



SALES & SERVICES

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Material Safety Data Sheet

1. IDENTIFICATION OF THE PRODUCT AND THE SUPPLIER

1.1 Product identifiers

Product name : FORMIC ACID 85 %

1.2 Other means of identification

N/A

1.3 Recommended use of the product and restrictions on use

Reducing agent. Used as a decalcifier and reducer in dyeing wool fast colours. Used in tanning to dehair and plump hides, in rubber latex coagulation and old rubber regeneration, in electroplating, in sizes and in chemical analysis.

1.4 Details of supplier of the safety data sheet

Company : AGent Sales & Services Pty Ltd

Street address : 38 May Holman Drive, Bassendean, Western Australia 6054

Telephone : (+61 8) 6270 4500

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1.5 Emergency telephone number

Telephone : 1300 883 844

2. HAZARDS IDENTIFICATION

2.1 GHS Classification

Flammable liquid (Category 2)
Metal corrosion (Category 1)
Acute toxicity - Oral (Category 4)
Skin corrosion/irritation (Category 1A)
Serious eye damage (Category 1)

2.2 GHS Label elements, including precautionary statements



Pictogram :

Signal word : Danger

Hazard statement(s)

H225 Highly flammable liquid and vapour
H290 May be corrosive to metals
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.

Precautionary statement(s)

Prevention

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.

P234	Keep only in original container.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/intrinsically safe equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P270	Do not eat, drink or smoke when using this product.
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.
P363	Wash contaminated clothing before re-use.
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.
P390	Absorb spillage to prevent material damage.
P301+P312	IF SWALLOWED: Call a POISON CENTRE or doctor/physician if you feel unwell.
P370+P378	In case of fire: Use alcohol resistant foam or normal protein foam for extinction.
Storage	
P405	Store locked up.
P404+P235	Store in a well-ventilated place. Keep cool.
Disposal	
P501	Dispose of contents/ container to an approved waste disposal plant.
Other hazards	
None	

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS Number	Classification	Concentration (%)
Formic Acid	64-18-6	H225, H290, H302, H314	> 85
Water	7732-18-5	Not listed	Balance

For the full text of the H-Statements mentioned in this section, see Section 16

4. FIRST AID MEASURES

4.1 Description of First Aid measures

General advice

Contact the Poisons Information Centre (Phone: Australia 131 126; New Zealand 0800 764 766) or consult a doctor/physician. Show this safety data sheet to the doctor in attendance.

If inhaled

Remove victim from exposure to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek immediate medical advice.

In case of skin contact

Remove contaminated clothing and wash affected areas with soap and running water for at least 15 minutes. Seek immediate medical attention. Launder clothing before reuse.

In case of eye contact

Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Seek immediate medical attention.

If swallowed

Rinse mouth with water. Give water to drink provided person is conscious. Do NOT induce vomiting. Seek medical attention immediately.

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/or Section 11.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

4.4 First Aid facilities

Eye wash facilities and safety shower should be available.

5. FIRE FIGHTING MEASURES

5.1 Suitable extinguishing media

Use water fog (or if unavailable, fine water spray), alcohol-resistant foam, or dry chemical.

5.2 Special hazards arising from the chemical

Avoid contamination with oxidising agents, i.e. nitrates, oxidising agents, chlorine bleaches, pool chlorine, etc. as ignition may result! May emit corrosive & flammable fumes.

5.3 Special protective equipment and precautions for fire fighters

Wear self-contained breathing apparatus and suitable protective clothing.

5.4 Hazchem code

2W

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Slippery when spilt. Avoid accidents, clean up immediately. Evacuate all non-essential personnel from affected area. Wear protective equipment to prevent skin and eye contact and breathing in vapours. Work up wind or increase ventilation.

For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided. If contamination of sewers or waterways has occurred, advise local emergency services. Observe all local and national regulations.

