MSDS 2450 Date of Issue/re-issue**: 29.01.2015**

User declaration:- I have read and understood this Safety Data Sheet

Name:-_____Signature_____Date_____

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Company Name **ECP LTD**

Address: 39 Woodside Ave, Northcote, Auckland , New Zealand

Emergency Tel: NZ 0800154666	**Tel** +64 9 480 4386	**FAX** +64 9 480 4385

Product	**Formic Acid**		**Code**	**2450**
CAS#	**HSNO#**	**UN #**	**DG Class/es**	**Packing group #**
64-18-6	HSR000979	1779	8	II

Recommended use: Laboratory Investigations

2. Hazards Identification

2.1 GHS Classification

Flammable Liquids (Category C)
Acute toxicity, Oral (Category D)
Acute toxicity, Inhalation (Category C)
Skin corrosion (Category A)
Serious eye damage (Category A)
Aquatic toxicity (Acute or Chronic) (Category D)

2.2 GHS Label elements, including precautionary statements

Pictogram  Signal word Danger

Hazard statement(s)
H226 Flammable liquid and vapour.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H331 Toxic if inhaled.
H402 Harmful to aquatic life.
Precautionary statement(s)
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.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
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.
P310 Immediately call a POISON CENTER or doctor/ physician.
P363 Wash contaminated clothing before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
Storage
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
Disposal
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards - none

Hazard Classification

HAZARDOUS SUBSTANCE.
DANGEROUS GOODS.

Hazard classification according to the criteria of NOHSC.
Dangerous goods classification according to the Australia Dangerous Goods Code.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Name	CAS	Proportion
	Formic Acid	64-18-6	60-100 %
	Ingredients determined not to be hazardous		Balance to 100%

4. FIRST AID MEASURES

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing. Seek immediate medical attention.

Ingestion Do NOT induce vomiting. Wash out mouth with water and give plenty of water to drink. Seek immediate medical attention.

Skin	Wash affected area thoroughly with soap and water. Remove contaminated clothing and wash before reuse or discard. Seek immediate medical attention.
Eye	If contact with the eye(s) occurs, wash with copious amounts of water holding eyelid(s) open. Take care not to rinse contaminated water into the non-affected eye. Seek immediate medical attention.
First Aid Facilities	Eye wash station, safety shower and normal washroom facilities.
Advice to Doctor	Treat symptomatically.
Other Information	For advice, contact a Poisons Information Centre (Phone eg Australia 131 126; New Zealand 0800 764 766) or a doctor (at once).

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media	Use carbon dioxide, dry chemical, and foam or water mist.
Hazards from Combustion Products	Under fire conditions this product may emit toxic and/or irritating fumes including carbon monoxide and carbon dioxide.
Hazchem Code	2X
Precautions in connection with Fire	Fire-fighters should wear full protective clothing and self contained breathing apparatus (SCBA) operated in positive pressure mode.

6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures	Wear appropriate personal protective equipment and clothing to minimise exposure. Extinguish or remove all sources of ignition and stop leak if safe to do so. Increase ventilation. Evacuate all unnecessary personnel. If possible contain the spill. Place inert absorbent material onto spillage. Use clean non-sparking tools to collect the material and place into a suitable labelled container. Do not dilute material but contain. Dispose of waste according to federal, Environmental Protection Authority and state regulations. If the spillage enters the waterways contact the Environmental Protection Authority, or your local Waste Management Authority.

7. HANDLING AND STORAGE

Precautions for Safe Handling	Use in a well ventilated area. DO NOT store or use in confined spaces. Build up of mists or vapours in the atmosphere must be prevented. Avoid breathing in spray or mists or vapours. Do not use near welding or other ignition sources and avoid sparks. Do not smoke. When dealing with this product, repeated or prolonged skin exposure without protection should be prevented in order to lessen the possibility of skin disorders. It is essential that all who come into contact with this material maintain high standards of personal hygiene ie. Washing hands prior to eating, drinking, smoking or using toilet facilities.

