

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

1.1 Product identifier

Product name DIMETHYLFORMAMIDE
CAS-No. 68-12-2
Product code AH1052, AH1053, AR1051, CG1051, GC1051, GP1051, LC1051, IR1051, RP1051

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

Identified uses Chemical for analysis and production.

1.3 Details of the supplier of the safety data sheet

Company Chem-Supply Pty Ltd
38 - 50 Bedford Street, Gillman SA 5013 Australia
Telephone number (08) 8440 2000
Fax number (08) 8440 2001

1.4 Emergency Telephone Number

Emergency phone
Monday - Friday 8:30am - 5:00pm ACST (08) 8440 2000
After hours: CHEMCALL 1800127406 / +6449179888

1.5 Manufacturer

Company RCI LABSCAN LIMITED.
24 Rama 1 Road, Pathumwan, Bangkok 10330 Thailand

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to WHS Regulations (Australia)

Flammable liquids (Category 3), H226
Acute toxicity, Inhalation (Category 4), H332
Acute toxicity, Dermal (Category 4), H312
Eye irritation (Category 2), H319
Reproductive toxicity (Category 1B), H360D
For the full text of the H-Statements mentioned in this Section, see Section 16.

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

| | | |
|----|----------|--------|
| | | R61 |
| Xn | Harmful | R20/21 |
| Xi | Irritant | R36 |

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

2.2 Label elements

Pictogram



Signal word

Danger

Hazard statement(s)

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 statement(s)

| | |
|--------------------|--|
| P201 | Obtain special instructions before use. |
| P202 | Do not handle until all safety precautions have been read and understood. |
| P210 | Keep away from heat/sparks/open flames/hot surfaces. - No smoking. |
| P233 | Keep container tightly closed. |
| P240 | Ground/bond container and receiving equipment. |
| P241 | Use explosion-proof electrical/ventilating/lighting equipment. |
| P242 | Use only non-sparking tools. |
| P243 | Take precautionary measures against static discharge. |
| P261 | Avoid breathing vapours. |
| P264 | Wash hand thoroughly after handling. |
| P271 | Use only outdoors or in a well-ventilated area. |
| P280 | Wear protective gloves/eye protection/face protection. |
| P281 | Use personal protective equipment as required. |
| P302 + P352 | IF ON SKIN: Wash with plenty of soap and water. |
| 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. |
| P308 + P313 | IF exposed or concerned: Get medical advice/attention. |
| P312 | Call a POISON CENTER or doctor/physical if you feel unwell. |
| P337 + P313 | If eye irritation persists: Get medical advice/attention |
| P363 | Wash contaminated clothing before reuse. |
| P370 + P378 | In case of fire: Use carbon dioxide, dry chemical or foam for extinction. |
| P403 + P235 | Store in a well-ventilated place. Keep cool. |
| P405 | Store locked up. |

2.3 Other hazards None

SECTION 3: Composition/information on ingredients

3.1 Substances

| | |
|----------|---|
| Synonyms | Formic acid dimethylamide, N, N-Dimethylformamide, N,N-Dimethylmethanamide, N-Formyldimethylamine, DMF. |
|----------|---|

| | | | | | |
|---------|-----------|--------------|-------------------------------------|------------------|----------|
| CAS-No | EC-No | EC-Index-No | Formula | Molecular Weight | Weight % |
| 68-12-2 | 200-679-5 | 616-001-00-X | HCON(CH ₃) ₂ | 73.10 g/mol | >99 |

Hazardous ingredients according to WHS Regulations (Australia)

| Component | Concentration | Classification |
|---|---------------|---|
| Dimethylformamide | | |
| CAS-No 68-12-2 EC-No 200-679-5 EC-Index-No 616-001-00-X | >99% | Flammable liquids (Category 3), H226 Acute toxicity, Inhalation (Category 4), H332 Acute toxicity, Dermal (Category 4), H312 Eye irritation (Category 2), H319 Reproductive toxicity (Category 1B), H360D |