6.3 Methods and materials for containment and cleaning up

Slippery when spilt. Avoid accidents, clean up immediately. Contain - prevent run off into drains and waterways. Use absorbent (soil, sand or other inert material). Collect and seal in properly labelled containers or drums for disposal. Ventilate area and wash spill site after material pick up is complete.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin, eyes and clothing. Do not inhale product vapours, mist and aerosol. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Keep out of reach of children. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

For precautions see Section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Store in a secured, cool, dry, well ventilated area, away from alkali, H vesicant, tinder, active metal powder. Ensure containers are adequately labelled, protected from physical damage, sealed when not in use and stored upright. Check regularly for leaks or damage. Store away from incompatible materials listed in Section 10.

This material is classified as a Dangerous Goods Class 8 Corrosive Substance by the criteria of the ADG Code and must be stored and handled in accordance with the relevant regulations.

This material is a Scheduled Poison S6 and must be stored, maintained and used in accordance with the relevant regulations.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure Limits

Chemical Name	Reference	TWA – Peak Limitation		STEL		Carcinogen Category	Notices
		ppm	mg/m ³	ppm	mg/m ³		
Formic Acid	ASCC	5	9.4	10	19	-	-

As published in “Workplace Exposure Standards for Airborne Contaminants, December 2011” by SWA.

These Workplace Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These workplace exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

Biological Limits

None allocated for this product.

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Ensure ventilation is adequate to maintain air concentrations below Exposure Standards. If in the handling and application of this material, safe exposure levels could be exceeded, the use of engineering controls such as local exhaust ventilation must be considered and the results documented. If achieving safe exposure levels does not require engineering controls, then a detailed and documented risk assessment using the relevant Personal Protective Equipment (PPE) (refer to PPE section below) as a basis must be carried out to determine the minimum PPE requirements

Personal protective equipment (PPE)

The selection of PPE is dependent on a detailed risk assessment. The risk assessment should consider the work situation, the physical form of the chemical, the handling methods and environmental factors.

Eye/face protection

Face shield, safety glasses with side shields or splash-proof goggles. See Australian Standards (AS/NZS 1336 & 1337).

Skin protection

Wear protective gloves (rubber or neoprene) and protective clothing (splash apron or equivalent chemical impervious outer garment and rubber boots) appropriate for the risk of exposure. See Australian Standards (AS 2161 & 2919 and AS/NZS 2210).

Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use. Wash and dry hands.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with suitable filter for acid gases and vapours. See Australian Standards (AS/NZS 1715 & 1716).

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Form : Liquid Colour : Clear, colourless
Odour:	Pungent, penetrating odour.
Odour Threshold:	No data available
pH:	2.2
Freezing Point:	8.4 °C
Boiling Point/Range:	101 °C
Decomposition Temperature:	No data available
Evaporation Rate:	0.4 (CCl ₄ = 1)
Flash Point:	68.89 @ 90%
Flammability Limits:	Not applicable
Specific Gravity:	1.22 @ 20°C

Vapour Density (air=1):	1.6
Vapour Pressure:	4.5 @ 20 °C
Volatiles (g/L):	1196.82
Solubility in water:	Miscible in water

10. STABILITY AND REACTIVITY

10.1 Reactivity

Incidents involving interaction of active oxidants and reducing agents, either by design or accident, are usually very energetic and examples of so-called redox reactions. Reacts with mild steel, galvanised steel / zinc producing hydrogen gas which may form an explosive mixture with air. Avoid any contamination of this material as it is very reactive and any contamination is potentially hazardous.

10.2 Chemical stability

Contact with alkaline material liberates heat. Presence of heat source and ignition source. Unstable in the presence of incompatible materials. Product is considered stable. Undergoes slow decomposition at room temperature, and will build up pressure in a sealed, unvented container.

10.3 Possibility of hazardous reactions

Polymerisation is not expected to occur. Reacts with metals liberating flammable hydrogen gas.

