Preparing for the New Era of Laboratories

MATERIAL SAFETY DATA SHEET (MSDS)

According to regulation (EU) no.1907/2006

FORMIC ACID 98-100% AR

PRODUCT CODE : A-2002

CAS No : 64-18-6

FORMULA : CH_2O_2

UN No : 1779

website : www.labotiq.net

MATERIAL SAFETY DATA SHEET (SDS/MSDS)
FORMIC ACID 98-100% AR

MSDS Number : 0161 | Date : Aug 15th, 2024 | Version : 1.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product Name : **FORMIC ACID 98-100% AR**
Synonyms : Methanoic acid, Formylic acid
CAS No. : 64-18-6
HS Code : 2915 11 00
Chemical Formula : HCOOH CH_2O_2 (Hill)
Molecular Weight : 46.03 g/mol
Product Code : A-2002
Brand : Labotiq
1.2 Manufacturer : Labotiq
Address : Jl.Terapi Raya AD2-Bumi Menteng Asri Bogor, Jawa Barat Indonesia – 16111
Website : www.labotiq.net
Email : labotiq.id@gmail.com,
For information : Phone : (+62-251) 839110, 8311662, Fax : (+62-251) 83135710
Emergency number : +6281316894650
1.3 Application : Laboratory chemicals, Manufacture of substances, General Chemical reagent

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008
Flammable liquids (Category 3), H226
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 3), H331
Skin corrosion (Sub-category 1A), H314
Serious eye damage (Category 1), H318

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

2.2 Label elements
Labelling according Regulation (EC) No 1272/2008
Pictogram

Signal word	Danger
Hazard statement(s)	
H226	Flammable liquid and vapor.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H331	Toxic if inhaled.
Precautionary statement(s)	
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.
P301 + P312	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.

P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Supplemental Hazard information (EU)	
EUH071	Corrosive to the respiratory tract.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	: Methanoic acid, Formylic acid
Formula	: HCOOH CH_2O_2(Hill)
Molecular weight	: 46.03 g/mol
CAS-No.	: 64-18-6
EC-No.	: 200-597-1
Index-No.	: 607-001-00-0

3.2 Mixture

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Classification	Concentration
Formic acid CAS-No. 64-18-6 EC-No. 200-579-1 Index-No. 607-001-00-0	Flam. Liq. 3; Acute Tox. 4; Acute Tox. 3; Skin Corr. 1A; Eye Dam. 1; H226, H302, H331, H314, H318 Concentration limits: >= 90 %: Skin Corr. 1A, H314; 10 - < 90 %: Skin Corr. 1B, H314; 2 - < 10 %: Skin Irrit. 2, H315; 2 - < 10 %: Eye Irrit. 2, H319; > 78,5 %: Acute Tox. 3, H331; 75 - 78,5 %: Acute Tox. 4, H332; > 75 %: , EUH071;	<=100 %

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

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing media
Water Foam Carbon dioxide (CO2)

Dry powder Unsuitable
extinguishing media For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Nature of decomposition products not known. Combustible. Vapors are heavier than air and may spread along floors. Forms explosive mixtures with air at elevated temperatures. Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains. Risk of explosion

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

No metal containers. May decompose forming gaseous products, especially when stored over long periods. Close containers in such a way to enable internal pressure to escape (e.g. excess pressure valve). Protected from light.Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons. Recommended storage temperature see product label.

Storage class

Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Derived No Effect Level (DNEL)

Application Area	Exposure routes	Health effect	Value
Workers	Inhalation	Long-term local effects, Long-term systemic effects	9.5 mg/m³
Workers	Inhalation	Acute local effects, Acute systemic effects	19 mg/m³
Consumers	Inhalation	Acute local effects, Acute systemic effects	9.5 mg/m³
Consumers	Inhalation	Long-term local effects, Long-term systemic effects	3 mg/m³

Predicted No Effect Concentration (PNEC)

Compartment	Value
Soil	1.5 mg/kg
Marine water	0.22 mg/l
Fresh water	2 mg/l
Marine sediment	1.34 mg/kg
Fresh water sediment	13.4 mg/kg
Sewage treatment plant	7.2 mg/l
Aquatic intermittent release	1 mg/l

8.2 Exposure controls

Appropriat engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection

Handle with gloves. 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 in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact

Material: Chloroprene
Minimum layer thickness: 0,65 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740, Size M)

Splash contact

Material: Latex gloves
Minimum layer thickness: 0,6 mm
Break through time: 60 min
Material tested: Lapren® (KCL 740, Size M)

Body Protection

Flame retardant antistatic protective clothing.

Respiratory protection

Recommended Filter type: Filter E-(P3) The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Control of environmental exposure

Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	Form: liquid Colour: colourless
Odour	stinging
Odour Threshold	0,02 ppm
pH	2,2 at 10 g/l at 20 °C
Melting point/freezingpoint	Melting point: 8,5 °C
Initial boiling point and boiling range	100,80 °C at 1.013 hPa
Flash point	49,5 °C - closed cup – Regulation (EC) No. 440/2008, Annex, A.9
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or	Upper explosion limit: 38 %(V) Lower explosion limit: 18 %(V)
explosive limits	No data available
Vapour pressure	171 hPa at 50 °C - OECD Test Guideline 104
Vapour density	1,59 - (Air = 1.0)
Relative density	1,22 at 20 °C - OECD Test Guideline 109
Water solubility	at 20 °C miscible in all proportions, (experimental)
Partition coefficient: noctanol/water	log Pow: -2,1 at 23 °C - OECD Test Guideline 107 - Bioaccumulation is not expected.
Auto-ignition temperature	528 °C at 1.008 hPa – Tested according to Directive 92/69/EEC.
Decomposition temperature	350 °C -
Viscosity	Viscosity, kinematic: 1,47 mm2/s at 20 °C - OECD Test Guideline 1141,02 mm2/s at 40 °C - OECD Test Guideline 114 Viscosity, dynamic: 1,8 mPa.s at 20 °C - OECD Test Guideline 1141,22 mPa.s at 40 °C - OECD Test Guideline 114
Explosive properties	No data available
Oxidizing properties	none

9.2 Other safety information

Surface tension	71,5 mN/m at 1g/l at 20 °C - OECD Test Guideline 115
Dissociation constant	3,7 at 20 °C - OECD Test Guideline 112
Relative vapor density	1,59 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity

Vapor/air-mixtures are explosive at intense warming.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

Heating.

