



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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Chloroform with Amylene

1. CHEMICAL PRODUCT IDENTIFICATION

Product Name: Chloroform stabilized with amylene (also known as pentene)
Synonyms: Trichloromethane-d; Methane-d, trichlor-; Trichloroform; Methyl trichloride; Methane trichloride
Molecular Weight: 119.38
Molecular Formula: CHCl_3

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	CAS No	Percent	Hazardous
Chloroform	67-66-3	99 - 100%	Yes
Amylene	513-35-9	<1%	Yes

3. HAZARDS IDENTIFICATION

WARNING! DECOMPOSITION OCCURS WITH TIME. PRODUCTS OF DECOMPOSITION ARE HAZARDOUS. CAUSES EYE, SKIN AND RESPIRATORY TRACT IRRITATION. MAY BE HARMFUL IF SWALLOWED. MAY CAUSE CENTRAL NERVOUS SYSTEM DEPRESSION. MAY CAUSE CANCER BASED ON ANIMAL STUDIES. MAY CAUSE CARDIAC DISTURBANCES. THIS SUBSTANCE HAS CASUED ADVERSE REPRODUCTIVE AND FETAL EFFECTS IN ANIMALS. LIGHT SENSITIVE.

Potential Health Effects

Eye: Causes moderate eye irritation. Contact with liquid causes immediate burning pain, tearing, and reddening of the conjunctiva.

Skin: Causes mild skin irritation. May be absorbed through the skin in harmful amounts. Absorption of liquid through intact skin is possible and may cause systemic poisoning if contact with liquid is prolonged.

Ingestion: Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May cause liver damage. May cause cardiac disturbances. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal.

Possible aspiration hazard. May cause hallucinations and distorted perceptions.

Inhalation: Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. May cause cardiac sensitization and possible failure. Inhalation of large amounts may cause respiratory stimulation, followed by respiratory depression, convulsions and possible death due to respiratory paralysis. May be absorbed through the lungs. Causes irritation of the mucous membrane and upper respiratory tract. Amylene is used as a stabilizer, but there is evidence that it may not prevent phosgene generation. Phosgene exposure can cause central nervous system damage, lung injury and pulmonary edema.

Chronic: Possible cancer hazard based on tests with laboratory animals. Prolonged or repeated skin contact may cause defatting and dermatitis. May cause reproductive and fetal effects. Effects may be delayed. Laboratory experiments have resulted in mutagenic effects. Toxicity may be increased by exposure to alcohol, steroids, and ketones. Prolonged exposure may cause liver, kidney, and heart damage.

4. FIRST-AID MEASURES

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Notes to Physician: Causes cardiac sensitization to endogenous catecholamines which may lead to cardiac arrhythmias. Do NOT use adrenergic agents such as epinephrine or pseudoepinephrine. Persons with liver, kidney, or central nervous system diseases may be at increased risk from exposure to this product. Alcoholic beverage consumption may enhance the toxic effects of this substance. Effects may be delayed.

5. FIRE FIGHTING MEASURES

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Substance is nonflammable. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Containers may explode when heated. Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Non-combustible, substance itself does not burn but may decompose upon heating to produce irritating, corrosive and/or toxic fumes. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Not combustible, but if involved in a fire, decomposes to produce hydrogen chloride.

Extinguishing Media: Use extinguishing media most appropriate for the surrounding fire.

Flash Point: Not available.

Autoignition Temperature: Not available.

Explosion Limits, Lower: Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 2; Flammability: 0; Instability: 0

6. ACCIDENTAL RELEASE MEASURES

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Provide ventilation. Approach spill from upwind.

7. HANDLING AND STORAGE

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Avoid contact with eyes, skin, and clothing. Do not breathe dust, mist, or vapor. Do not ingest or inhale. Store protected from light. Use only in a chemical fume hood.

