SAFETY DATA SHEET

0.1% Formic Acid in Acetonitrile
LC441-2.5

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : 0.1% Formic Acid in Acetonitrile

SDS Number : 000000011214

Product Use Description : Laboratory Use

Manufacturer or supplier's details : CHEM-SUPPLY Pty Ltd
38-50 Bedford St.
Gillman SA 5013, Australia

For more information call : +61 8 8440 2000
(Monday-Friday, 9:00am-5:00pm)

In case of emergency call : Medical: 1-800-498-5701 or +1-303-389-1414
Transportation (CHEMTREC): 1-800-424-9300 or +1-703-527-3887
CHEMTREC in Australia: +(61)-290372994
(24 hours/day, 7 days/week)

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture
Classification of the substance or mixture : Flammable liquids, Category 2
Acute toxicity, Category 4, Oral
Acute toxicity, Category 4, Inhalation
Eye irritation, Category 2A
Acute toxicity, Category 4, Dermal
Specific target organ toxicity - single exposure, Category 1,
Central nervous system

GHS Label elements, including precautionary statements
Symbol(s) :
Signal word: Danger

Hazard statements: Highly flammable liquid and vapour. Harmful if swallowed, in contact with skin or if inhaled. Causes serious eye irritation. Causes damage to organs.

Precautionary statements: Prevention:
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.

Response:
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.
IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed: Call a POISON CENTER or doctor/physician.
If eye irritation persists: Get medical advice/attention.
Wash contaminated clothing before reuse.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage:
Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal:
Dispose of contents/container to an approved waste disposal plant.
3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature : Mixture

Hazardous components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetonitrile</td>
<td>75-05-8</td>
<td>99.9%</td>
</tr>
<tr>
<td>Formic acid</td>
<td>64-18-6</td>
<td>0.1%</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Inhalation : Remove to fresh air.
If not breathing, give artificial respiration.
If breathing is difficult, give oxygen.
Use oxygen as required, provided a qualified operator is present.
Call a physician.

Skin contact : Wash off immediately with plenty of water for at least 15 minutes.
Take off contaminated clothing and shoes immediately.
Wash contaminated clothing before re-use.
Call a physician.

Eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Call a physician.

Ingestion : Do NOT induce vomiting.
Never give anything by mouth to an unconscious person.
Immediate medical attention is required.

Notes to physician : Treat as cyanide poisoning.
Symptoms of poisoning may not appear for several hours.
Keep under medical supervision for at least 48 hours.

5. FIREFIGHTING MEASURES

Suitable extinguishing media : Carbon dioxide (CO2)
Dry chemical
Alcohol-resistant foam
Cool closed containers exposed to fire with water spray.

Unsuitable extinguishing media
Do not use a solid water stream as it may scatter and spread fire.

Specific hazards during firefighting
Highly flammable.
Vapours may form explosive mixtures with air.
Vapours are heavier than air and may spread along floors.
Vapors may travel to areas away from work site before igniting/flashing back to vapor source.
In case of fire hazardous decomposition products may be produced such as:
Hydrogen cyanide (hydrocyanic acid)
Carbon dioxide (CO2), carbon monoxide (CO), oxides of nitrogen (NOx), dense black smoke.

Special protective equipment for firefighters
Wear self-contained breathing apparatus and protective suit.

Further information
HAZCHEM Code: 2YE

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear personal protective equipment.
Immediately evacuate personnel to safe areas.
Keep people away from and upwind of spill/leak.
Ensure adequate ventilation.
Remove all sources of ignition.
Do not breathe vapours or spray mist.
Avoid contact with skin, eyes and clothing.

Environmental precautions
Prevent further leakage or spillage if safe to do so.
Discharge into the environment must be avoided.
Do not flush into surface water or sanitary sewer system.
Do not allow run-off from fire fighting to enter drains or water courses.

Methods for cleaning up
Ventilate the area.
No sparking tools should be used.
Use explosion-proof equipment.
Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).
0.1% Formic Acid in Acetonitrile

7. HANDLING AND STORAGE

**Handling**
Advice on safe handling: Wear personal protective equipment.
Use only in well-ventilated areas.
Keep container tightly closed.
Do not smoke.
Do not breathe vapours or spray mist.
Avoid contact with skin, eyes and clothing.

Advice on protection against fire and explosion:
Keep away from fire, sparks and heated surfaces.
Take precautionary measures against static discharges.
Ensure all equipment is electrically grounded before beginning transfer operations.
Use explosion-proof equipment.
Keep product and empty container away from heat and sources of ignition.
No sparking tools should be used.
No smoking.

