1. Identification

GHS Product Identifier: FORMIC ACID 85 - 99%
Company Name: CHEM-SUPPLY PTY LTD (ABN 19 008 264 211)
Address: 38 - 50 Bedford Street GILLMAN
SA 5013 Australia
Telephone/Fax Number: Tel: (08) 8440-2000
Fax: (08) 8440-2001

Recommended use of the chemical and restrictions on use:
- Dyeing and finishing of textile; leather treatment; chemicals (formates, oxalic acid, organic esters);
- manufacture of fumigants, insecticides, refrigerants; solvents for perfumes, lacquers; electroplating;
- brewing (antiseptic); silvering glass, cellulose formate; natural latex coagulant; ore flotation; vinyl resin plasticizers and laboratory reagent.

Other Names
- Name: FORMIC ACID 85% LR
- Product Code: FL004
- Name: FORMIC ACID 85% TR
- Product Code: FT004
- Name: Methanoic Acid
- Name: FORMIC ACID 90% AR
- Product Code: FA040
- Name: FORMIC ACID 98% AR
- Product Code: FA059

Other Information
EMERGENCY CONTACT NUMBER: +61 08 8440 2000
Business hours: 8:30am to 5:00pm, Monday to Friday.

2. Hazard Identification

GHS classification of the substance/mixture:
- Flammable Liquids: Category 3
- Skin Corrosion/Irritation: Category 1A
- Acute Toxicity - Inhalation: Category 3
- Acute Toxicity - Oral: Category 4
- DANGER

Hazard Statement(s):
- H226 Flammable liquid and vapour.
- H302 Harmful if swallowed.
- H314 Causes severe skin burns and eye damage.

Pictogram(s):
- Flame, Corrosion, Skull and crossbones

Precautionary statement – Prevention:
- 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.
- P260 Do not breathe fume/gas/mist/vapours/spray.
- P264 Wash thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.

Chem-Supply Pty Ltd does not warrant that this product is suitable for any use or purpose. The user must ascertain the suitability of the product before use or application intended purpose. Preliminary testing of the product before use or application is recommended. Any reliance or purported reliance upon Chem-Supply Pty Ltd with respect to any skill or judgement or advice in relation to the suitability of this product of any purpose is disclaimed. Except to the extent prohibited at law, any condition implied by any statute as to the merchantable quality of this product or fitness for any purpose is hereby excluded. This product is not sold by description. Where the provisions of Part V, Division 2 of the Trade Practices Act apply, the liability of Chem-Supply Pty Ltd is limited to the replacement of supply of equivalent goods or payment of the cost of replacing the goods or acquiring equivalent goods.

Print Date: 26/02/2018 CS: 1.7.2
FORMIC ACID 85 - 99%

Classified as hazardous

Precautionary statement – Response
- P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
- P303+P351+P335 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.
- P310 Immediately call a POISON CENTER or doctor/physician.
- P314 DO NOT INJECT.
- P370+P378 In case of fire: Use dry chemical, CO2 or water spray for extinction.

Precautionary statement – Storage
- P403+P235 Store in a well-ventilated place. Keep cool.
- P405 Store locked up.
- P501 Dispose of contents/container according to local, state and federal regulations.

3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Chemical Characterization</th>
<th>Name</th>
<th>CAS</th>
<th>Proportion</th>
<th>Hazard Symbol</th>
<th>Risk Phrase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingredients</td>
<td>Formic Acid</td>
<td>64-18-6</td>
<td>85-99 %</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. First-aid measures

Inhalation
If inhaled, remove from contaminated area to fresh air immediately. Apply artificial respiration if not breathing. If breathing is difficult, give oxygen. Immediately obtain medical aid if cough or other symptoms appear.

Ingestion
Rinse mouth thoroughly with water immediately, repeat until all traces of product have been removed. DO NOT INDUCE VOMITING. Seek immediate medical advice.

Skin
Remove contaminated clothing and wash affected skin with soap and water. If rapid recovery does not occur, obtain medical attention.
If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Seek medical attention.

