

化学品安全数据单

一、标识

全球统一制度产品标识符: 甲酸 94%。

其它标识办法: 蚁酸。

化学品使用建议和使用限制: /

供货商的详细情况: 聊城鲁西甲酸化工有限公司。

紧急电话号码: /

二、危险标识

物质或混合物的分类:

易燃液体类别 3, 急毒性 (口服) 类别 4, 急毒性 (吸入) 类别 4, 皮肤腐蚀/刺激类别 1B, 严重眼损伤/眼刺激类别 1, 特定目标器官毒性-单次接触类别 1 (中枢神经系统、呼吸系统、血液、肾), 特定目标器官毒性-重复接触类别 2 (呼吸系统), 危害水生环境 (急性) 类别 3。

全球统一制度标签要素, 包括防范说明:



信号词: 危险。

危险说明: 易燃液体和蒸气。吞咽有害。吸入有害。造成严重皮肤灼伤和眼损伤。对器官造成损害 (中枢神经系统、呼吸系统、血液、肾)。长时间或反复接触可能对器官造成损害 (呼吸系统)。对水生生物有害。

防范说明:

预防:

远离热源、热表面、火花、明火和其他点火源。禁止吸烟。保持容器密闭。货箱和装载设备接地并等势联接。使用防爆的[电气/通风/照明/.....]设备。使用不产生火花的工具。采取行动防止静电放电。戴防护手套/穿防护服/戴防护眼罩/戴防护面具/戴听力防护装置。不要吸入粉尘/烟/气体/气雾/蒸气/喷雾。作业后彻底清洗。使用本产品时不要进食、饮水或吸烟。只能在室外或通风良好处使用。避免释放到环境中。

应对:

火灾时: 使用泡沫、干粉、二氧化碳或雾状水灭火。如误吞咽: 如感觉不适, 呼叫中毒急救中心/医生/.....漱口。不得诱导呕吐。如皮肤(或头发)沾染: 立即脱掉所有沾染的衣服。用水清洗皮肤[或淋浴]。沾染的衣服清洗后方可重新使用。如误吸入: 将人转移到空气新鲜处, 保持呼吸舒适体位。立即呼叫中毒急救中心/医生/.....具体治疗 (见下文)。如进入眼睛: 用水小心冲洗几分钟。如戴隐形眼镜并可方便地取出, 取出隐形眼镜。继续冲洗。立即呼叫中毒急救中心/医生/.....如已接触或有疑虑: 呼叫中毒急救中心/医生/.....具体治疗 (见下文)。

存放:

存放于通风良好处。保持低温。存放处须加锁。

处置:

按照相关规定处置内装物/货箱。

不导致分类的其他危险: /

三、组成/成分信息

化学名称	化学文摘社编号 (CAS No.)	成分 (由送检企业提供)
甲酸	64-18-6	94.6%
水和少量其它杂质	7732-18-5	补足 100%

四、急救措施

必要的急救措施

吸入: 如果吸入, 请将患者移到新鲜空气处。如果停止了呼吸, 给予人工呼吸。求医。

皮肤接触: 用肥皂和大量的水冲洗。求医。

眼睛接触: 用大量水彻底冲洗至少 15 分钟。就医。

食入: 切勿给失去知觉者从嘴里喂食任何东西。用水漱口。禁止催吐。就医。

最重要的急性和延迟症状/效应: /

必要时注明立即就医及所需的特殊治疗: 对于急性或短时间反复接触强酸: 可能因喉头水肿和吸入暴露而引起呼吸道问题。首先采用 100% 的氧气治疗。如果喉头过度水肿不宜做气管插管, 呼吸窘迫可能需要做环甲膜切开术。食入: 食入后 30 分钟内, 建议立即饮牛奶或水稀释。不要尝试去中和酸, 因为放热反应可能增大腐蚀伤害。小心避免后续的呕吐, 因为粘膜反复接触酸是有害的。皮肤接触: 皮肤损伤用大量生理盐水冲洗。化学灼伤与热伤处理一样, 用不粘结的纱布包裹。眼接触: 眼受伤应提起眼睑以保证结膜穹窿部得到彻底冲洗。冲洗至少持续 20-30 分钟。不要使用中和剂或其他添加剂。需要几升的生理盐水。

五、消防措施

适当的灭火介质: 泡沫, 干粉, 二氧化碳。喷水或水雾-仅适于大火。

化学品产生的具体危险: 易燃。接触热源或明火时, 有中等程度的着火和爆炸危险。酸可与金属反应产生氢, 一种极易燃易爆的气体。加热可引起该物质的膨胀或分解, 会导致容器剧烈破坏。可放出腐蚀性烟雾。

消防人员的特殊防护行为: 穿全身防护服并佩戴呼吸设备。采取一切可能的措施防止溢出物进入下水道或水道。采用适合于周围环境的灭火程序。不要靠近可能灼热的容器。从有防护的位置喷水以便冷却暴露于火灾中的容器。如果这么做安全的话, 将容器从火场中移走。