**Storage**
Requirements for storage areas and containers:
Store in area designed for storage of flammable liquids.
Protect from physical damage.
Keep containers tightly closed in a dry, cool and well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Keep away from heat and sources of ignition.
Keep away from direct sunlight.
Store away from incompatible substances.
Container hazardous when empty.
Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

Materials to avoid:
Acids, Bases, Oxidizing agents, Reducing agents, Sulfites, Perchlorates, May attack many plastics, rubbers and coatings.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Components with workplace control parameters**

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Update</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetonitrile</td>
<td>75-05-8</td>
<td>STEL : Short Term</td>
<td>60 ppm 101 mg/m3</td>
<td>12 2011</td>
<td>AU NOEL: Australia. National Workplace</td>
</tr>
</tbody>
</table>
0.1% Formic Acid in Acetonitrile
LC441-2.5

Exposure Limit (STEL): Can be absorbed through the skin.

SKIN_DES : Skin designation: 12 2011

TWA : Time Weighted Average (TWA): 40 ppm 67 mg/m3

Formic acid 64-18-6 TWA : Time Weighted Average (TWA): 5 ppm 9.4 mg/m3

STEL : Short Term Exposure Limit (STEL): 10 ppm 19 mg/m3

OELs (Workplace Exposure Standards for Airborne Contaminants, Appendix A)

AU NOEL: Australia. National Workplace OELs (Workplace Exposure Standards for Airborne Contaminants, Appendix A)

Engineering measures
Use with local exhaust ventilation.
Prevent vapour buildup by providing adequate ventilation during and after use.

Personal protective equipment
Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment.
For rescue and maintenance work in storage tanks use self-contained breathing apparatus.
Use NIOSH approved respiratory protection.

Hand protection : Solvent-resistant gloves
Gloves must be inspected prior to use.
Replace when worn.

Eye protection : Do not wear contact lenses.
Wear as appropriate:
Safety glasses with side-shields
If splashes are likely to occur, wear:
Goggles or face shield, giving complete protection to eyes

Skin and body protection:
Wear as appropriate:
Solvent-resistant apron
Flame retardant antistatic protective clothing.
If splashes are likely to occur, wear:
Protective suit

Hygiene measures:
When using do not eat, drink or smoke.
Wash hands before breaks and immediately after handling the product.
Keep working clothes separately.
Remove and wash contaminated clothing before re-use.
Do not breathe vapours or spray mist.
Avoid contact with skin, eyes and clothing.

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: liquid
Colour: colourless
Odour: sweet ether-like
pH: 4.1
Melting point/range: -46 ºC
Boiling point/boiling range: 82 ºC
Flash point: 46 ºF (8 ºC)
   Method: closed cup
Evaporation rate: 5
   Method: Compared to Butyl acetate.

Lower explosion limit: 3 %(V)
Upper explosion limit : 16 % (V)

Vapour pressure : 97 hPa at 20 °C (68 °F)

Vapour density : 1.42
Note: (Air = 1.0)

Density : 0.7822 g/cm³ at 20 °C
0.7767 g/cm³ at 25 °C

Water solubility : Note: completely soluble

Ignition temperature : 524 °C
Note: Information regarding ignition temperature applies only to the solvent.

10. STABILITY AND REACTIVITY

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : Hazardous polymerization does not occur.

Conditions to avoid : Heat, flames and sparks.
Keep away from direct sunlight.

Incompatible materials to avoid : Acids
Bases
Oxidizing agents
Reducing agents
Sulfites
Perchlorates
May attack many plastics, rubbers and coatings.

Hazardous decomposition products : In case of fire hazardous decomposition products may be produced such as:
Hydrogen cyanide (hydrocyanic acid)
Carbon dioxide (CO2), carbon monoxide (CO), oxides of nitrogen (NOx), dense black smoke.

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity
Acetonitrile: LD50: 617 mg/kg
Species: Mouse, male and female
Method: OECD Test Guideline 401

Formic acid: LD50: 730 mg/kg
Species: Rat
Method: OECD Test Guideline 401

Acute dermal toxicity
Acetonitrile: LD50: > 2,000 mg/kg
Species: Rabbit

Formic acid: Note: no data available

Skin irritation
Acetonitrile: Species: Rabbit
Result: No skin irritation
Method: OECD Test Guideline 404
Exposure time: 4 h

Formic acid: Species: Rabbit
Result: Causes severe burns.
Classification: Corrosive
Method: OECD

Eye irritation
Acetonitrile: Species: Rabbit
Result: Irritating to eyes.
Method: OECD Test Guideline 405

Formic acid: Species: Rabbit
Result: Risk of serious damage to eyes.
Method: OECD Test Guideline 405
Sensitisation
Acetonitrile: Buehler Test
Species: Guinea pig
Result: Did not cause sensitisation on laboratory animals.
Method: OECD

