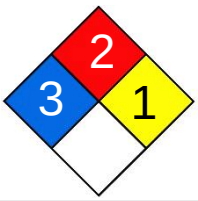
Material Safety Data Sheets



Revision 2

1. IDENTIFICATION

Product Name	**Formic Acid 85%**
Other Names	FORMIC ACID; Hydrogen Carboxylic Acid; Methanoic Acid
Code No	100-FOA-1
Uses	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.
Chemical Family	No Data Available
Chemical Formula	CH_2O_2
Chemical Name	Formic Acid
Company	Arman sina.co
Contact Information	info@armansina.com www.armansina.com

2. HAZARD IDENTIFICATION

Hazard Categories	Corrosive
Risk Phrases	Causes burns. Risk of serious eye damage.
Safety Phrases	Do not breathe spray/vapour. Avoid contact with skin and eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Symbol

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Formic Acid	CH_2O_2	64-18-6	85.0 %
Other ingredients not considered hazardous	No Data Available		Balance %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	**If poisoning occurs, contact Poisons Information Centre (Phone Australia 131126, New Zealand 0800 764 766) or a doctor. Immediately rinse mouth out with water. If swallowed, do NOT induce vomiting. Seek immediate medical advice.**
Eye	**If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. FIRST AID FACILITIES: Potable water should be available to rinse eyes or skin. Provide eye baths and safety showers.**
Skin	**If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing until advised to stop by the Poisons Information Centre or a doctor.**
Inhaled	**If inhaled, remove from contaminated area. Apply artificial respiration if not breathing. Seek medical assistance if the effects persist. ** SHOW THIS SAFETY DATA SHEET TO A DOCTOR ****
Advice to Doctor	**Treat symptomatically based on judgement of doctor and individual reactions of patient.**
Medical Conditions Aggravated by Exposure	**No information available on medical conditions aggravated by exposure to this product.**

5. FIRE FIGHTING MEASURES

General Measures	**If safe to do so, remove containers from the path of fire.**
Flammability Conditions	**Product is a combustible liquid.**
Extinguishing Media	**Water spray, foam, carbon dioxide or dry chemical powder - Do not use water jets. Cool containers with flooding quantities of water until well after fire is out. Avoid getting water inside containers.**
Fire and Explosion Hazard	**The product will support combustion of oxidisable materials. Vapour may travel to source of ignition and flash back.**
Hazardous Products of Combustion	**On burning, will emit toxic fumes, including oxides of carbon. The packaging material may burn to emit noxious fumes.**
Special Fire Fighting Instructions	**Clear fire area of all non-emergency personnel. Stay upwind. Keep out of low areas. Eliminate ignition sources. Move fire exposed containers from fire area if it can be done without risk. Do NOT allow fire fighting water to reach waterways, drains or sewers. Store fire fighting water for treatment.**
Personal Protective Equipment	**Fire fighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves) or acid-resistant chemical splash unit to minimise risk of exposure.**
Flash Point	**No Data Available**
Lower Explosion Limit	**18 %**
Upper Explosion Limit	**57 (for 90% Solution) %**
Auto Ignition Temperature	**No Data Available**
Hazchem Code	**2X**

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	**Shut off leak if safe to do so. Eliminate all sources of ignition (no smoking, flares, sparks or flame). All equipment used must be earthed. Spillages are slippery. Ensure adequate ventilation, work up wind or increase ventilation. Keep spectators away - rope off the area. Avoid accidents, clean up immediately. Wear protective equipment to prevent skin and eye contamination and inhalation of mists.**
Clean Up Procedures	**Soak up spilled product using absorbent non-combustible material such as sand or soil. Avoid using sawdust or cellulose. Neutralise with lime or soda ash. When saturated, collect the material and transfer to a suitable, labelled chemical waste container and dispose of promptly as hazardous waste. DO NOT INCINERATE, the by-products can be hazardous.**
Containment	**Stop leak if safe to do so.**
Decontamination	**Wash area down with excess water to remove residual material.**

