

Chemical Safety Data Sheet

SECTION 1 IDENTIFICATION

GHS Product identifier: Formic acid 85%.

Other means of identification: /

Recommended use of the chemical and restrictions on use: /

Supplier's details: /

Emergency phone number: /

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

Flammable Liquid Category 3, Acute Toxicity (Oral) Category 4, Acute Toxicity (Inhalation) Category 4, Skin Corrosion/Irritation Category 1B, Serious Eye Damage Category 1, Specific target organ toxicity - single exposure Category 1 (inhalation, oral, blood, kidneys, respiratory system), Specific target organ toxicity - repeated exposure Category 2 (inhalation, upper respiratory tract), Hazardous to the aquatic environment, acute hazard Category 3.

GHS Label elements, including precautionary statements



Signal word: Danger

Hazard statement(s): Flammable liquid and vapor. Harmful if swallowed. Harmful if inhaled. Causes severe skin burns and eye damage. Causes damage to organs (inhalation, oral, blood, kidneys, respiratory system). May cause damage to organs through prolonged or repeated exposure (inhalation, upper respiratory tract). Harmful to aquatic life.

Precautionary statement(s):

Prevention:

Keep away from heat/sparks/open flames/hot surfaces. No smoking. Keep container tightly closed. Ground/Bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe dust or mist. Wash ... thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.

Response:

IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor. Specific treatment (see below). IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. IF exposed or concerned: Call a POISON CENTER/doctor. Specific treatment (see below). Get medical advice/attention if you feel unwell. In case of fire: Use foam, dry powder, carbon dioxide or water spray to extinguish.

Storage:

Store in well-ventilated place. Keep cool. Store locked up.

Disposal:

Dispose of contents/container to...

Other hazards which do not result in classification: /

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Concentration%
Formic acid	64-18-6	85.7
Water	7732-18-5	14.3

SECTION 4 FIRST AID MEASURES**Description of necessary first aid measures**

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

In case of skin contact: Wash off with soap and plenty of water. 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: Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Most important symptoms and effects, both acute and delayed: /

Indication of immediate medical attention and special treatment needed: For acute or short term repeated exposures to strong acids: Airway problems may arise from laryngeal edema and inhalation exposure. Treat with 100% oxygen initially. Respiratory distress may require cricothyroidotomy if endotracheal intubation is contraindicated by excessive swelling. **INGESTION:** Immediate dilution (milk or water) within 30 minutes post ingestion is recommended. **DO NOT** attempt to neutralise the acid since exothermic reaction may extend the corrosive injury. Be careful to avoid further vomit since re-exposure of the mucosa to the acid is harmful. **SKIN:** Skin lesions require copious saline irrigation. Treat chemical burns as thermal burns with non-adherent gauze and wrapping. **EYE:** Eye injuries require retraction of the eyelids to ensure thorough irrigation of the conjunctival cul-de-sacs. Irrigation should last at least 20-30 minutes. **DO NOT** use neutralising agents or any other additives. Several litres of saline are required.

SECTION 5 FIREFIGHTING MEASURES

Suitable extinguishing media: Foam. Dry chemical powder. Carbon dioxide. Water spray or fog - Large fires only.

Special hazards arising from the chemical: Flammable. Moderate fire and explosion hazard when exposed to heat or flame. Acids may react with metals to produce hydrogen, a highly flammable and explosive gas. Heating may cause expansion or decomposition leading to violent rupture of containers. May emit corrosive fumes.

Special protective actions for fire-fighters: Wear full body protective clothing with breathing apparatus. Prevent, by any means available, spillage from entering drains or water course. Use fire fighting procedures suitable for surrounding area. Do not approach containers suspected to be hot. Cool fire exposed containers with water spray from a protected location. If safe to do so, remove containers from path of fire.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Remove all ignition sources. Clean up all spills immediately. Avoid contact with skin and eyes. Control personal contact with the substance, by using protective equipment.

Environmental precautions: Stop leak if safe to do so.

Methods and materials for containment and cleaning up: Minor Spills: Contain and absorb spill with sand, earth, inert material or vermiculite. Wipe up. Major Spills: Contain or absorb spill with sand, earth or vermiculite. Use only spark-free shovels and explosion proof equipment. Collect recoverable product into labelled containers for recycling. Collect solid residues and seal in labelled drums for disposal. Wash area and prevent runoff into drains. After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling: Avoid all personal contact, including inhalation. Wear protective clothing when risk of exposure occurs. Use in a well-ventilated area. WARNING: To avoid violent reaction, ALWAYS add material to water and NEVER water to material. Avoid smoking, naked lights or ignition sources. Avoid contact with incompatible materials. When handling, DO NOT eat, drink or smoke. Keep containers securely sealed when not in use. Avoid physical damage to containers.