Hazardous ingredients according to Directive 1999/45/EC

| Component | Concentration | Classification |
|--------------------------|---------------|---------------------|
| Dimethylformamide | | |
| CAS-No 68-12-2 | >99% | R61 |
| EC-No 200-679-5 | | Xn, Harmful, R20/21 |
| EC-Index-No 616-001-00-X | | Xi, Irritant, R36 |

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

SECTION 4: First aid measures**4.1 Description of first aid measures**

| | |
|----------------|---|
| General advice | Show this safety data sheet to the doctor in attendance. |
| Inhalation | Move to fresh air in case of accidental inhalation of vapors. Keep patient warm. In case of shortness of breath, give oxygen. Apply artificial respiration only if patient is not breathing or under medical supervision. No artificial aspiration mouth to mouth or mouth to nose. Use suitable instruments/apparatus. |
| Skin contact | Remove contaminated clothing and wash affected skin with soap and water. If signs of poisoning appear, treat as for inhalation. Obtain medical attention. Wash contaminated clothing before reuse. Contaminated combustible material, e.g. clothing ignites more readily and burns fiercely. |
| Eye contact | If the substance has got into the eyes, immediately wash out with plenty of water at least 15 minutes. Obtain medical attention. |
| Ingestion | Rinse mouth. Do not induce vomiting. Keep patient warm. In case of shortness of breath, give oxygen. Apply artificial respiration only if patient is not breathing or under medical supervision. No artificial aspiration mouth to mouth or mouth to nose. Use suitable instruments/apparatus. Obtain medical attention. Never give anything by mouth to an unconscious person. |

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in section 2.2 and section 11

4.3 Indication of any immediate medical attention and special treatment needed

After swallowing, immediately make a victim water (two glasses at the most).

SECTION 5: Firefighting measures**5.1 Extinguishing media****Suitable extinguishing media**

Extinguish with carbon dioxide, dry chemical, foam or water spray. In the event of fire, cool tanks with water spray.

5.2 Special hazards arising from the substance or mixture

Vapors may form explosive mixture with air. Flash back possible over considerable distance.

5.3 Advice for firefighters

Wear self-contained breathing apparatus and protective suit.

5.4 Hazchem Code

•2Y

5.5 Further information

Standard procedure for chemical fires. Prevent firefighting water from entering surface water or groundwater.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Evacuate personnel to safe areas. Do not breathe vapors or spray mist. Wear a positive-pressure supplied-air respirator, flame retardant antistatic protective clothing. Shut off leaks if without risk. Keep people away from and upwind of spill/leak.

6.2 Environmental precautions

Contain or absorb leaking liquid with sand or earth, consults an expert. Prevent liquid entering sewers, basements and workpits. If substance has entered a water course or sewer or contaminated soil, advise police.

6.3 Methods and materials for containment and cleaning up

Spillage: May react with combustible substances creating fire or explosion hazard and formation of toxic fumes. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Soak up with inert absorbent material (e.g. sand, silica gel). Prevent liquid entering sewers, basements and workpits; vapor may create explosive atmosphere. Transfer to covered steel drums. Dispose of promptly.

6.4 Reference to other sections

For disposal see **Section 13**.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Keep container tightly closed. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only in area provided with appropriate exhaust ventilation. Do not breathe vapors or spray mist. Avoid contact with skin, eyes and clothing. Do not empty into drains.

7.2 Conditions for safe storage, including any incompatibilities

Keep tightly closed at room temperature in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Keep out of direct sunlight and away from incompatible materials. Store in original container. Electrical equipment should be protected to the appropriate standard.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Exposure limit (Safe Work Australia)

TWA: 10 ppm (30 mg/m³)

STEL: Not Available

8.2 Exposure controls

Appropriate engineering controls

The product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Ventilation hoods and fans required when working with organic solvents or in hot melt applications.

