



SAFETY DATA SHEET

Creation Date 03-Sep-2009

Revision Date 01-Feb-2011

Revision Number 4

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Description: N,N-Dimethylformamide
Cat No. 116220000; 116220010; 116220025; 116220050; 116220250
Synonyms DMF

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

Recommended Use Laboratory chemicals
Uses advised against No Information available

Details of the supplier of the safety data sheet

Company

Acros Organics BVBA
Janssen Pharmaceuticaalaaan 3a
2440 Geel, Belgium

E-mail address begel.sdsdesk@thermofisher.com

Emergency Telephone Number

For information in the US, call: 001-800-ACROS-01
For information in Europe, call: +32 14 57 52 11

Emergency Number, Europe: +32 14 57 52 99
Emergency Number, US: 001-201-796-7100

CHEMTREC Phone Number, US: 001-800-424-9300
CHEMTREC Phone Number, Europe: 001-703-527-3887

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

REGULATION (EC) No 1272/2008

| | |
|------------------------------------|-------------|
| Acute dermal toxicity | Category 4 |
| Acute Inhalation Toxicity - Vapors | Category 4 |
| Serious Eye Damage/Eye Irritation | Category 2 |
| Reproductive Toxicity | Category 1B |

Classification according to EU Directives 67/548/EEC or 1999/45/EC

For the full text of the R phrases mentioned in this Section, see Section 16

Symbol(s) T - Toxic
R -phrase(s) R61 - May cause harm to the unborn child
R36 - Irritating to eyes
Risk Combination Phrases R20/21 - Harmful by inhalation and in contact with skin

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2. HAZARDS IDENTIFICATION

Label Elements



Signal Word

Danger

Hazard Statements

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

Precautionary Statements - EU (§28, 1272/2008)

- P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician
- P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
- P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing
- P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
- P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking

Other Hazards

No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Component | EC No. | Weight % | CAS-No | Classification | GHSCLAS | REACH Reg. No. |
|-----------|--------|----------|--------|----------------|---------|----------------|
|-----------|--------|----------|--------|----------------|---------|----------------|

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3. COMPOSITION/INFORMATION ON INGREDIENTS

| | | | | | | |
|------------------------------|-----------------------|-----|---------|---------------------------------------|---|---|
| Dimethylformamide 68-12-2 | EEC No. 200- 679-5 | >95 | 68-12-2 | Repr.Cat.2;R61 Xn;R20/21 Xi;R36 | Flam. Liq. 3 (H226) Acute Tox. 4 (H332) Acute Tox. 4 (H312) Eye Irrit. 2 (H319) Repr. 1B (H360D) | - |
|------------------------------|-----------------------|-----|---------|---------------------------------------|---|---|

For the full text of the R phrases mentioned in this Section, see Section 16
4. FIRST AID MEASURES
Description of first aid measures
Eye Contact

 Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes
 Immediate medical attention is required

Skin Contact

 Wash off immediately with plenty of water for at least 15 minutes Immediate medical attention
 is required

Ingestion

Do not induce vomiting Call a physician or Poison Control Center immediately

Inhalation

 Move to fresh air If breathing is difficult, give oxygen Do not use mouth-to-mouth resuscitation
 if victim ingested or inhaled the substance; induce artificial respiration with a respiratory
 medical device Immediate medical attention is required

Notes to Physician

Treat symptomatically

5. FIRE-FIGHTING MEASURES
Extinguishing media
Suitable Extinguishing Media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide Cool closed containers exposed to fire with water spray

Extinguishing media which must not be used for safety reasons

No information available.

Special hazards arising from the substance or mixture

 Flammable Risk of ignition Containers may explode when heated Vapors may form explosive mixtures with air Vapors may travel to
 source of ignition and flash back

Advice for fire-fighters

 As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective
 gear Thermal decomposition can lead to release of irritating gases and vapors

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6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Use personal protective equipment. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental precautions

Should not be released into the environment.

