FORMIC ACID

1. CHEMICAL IDENTITY

Chemical Name :	Formic Acid (85%)	Chemical Classification :	Carboxylic acid, Aliphatic
Synonyms :	Methanoic acid, Formylic acid, Hydrogen carboxylic acid.	Trade Name :	
Formula :	HCOOH	C.A.S. No. :	64-18-6
		U.N. No. :	1779

Regulated Identification :

Shipping Name :	Formic acid		
Codes/Label :	Corrosive class - 8	Hazchem Code No. :	2 R
Hazardous waste I.D. No. :	80		

Hazardous ingredients :	C. A. S. No.	% Wt
1. Formic acid	64-18-6	85-98
2. Water	7732-18-5	1-15

2. PHYSICAL AND CHEMICAL DATA

Boiling Range/point degreeC : 100.6	Physical State : Liquid	Appearance : Colourless
Melting/Freezing Point degree C : 8.3		Odour : A Pungent Irritating odour.
Vapour Pressure at 35 degree C : 23-33 mm Hg at 25.7 degree		
Vapour Density : 1.6 (Air = 1)	Solubility in water at 30 degree C : Completely soluble	Others : Fuming liquid, class 3-A, Combustible liquid and highly corrosive liquid.
Specific Gravity : 1.22 Water = 1	pH : Not Available	

3. FIRE AND EXPLOSION HAZARD DATA

Flammability : Flammable	LEL : 18.0 %	Flash Point degree C : 52.0 (CC)	Autoignition temperature degree C :
TDG Flammability : NA	UEL : 57.0 %	Flash Point degree C : 57.0 (OC)	435.0
Explosion Sensitivity to Impact :	N.A.	Explosion Sensitivity to Static Electricity : Yes	Hazardous Combustion Products :
Hazardous Polymerisation :	N.A		Irritating and toxic fumes may be emmited on decomposition. Combustion may produce CO and CO2.

Combustible liquid : Yes	Explosive Material : No	Corrosive Material :	No
Flammable Material : Yes	Oxidiser : No	Others :	
Pyrophoric Material : No	Organic Peroxide :	No	

4. REACTIVITY DATA

Chemical Stability :		Stable under normal condition of use.
Incompatibility with other material	:	Avoid contact with oxidisers, reducing agents, Sulphuric acid, Caustic and corrosive to metals.
Reactivity	:	Certain salts and mineral acid will catalyse the reaction and temperature will increase the rate. It will decompose slowly during storage. Will liberate Carbon monoxide which can rupture sealed containers.
Hazardous Reaction Products :		N.A.

5. HEALTH HAZARDS DATA

Routes of Entry	Inhalation, Skin, Eye and Ingestion.
Effects of Exposure/Symptoms	Effects skin, respiratory system, kidneys, liver, eyes.
Inhalation	May cause respiratory tract irritation, burns, coughing, frothy sputum, difficulty in breathing, fatigue and pulmonary edema. May cause dyspnea, nausea, lacrymation.
Eye contact	EXTREMELY IRRITATING AND CORROSIVE. Contact may cause conjuctivitis, redness, pain, blurred vision, conjunctival and corneal destruction and permanent injury. Exposure to vapours of fumes may cause irritation.
Skin Contact	EXTREMELY IRRITATING AND CORROSIVE. Contact may cause redening, itching, inflammation, burns, blistering and tissue damage. May also cause brownish or yellowish stains on the skin. Skin burns may be deep and healing will be slow with scar formation. Causes dermatitis.
Ingestion	SLIGHTLY TOXIC. CORROSIVE. May cause burning pain of the mouth, throat and abdomen and coughing. May also cause shock, breathing difficulties and kidney damage. It may also cause constriction of throat followed by nausea, abdominal spasms, vomiting, Hematemasis and diarrhoea. Chronic effects of exposure : Chronic exposure by inhalation may produce erosion of the teeth and jaw necrosis.
Emergency Treatment	-

TLV (ACGIH)	5.0 ppm	9.0 mg/m3	STEL : N.A	
Permissible Exposure Limit	N.A.	mg/m3	Odour Threshold N.A	
LD - 50 (oral - mouse)	700 mg/kg	IDLH	30 ppm	
LD - 50 (oral rat)	1.21 gm/kg			
NFPA Hazard Signals	Health 2	Flammability 1	Reactivity --	Special --

6. PREVENTIVE MEASURES

Personal Protective Equipment	Use Airlines mask. Use breathing appratus set for emergency operations / IDLH conditions. Use NIOSH or MSHA approved equipment when air borne exposure limits are exceeds. Wear chemical safety goggles and face shield. DO NOT WEAR CONTACT LENSES WHEN WORKING WITH THIS SUBSTANCE. Wear gloves and protective clothing to prevent skin contact. Provide safety shower at any location where eye/skin contact can occur. Gas tight chemical suit for emergency.

