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Certified Company



THE POWER OF THREE³
PHARMCO-AAPER
AND COMMERCIAL ALCOHOLS

Product Information (203) 740-3471 / Emergency Assistance CHEMTREC 1-800-424-9300

MATERIAL SAFETY DATA SHEETS

Manufacturer: PHARMCO-AAPER
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Formic Acid 96%

1. CHEMICAL PRODUCT IDENTIFICATION

Product Name: Formic Acid 96%
Synonyms: Methanoic acid; hydrogen carboxylic acid; formylic acid; aminic acid ;
Molecular Formula: HCO₂H
Molecular Weight: 46.03

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient(s)	CAS Number	% (by weight)
Formic Acid	64-18-6	96.0
Water	7732-18-5	1.6- 6.0

3. HAZARDS IDENTIFICATION

WARNING! COMBUSTIBLE LIQUID. CORROSIVE. MAY BE HARMFUL IF SWALLOWED. CAUSES EYE AND SKIN BURNS. CAUSES DIGESTIVE AND RESPIRATORY TRACT BURNS. MAY CAUSE LIVER AND KIDNEY DAMAGE.

NFPA Hazard Ratings: Health - 3, Flammability - 2, Reactivity - 0

NOTE: NFPA ratings involve data and interpretations that may vary from company to company. They are intended only for rapid, general identification of the magnitude of the specific hazard. To deal adequately with the safe handling of this material, all the information contained in this MSDS must be considered.

Potential Health Effects

Eye: Can cause permanent eye injury. Symptoms include stinging, tearing, redness, and swelling of eyes. Can injure the cornea and cause blindness.

Skin: Can cause permanent skin damage. Symptoms may include redness, burning, and swelling of skin, burns, and other skin damage.

Swallowing: Swallowing this material may be harmful or fatal. Symptoms may include severe stomach and intestinal irritation (nausea, vomiting, diarrhea), abdominal pain, and vomiting of blood. Swallowing this material may cause burns and destroy tissue in the mouth, throat, and digestive tract. Low blood pressure and shock may occur as a result of severe tissue injury.

Inhalation: Breathing of vapor or mist is possible. Breathing this material may be harmful or fatal. Symptoms may include severe irritation and burns to the nose, throat, and respiratory tract.

Symptoms of Exposure: No data

Target Organ Effects: No data

Developmental Information: No data

Cancer Information: No data

Other Health Effects: No data

Primary Route(s) of Entry: Inhalation, Skin contact.

4. FIRST AID MEASURES

Eyes: If material gets into the eyes, immediately flush eyes gently with water for at least 15 minutes while holding eyelids apart. If symptoms develop as a result of vapor exposure, immediately move individual away from exposure and into fresh air before flushing as recommended above. Seek immediate medical attention.

Skin: Immediately flush skin with water for at least 15 minutes while removing contaminated clothing and shoes. Seek immediate medical attention. Wash clothing before reuse and discard contaminated shoes.

Swallowing: Seek immediate medical attention. Do not induce vomiting. Vomiting will cause further damage to the mouth and throat. If individual is conscious and alert, immediately rinse mouth with water and give milk or water to drink. If possible, do not leave individual unattended.

Inhalation: If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

Note to Physicians: Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: skin, lung (for example, asthma-like conditions).

5. FIRE FIGHTING MEASURES

Flash Point: 160.0F (71.1C) TOC
Explosive Limit: No data
Autoignition Temperature: No data

Hazardous Products of Combustion May form: acid vapors, carbon dioxide and carbon monoxide, formic acid.

Fire and Explosion Hazards: Vapors are heavier than air and may travel along the ground or be moved by ventilation and ignited by heat, pilot lights, other flames and ignition sources at locations distant from material handling point. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively.

Extinguishing Media: Use an extinguishing media appropriate for surrounding fire..

Fire Fighting Instructions : Wear a self-contained breathing apparatus with a full face piece operated in the positive pressure demand mode with appropriate turn-out gear and chemical resistant personal protective equipment. Refer to the personal protective equipment section of this MSDS.

6. ACCIDENTAL RELEASE MEASURES

Small Spill: Absorb liquid on vermiculite, floor absorbent or other absorbent material.

Large Spill: Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source. Prevent from entering drains, sewers, streams or other bodies of water. Prevent from spreading. If runoff occurs, notify authorities as required. Pump or vacuum transfer spilled product to clean containers for recovery. Absorb unrecoverable product. Transfer contaminated absorbent, soil and other materials to containers for disposal.

7. HANDLING AND STORAGE

Handling: Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. All five-gallon pails and larger metal containers, including tank cars and tank trucks, should be grounded and/or bonded when material is transferred. Warning. Sudden release of hot organic chemical vapors or mists from process equipment operating at elevated temperature and pressure, or sudden ingress of air into vacuum equipment, may result in ignitions without the presence of obvious ignition sources. Published "autoignition" or "ignition" temperature values cannot be treated as safe operating temperatures in chemical processes without analysis of the actual process conditions. Any use of this product in elevated temperature processes should be thoroughly evaluated to establish and maintain safe operating conditions.

Storage: Carbon monoxide may be present in the vapor space of shipping containers of formic acid. Carbon monoxide, which can be lethal, should be assumed to be present in any vessel containing, or formerly containing, formic acid until tests demonstrate otherwise.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye Protection: Chemical splash goggles and face shield (8" min.) in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. (Consult your industrial hygienist.)

Skin Protection: Wear resistant gloves such as: neoprene, To prevent skin contact, wear impervious clothing and boots.

