SC1220S-500ML

Mallinckrodt®

FORMIC ACID 88%
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Material Safety Data Sheet

Mallinckrodt Inc.
Science Products Division
P.O. Box M
Paris, Kentucky 40361

Emergency Telephone Number
314-982-5000

Effective Date: 11-01-85

PRODUCT IDENTIFICATION:

Synonyms: Methanoic acid, hydrogen carboxylic acid

Formula CAS No.: 64-18-6

Molecular Weight: 46.03

Hazardous Ingredients:
Not applicable.

Chemical Formula: HCOOH

PRECAUTIONARY MEASURES

DANGER! CORROSIVE. CAUSES SEVERE BURNS. HARMFUL IF SWALLOWED. COMBUSTIBLE.

Avoid contact with eyes, skin and clothing.
Avoid breathing mist.
Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.
Keep away from heat and flame.

EMERGENCY/FIRST AID

In all cases call a physician immediately. If swallowed, DO NOT INDUCE VOMITING! Give large quantities of water. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes.

SEE SECTION 5.

DOT Hazard Class: Corrosive Material

Physical Data — SECTION 1

Appearance:	Clear, colorless liquid.
Odor:	Characteristic, pungent odor.
Solubility:	Infinite.
Boiling Point: 107°C (224.6°F)	Vapor Density (Air=1): 1.6
Melting Point: -12°C (10.4°F)	Vapor Pressure (mm Hg): 40 @ 24°C (75°F)
Specific Gravity (water=1): 1.2	Evaporation Rate: (BuAc=1): 2.1

Fire and Explosion Information — SECTION 2

Fire:	Combustible. Flashpoint (90% solution) (CC): 50°C (122°F) Autoignition temperature (90% solution): 434°C (813°F) Flammable limits, in air, % by volume: lel = 18; uel = 57
Explosion:	Above flash point, vapor-air mixtures are explosive within flammable limits noted above.
Fire Extinguishing Media:	Dry chemical, foam or carbon dioxide. Water spray may be used to keep fire exposed containers cool.
Special Information:	In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

Reactivity Data — SECTION 3

Stability:	Stable under ordinary conditions of use and storage.
Hazardous Decomposition Products:	Carbon dioxide and carbon monoxide may form when heated to decomposition. Dehydrated by sulfuric acid to produce carbon monoxide.
Hazardous Polymerization:	This substance does not polymerize.
Incompatibilities:	Sulfuric acid, strong caustics, furfuryl alcohol, hydrogen peroxide, strong oxidizers and bases.

Leak/Spill Disposal Information — SECTION 4

Ventilate area of leak or spill. Remove all sources of ignition. Clean-up personnel require protective clothing and respiratory protection from vapors. Contain and recover liquid when possible. Collect as hazardous waste and atomize in a suitable RCRA approved combustion chamber, or absorb with vermiculite, dry sand, earth or similar material for disposal as hazardous waste in a RCRA approved facility. Do not flush to sewer!

Reportable Quantity (RQ)(CWA/CERCLA) : 5000 lbs.

Ensure compliance with local, state and federal regulations.

Health Hazard Information — SECTION 5

A. Exposure/Health Effects

Inhalation: Inhalation of vapors can cause severe irritation of nose, throat, and upper respiratory tract.

Ingestion: Causes serious burns and corrosion of the mouth, throat, and esophagus, with immediate pain and difficult swallowing. Other symptoms of abdominal pain, nausea, diarrhea and vomiting can occur, leading to shortness of breath and death.

Skin Contact: Severe irritant. Symptoms of redness, pain, and skin burns can occur.

Eye Contact: Vapors and liquid are dangerously caustic; can cause tissue and corneal damage.

Chronic Exposure: Prolonged or repeated exposure to low concentrations may cause skin irritation and burns.

Aggravation of Pre-existing Conditions: No information found.

B. FIRST AID

Inhalation: Move to fresh air. If breathing has stopped, give artificial respiration. Get immediate medical attention.

Ingestion: If patient is conscious, give large quantities of milk or water to swallow. Get immediate medical attention. Do not induce vomiting.

Skin Exposure: Remove any contaminated clothing. Wash skin with water for at least 15 minutes. Get immediate medical attention. Wash clothing before reuse. Discard contaminated shoes.

Eye Exposure: Wash eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

C. TOXICITY DATA (RTECS, 1982)

Oral rat LD50: 1100 mg/Kg
Oral mouse LD50: 700 mg/kg
Oral dog LD50: 4000 mg/kg
Irritation: Skin rabbit: 610 mg open MILD
Eye rabbit: 122 mg SEVERE
Mutation data cited.

Occupational Control Measures — SECTION 6

Airborne Exposure Limits:
-OSHA Permissible Exposure Limit (PEL): 5 ppm (TWA)
-ACGIH Threshold Limit Value (TLV): 5 ppm (TWA)

Ventilation System: A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

Personal Respirators (NIOSH Approved): If the TLV is exceeded a full facepiece chemical cartridge respirator may be worn, in general, up to 100 times the TLV or the maximum use concentration specified by the respirator supplier, whichever is less. Alternatively, a supplied air full facepiece respirator or airlined hood may be worn.

Skin Protection: Rubber or neoprene gloves and additional protection including impervious boots, apron, or coveralls, as needed in areas of unusual exposure.

Eye Protection: Use chemical safety goggles and/or a full face shield where splashing from solutions is possible. Contact lenses should not be worn when working with this material.

Maintain eye wash fountain and quick-drench facilities in work area.

Storage and Special Information — SECTION 7

Keep in a tightly closed container. Store in a cool, dry, ventilated area away from sources of heat or ignition. Protect against physical damage. Store separately from reactive or combustible materials, and out of direct sunlight. Strongly corrosive. Should be handled in 316 stainless steel, glass, ceramic, or similar corrosion resistant materials.