六、意外释放措施

人身防范、保护设备和应急程序: 清除所有点火源。立即清理所有泄漏物。避免接触皮肤和眼睛。使用采用防护装设备以控制人员接触。

环境防范措施: 在安全的前提下, 阻止泄漏。

抑制和清理的方法和材料: 小量泄露: 用沙子、土、惰性物质或蛭石来收集并吸附泄漏物。擦除。大量泄漏: 喷水或水雾来驱散或吸收蒸气。用沙、土或蛭石控制或吸附泄漏物。只能使用不产生火花的铲子和防爆的器具。收集可能的回收物, 放入贴有标签的容器中, 以便回收使用。收集固体残留物, 密封于贴有标签的桶中, 以便废弃。冲洗该区域, 防止流入阴沟。清理操作后, 防护服和设备在存放和重新使用之前必须进行去污和冲洗。

七、搬运与储存

安全搬运的防范措施: 防止所有个体接触, 包括吸入。当有暴露风险时, 穿戴防护服。在通风良好的区域使用。警告: 为防止发生剧烈反应, 只能把本物质加入水中, 而绝不能把水加入本物质中。禁止吸烟、明火或点火源。避免接触不相容物料。操作处置时, 禁止进食、饮水或吸烟。不使用时, 保持容器密闭。防止容器受到物理损坏。

安全存储的条件, 包括任何不相容性: 在批准的易燃液体储存区存放。禁止吸烟, 避免强光直射以及远离火源。保持容器严实密封。存放于阴凉、干燥且通风良好的地点, 远离不相容物质。保护容

器以避免受到损害, 并定期检查是否有漏洞。遵守生产商的储存和处置建议。

八、接触控制/人身保护

控制参数:

职业接触限值

来源	成分	物质名称	TWA	STEL
中国工作场所有害因素职业接触限值	甲酸	Formic acid	10 mg/m ³	20 mg/m ³

适当的工程控制: 对易燃液体和易燃气体, 可能需要局部通风系统或工艺围栏通风系统。通风设备应防爆。

个人防护措施

防护眼罩/面具: 带侧框保护的安全眼镜。化学护目镜。隐形眼镜可能会造成特殊危害; 软性隐形眼镜可能会吸收和富集刺激物。

皮肤防护: 戴化学防护手套(如聚氯乙烯手套)。穿安全鞋或安全靴(如橡胶材料)。处理腐蚀性液体时必须穿长裤或工作服并套在鞋子上, 以免泄漏物进入靴内。

呼吸系统防护: 充足容量的 AB-P 种过滤器。

高温危险: /

九、物理及化学性质

外观 (物理状态、颜色等)	无色透明液体。
气味	/
气味阈值	/
pH 值	/
熔点/凝固点	/
初始沸点和沸腾范围	>35.0°C。
闪点	/
蒸发速率	/
易燃性 (固态、气态)	/
上下易燃极限或爆炸极限	/
蒸气压力(kPa)	/
蒸气密度(空气=1)	/
相对密度(水 = 1)	/
可溶性	与水混溶。
分配系数: n-辛醇/水	/
自动点火温度	/
分解温度	/
粘度	/

十、稳定及反应性

反应性: /

化学稳定性: 物质是稳定的。

危险反应的可能性: 要与碱金属、氧化剂以及遇酸易分解的化学品, 如氰化物、硫化物、碳酸盐隔离。避免接触强碱。与碱性物质接触会释放出热量。

应避免的条件: 高温、热源、点火源等。

不相容材料: 碱类。氧化剂以及遇酸易分解的化学品。

危险分解产物: 一氧化碳(CO)、二氧化碳(CO₂)、有机物燃烧产生的其他典型热解产物。

十一、毒理学信息

暴露途径: 吸入、经口、皮肤、眼睛。

有关物理、化学和毒理学特点的症状: /

急性毒性效应:

酸性腐蚀物能引起呼吸道刺激, 伴有咳嗽、呼吸道阻塞和粘膜损伤。食入酸性腐蚀物可能导致口腔周围或内部、咽喉和食道的灼伤。皮肤接触酸性腐蚀性物质可能引起疼痛和灼伤。眼睛直接接触酸性腐蚀物可能引起疼痛、流泪、畏光以及灼伤。

慢性毒性或长期毒性效应: 反复或长时间接触酸类物质, 可能引起牙齿的腐蚀、口腔粘膜的肿胀和/或溃疡。刺激呼吸道及肺部, 并通常伴有咳嗽和肺部组织炎症。长期接触可能导致皮炎或结膜炎。

毒性的数值度量 (如急性毒性估计值):

吸入 (鼠) LC50: 7.4 mg/l/4h

经口 (鼠) LD50: =730 mg/kg

经皮 (鼠) LD50: >2000 mg/kg

十二、生态信息

毒性:

终点	测试持续时间 (小时)	种类	价值
LC50	96	鱼	1-720mg/L
EC50	48	甲壳纲动物	32.19mg/L
EC50	72	藻类或其他水生植物	>1-mg/L
NOEC	72	藻类或其他水生植物	>=1-mg/L

持久性及降解性: 水/土壤: 低 (半衰期 = 14 天)。空气: 低 (半衰期 = 55.46 天)。(甲酸)