Methods and material for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Use only under a chemical fume hood Wear personal protective equipment Do not get in eyes, on skin, or on clothing Do not breathe vapors or spray mist Keep away from open flames, hot surfaces and sources of ignition Use only non-sparking tools Use explosion-proof equipment Take precautionary measures against static discharges

Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place Keep away from heat and sources of ignition

Specific End Uses

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Exposure limits

Component

Dimethylformamide

| European Union | The United Kingdom | France | Belgium | Spain |
|----------------|--------------------|--|--|--|
| | | VME: 10 ppm VME: 30 mg/m ³ | TWA: 30 mg/m ³ TWA: 10 ppm | VLA-ED: 10 ppm VLA-ED: 30 mg/m ³ |

Component

Dimethylformamide

| Italy | Portugal | The Netherlands | Finland | Denmark |
|-------|-------------|-----------------|---|--|
| | TWA: 10 ppm | | TWA: 5 ppm TWA: 15 mg/m ³ STEL: 30 mg/m ³ STEL: 10 ppm | TWA: 10 ppm TWA: 30 mg/m ³ |

Component

Dimethylformamide

| Austria | Switzerland | Poland | Norway | Ireland |
|---|---|---------------------------|--|--|
| STEL: 120 mg/m ³ STEL: 40 ppm MAK: 10 ppm MAK: 30 mg/m ³ | STEL: 60 mg/m ³ STEL: 20 ppm MAK: 5 ppm MAK: 15 mg/m ³ | NDS: 10 mg/m ³ | TWA: 10 ppm TWA: 30 mg/m ³ | TWA: 10 ppm TWA: 30 mg/m ³ STEL: 60 mg/m ³ STEL: 20 ppm Skin |

Derived No Effect Level (DNEL)

No information available.

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| | |
|---|---|
| Predicted No Effect Concentration (PNEC) | No information available. |
| Exposure controls | |
| Engineering Measures | Use only under a chemical fume hood Ensure that eyewash stations and safety showers are close to the workstation location Ensure adequate ventilation, especially in confined areas Use explosion-proof electrical/ventilating/lighting/equipment |
| Personal protective equipment | |
| Eye Protection | Safety glasses with side-shields |
| Hand Protection | Protective gloves |
| Skin and body protection | Wear appropriate protective gloves and clothing to prevent skin exposure |
| Respiratory Protection | Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced |
| Hygiene Measures | Handle in accordance with good industrial hygiene and safety practice |
| Environmental exposure controls | No information available. |

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|----------------------------------|-----------------------|
| Physical State | Liquid |
| Appearance | Colorless |
| odor | rotten-egg like |
| pH | 6-8 20% aq.sol. |
| Vapor Pressure | 4.9 mbar @ 20 °C |
| Vapor Density | 2.5 (Air = 1.0) |
| Viscosity | 0.8 mPa.s at 20 °C |
| Boiling Point/Range | 153°C / 307.4°F |
| Melting Point/Range | -61°C / -77.8°F |
| Decomposition temperature | > 350°C |
| Flash Point | 58°C / 136.4°F |
| Explosion Limits | |
| Lower | 2.2 vol% |
| Upper | 16 vol% |
| Evaporation Rate | (Butyl Acetate = 1.0) |
| Water Solubility | soluble |
| Specific Gravity | 0.945 |
| Molecular Formula | C3 H7 N O |
| Molecular Weight | 73.09 |

10. STABILITY AND REACTIVITY

Reactivity
Chemical Stability

Stable under normal conditions.

Possibility of Hazardous Reactions
Hazardous Polymerization

Hazardous polymerization does not occur.

Hazardous Reactions .

None under normal processing..

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Conditions to Avoid

Incompatible products, Heat, flames and sparks.

Incompatible Materials

Strong oxidizing agents, Halogens, Halogenated compounds.

Hazardous Decomposition Products

Carbon monoxide (CO). Carbon dioxide (CO₂). Nitrogen oxides (NO_x).

11. TOXICOLOGICAL INFORMATION

Information on Toxicological Effects

Acute Toxicity

Component Information

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|-------------------|-------------------|------------------|-----------------|
| Dimethylformamide | 200 mg/kg (Rat) | 3.2 g/kg (Rat) | |

Chronic Toxicity

Carcinogenicity There are no known carcinogenic chemicals in this product

Sensitization

No information available.