Conditions for Safe Storage	Store in a cool, dry well-ventilated area away from heat, sources of ignition, oxidising agents, foodstuffs, and clothing and out of direct sunlight. Keep containers closed when not in use and securely sealed and protected against physical damage. Inspect regularly for deficiencies such as damage or leaks. Do NOT pressurise, cut, heat or weld containers as they may contain hazardous residues. For information on the design of the storeroom, reference should be made to Australian Standard AS 3780-1994: The storage and handling of corrosive substances.
Corrosiveness	Corrosive to most metals.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

National Exposure Standards

Australian National Occupational Health And Safety Commission (NOHSC) Exposure Standards:

Substance	TWA		STEL	
	ppm	mg/m³	ppm	mg/m³
Formic acid	5	9.4	10	19

New Zealand Occupational Safety and Health Service (OSH) Workplace Exposure Standards:

Substance	TWA		STEL	
	ppm	mg/m³	ppm	mg/m³
Formic acid	5	9.4	10	19

Biological Limit Values

No biological limit allocated.

Engineering Controls

Provide sufficient ventilation to keep airborne levels below the exposure limit. Where vapours or mists are generated, particularly in enclosed areas, and natural ventilation is inadequate, a local exhaust ventilation system is required. Refer to AS1940 - The storage and handling of flammable and combustible liquids and AS2430 - Explosive gas atmospheres for further information concerning ventilation requirements.

Respiratory Protection

If engineering controls are not effective in controlling airborne exposure then respiratory protective equipment should be used suitable for protecting against airborne contaminants. Final choice of appropriate breathing protection is dependant upon actual airborne concentrations and the type of breathing protection required will vary according to individual circumstances. Expert advice may be required to make this decision. Reference should be made to Australian Standards AS/NZS 1715, Selection, Use and maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices.

Eye Protection

Safety glasses with side shields, goggles or full-face shield as appropriate recommended. Final choice of appropriate eye/face protection will vary according to individual circumstances i.e. methods of handling or engineering controls and according to risk assessments undertaken. Eye protection should conform with Australian/New Zealand Standard AS/NZS 1337 - Eye Protectors for Industrial Applications.

Hand Protection

Wear gloves of impervious material. Final choice of appropriate gloves will vary according to individual circumstances i.e. methods of handling or according to risk assessments undertaken. Reference should be made to AS/NZS 2161.1: Occupational protective gloves - Selection, use and maintenance.

Body Protection

Wear appropriate clothing including chemical resistant apron where clothing is likely to be contaminated. It is advisable that a local supplier of personal protective clothing is consulted

regarding the choice of material.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Colourless, fuming liquid.
Odour	Pungent, penetrating odour.
Melting Point	8.4°C -6.5°C (90% solution)
Boiling Point	101°C 106.5°C (90% solution)
Solubility in Water	Miscible in all proportions.
Solubility in Organic Solvents	Miscible with alcohol, ether, glycerol.
Specific Gravity	1.220 (20°C)
pH Value	Not available.
Vapour Pressure	35 mmHg (20°C)
Vapour Density (Air=1)	1.6
Odour Threshold	20 ppm
Flash Point	69°C
Auto-Ignition Temperature	539°C 434°C (90% solution)
Flammable Limits - Lower	18% (90% solution)
Flammable Limits - Upper	57% (90% solution)
Molecular Weight	46.02
Other Information	CONVERSION FACTOR 1 ppm = 1.88 mg/m3

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under normal conditions.

Conditions to Avoid	Heat, direct sunlight, open flames or other sources of ignition.
Incompatible Materials	Oxidisers, bases, reducing agents, exposure to moisture air or water, metals, aluminium, finely divided metals, permanganates, sulfuric acid, hydrogen peroxides, caustics (eg. ammonia, ammonium hydroxide, calcium hydroxide, potassium hydroxide, sodium hydroxide), nitro compounds (organic, eg. nitrobenzene, nitroglycerine, picric acid, trinitrotoluene).
Hazardous Decomposition Products	Thermal decomposition may result in the release of toxic and/or irritating fumes including carbon monoxide and carbon dioxide.
Hazardous Reactions	Hazardous polymerisation will not occur.