Formic acid: Buehler Test
Species: Guinea pig
Classification: non-sensitizing

Genotoxicity in vitro
Formic acid: Test Method: sister chromatid exchange assay
Cell type: Chinese hamster fibroblasts
Metabolic activation: with and without metabolic activation
Result: negative
Method: OECD Test Guideline 479

: Test Method: Ames test
Metabolic activation: with and without metabolic activation
Result: negative
Method: OECD Test Guideline 471

: Test Method: In vitro gene mutation study in mammalian cells
Cell type: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Result: negative
Method: OECD Test Guideline 476

Genotoxicity in vivo
Formic acid: Species: Drosophila melanogaster (vinegar fly)
Method: OECD Test Guideline 477
Result: negative

12. Ecological information

Toxicity to fish
Acetonitrile: flow-through test
LC50: 1,640 mg/l
Exposure time: 96 h
Species: Pimephales promelas (fathead minnow)
0.1% Formic Acid in Acetonitrile
LC441-2.5

Formic acid

LC50: 130 mg/l
Exposure time: 96 h
Species: Danio rerio (zebra fish)
Test substance: REACH dossier “read-across”
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates
Formic acid

Immobilization
EC50: 365 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
Test substance: REACH dossier “read-across”
Method: OECD Test Guideline 202

Toxicity to algae
Acetonitrile

NOEC: 400 mg/l
Exposure time: 72 h
Species: Phaeodactylum tricornutum

Formic acid

Growth rate
EC50: 1,240 mg/l
Exposure time: 72 h
Species: Pseudokirchneriella subcapitata (green algae)
Test substance: REACH dossier “read-across”
Method: OECD Test Guideline 201

13. DISPOSAL CONSIDERATIONS

Product

In accordance with local and national regulations.
### 14. TRANSPORT INFORMATION

#### ADR
- **UN/ID No.:** UN 1648
- **Description of the goods:** ACETONITRILE SOLUTION
- **Class:** 3
- **Packing group:** II
- **Classification Code:** F1
- **Hazard Identification Number:** 33
- **Labels:** 3

#### ADG_ROAD
- **UN/ID No.:** UN 1648
- **Description of the goods:** ACETONITRILE SOLUTION
- **Class:** 3
- **Packing group:** II
- **Hazard Identification Number:** 33
- **Labels:** 3

#### IATA
- **UN/ID No.:** UN 1648
- **Description of the goods:** Acetonitrile solution
- **Class:** 3
- **Packing group:** II
- **Labels:** 3
- **Packing instruction (cargo aircraft):** 364
- **Packing instruction (passenger aircraft):** 353
- **Packing instruction (passenger aircraft):** Y341

#### IMDG
- **UN/ID No.:** UN 1648
- **Description of the goods:** ACETONITRILE SOLUTION
- **Class:** 3
- **Packing group:** II
- **Labels:** 3
- **EmS Number 1:** F-E
- **EmS Number 2:** S-D
- **Marine pollutant:** no

**HAZCHEM Code:** 2YE
15. REGULATORY INFORMATION

National regulatory information
Standard for the Uniform Scheduling of Medicines and Poisons : No poison schedule number allocated

Other international regulations
Notification status
US. Toxic Substances Control Act : On TSCA Inventory

Australia. Industrial Chemical (Notification and Assessment) Act : On the inventory, or in compliance with the inventory

Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL) : All components of this product are on the Canadian DSL

Japan. Kashin-Hou Law List : On the inventory, or in compliance with the inventory

Korea. Existing Chemicals Inventory (KECI) : On the inventory, or in compliance with the inventory

Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act : On the inventory, or in compliance with the inventory

China. Inventory of Existing Chemical Substances : On the inventory, or in compliance with the inventory

New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand : On the inventory, or in compliance with the inventory

16. OTHER INFORMATION

Sources of key data used to compile the Safety Data Sheet:
0.1% Formic Acid in Acetonitrile
LC441-2.5

Version 1.1 1  Revision Date 11/13/2017  Print Date 11/29/2017

2. Approved Criteria for Classifying Hazardous Substances [NOHSC:1008(1999)]
3. List of Designated Hazardous Substances [NOHSC:10005(1999)]
5. Australian Dangerous Goods Code, No. 6 [National Road Transport Commission]
6. Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP), No. 19 [NDPSC: 2004]

Further information
The information provided in this Safety Data Sheet 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text.

Final determination of suitability of any material is the sole responsibility of the user.

This information should not constitute a guarantee for any specific product properties.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

Prepared by:
Honeywell Performance Materials and Technologies  Product Stewardship Group

End of Safety Data Sheet