Individual protection measures (Personal protective equipment, PPE)

Eye/face protection

Goggles giving complete protection to eyes.

Skin protection

Chemical resistant apron / flame retardant antistatic protective clothing, heavy duty work shoes.

Handle with gloves

- Full contact wears gloves from butyl rubber material.

- Splash contact wears gloves from viton material.

The select protective gloves have to satisfy the specifications of EU Directive 89/686 EEC and standard EN 374 derived from it.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment. Required when vapor/aerosols are generated filter A-(P2) (EN 141 or EN 14387).

Environmental exposure controls

Prevent liquid entering sewers, basements and workpits.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

| | |
|---|--|
| Appearance: From | Liquid |
| : Color | Colorless |
| Odour | Weakly amine-like |
| Odour Threshold | Not Available |
| pH | 7 at 200 g/l of H ₂ O, at 20°C |
| Melting point/range | -61 °C |
| Boiling point/range | 153 °C at 1013 hPa |
| Flash point | 58 °C (closed cup) |
| Evaporation rate | Not Available |
| Flammability (solid, gas) | Not Available |
| Explosion limits: lower | 2.2 % (V) |
| upper | 16 % (V) |
| Vapor Pressure | 3.77 hPa at 20°C |
| Relative Vapor Density | 2.51 |
| Density | 0.949 g/ml at 20°C |
| Water solubility | Soluble at 20°C |
| Partition coefficient (n-octanol/water) | log Pow: -0.85 |
| Auto-Ignition temperature | 410 °C |
| Decomposition Temperature | Not Available |
| Viscosity | 0.82 mPa.s at 20°C |
| Explosive properties | Not Explosive |
| Oxidizing properties | The substance or mixture is not classified as oxidizing. |

SECTION 10: Stability and reactivity

10.1 Reactivity

Explosible with air in a vaporous/gaseous state when heated.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Risk of explosion in contact with alkali metals, strong oxidizing agents, halogens

The substance can react dangerously with reducing agents, nitrates, halogenated hydrocarbons

The substance forms an explosive mixture with air on heating.

10.4 Conditions to avoid

Strong heating.

10.5 Incompatible materials

Alkali metals, halogens halides, reducing agents, nitrates, strong oxidizing agents, halogenated hydrocarbons.

Unsuitable working materials: Various plastic.

10.6 Hazardous decomposition products

Nitrogen oxides, carbon monoxide, carbon dioxide (Hazardous decomposition products from under fire condition).

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LC₅₀ (inhalation, rat): 9-15 mg/l/4 h

LD₅₀ (oral, rat): 2800 mg/kg

LD₅₀ (dermal, rabbit): 1500 mg/kg

Acute oral toxicity

Symptoms : gastrointestinal tract

Acute inhalation toxicity

Symptoms: Irritation in respiration tract.

Skin corrosion/irritation

Slight irritations, danger of skin absorption.

Serious eye damage/eye irritation

Irritations.

Respiratory or skin sensitization

Sensitization test (guinea pig) is negative.

Germ cell mutagenicity

Bacterial mutagenicity; Ames test is negative.

No mutagenic properties suspected.

Carcinogenicity

Noncarcinogenic in animal experiments.

Reproductive toxicity

May cause harm to the unborn child.

Teratogenicity

Based on clear evidence from animal experiments there is a high risk of teratogenic effects. Pregnant women must not be exposed to the product.

Specific target organ toxicity (STOT) - single exposure

Not Available.

Specific target organ toxicity (STOT) - repeated exposure

Not Available

Aspiration hazard

Not Available

Further information

After absorption: dizziness, drowsiness and damage of liver and kidneys.

The product should be handled with the care usual when dealing with chemicals.