Conditions for safe storage, including any incompatibilities: Store in approved flammable liquid storage area. No smoking, naked lights/ignition sources. Keep containers securely sealed. Store away from incompatible materials in a cool, dry, well-ventilated area. Protect containers against physical damage and check regularly for leaks. Observe manufacturer's storage and handling recommendations contained within this SDS.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters:

OCCUPATIONAL EXPOSURE LIMITS (OEL)

Source	Ingredient	Material name	TWA	STEL	Peak
China Occupational Exposure Limits for Hazardous Agents in the Workplace	formic acid	Formic acid	10 mg/m ³	20 mg/m ³	Not Available

EMERGENCY LIMITS

Ingredient	Original IDLH	Revised IDLH
formic acid	30 ppm	30 [Unch] ppm

Appropriate engineering controls: Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances.

Personal protective equipment

Eye/face protection: Chemical goggles whenever there is a danger of the material coming in contact with the eyes; goggles must be properly fitted. Full face shield (20 cm, 8 in minimum) may be required for supplementary but never for primary protection of eyes; these afford face protection.

Skin protection: Elbow length PVC gloves. When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots.

Respiratory protection: Type AB-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Thermal hazards: /

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Colorless transparent liquid
Odour	/
Odour Threshold	/
pH	/
Melting point/freezing point	/
Initial boiling point and boiling range	/
Flash point	50.0°C
Evaporation rate	/
Flammability (solid, gas)	/
Upper/lower flammability or explosive limits	/
Vapour pressure	/
Vapour density (Air = 1)	/
Relative density (Water = 1)	/
Water solubility	Miscible
Partition coefficient: noctanol/water	/
Autoignition temperature	/
Decomposition temperature	/
Viscosity	/

SECTION 10 STABILITY AND REACTIVITY**Reactivity:** /**Chemical stability:** Product is considered stable.**Possibility of hazardous reactions:** Segregate from alkalis, oxidising agents and chemicals readily decomposed by acids, i.e. cyanides, sulfides, carbonates. Avoid strong bases.**Conditions to avoid:** Heat, flames and sparks.**Incompatible materials:** Bases, oxidising agents and chemicals readily decomposed by acids.**Hazardous decomposition products:** Carbon monoxide (CO), carbon dioxide (CO₂), other pyrolysis products typical of burning organic material.**SECTION 11 TOXICOLOGICAL INFORMATION****Information on the likely routes of exposure:** Inhaled, Ingestion, skin, eyes.**Symptoms related to the physical, chemical and toxicological characteristics:** /**Acute health effects**

Acidic corrosives produce respiratory tract irritation with coughing, choking and mucous membrane damage. Ingestion of acidic corrosives may produce circumoral burns with a distinct discolouration of the mucous membranes of the mouth, throat and oesophagus. Skin contact with acidic corrosives may result in pain and burns. Direct eye contact with acid corrosives may produce pain, lachrymation, photophobia and burns.

Chronic health effects: Repeated or prolonged exposure to acids may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue. Gastrointestinal disturbances may also occur. Chronic exposures may result in dermatitis and/or conjunctivitis.

Numerical measures of toxicity (such as acute toxicity estimates):

Inhalation (mouse) LC50: 6.2 mg/L/15M

Inhalation (rat) LC50: 15 mg/L/15mE

Oral (rat) LD50: 730 mg/kg

SECTION 12 ECOLOGICAL INFORMATION

Toxicity: /

Persistence and degradability: Water/Soil: LOW (Half-life = 14 days). Air: LOW (Half-life = 55.46 days).

Bioaccumulative potential: LOW (BCF = 0.22)

Mobility in soil: HIGH (KOC = 1)

Other adverse effects: /

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal methods: Recycle wherever possible. Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified. Treat and neutralise at an approved treatment plant. Treatment should involve: Neutralisation with soda-ash or soda-lime followed by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or Incineration in a licenced apparatus. Decontaminate empty containers with 5% aqueous sodium hydroxide or soda ash, followed by water. Observe all label safeguards until containers are cleaned and destroyed.

SECTION 14 TRANSPORT INFORMATION

UN number: 1779.

UN proper shipping name: FORMIC ACID with more than 85% acid by mass

Transport hazard class(es): 8+3.

Packaging group: II.

Environmental hazards: /

Special precautions for user: /

SECTION 15 REGULATORY INFORMATION

Regulations:

This safety data sheet is in compliance with the following national standards: GB16483-2008, GB13690-2009, GB18218-2009, GB15258-2009, GB6944-2012, GB190-2009, GB191-2009, GB12268-2008, GA57-1993, GB/T 15098-2008, GBZ 2-2007 as well as the following national regulations: Dangerous Goods Transport Administrative Regulation, Dangerous Chemicals Safety Administrative Regulation.

SECTION 16 OTHER INFORMATION

References	“Model Regulations on the Transport of Dangerous Goods” “The Globally Harmonized System of Classification and Labelling of Chemicals”
Form Date	23-May-2016

Note 1: When products contain two or more hazardous substances, Safety Data Sheets should be prepared based on the risk of the mixture.

Note 2: Manufacturer / supplier should ensure the correctness of the information contained in the safety data sheets, and updated in a timely manner.

Note 3: As a result of product features without the existence of certain information (such as boiling point does not exist for the solid) in the table with "/" logo.