Mutagenic Effects

Mutagenic effects have occurred in humans.

Reproductive Effects

Experiments have shown reproductive toxicity effects on laboratory animals

Developmental Effects

May cause harm to the unborn child Developmental effects have occurred in experimental animals

Teratogenicity

Teratogenic effects have occurred in experimental animals.

Target Organs

Skin Eyes Respiratory system Central nervous system (CNS) Blood Liver Kidney spleen

Other Adverse Effects

See actual entry in RTECS for complete information

Endocrine Disruptor Information

| Component | EU - Endocrine Disruptors Candidate List | EU - Endocrine Disruptors - Evaluated Substances | Japan - Endocrine Disruptor Information |
|-------------------|--|--|---|
| Dimethylformamide | Group III Chemical | | |

12. ECOLOGICAL INFORMATION

Toxicity

Ecotoxicity effects

| Component | Freshwater Algae | Freshwater Fish | Microtox | Water Flea |
|-----------|------------------|-----------------|----------|------------|
| | | | | |

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12. ECOLOGICAL INFORMATION

| | | | | |
|-------------------|----------------------|--|---|----------------------|
| Dimethylformamide | EC50 = 7500 mg/L/96h | Pimephales promelas: LC50 = 10.6 g/L/96h Onchorhynchus mykiss: LC50 = 9.8 g/L/96h Lepomis macrochirus: LC50 = 6.3 g/L/96h | EC50 = 2000 mg/L 5 min EC50 = 570 mg/L 240 h | EC50 = 7500 mg/L/48h |
|-------------------|----------------------|--|---|----------------------|

Persistence and degradability

Readily biodegradable

Bioaccumulative potential

No information available.

| Component | log Pow |
|-------------------|---------|
| Dimethylformamide | 0 |

Mobility in soil
Results of PBT and vPvB assessment
Other adverse effects

No information available

13. DISPOSAL CONSIDERATIONS
Waste treatment methods
Waste from Residues / Unused Products

Dispose of in accordance with local regulations

Contaminated Packaging

Empty containers should be taken for local recycling, recovery or waste disposal

14. TRANSPORT INFORMATION
IMDG/IMO

| | |
|-----------------------------|-----------------------|
| UN-No | UN2265 |
| Hazard Class | 3 |
| Packing Group | III |
| Proper Shipping Name | N,N-Dimethylformamide |

ADR

| | |
|-----------------------------|-----------------------|
| UN-No | UN2265 |
| Hazard Class | 3 |
| Packing Group | III |
| Proper Shipping Name | N,N-Dimethylformamide |

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14. TRANSPORT INFORMATION
IATA

| | |
|-----------------------------|-----------------------|
| UN-No | UN2265 |
| Hazard Class | 3 |
| Packing Group | III |
| Proper Shipping Name | N,N-Dimethylformamide |

15. REGULATORY INFORMATION
Safety, health and environmental regulations/legislation specific for the substance or mixture
International Inventories

| Component | EINECS | ELINCS | NLP | TSCA | DSL | NDSL | PICCS | ENCS | CHINA | AICS | KECL |
|-------------------|-----------|--------|-----|------|-----|------|-------|------|-------|------|---------------|
| Dimethylformamide | 200-679-5 | - | | X | X | - | X | X | X | X | KE-11411 X |

Legend
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

EINECS/ELINCS - European Inventory Lists

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

PICCS - Philippines Inventory of Chemicals and Chemical Substances

ENCS - Japan Existing and New Chemical Substances

CHINA - China Inventory of Existing Chemical Substances

AICS - Inventory of Chemical Substances

KECL - Existing and Evaluated Chemical Substances

Chemical Safety Assessment
16. OTHER INFORMATION
Text of R phrases mentioned in Section 2-3

R61 - May cause harm to the unborn child

R36 - Irritating to eyes

R20/21 - Harmful by inhalation and in contact with skin

Revision Date 01-Feb-2011

Revision Summary Not applicable

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006



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16. OTHER INFORMATION

Disclaimer

The information provided on this SDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text

End of Safety Data Sheet