生物累积潜力: 低 (BCF = 0.22)。(甲酸)

在土壤中的流动性: 高 (KOC = 1)。(甲酸)

其它有害效应: /

十三、处置考虑

处置方法: 尽可能回收。向制造商咨询回收方法; 如果无法找到适当的治理或处理设备, 联系该地区的废弃物管理部门咨询关于废弃物的废弃处置问题。在一个经批准的处理工厂进行处理、中和操作。处理方法包括: 用纯碱或碱石灰中和, 然后在批准的填埋处填埋, 或者在批准的设备里焚毁。空容器用5%氢氧化钠或纯碱洗消, 然后水洗。遵守所有标明的安全规则直至容器被清理和毁坏。

十四、运输信息

联合国编号: 1779。

联合国运输名称: 甲酸, 按重量含酸大于 85%。

运输危险种类: 8+3。

包装类别: II。

环境危害: /

使用者的特殊防范措施: /

十五、管理信息

国内化学品安全管理法规：本化学品安全数据单遵照了以下相关国家标准：GB/T 16483-2008、GB 13690-2009、GB 18218-2018、GB 15258-2009、GB 6944-2012、GB 190-2009、GB/T 191-2008、GB 12268-2012、GB/T 15098-2008、GBZ 2.1-2007、GBZ 2.2-2007以及相关法规：《铁路危险货物运输管理规则》、《危险化学品安全管理条例》。

十六、其它信息

参考文献	联合国《关于危险货物运输的建议书·规章范本》 联合国《全球化学品统一分类和标签制度》
制表日期	2020 年 03 月 25 日

注 1：当产品为含有两种以上危险物质的混合物时，应依据其混合后的危险性，制作安全数据单。

注 2：制造商/供应商应根据实际情况确保安全数据单所含信息的正确性，并适时更新。

注 3：如由于产品特性而不存在或不可得某些信息时（如固体不存在沸点），应在表格中以“/”标识。

Chemical Safety Data Sheet

Section 1 IDENTIFICATION

GHS Product identifier: Formic acid 94%.

Other means of identification: Methanoic acid.

Recommended use of the chemical and restrictions on use: /

Supplier's details: LIAOCHENG LUXI FORMIC ACID CHEMICAL CO., LTD.

Emergency phone number: /

Section 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture:

Flammable Liquids Category 3, Acute Toxicity (Oral) Category 4, Acute Toxicity (Inhalation) Category 4, Skin Corrosion/Irritation Category 1B, Serious Eye Damage/Eye Irritation Category 1, Specific Target Organ Toxicity - Single Exposure Category 1 (central nervous system, respiratory system, blood system, kidney), Specific Target Organ Toxicity - Repeated Exposure Category 2 (respiratory system), 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 (central nervous system, respiratory system, blood system, kidney). May cause damage to organs through prolonged or repeated exposure (respiratory system). Harmful to aquatic life.

Precautionary statement(s):

Prevention:

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use explosion-proof [electrical/ventilating/lighting/...] equipment. Use non-sparking tools. Take action to prevent static discharges. Wear protective gloves/protective clothing/eye protection/face protection/hearing protection. Do not breathe dust/fume/gas/mist/vapours/spray. 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.

Response:

In case of fire: Use foam, dry chemical powder, carbon dioxide, water spray to extinguish. 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 [or 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).

Storage:

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

Disposal:

Dispose of contents/container in accordance with local/regional/national/international regulations.

Other hazards which do not result in classification: /

Section 3 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Concentration
Formic acid	64-18-6	94.6%
Water, A small amount of impurity	7732-18-5	Make up 100%

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. Do NOT induce vomiting. 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

Appropriate engineering controls: For flammable liquids and flammable gases, local exhaust ventilation or a process enclosure ventilation system may be required. Ventilation equipment should be explosion-resistant.

Personal protective equipment

Eye/face protection: Safety glasses with side shields. Chemical goggles. Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants.

Skin protection: Wear chemical protective gloves, e.g. PVC. Wear safety footwear or safety gumboots, e.g. Rubber. 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.

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	>35.0°C.
Flash point	/
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. Contact with alkaline material liberates heat

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):

dermal (rat) LD50: >2000 mg/kg

Inhalation (rat) LC50: 7.4 mg/l/4h

Oral (rat) LD50: =730 mg/kg

SECTION 12 ECOLOGICAL INFORMATION**Toxicity:**

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE
LC50	96	Fish	1-720mg/L
EC50	48	Crustacea	32.19mg/L
EC50	72	Algae or other aquatic plants	>1-mg/L
NOEC	72	Algae or other aquatic plants	>=1-mg/L

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

Bioaccumulative potential: LOW (BCF = 0.22) (formic acid)

Mobility in soil: HIGH (KOC = 1) (formic acid)

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: GB/T 16483-2008, GB 13690-2009, GB 18218-2018, GB 15258-2009, GB 6944-2012, GB 190-2009, GB/T 191-2008, GB 12268-2012, GB/T 15098-2008, GBZ 2.1-2007, GBZ 2.2-2007 as well as the following regulations: Railway 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	25-Mar-2020

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.