10.4 Conditions to avoid

Avoid excessive heat, moisture, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Reacts explosively or violently strong oxidisers, with hydrogen peroxide, furfuryl alcohol, hypochlorites, isocyanides, nitromethane, chromic acid, nitric acid, phosphorus pentoxide, strong bases thallium nitrate, nitromethane. reacts with concentrated sulfuric acid to produce carbon dioxide is incompatible with alkalis, ammonia, aliphatic amines, alkanolamines, furfuryl alcohol, isocyanates, alkylene oxides, epichlorohydrin, palladium is a strong reducing agent attacks aluminium, cast iron and steel, some plastics, rubber and coatings slowly decomposes in storage forming carbon dioxide gas Segregate from alkalies, oxidising agents and chemicals readily decomposed by acids, i.e. cyanides, sulfides, carbonates. Avoid strong bases.

10.6 Hazardous decomposition products

Oxides of carbon.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

LC₅₀ Inhalation (mouse): 0.0003875 mg/L/15M

LD₅₀ Oral (rat): 730 mg/kg

Skin corrosion/irritation

Eye (rabbit): 122 mg – SEVERE

Skin (rabbit): 610 (open) - MILD

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

No data available

Specific target organ toxicity (STOT) - single exposure

No data available

Specific target organ toxicity (STOT) - repeated exposure

No data available

Aspiration hazard

No data available

Health Effects

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

Eye contact : If applied to the eyes, this material causes severe eye damage. Direct eye contact with acid corrosives may produce pain, tears, sensitivity to light and burns. Mild burns of the epithelia generally recover rapidly and completely. Solutions of low-molecular weight organic acids cause pain and injury to the eyes. Eye contact with formic acid liquid or its high vapour concentrations will produce irritation, inflamed conjunctiva with reddened eye and possibly corneal burns.

Skin contact : Skin contact with acidic corrosives may result in pain and burns; these may be deep with distinct edges and may heal slowly with the formation of scar tissue. Skin contact is not thought to produce harmful health effects (as classified under EC Directives using animal models). Systemic harm, however, has been identified following exposure of animals by at least one other route and the material may still produce health damage following entry through wounds, lesions or abrasions. Open cuts, abraded or irritated skin should not be exposed to this material. Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected. Skin contact with formic acid may cause irritation, burns, keloids and blisters. Inability to speak, breathing and swallowing difficulty may occur depending on route and site of exposure.

Ingestion : Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual. Ingestion of acidic corrosives may produce burns around and in the mouth, the throat and oesophagus. Immediate pain and difficulties in swallowing and speaking may also be evident. Ingestion of low-molecular organic acid solutions may produce spontaneous haemorrhaging, production of blood clots, gastrointestinal damage and narrowing of the oesophagus and stomach entry. Formic acid has a half life of 2.5hours and may cause salivation, oral burning sensation, nausea, vomiting, diarrhoea, tissue damage, bleeding, shock and even death in severe cases.

Inhalation : The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Corrosive acids can cause irritation of the respiratory tract, with coughing, choking and mucous membrane damage. There may be dizziness, headache, nausea and weakness. Excessive inhalation of formic acid vapour can produce respiratory symptoms, headache, nausea and weakness, but the warning properties of formic acid helps to deter exposure and hence prevent systemic effects.

11.2 Information on possible routes of exposure

The substance can be absorbed into the body by ingestion, inhalation of its vapour, mist or aerosol, skin and eyes contact.

11.3 Additional Information

RTECS: Not available

12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity

The tolerance of water organisms towards pH margin and variation is diverse. Recommended pH values for test species listed in OECD guidelines are between 6.0 and almost 9. Acute testing with fish showed 96h-LC50 at about pH 3.5. Prevent, by any means available, spillage from entering drains or water courses. For formic acid (and formates) In the atmosphere, formic acid reacts with photochemically produced hydroxyl radicals (half-life 34 days). Formic acid is highly soluble in water, it is non-persistent (half-life 2-20 days). Leaches into some soils where it is expected to be biodegradable. Does not concentrate in food chain **DO NOT** discharge into sewer or waterways.