Respiratory Protections: If workplace exposure limit(s) of product or any component is exceeded (see exposure guidelines), a NIOSH/MSHA approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators (negative pressure type) under specified conditions (see your industrial hygienist). Engineering or administrative controls should be implemented to reduce exposure.

Engineering Controls: Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV(s).

Exposure Guidelines
Component

Formic Acid (64-18-6)
OSHA VPEL 5.000 ppm - TWA
ACGIH TLV 5.000 ppm - TWA
ACGIH TLV 10.000 ppm - STEL

Water (7732-18-5)
No exposure limits established

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: (for product) 215.6 F (102.0 C) @ 760 mmHg
Vapor Pressure: (for component) 17.500 mmHg @ 68.00 F
Specific Vapor Density: > 1.000 @ AIR=1
Specific Gravity: 1.213 @ 68.00 F
Liquid Density: 10.100 lbs/gal @ 68.00 F; 1.213 kg/l @ 20.00 C
Percent Volatiles: 100.0 %
Evaporation Rate: SLOWER THAN ETHYL ETHER
Appearance: No data
State: LIQUID
Physical Form: HOMOGENEOUS SOLUTION
Color: CLEAR, PT-CO COLOR 50 MAX
Odor: No data
pH: Not applicable

10. STABILITY AND REACTIVITY

Hazardous Polymerization: Product will not undergo hazardous polymerization.

Hazardous Decomposition May form: acid vapors, carbon dioxide and carbon monoxide, formic acid.

Chemical Stability: Stable.

Incompatibility: Avoid contact with: strong alkalis, strong oxidizing agents, sulfuric acid, Acid reacts with most metals to release hydrogen gas which can form explosive mixtures with air.

11. TOXICOLOGICAL INFORMATION

RTECS#:

CAS# 64-18-6: LQ4900000

LD50/LC50:

CAS# 64-18-6:

Inhalation, mouse: LC50 =6200 mg/m³/15M;

Inhalation, rat: LC50 =15 gm/m³/15M;

Oral, mouse: LD50 = 700 mg/kg;

Oral, rat: LD50 = 1100 mg/kg;

Carcinogenicity:

CAS# 64-18-6: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

Teratogenicity: No toxic or teratogenic effects occurred after injection of 20 mg into fertilised chicken eggs.

(Malorny, G.Z. Ernaehrungswiss 1969, 9, 332-339(Chem.Abstr.72(7),30395m))

Mutagenicity: mmo-esc:70 ppm/3H sln-dmg ihl:1000 ppm/24H sln-dmg orl:1000 ppm sce-hmn lym:10 mmol/l
cyt-ham ovr:10 mmol/l

12. ECOLOGICAL INFORMATION

Ecotoxicity: Fish-toxicity:Leuciscus idus LC50:120 mg/l; Lep.humilis LD50:175 mg/l; not toxic to brown trout, bluegill sunfish, yellow perch or goldfish at 5 mg/l for 24H.

Environmental Fate: Algae: Sc. quadricauda toxic above 100 mg/l (20xC) Protozoa: Param. caudatum toxic above 6000 mg/l; Vort. campanula toxic above 500 mg/l Anthropods: Toxic to Daphnia above 120 mg/l; Daphnia (acuut) EC/LC50 (48H):34.2 mg/l

13. DISPOSAL CONSIDERATION

Dispose of in a manner consistent with federal, state, and local regulations.

RCRA D-Series Maximum Concentration of Contaminants: None listed.

RCRA D-Series Chronic Toxicity Reference Levels: None listed.

RCRA F-Series: None listed.

RCRA P-Series: None listed.

RCRA U-Series: CAS# 64-18-6: waste number U123 (Corrosive waste; Toxic waste).

14. TRANSPORT INFORMATION

Domestic (Land, D.O.T.)

Proper Shipping Name: Formic Acid

Hazard Class: 8

UN/NA: UN1779

Packing Group: II

International (Water, I.M.O.)

Proper Shipping Name: Formic Acid

Hazard Class: 8

UN/NA: UN1779

Packing Group: II

International (Air, I.C.A.O.)

Proper Shipping Name: Formic Acid

Hazard Class: 8

UN/NA: UN1779
Packing Group: II

15. REGULATORY INFORMATION

US Federal Regulations

TSCA (Toxic Substances Control Act) Status
TSCA (UNITED STATES) The intentional ingredients of this product are listed.

CERCLA RQ - 40 CFR 302.4(a)

Component	RQ (lbs)
Formic Acid	5000

SARA 302 Components - 40 CFR 355 Appendix A
None

Section 311/312 Hazard Class - 40 CFR 370.2
Immediate(X) Delayed() Fire(X) Reactive() Sudden Release of Pressure()

SARA 313 Components - 40 CFR 372.65

Section 313 Component(s)	CAS Number	%
Formic Acid	64-18-6	96.4%

International Regulations

Inventory Status: Not determined

State and Local Regulations

California Proposition 65: None

New Jersey RTK Label Information

Formic Acid 64-18-6

Pennsylvania RTK Label Information

Formic Acid 64-18-6

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center of release of quantities of Hazardous Substances equal or greater than the reportable quantities (RQs) in 40 CFR 302.4. Components present in this product at a level which could require reporting under the statute are:

Chemical Name	CAS Number	RQ
Formic acid	64-18-6	5,000 lb

16. OTHER INFORMATION

The information contained herein is based on current knowledge and experience; no responsibility is accepted that the information is sufficient or correct in all cases. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers and the protection of the environment.

