MATERIAL SAFETY DATA SHEET

Formic acid

SECTION 1: Identification of the substance/mixture and of the company/undertaking			
1.1	**Product identifiers**		
	Product name	:	Formic acid
	Brand	:	LABORT
	CAS-No.	:	64-18-6
1.2	**Relevant identified uses of the substance or mixture and uses advised against**		
	Identified uses	:	Laboratory chemicals, Industrial
1.3	**Details of the supplier of the safety data sheet**		
	LABORT FINE CHEM PVT LTD. 703-704 ICON BUSINESS CENTRE, OPP. CENTRAL MALL, NR. VALENTINE CINEMA, DUMAS ROAD, SURAT - 395007, (GUJARAT), INDIA. **PH:** 0091-261-2725761; 2725388 **FAX:** 0091-261-2725388 **E MAIL:** info@laboratorychemical.net **WEBSITE:** www.laboratorychemical.net		
1.4	**Emergency telephone number**		
	Emergency Phone #	:	**091-261-2725388**
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		
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. 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 statements		
	None		
2.3	**Other hazards**		
	This substance/mixture contains no components considered to be either persistent, bio accumulative and toxic (PBT), or very persistent and very bio accumulative (vPvB) at levels of 0.1% or higher.		
SECTION 3: Composition/information on ingredients			
3.1	**Substances**		
	Synonyms	**:**	-
	Formula	**:**	HCOOH
	Molecular weight	**:**	46.03 g/mol
	CAS-No.	**:**	64-18-6
	EC-No.	**:**	200-579-1
	Hazardous ingredients according to Regulation (EC) No 1272/2008		
	Component	Classification	Concentration
	Formic acid	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;	>84% & <=88%
SECTION 4: First aid measures			
4.1	**Description of first aid measures**		

	General advice First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance. **If inhaled** After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen. **In case of skin contact** In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately. **In case of eye contact** After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses. **If swallowed** After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Pulmonary failure possible after aspiration of vomit. Call a physician immediately. Do not attempt to neutralise.
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** Carbon oxides 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. 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
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.
Vent periodically. Handle and open container with care. Hygroscopic.
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**

Ingredients with workplace control parameters
Derived No Effect Level (DNEL)

Application Area	Routes of exposure	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
Sea water	0.22 mg/l
Fresh water	2 mg/l
Sea sediment	1.34 mg/kg
Fresh water sediment	13.4 mg/kg
Sewage treatment plant	7.2 mg/kg
Aquatic intermittent release	1 mg/l

8.2
Exposure controls
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
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves
Full contact
Material: Chloroprene
Minimum layer thickness: 0,65 mm
Break through time: 480 min
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves
Splash contact
Material: Latex gloves
Minimum layer thickness: 0,6 mm
Break through time: 60 min
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	Form: Liquid
	Colour	Colourless
	Odour	Stinging
	Odour Threshold	No data available
	pH	2,2 at 10 g/l at 20°C
	Melting point/freezing point	8.2 – 8.4°C - lit.
	Initial boiling point and boiling range	100 - 101°C - lit.
	Flash point	48°C - closed cup
	Evaporation rate	No data available
	Flammability (solid, gas)	No data available
	Upper/lower flammability or explosive limits	No data available
	Vapour pressure	171 hPa at 50°C
	Vapour density	No data available
	Relative density	1.22 g/cm3 at 25°C
	Water solubility	No data available
	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
	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**	No data available
	Surface tension	71,5 mN/m at 1g/l at 20 °C
	Dissociation constant	3.7 at 20°C
	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** Stable under recommended storage conditions.
10.3	**Possibility of hazardous reactions** Risk of ignition or formation of inflammable gases or vapours with: Aluminum Risk of explosion with: organic nitro compounds sodium hypochlorite hydrogen peroxide furfuryl alcohol Generates dangerous gases or fumes in contact with: alkalines Strong oxidizing agents sulfuric acid nonmetallic oxides metal catalysts Oxides of phosphorus Nitric acid nitrates Exothermic reaction with: alkaline earth hydroxides alkali hydroxides bases Amines
10.4	**Conditions to avoid** Heating.
10.5	**Incompatible materials** 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** LD50 Oral - Rat - male and female - 730 mg/kg (OECD Test Guideline 401) Acute toxicity estimate Oral - 730 mg/kg (ATE value derived from LD50/LC50 value) LC50 Inhalation - Rat - male and female - 4 h - 7,85 mg/l - vapor (OECD Test Guideline 403) Acute toxicity estimate Inhalation - 7,85 mg/l - vapor (ATE value derived from LD50/LC50 value) Dermal: No data available **Skin corrosion/irritation** Skin - Rabbit Result: Severe skin irritation (Draize Test) **Serious eye damage/eye irritation** Remarks: Causes serious eye damage. conjunctivitis Lacrimal irritation due to vapours. **Respiratory or skin sensitization** Buehler Test - Guinea pig Result: negative (OECD Test Guideline 406) Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals. **Germ cell mutagenicity** Test Type: Ames test

	Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Test Type: sister chromatid exchange assay 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 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 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 Test system: Chinese hamster ovary cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 473 Result: negative Test Type: gene mutation test Species: Drosophila melanogaster Application Route: Oral Method: OECD Test Guideline 477 Result: negative **Carcinogenicity** No data available **Reproductive toxicity** No data available **Specific target organ toxicity - single exposure** No data available **Specific target organ toxicity - repeated exposure** No data available **Aspiration hazard** No data available
11.2	**Additional Information**
	Endocrine disrupting properties **Product:** Assessment: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher. 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) RTECS: LQ4900000 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 To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Kidney - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	:	static test LC50 - Danio rerio (zebra fish) - 130 mg/l - 96 h (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 (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 (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 Remarks: (ECHA)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 14 d Result: 100 % - Readily biodegradable. (OECD Test Guideline 301C)
Biochemical Oxygen Demand (BOD)	86 mg/g
Ratio BOD/ThBOD	8,60 %

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

12.4 Mobility in soil
No data available

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
Product:
Assessment:
The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.6 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1
Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle un-cleaned containers like the product itself.

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	IMDG: 8	IATA: 8
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.

National legislation		
Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	:	ACUTE TOXIC FLAMMABLE LIQUIDS

Other regulations

Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Take note of Dir 94/33/EC on the protection of young people at work.

15.2 **Chemical safety assessment**

A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Further information

LABORT FINE CHEM PVT LTD. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. LABORT FINE CHEM PVT LTD. Makes no representations or warranties, either express or implied, including without limitation any warranties or merchantability, fitness for a particular purpose with respect to the information set forth herein or the product to which the information refers. Accordingly, LABORT FINE CHEM PVT LTD. will not be responsible for damages resulting from use of or reliance upon this information.

Revised on: 01/05/2023
Revision: 00