Handling and Storage Precautions	Store in a tightly closed containers in a cool, dry , isolated, well-ventilated area away from heat, sources of ignition and incompatibles. Do not eat, drink or smoke in areas of use or storage. Empty container may contain toxic, flammable or explosive residuals or vapours. Do not cut, grind, drill, weld or reuse containers unless adequate precautions are taken against these hazards. Assure that proper personal protection measures are taken when opening or entering confined storage vessels.

7. EMERGENCY AND FIRST AID MEASURE

FIRE	FIRE EXTINGUSTING MEDIA	Use a water spray, dry chemical, alcohol foam, all purpose foam or carbon dioxide to extinguish fire.
FIRE	Special Procedures	Use a water spray to cool fire-exposed conatiners, structures and to protect personnel. If leak or spill has not ignited, ventilate area and use water spray to disperse gas or vapour and to protect personnel attempting to stop a leak. use water to dilute spills and to flush them away from sources of ignition. Do not flush down public sewers. Exposed fire fighters should wear full protective equipemnt. certain situations may require the use of MSHA/NIOSH approved self-contained breathing apparatus with full face piece.
	Unusual Hazards	Irritating or toxic substances may be emitted upon thermal decomposition. Dangerous when exposed to heat or flame. Runoff to sewer may cause fire or explosion hazard. Containers may explode in heat or fire.
EXPOSURE	First Aid Measures	INHALATION : Remove exposed person from source of exposure. If not breathing, ensure open airway and institute cardipulmonary resuscitation (CPR). If breathing is difficult, administer oxygen if available. Keep the personnel warm and at rest. Get immediate medical attention. EYE : Flush with large amount of water for 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Get immediate medical attention. SKIN : Wash the affected area with soap and water .Remove contaminated clothing immediately. Get immediate medical attention. Discard contaminated clothing and leather goods. INGESTION : Do not induce vomiting. If victim is conscious, give water or milk to dilute stomach contents. Keep affected person warm and at rest. Get medical attention immediately.
	Antidotes/Dosages	-

Notes to Physician	Delayed pulmonary edema may occur, and patient should be maintained under observation for this complication. The agent is an acid corrosive and produced coagulative necrosis of the buccal cavity, esophagus and stomach. The major causes of death are circulatory shock, asphyxia due to glotttic or laryngeal edema, perforation of the esophagus or stomach. While treatment of acute ingestion is controversial, induction of emesis and the use of carbon dioxide producing anti-acids are indicated. Nasal gastric intubation should be undertaken only with the risk of perforation recognized in contrast to the value of gastric aspiration and lavage. Late complications may include esophageal, gastric or pyloric stenosis.	
SPILLS	Steps to be taken	Keep unnecessary people away. Stay upwind. Keep out of low areas. Isolate hazard areas and deny entry. Do not touch spilled material. Stop leakage if you can do it without any risk. Flush the area with plenty of water. Use SCBA and gas tight chemical protection suit. Take up with sand or with incompatible absorbent.\ materials or other absorbent known to be compatible and then flush the area with water. In case of large spill, dyke far ahead of spill for later disposal. Knock down the vapours with water spray.
	Waste disposal Method	This substance, when discarded or disposed of, is a hazardous waste. The transportation, storage, treatment, and disposal of this waste material must be conducted in compliance with all applicable government regulations. Disposal can occur only in properly permitted facilities. Treat contaminated water used for spill/leak control or used for dilution or for fire fighting.

8. ADDITIONAL INFORMATION / REFERENCES :

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9. MANUFACTURE / SUPPLIERS DATA

Name of Firm	**M/S GNFC Ltd.**	Contact person in emergency
Mailing Address	**Po.** **Narmadanagar,** **Bharuch - 392 015**	
Telephone/Fax Nos. : 47001- 47028 / 02642-47094		
Telephonic Address	Local Bodies Involved	
	Standard Packing :	SS Tanker or HDPE Carbouys.
	Tremcard Detail/Ref.	
	Others.	

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