. Personal Precautions

- Safe Handling* Ensure there is sufficient ventilation of the area.
P201: Obtain special instructions before use.
P240: Ground/bond container and receiving equipment.
P264: Wash hands and face thoroughly after handling.
- Protection against explosions and fires* P202: Do not handle until all safety precautions have been read and understood.
P242: Use only non-sparking tools.
P243: Take precautionary measures against static discharge.
P363: Wash contaminated clothing before reuse.
normal measures for preventive fire protection

2. Conditions for safe storage, including any incompatibilities

- Managing Storage Risks* Store in cool, well ventilated area.
Keep away from sources of ignition.
Keep container tightly closed.
Keep away from direct sunlight.
Handle and store under inert gas.
- Storage Controls* Storage class (TRGS 510): Flammable liquids
- Maintaining Integrity* P210: Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
P233: Keep container tightly closed.
Keep in tightly closed container in cool area away from direct sunlight or heat sources.
- Other advice* P405: Store locked up.
no further information available

3. Specific End Uses

The end use(s) have not been fully determined. The substance is supplied for Research and Development purposes by professionals only.

8. Exposure Controls/Personal Protection

1. Control Parameters

N,N-Dimethylformamide - 68-12-2

EU 2009/161/EU - Indicative occupational exposure limits	TWA: 15 mg TWA: 5 ppm	STEL: 30 mg STEL: 10 ppm	
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2. Exposure Controls

- General protective and hygiene measures* P280: Wear protective gloves/protective clothing/eye protection/face protection.
Wash hands during breaks and at the end of handling the material
Immediately remove any contaminated clothing
- Engineering measures* P271: Use only outdoors or in a well-ventilated area.
- Eye / Face Protection* Safety Glasses with side-shields.
- Hand protection* Protective gloves.
- Respiratory protection* P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
Use breathing protection with high concentrations
- Skin protection* Handle with gloves.
Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practice.
Wash and dry hands.
Protective clothing.
- Other personal protection advice* no data

9. Physical and Chemical Properties

1. Physical and Chemical Properties

Appearance	liquid
Odour	Amine-like
Odour threshold	No Data Available
PH	6.7
Melting point / Freezing point	-61°C
Initial boiling point and boiling range	153°C
Flash point	58°C closed cup
Evaporation rate	No Data Available
Flammability(solid,gas)	No Data Available
Upper/lower flammability or explosive limits	Upper: 15.2 %(V) / Lower: 2.2 %(V)
Vapour pressure	3.60 hPa @ 20°C
Vapour density	2.52
Relative density	0.944
Solubility(ies):	Water: completely miscible
Partition coefficient: n-octanol/water	log Pow: -1.01
Auto-ignition temperature	445°C
Decomposition temperature	No Data Available
Viscosity	No Data Available
Explosive properties	No Data Available
Oxidising properties	No Data Available

2. Other Information

No additional information available

10. Stability and Reactivity

1. Reactivity

no unusual reactivity

2. Stability

Stable under normal conditions.

3. Possibility of Hazardous Reactions

no hazardous reactions known

4. Conditions to Avoid

Heat, flames and sparks.

5. Incompatible Materials

Oxidising agents.
Strong acids.
Strong bases.

6. Hazardous Decomposition Products

In combustion emits toxic fumes.
In combustion emits toxic fumes of carbon dioxide / carbon monoxide.
In combustion emits toxic fumes of nitrogen oxides.

11. Toxicology information

1. Information

Acute Toxicity

Oral LD50 (Rat) 2,800mg/kg
Inhalation LC50 (Rat) 4h - 9-15mg/l
Dermal LD50 (Rabbit) 1,500mg/kg
Target organs:
Liver, Kidney, Central nervous system, Cardiovascular system, Blood

Skin corrosion/irritation

irritant for skin and mucous membranes
Skin-human-mild skin irritation - 24h
skn-hmn 100 %/24H MLD