Environmental Precautionary Measures	**Do not allow product to reach drains, sewers or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Authority.**
Evacuation Criteria	**Evacuate all unnecessary personnel.**

7. HANDLING AND STORAGE

Handling	**Keep containers closed at all times - check regularly for leaks or spills. Transport and store upright. Use in a well ventilated area. Do not use in confined spaces. Build up of mists or vapours in the atmosphere must be prevented. Avoid breathing spray, mists or vapours. Do not use near welding or other ignition sources and avoid sparks. Avoid eye contact and repeated or prolonged skin contact. Do not eat, drink or smoke in contaminated areas. Always remove contaminated clothing and wash hands before eating, drinking, smoking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use. Keep containers closed when not in use to ensure contamination does not occur - check regularly for leaks. Do not combine part drums of the same product, as this may be a source of contamination. Do not mix with other chemicals. Do not pressurise, cut, heat or weld containers as they may contain hazardous residues. This material is a Scheduled Poison S5 and must be stored, maintained and used in accordance with the relevant regulations.**
Storage	**Store in a cool, dry, well-ventilated area. Keep containers tightly closed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect against physical damage. Store away from incompatible materials as listed in section 10. Keep out of unlight and away from heat, ignition sources, oxidising agents and other combustible materials and foodstuffs. Do not store in confined spaces. Keep containers closed when not in use to ensure contamination does not occur. This material is a Scheduled Poison S5 and must be stored, maintained and used in accordance with the relevant regulations. This product has a UN classification of 3412 and a Dangerous Goods Class 8 (Corrosive) according to The Australian Code for the Transport of Dangerous goods By Road and Rail.**
Container	**Container type/packaging must comply with all applicable local legislation. Store in original packaging as approved by manufacturer.**

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	**The following exposure standard has been established by The Australian Safety and Compensation Council (ASCC); Formic acid CAS 64-18-6: TWA = 5ppm (9.4 mg/m3) STEL = 10ppm (19 mg/m3) NOTE: 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. These 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 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.**
Exposure Limits	**No Data Available**
Biological Limits	**No information available on biological limit values for this product.**
Engineering Measures	**Ensure ventilation is adequate to maintain air concentrations below Exposure Standards. If inhalation risk exists then use with local exhaust ventilation or while wearing air supplied respirator. Vapour heavier than air - prevent concentration in hollows or sumps. DO NOT enter confined spaces where vapour may have collected. Keep containers closed when not in use.**
Personal Protection Equipment	**RESPIRATOR: Avoid breathing mist, sprays or vapours. Where ventilation is not adequate, respiratory protection may be required. Any air-purifying respirator with an organic gases and vapour filter or any chemical cartridge respirator with an organic vapour cartridge(s) providing protection against the compound of concern (AS1715/1716). EYES: Wear safety glasses/goggles with side shield protection and/or full-face shield (AS1336/1337) HANDS: Wear laminate film, elbow-length supported or unsupported neoprene, neoprene/latex blend or PVC impervious gloves. Always check with the glove manufacturer or your personal protective equipment supplier regarding the correct type of glove to use (AS2161) CLOTHING: Wear waterproof apron, coveralls, trousers, long sleeved shirt, closed in shoes and/or safety footwear (AS3765/2210)**
Special Hazards Precaustions	**Protective equipment must be worn at all times. Risk assessments should always be conducted to identify the hazards and in turn determine the appropriate personal protective equipment for the hazard.**
Work Hygienic Practices	**No Data Available**

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	**Liquid**
Appearance	**Fuming Liquid**
Odour	**Pungent Odour**
Colour	**Clear, colourless**
pH	**<2.0 Neat**
Vapour Pressure	**32 hpa**
Relative Vapour Density	**Approx. 1.6 Air = 1**