11. TOXICOLOGICAL INFORMATION

Toxicology Information	LD50/Oral/rat: 1210 mg/kg LD50/Eye/rabbit: 122 mg/kg severe
Inhalation	Inhalation of mists or vapours will result in respiratory irritation and possible harmful corrosive effects including lesions of the nasal septum, pulmonary edema, pneumonitis and emphysema.
Ingestion	Ingestion of this product may cause nausea, vomiting, abdominal pain and chemical burns to the mouth, throat and stomach.
Skin	Skin contact will cause redness, itching, irritation, severe pain and chemical burns with resultant tissue destruction.
Eye	Eye contact will cause stinging, blurring, tearing, severe pain and possible permanent corneal damage.
Chronic Effects	Prolonged or repeated exposure may result in irritation, with the possibility of dermatitis.

12. ECOLOGICAL INFORMATION

Ecotoxicity	No data is available for this material.
Persistence / Degradability	No data is available for this material.
Mobility	No data is available for this material.
Environment Protection	Do not allow material to enter drains or waterways.

13. DISPOSAL CONSIDERATIONS

Disposal Considerations Dispose of waste according to federal, EPA and state regulations.

14. TRANSPORT INFORMATION

Transport Information

Australia:
This material is classified as a Class 8 (Corrosive) Dangerous Good according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. Dangerous goods of Class 8 (Corrosive) are incompatible in a placard load with any of the following:
- Class 1, Explosive
- Class 4.3, Dangerous When Wet Substance
- Class 5.1, Oxidising Agent
- Class 5.2, Organic Peroxide
- Class 6, Toxic and Infectious Substances, if the Class 6 dangerous goods are cyanides and the Class 8 dangerous goods are acids
- Class 7, Radioactive Substance

and are incompatible with food and food packaging in any quantity.

New Zealand:
This material is classified as a Class 8 - Corrosive Substance according to NZS 5433:1999 Transport of Dangerous Goods on Land.
Must not be loaded in the same freight container or on the same vehicle with:
- Class 1, Explosives
- Class 5.1, Oxidising substances
- Class 5.2, Organic peroxides
- Class 7, Radioactive materials unless specifically exempted

And are incompatible with food and food packaging in any quantity.
Note 1; Cyanides (Class 6.1) must not be loaded in the same freight container or on the same vehicle with acids (Class 8).
Note 2; Strong acids must not be loaded in the same freight container or on the same vehicle with strong alkalis. Packing Group I and II acids and alkalis should be considered as strong.
Must not be loaded with in the same freight container; and on the same vehicle must be separated horizontally by at least 3 metres unless all but one are packed in separate freight containers with:
- Class 4.3, Dangerous when wet substances

Goods of packing group II or III may be loaded in the same freight container or on the same vehicle if transported in segregation devices with:
- Class 4.3, Dangerous when wet substances
- Class 5.1, Oxidising substances
- Class 5.2, Organic peroxides

And are incompatible with food and food packaging in any quantity.

U.N. Number 1779

Proper Shipping Name FORMIC ACID

DG Class 8

Hazchem Code 2X

Packaging Method 3.8.8RT1,RT7,RT8

Packing Group	II
EPG Number	8A1
IERG Number	36

15. REGULATORY INFORMATION

Regulatory Information	Australia: Classified as hazardous according to criteria of National Occupational Health & Safety Commission (NOHSC). Poison Schedule: Schedule 5 New Zealand: Scheduled as Harmful substance S4 according to the Toxic Substances Regulations 1983.
Poisons Schedule	S5 S5 Other: S4
Hazard Category	Corrosive

16. Disclaimer

The information above is believed to be accurate and represents the best information currently available to us. However, the information is not a guarantee expressed or implied, with respect to such information, and we assume no liability resulting from its use. Anyone using the chemical described here should ensure that he or she has the appropriate training and has the expertise and any equipment required for safe handling. If clarification or further information is required, please contact ECP Ltd or refer to the official handler of dangerous goods within your own company. The user should also make their own investigations to determine the suitability of the product for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.

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