SECTION 12: Ecological information

12.1 Toxicity

| | |
|---|---|
| Toxicity to fish | LC ₅₀ L.macrochirus: 6300 mg/l/96h. LC ₅₀ Onchorhynchus mykiss: 9800 mg/l/96h. LC ₅₀ P.promelas: 10600 mg/l/96h. |
| Toxicity to daphnia and other aquatic invertebrates | EC ₅₀ Daphnia magna: 15700 mg/l/48h. |
| Toxicity to algae | IC ₅₀ Desmodesmus subspicatus: >500 mg/l/96h. IC ₅ Sc.quadricauda: 10 mg/l. |
| Toxicity to bacteria | EC ₅₀ Photobacterium phosphoreum : 2000 mg/l/15min microtox test. |

12.2 Persistence and degradability

| | |
|------------------|------------------------------------|
| Biodegradability | >90 % /28d. Readily biodegradable. |
|------------------|------------------------------------|

12.3 Bioaccumulative potential

| | |
|---|---|
| Partition coefficient (n-octanol/water) | log Pow: -0.85 (experimental). No bioaccumulation is to be expected (log P o/w <1) |
|---|---|

12.4 Mobility in soil

Not Available

12.5 Other adverse effects

When used properly, no impairments in the function of waste water treatment plants to be expected. Do not allow to enter waters, waste water or soil.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

There are no uniform EC Regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding law and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste or burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

Contaminated packaging

Disposal in compliance with official regulations. Handle contaminated packaging as hazardous waste in the same way of the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

SECTION 14: Transport information

Land Transport (ADG Code)

| | |
|------------------------------|------------------------|
| UN Number | 2265 |
| UN proper shipping name | N, N-DIMETHYLFORMAMIDE |
| Transport hazard class(es) | 3 |
| Hazchem Code | •2Y |
| Packing group | III |
| Environmental hazards | No |
| Special precautions for user | Yes |

Sea transport (IMDG)

| | |
|-------------------------|------------------------|
| UN Number | 2265 |
| UN proper shipping name | N, N-DIMETHYLFORMAMIDE |

| | |
|------------------------------|---------|
| Transport hazard class(es) | 3 |
| Packing group | III |
| Marine pollutant | No |
| Special precautions for user | Yes |
| EmS | F-E S-D |

Air transport (IATA)

| | |
|------------------------------|------------------------|
| UN Number | 2265 |
| UN proper shipping name | N, N-DIMETHYLFORMAMIDE |
| Transport hazard class(es) | 3 |
| Packing group | III |
| Environmental hazards | No |
| Special precautions for user | No |

River transport (AND/ADNR)

(Not examined)

SECTION 15: Regulatory information

This safety datasheet complies with the requirements of Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

| | |
|-------------------------------|---|
| Regulatory Information | Listed in the Australian Inventory of Chemical Substances (AICS). |
| Poisons Schedule | S6 |

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out.

SECTION 16: Other information**Full text of H-Statements referred to under sections 2 and 3**

| | |
|-------------|--|
| 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. |

Full text of R-phrases referred to under sections 2 and 3

| | |
|--------|---|
| Xi | Irritant |
| Xn | Harmful |
| R20/21 | Harmful by inhalation and in contact with skin. |
| R36 | Irritating to eyes. |
| R61 | May cause harm to the unborn child. |

Recommended restrictions

Take notice of labels and safety data sheets for the working. Chemicals Take necessary action to avoid static electricity discharge.

Reference

Globally Harmonized System of Classification and Labelling of Chemicals (GHS).
 Labelling according to Code of Practice for the Labelling of Workplace Hazardous Chemicals (Safe Work Australia).
 Transportation information according to Recommendations on the Transport of Dangerous Goods, Model Regulations. Twelfth revised edition. United Nations.
 Institute for Occupational Safety and Health of the German Social Accident Insurance in Sankt Augustin/Germany,
 Source: IFA for Databases on hazardous substances (GESTIS).

Further information

Contact Chem – Supply Pty Ltd Ph. (08) 8440 2000.

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12/12/2017

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