10.5 Incompatible materials

Strong oxidizing agents, Strong bases, Powdered metals

10.6 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Acute toxicity estimate Oral - 737,37 mg/kg (Calculation method)
LD50 Oral - Rat - male and female - 730 mg/kg (Formic acid) (OECD Test Guideline 401)
Acute toxicity estimate Inhalation - 4 h - 7,93 mg/l (Calculation method)
LC50 Inhalation - Rat - male and female - 4 h - 7,85 mg/l (Formic acid)
(OECD Test Guideline 403) Dermal: No data available

Skin corrosion/irritation

Skin - Rabbit (Formic acid)
Result: Severe skin irritation (Draize Test)

Serious eye damage/eye irritation

Causes serious eye damage. conjunctivitis Lacrimal irritation due to vapours. (Formic acid)

Respiratory or skin sensitisation

Buehler Test - Guinea pig (Formic acid)
Result: negative (OECD Test Guideline 406)
Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals. (Formic acid)

Germ cell mutagenicity

Test Type: Ames test (Formic acid)
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Test Type: sister chromatid exchange assay (Formic acid)
Test system: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 479
Result: negative
Test Type: sister chromatid exchange assay (Formic acid)
Test system: Human lymphocytes
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 479
Result: negative Test Type: In vitro mammalian cell gene mutation test (Formic acid)
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
Test Type: Chromosome aberration test in vitro (Formic acid)
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473

Result: negative (Formic acid)
Test Type: gene mutation test
Species: Drosophila melanogaster
Application Route: Oral
Method: OECD Test Guideline 477
Result: negative

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(Formic acid)

Specific target organ toxicity - single exposure
No data available(Formic acid)

Specific target organ toxicity - repeated exposure
No data available(Formic acid)

Aspiration hazard
No data available(Formic acid)

Additional Information
Repeated dose toxicity - Rat - male and female - Oral - 52 Weeks - NOAEL (No observed adverse effect level) - 400 mg/kg - LOAEL (Lowest observed adverse effect level) - 2.000 mg/kg
Remarks: (in analogy to similar products) (Formic acid)
Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting (Formic acid) To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. (Formic acid) Kidney - Irregularities - Based on Human Evidence (Formic acid)

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish
static test LC50 - Danio rerio (zebra fish) - 130 mg/l - 96 h (Formic acid)
(OECD Test Guideline 203)
Remarks: (in analogy to similar products)
The value is given in analogy to the following substances: ammonium formate

Toxicity to daphnia and other aquatic invertebrates
static test EC50 - Daphnia magna (Water flea) - 365 mg/l - 48 h (Formic acid) (OECD Test Guideline 202)
Remarks: (in analogy to similar products)
The value is given in analogy to the following substances: ammonium formate

Toxicity to algae
static test ErC50 - Pseudokirchneriella subcapitata - 1.240 mg/l - 72 h (Formic acid)
(OECD Test Guideline 201)
Remarks: (in analogy to similar products) The value is given in analogy to the following substances: ammonium formate

Toxicity to bacteria
static test NOEC - activated sludge - 72 mg/l - 13 d (Formic acid) Remarks: (ECHA)

12.2 Persistence and degradability
Biodegradability aerobic - Exposure time 14 d (Formic acid)
Result: 100 % - Readily biodegradable. (OECD Test Guideline 301C)
Biochemical Oxygen Demand (BOD) 86 mg/g (Formic acid)
Remarks: (External MSDS)
Ratio BOD/ThBOD 8,60 % (Formic acid)

12.3 Bioaccumulative potential
Bioaccumulation is unlikely.
Does not significantly accumulate in organisms.

12.4 Mobility in soil
No data available(Formic acid)

12.5 Results of PBT and vPvB assessment
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects
Harmful to aquatic life.

Forms corrosive mixtures with water even if diluted. Harmful effect due to pH shift. Neutralisation possible in waste water treatment plants. No interference with wastewater treatment plants are to be expected when used properly. Discharge into the environment must be avoided.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Product
Burn in a chemical incinerator equipped with an afterburner and scrubber b highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number
ADR/RID: 1779 IMDG: 1779 IATA: 1779

14.2 UN proper shipping name
ADR/RID: FORMIC ACID
IMDG: FORMIC ACID
IATA: Formic acid

14.3 Transport hazard class(es)
ADR/RID: 8 (3) IMDG: 8 (3) IATA: 8 (3)

14.4 Packaging group
ADR/RID: II IMDG: II IATA: II

14.5 Environmental hazards
ADR/RID: no IMDG Marine pollutant: no IATA: no

14.6 Special precautions for user

No data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

EUH071	Corrosive to the respiratory tract.
H226	Flammable liquid and vapor.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H332	Harmful if inhaled.

National Fire Protection Association (U.S.A.):

Health: 3
Flammability: 2
Reactivity: 1

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Labotiq shall not be held liable for any damage resulting from handling or from contact with the above product.

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