Eye contact
Immediately irrigate with copious quantity of water continuously. Eyelids to be held open. Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. Seek immediate medical assistance.

First Aid Facilities
Maintain eyewash fountain and safety shower in work area.

Advice to Doctor
Treat symptomatically based on judgement of doctor and individual reactions of the patient. If poisoning occurs, contact a Doctor or Poisons Information Centre. Phone 13 11 26 from anywhere in Australia.

Other Information
If poisoning occurs, contact a Doctor or Poisons Information Centre. Phone 13 11 26 from anywhere in Australia.

5. Fire-fighting measures

Hazards from Combustion Products
- Carbon dioxide and carbon monoxide.
- Small fire: Use dry chemical, CO2 or water spray.
- Large fire: Use water spray, fog or foam - Do NOT use water jets.

Specific Methods
- If safe to do so, move undamaged containers from the fire area. Cool containers with flooding quantities of water until well after the fire is out. Avoid getting water inside the containers.

Specific hazards arising from the chemical Hazchem Code
- May burn but do not ignite readily. Containers may explode when heated. Runoff may pollute waterways.
- Fire will produce irritating, poisonous and/or corrosive gases.
- 2X

Precautions in connection with Fire
- Wear SCBA and chemical splash suit. Fully encapsulating, gas-tight suits should be worn for maximum protection. Structural firefighter's uniform is NOT effective for these materials.

6. Accidental release measures

Spills & Disposal
Eliminate all ignition sources (no smoking, flares, sparks or flame) within at least 15m. Do NOT touch or walk through spilled product. Do NOT touch damaged containers or spilled material unless wearing appropriate protective clothing. Stop leak if safe to do so. Prevent entry into waterways, drains, confined areas.
Cover with plastic sheet to prevent spreading. Absorb spill with earth, sand or other non-combustible
7. Handling and storage

Precautions for Safe Handling
Handle and open containers with care. When opening containers, avoid inhalation of headspace gases. Use in a well-ventilated area. Prevent formation of aerosols.

Conditions for safe storage, including any incompatibilities
Store away from sources of heat or ignition. Store away from oxidizing agents. Store away from combustible materials. Keep containers securely sealed and protected against physical damage.

Corrosiveness
Metal containers.

Storage Regulations
Refer Australian Standard AS 3780 - 1994 'The Storage and Handling of Corrosive Substances'.

8. Exposure controls/personal protection

<table>
<thead>
<tr>
<th>Occupational exposure limit values</th>
<th>Name</th>
<th>STEL</th>
<th>TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formic Acid</td>
<td></td>
<td>19</td>
<td>5</td>
</tr>
</tbody>
</table>

A time weighted average (TWA) has been established for Formic acid (Safe Work Australia) of 9.4 mg/m³, (5 ppm). The corresponding STEL level is 19 mg/m³, (10 ppm). The STEL (Short Term Exposure Limit) is an exposure value that should not be exceeded for more than 15 minutes and should not be repeated for more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week.

In industrial situations maintain the concentrations values below the TWA. This may be achieved by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods.

Appropriate engineering controls
Where ventilation is not adequate, respiratory protection may be required. Avoid breathing dust, vapours or mists. Respiratory protection should comply with AS 1716 - Respiratory Protective Devices and be selected in accordance with AS 1715 - Selection, Use and Maintenance of Respiratory Protective Devices. Filter capacity and respirator type depends on exposure levels. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

Eye Protection
The use of a face shield, chemical goggles or safety glasses with side shield protection as appropriate. Must comply with Australian Standards AS 1337 and be selected and used in accordance with AS 1336.

Hand Protection
Hand protection should comply with AS 2161, Occupational protective gloves - Selection, use and maintenance.

Personal Protective Equipment
Final choice of personal protective equipment will depend on individual circumstances and/or according to risk assessments undertaken.

Footwear
Safety boots in industrial situations is advisory, foot protection should comply with AS 2210, Occupational protective footwear - Guide to selection, care and use.

Body Protection
Clean clothing or protective clothing should be worn, preferably with and apron. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.

Hygiene Measures
Do not eat, drink or smoke in work areas. Wash hands thoroughly after handling this material. Maintain good housekeeping.