12.2 Persistence and degradability

No data available.

12.3 Bioaccumulative potential

No data available.

12.4 Mobility in soil
No data available.

12.5 Other adverse effects
No data available.

13. DISPOSAL CONSIDERATIONS

13.1 Disposal methods and containers

Ensure waste disposal conforms to relevant local, state and federal authority waste disposal regulations. All empty packaging should be disposed of as unused product as required under the ADG Code

13.3 Special precautions for landfill or incineration

Contact a specialist disposal company or the local waste regulator for advice.

14. TRANSPORT INFORMATION

Classified as a Dangerous Goods by the criteria of the ADG Code for transport by road or rail

Classified as a Dangerous Goods by the criteria of the IMDG Code for transport by sea

Classified as a Dangerous Goods by the criteria of the IATA Code for transport by air

14.1 UN number

ADG : 1779

IMDG : 1779

IATA : 1779

14.2 Proper shipping name

ADG : FORMIC ACID > 85%

IMDG : FORMIC ACID > 85%

IATA : FORMIC ACID > 85%

14.3 Transport hazard class

ADG : 8 Corrosive (3 Flam.)

IMDG : 8 Corrosive (3 Flam.)

IATA : 8 Corrosive (3 Flam.)

14.4 Packing group

ADG : II

IMDG : II

IATA : II

14.5 Environmental hazards

ADG : No

IMDG Marine Pollutant : No

IATA : No

14.6 Special precautions for users

No data

14.7 Hazchem code

ADG : 2W

IMDG EMS : F-E, S-C

14.8 Dangerous goods initial emergency response guide (SAA/SNZ HB76:2010)

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15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations

Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)

Poisons Schedule : S6

Carcinogen classification under WHS Regulations 2011, Schedule 10

Not listed

Notification status

AICS On the inventory, or in compliance with the inventory.

SECTION 16 OTHER INFORMATION

Key / legend to abbreviations and acronyms used in the MSDS

ADG	Australian Dangerous Goods
ASCC	Australian Safety and Compensation Council
DEC	Department of Environment and Conservation
GHS	Globally Harmonised System of Classification & Labelling of Chemicals
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
IUCLID	International Uniform Chemical Information Database
NOHSC	National Occupational Health and Safety Commission
SUSDP	Standard for the Uniform Scheduling of Drugs and Poisons

RTECS	Registry of Toxic Effects of Chemical Substances.
Eye Dam.	Eye damage
Met Corr.	Corrosive to metals
Skin Corr.	Skin corrosion
Peak Limitations	A ceiling concentration that should not be exceeded over a measurement period, which should be as short as possible, but not exceeding 15 minutes
TWA	Time weighted average
STEL	Short term exposure level
SWA	Safe Work Australia
LD ₅₀	Lethal dose 50. The single dose of a substance that causes the death of 50% of an animal population from exposure to the substance by any route other than inhalation
LC ₅₀	Lethal concentration that kills 50% of an animal population within a specified time
TD Lo	The lowest dose of a substance known to have produced signs of toxicity
mg/m ³	Milligrams per cubic metre
mg/kg	Milligrams per kilogram
pH	Relates to hydrogen ion concentration - this value will relate to a scale of 0 - 14, where 0 is highly acidic and 14 is highly alkaline

Literature references

“Workplace Exposure Standards for Airborne Contaminants, December 2011” by SWA Work Health and Safety Regulations 2011

“Registry of Toxic Effects of Chemical Substances”. Ed. D. Sweet, US Dept. of Health & Human Services: Cincinnati, 2012.

Reason(s) for Issue:

Revised primary SDS

Alignment to GHS requirements

Disclaimer

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