Boiling Point	**105 ºC**
Melting Point	**-5 ºC**
Freezing Point	**No Data Available**
Solubility	**Miscible in water, alcohol, ether and glycerol.**
Specific Gravity	**Approx. 1.20**
Flash Point	**No Data Available**
Auto Ignition Temp	**No Data Available**
Evaporation Rate	**No Data Available**
Bulk Density	**No Data Available**
Corrosion Rate	**No Data Available**
Decomposition Temperature	**No Data Available**
Density	**No Data Available**
Specific Heat	**No Data Available**
Molecular Weight	**No Data Available**
Net Propellant Weight	**No Data Available**
Octanol Water Coefficient	**No Data Available**
Particle Size	**No Data Available**
Partition Coefficient	**No Data Available**
Saturated Vapour Concentration	**No Data Available**
Vapour Temperature	**No Data Available**
Viscosity	**No Data Available**
Volatile Percent	**No Data Available**
VOC Volume	**No Data Available**
Additional Characteristics	**No Data Available**
Potential for Dust Explosion	**Product is a liquid.**
Fast or Intensely Burning Characteristics	**No Data Available**
Flame Propagation or Burning Rate of Solid Materials	**No Data Available**
Non-Flammables That Could Contribute Unusual Hazards to a Fire	**No Data Available**
Properties That May Initiate or Contribute to Fire Intensity	**No Data Available**
Reactions That Release Gases or Vapours	**No Data Available**
Release of Invisible Flammable Vapours and Gases	**No Data Available**

10. STABILITY AND REACTIVITY

General Information	**Corrosive Liquid.**
Chemical Stability	**Product is stable under normal conditions of use, storage and temperature.**
Conditions to Avoid	**Do not combine part drums of the same product, as this may be a source of contamination. Avoid exposure to heat, direct sunlight, open flames or other sources of ignition. Avoid exposure to moisture air or water.**
Materials to Avoid	**Alkalis (eg ammonia, ammonium hydroxide, calcium hydroxide, potassium hydroxide, sodium hydroxide), aluminium, iron, steel, metals, finely divided metals, oxidising agents, reducing agents, permanganates, sulfuric acid, hydrogen peroxides, nitro compounds (eg nitrobenzene, nitroglycerine, picric acid, trinitrotoluene), cyanide compounds, catalysts and many plastics.**
Hazardous Decomposition Products	**Thermal decomposition may result in the release of toxic and/or irritating fumes including carbon monoxide and carbon dioxide. The packaging material may burn to emit noxious fumes.**
Hazardous Polymerisation	**Reacts with alkalis and amines. Exothermic reaction.**

11. TOXICOLOGICAL INFORMATION

General Information	**LONG TERM EFFECTS:** **Available evidence from animal studies indicate that repeated or prolonged exposure to a component of this material could result in effects on the respiratory system. Prolonged or repeated skin exposure may result n dermatitis.** **No toxicity data for this specific product, however toxicity data for the hazardous ingredient is listed below.** **TOXICITY DATA FOR FORMIC ACID:** **Oral LDLo(woman) 2.44 mg/kg** **Oral LD50 (rat) 1100 mg/kg** **Inhalation LC50 (rat) 15,000 mg/m3/15min** **Oral LD50 (mouse) 700 mg/kg** **Inhalation LC50 (mouse) 6,200 mg/m3/15min** **Skin Irritation Data (rabbit) 610 mg mild effect (open irritation test)** **Eyes Irritation Data (rabbit) 122 mg - severe effect**
EyeIrritant	**Corrosive to eyes and may injure the cornea. Contamination of eyes can result in permanent injury. Symptoms include stinging, tearing, redness and swelling of eyes.**
Ingestion	**Swallowing can result in nausea, vomiting, diarrhoea, abdominal pain and chemical burns to the gastrointestinal tract.**
Inhalation	**Breathing in mists or aerosols may produce respiratory irritation.**
SkinIrritant	**Corrosive to skin - may cause skin burns. May not produce an immediate burning sensation upon contact, delaying the awareness that contact has occurred. Symptoms may include redness, burning, and swelling of skin, burns, and other skin damage.**
Carcinogen Category	**No Data Available**