9. Physical and chemical properties

Form
Liquid

Appearance
Colourless, fuming liquid.
Classified as hazardous

Odour: Pungent, penetrating odour
Melting Point: 8 °C
Boiling Point: 101 °C
Solubility in Water: Miscible in all proportions.
Solubility in Organic Solvents: Miscible with alcohol, ether and glycerol.

Specific Gravity:
- (99%) 1.220
- (90%) 1.2

Vapour Pressure: 35 mm Hg @ 20 °C
Vapour Density:
- (Air=1) 1.6 (air=1)

Odour Threshold: 20 ppm
Partition Coefficient: log Pow: -2.1 (23°C)

Flash Point: 48 °C c.c.
Flammability: Combustible.
Auto-Ignition Temperature: 480 °C

Flammable Limits:
- Lower: 12 %
- Upper: 38 %

Molecular Weight: 46.03

10. Stability and reactivity
Reactivity: Vapours/air mixtures are explosive at intense heating.
Chemical Stability: Stable under normal use conditions.
Heat and light sensitive.
Conditions to Avoid: Heating
Incompatible Materials: Oxidisers, bases, reducing agents.

Possibility of hazardous reactions: Risk of explosion with sodium hypochlorite, hydrogen peroxide, organic nitro compounds and furfuryl alcohol. May generate dangerous fumes when in contact with strong oxidising agents, sulfuric acid, nitric acid, alkalines, nitrates, phosphorus oxides and non-metallic oxides.

Hazardous Polymerization: Will not occur.

11. Toxicological Information
Toxicology: This substance should be treated with great care.
Ingestion: Cause severe burns to the mouth, throat and stomach.
Inhalation: Inhalation of vapours can cause severe irritation of nose, throat, and upper respiratory tract. Inhalation of higher concentrations may cause central nervous system effects and respiratory/lung damage.
Skin: Causes severe burns. Symptoms of redness and pain can occur.
Eye: Causes severe burns and eye damage. Risk of blindness.
Carcinogenicity: Not listed in the IARC Monographs.
Reproductive Toxicity: No evidence of reproductive effects.
Chronic Effects: Prolonged or repeated exposure to low concentrations may cause skin irritation and burns. Prolonged or repeated exposure may cause liver and kidney damage.

12. Ecological information
Ecological Information: No ecology data available for this product.
Ecotoxicity: Harmful effect due to pH shift.
Safety Data Sheet

Infosafe No™ 1CH2U  Issue Date: November 2017  RE-ISSUED by CHEMSUPP

Product Name: FORMIC ACID 85 - 99%

Bioaccumulative Potential
No bioaccumulation is to be expected (log P(o/w) <1.0).

Environmental Protection
Do not discharge to the environment.

13. Disposal considerations

Disposal Considerations
Dispose of according to relevant local, state and federal government regulations.

Container Disposal
Treat as the product itself.

14. Transport information

Transport Information
Dangerous goods of Class 8 (Corrosive) are incompatible in a placard load with any of the following: Class 1, Class 4.3, Class 5, Class 6, if the Class 6 dangerous goods are cyanides and the Class 8 dangerous goods are acids, Class 7; and are incompatible with food and food packaging in any quantity.

U.N. Number
1779

UN proper shipping name
FORMIC ACID

Transport hazard class(es)
8

Sub.Risk
3

Hazchem Code
2X

Packing Group
II

EPG Number
8A1

IERG Number
36

15. Regulatory information

Regulatory Information
Listed in the Australian Inventory of Chemical Substances (AICS).

Poisons Schedule
S5

Hazard Category
Corrosive

16. Other Information

Literature References
Commonwealth Department of Health and Aged Care, 'Standard for the Uniform Scheduling of Drugs and Poisons No. 18', Commonwealth of Australia, Canberra 2002.

Contact Person/Point
Paul McCarthy Ph. (08) 8440 2000  DISCLAIMER STATEMENT:
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Product Name: FORMIC ACID 85 - 99%

Empirical Formula: CH2 O2

Structural Formula:

Classified as hazardous