<i>Serious eye Damage/irritation</i>	irritant effect Eyes-rabbit-moderate eye irritation eye-rbt 100 mg rinse SEV
<i>Respiratory or skin sensitisation</i>	No sensitizing effect known
<i>Germ Cell mutagenicity</i>	Mouse lymphocyte Mutation in mammalian somatic cells. cyt-hmn-lym 100 nmol/L mmo-sat 600 ug/plate (-S9)
<i>Carcinogenicity</i>	IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (N,N-Dimethylformamide)
<i>Reproductive toxicity</i>	skn-rat TDLo:20 g/kg(1-20D preg) ihl-rat TCLo:300 ppm/6H(6-15D preg) ihl-rat TCLo:50 ppm/6H(13W male) orl-rat TDLo:1500 mg/kg(6-20D preg)
<i>STOT-single exposure</i>	not known
<i>STOT-repeated exposure</i>	not known
<i>Aspiration hazard</i>	not known

2. Additional

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH

12. Ecological Information

1. Toxicity

Toxicity to fish:
LC50 *Oncorhynchus mykiss* (rainbow trout) 9,000-13,000mg/l - 96h
LC50 *Lepomis macrochirus* (Bluegill) 6,700-7,500mg/l - 96h
LC50 *Pimephales promelas* (fathead minnow) 10,400-10,800mg/l - 96h
Toxicity to daphnia and other aquatic invertebrates:
EC50 - *Daphnia magna* (water flea) 15,600mg/l - 48h
Toxicity to algae:
LC50 - *Desmodesmus subspicatus* (green algae) >500mg/l - 96h

2. Persistence and degradability

4.4 % (by BOD), 8.8 % (by TOC), 3.6 % (by GC), 3.3 % (by UV-VIS)

3. Bio-Accumulative Potential

0.3 - 0.8 (conc. 20 ppm), 0.3 - 1.2 (conc. 2 ppm)

4. Mobility and Soil

Log Pow: -1.01
Soil adsorption (Koc): 7
Henry's Law constant(PaM³/mol):
7.49 x 10⁻³

5. Results of PBT & vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

6. Other adverse effects

Do not allow product to reach ground water, water bodies or sewage system, even in small quantities.

13. Disposal Considerations

1. Waste Treatment Methods

Disposal Operations
Disposal of Packaging Disposal must be made according to official regulations.

14. Transport Information

Air (ICAO)

1. **UN Number:** 2265
2. **Shipping Name:** N,N-Dimethylformamide
3. **Transport hazard class(es):** : 3 Sub Class :



4. **Packing group:** III
5. **Environmental hazards:**
6. **Special Precautions for user:**
7. **Transport in bulk:**

Road (ADR)

1. **UN Number:** 2265
2. **Shipping Name:** N,N-DIMETHYLFORMAMIDE
3. **Transport hazard class(es):** : 3 Sub Class :



4. **Packing group:** III
5. **Environmental hazards:**
6. **Special Precautions for user:**
7. **Transport in bulk:**

Sea (IMDG)

1. **UN Number:** 2265
2. **Shipping Name:** N,N-Dimethylformamide
3. **Transport hazard class(es):** : 3 Sub Class :



4. **Packing group:** III
5. **Environmental hazards:**
6. **Special Precautions for user:**
7. **Transport in bulk:** IBCINS: IBC03
IBCPPROV: -
UNTANKINS: -
TANKPROV: TP2

15. Safety, health, environmental and national regulations

1. Safety, health, environmental and national regulations:

Water Hazard Classes (WGK) : Class 1 - Low hazard to waters
Substance of Very High Concern (SVHC) according to the
REACH Regulations (EC) No.1907/2006

2. Safety Assessment

No Chemical Safety Assessment

16. Other Information

1. Other Information:

ADR: Accord Europeen sur le transport des marchandises Dangereuses par Route(European Agreement concerning the International Carriage of Dangerous Goods by road)
RID:Reglement 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
IATA-DGR: Dangerous Goods Regulations by the International Air Transport Association
ICAO:International Civil Aviation Organization
ICAO-TI: Technical Instructions by the ICAO
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
CAS:Chemical Abstracts Service

2. Associated risk phrases according to European directive 67/548/EEC

3. Disclaimer

The product listed is for research and development purposes only and not for human or animal use. As such, in most cases, the toxicological, ecological and physicochemical properties have not been fully determined and the product should be treated with respect and always handled under suitable conditions by appropriately qualified personnel. The responsible party shall use this datasheet only in conjunction with other sources of information gathered by them, and should make an independent judgement of suitability, to ensure proper use and protect the health and safety of employees. This information is furnished without warranty and any use of the product not in conformance with this material safety data sheet, or in combination with any other product or process, is the responsibility of the user.