12. ECOLOGICAL INFORMATION

Ecotoxicity	**Avoid contaminating waterways. The product is highly acidic. If large spills occurred a water pH drop could be responsible for an environmental effect on aquatic organisms.** **ECOTOXICITY DATA FOR FORMIC ACID:** **LC50 Bluegill (Lepomis macrochirus) 175 mg/L/24hr** **LC50 Green or European shore crab (Carcinus maenas) 80 - 90 mg/L/48hr** **LC50 Brine Shrimp (Artemia salina) 410 mg/L/24hr (NAUPLII - larval stage)**
Persistence/Degradability	**Considered to be readily biodegradable.**
Mobility	**No Data Available**
Environmental Fate	**No Data Available**
Bioaccumulation Potential	**No Data Available**
Environmental Impact	**No Data Available**

13. DISPOSAL CONSIDERATIONS

General Information	**Dispose of in accordance with all local regulations. All empty packaging should be disposed of in accordance with Local Regulations or recycled/reconditioned at an approved facility. Empty containers should be forwarded to an approved agent for recycling. Avoid unauthorised discharge to sewer. Advise its corrosive, toxic, sensitising and combustible liquid nature. Empty containers must be decontaminated.**
Special Precautions for Land Fill	**Contact a specialist disposal company or the local waste regulator for advice.**

14. TRANSPORT INFORMATION

Land Transport

Proper Shipping Name	**FORMIC ACID**
Class	**8 Corrosive Substances**
Subsidiary Risk(s)	**No Data Available**
ERG	**153 Substances - Toxic and/or Corrosive (Combustible)**
UN Number	**3412**

Hazchem	**2X**
Pack Group	**II**
Special Provision	**No Data Available**

Sea Transport
IMDG

Proper Shipping Name	**FORMIC ACID**
Class	**8 Corrosive Substances**
Subsidiary Risk(s)	**No Data Available**
UN Number	**3412**
Hazchem	**2X**
Pack Group	**II**
Special Provision	**No Data Available**
EMS	**F-A,S**
Marine Pollutant	**No**

Air Transport
IATA

Proper Shipping Name	**FORMIC ACID**
Class	**8 Corrosive Substances**
Subsidiary Risk(s)	**No Data Available**
UN Number	**3412**
Hazchem	**2X**
Pack Group	**II**
Special Provision	**No Data Available**

15. OTHER INFORMATION

Revision **2**

Key/Legend

< Less Than
> Greater Than
atm Atmosphere
CAS Chemical Abstracts Service (Registry Number)
cm Square Centimetres
CO2 Carbon Dioxide
COD Chemical Oxygen Demand
Degrees Celcius
Degrees Farenheit
g Grams
g/cm Grams per Cubic Centimetre
g/l Grams per Litre
HSNO Hazardous Substance and New Organism
IDLH Immediately Dangerous to Life and Health
immiscible Liquids are insoluable in each other.
inHg Inch of Mercury
inH2O Inch of Water
K Kelvin
kg Kilogram
kg/m Kilograms per Cubic Metre
lb Pound
LC50 LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.
LD50 LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.
ltr or L Litre
m Cubic Metre
mbar Millibar
mg Milligram
mg/24H Milligrams per 24 Hours
mg/kg Milligrams per Kilogram
mg/m Milligrams per Cubic Metre
Misc or Miscible Liquids form one homogeneous liquid phase regardless of the amount of either component present.

mm Millimetre
mmH2O Millimetres of Water
mPa.s Millipascals per Second
N/A Not Applicable
NIOSH National Institute for Occupational Safety and Health
NOHSC National Occupational Heath and Safety Commission
OECD Organisation for Economic Co-operation and Development
Oz Ounce
PEL Permissible Exposure Limit
Pa Pascal
ppb Parts per Billion
ppm Parts per Million
ppm/2h Parts per Million per 2 Hours
ppm/6h Parts per Million per 6 Hours
psi Pounds per Square Inch
R Rankine
RCP Reciprocal Calculation Procedure
STEL Short Term Exposure Limit
TLV Threshold Limit Value
tne Tonne
TWA Time Weighted Average
ug/24H Micrograms per 24 Hours
UN United Nations
wt Weight