Storage: Do not store in direct sunlight. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from acids. Do not store near alkaline substances. Separate from strong mineral acids. Amylene is used as a stabilizer, but there is evidence that it may not prevent phosgene generation. Chloroform stabilized with amylene should be tested for phosgene content.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Chloroform	10 ppm TWA	500 ppm IDLH	50 ppm Ceiling; 240 mg/m ³ Ceiling
Amylene	none listed	none listed	none listed

OSHA Vacated PELs: Chloroform: 2 ppm TWA; 9.78 mg/m³ TWA Amylene: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid

Appearance: clear, colorless

Odor: sweet, fruity odor - ethereal odor

pH: Not available.

Vapor Pressure: 160 mm Hg @ 20 deg C

Vapor Density: 4.12 (Air=1)

Evaporation Rate: 11.6 (Butyl acetate=1)

Viscosity: 0.58 cps @ 20 deg C

Boiling Point: 60.5 - 61.5 deg C

Freezing/Melting Point: -63 deg C

Decomposition Temperature: Not available.

Solubility: Slightly soluble.

Specific Gravity/Density: 1.492 (Water=1)

Molecular Formula: CHCl₃

Molecular Weight: 119.37

10. STABILITY AND REACTIVITY

Chemical Stability: Stable at room temperature in closed containers under normal storage and handling conditions.

Light sensitive. Hygroscopic: absorbs moisture or water from the air. Amylene is used as a stabilizer, but there is evidence that it may not prevent phosgene generation. Over time chloroform can break down to form phosgene.

Conditions to Avoid: High temperatures, incompatible materials, light.

Incompatibilities with Other Materials: Alkali metals, fluorine, caustics (e.g. ammonia, ammonium hydroxide,

calcium hydroxide, potassium hydroxide, sodium hydroxide), dinitrogen tetroxide, sodium hydroxide + methanol, potassium tert-butoxide, chemically active metals, powdered aluminum, nitrogen tetroxide, powdered magnesium, acetone + alkali, disilane, perchloric acid + phosphorus pentoxide, sodium methylate, triisopropylphosphine.

Hazardous Decomposition Products: Hydrogen chloride, carbon monoxide, carbon dioxide, chlorine, phosgene gas.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

RTECS#:

CAS# 67-66-3: FS9100000

CAS# 513-35-9 unlisted.

LD50/LC50:

CAS# 67-66-3:

- Draize test, rabbit, eye: 148 mg;
- Draize test, rabbit, eye: 20 mg/24H Moderate;
- Draize test, rabbit, skin: 500 mg/24H Mild;
- Inhalation, mouse: LC50 = 17200 mg/m³/2H;
- Inhalation, mouse: LC50 = 6000 mg/m³/6H;
- Inhalation, rat: LC50 = 47702 mg/m³/4H;
- Inhalation, rat: LC50 = 6000 mg/m³/6H;
- Oral, mouse: LD50 = 36 mg/kg;
- Oral, rat: LD50 = 695 mg/kg;
- Oral, rat: LD50 = 1250 mg/kg;
- Skin, rabbit: LD50 = >20 gm/kg;

CAS# 513-35-9:

Carcinogenicity:

CAS# 67-66-3:

- **ACGIH:** A3 - Confirmed animal carcinogen with unknown relevance to humans
- **California:** carcinogen, initial date 10/1/87
- **NTP:** Suspect carcinogen
- **IARC:** Group 2B carcinogen

CAS# 513-35-9: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No data available.

Teratogenicity: Oral, rat: TDLo = 1260 mg/kg (female 6-15 day(s) after conception) Effects on Embryo or Fetus - fetotoxicity (except death, e.g., stunted fetus) Specific Developmental Abnormalities - musculoskeletal system.; Inhalation, rat: TCLo = 100 ppm/7H (female 6-15 day(s) after conception) Specific Developmental Abnormalities - gastrointestinal system and homeostasis.; Inhalation, mouse: TCLo = 100 ppm/7H (female 8-15 day(s) after conception) Specific Developmental Abnormalities - craniofacial (including nose and tongue).

Reproductive Effects: Inhalation, rat: TCLo = 30 ppm/7H (female 6-15 day(s) after conception) Fertility - other measures of fertility.; Inhalation, rat: TCLo = 300 ppm/7H (female 6-15 day(s) after conception) Fertility - female fertility index (e.g. # females pregnant per # sperm positive females; # females pregnant per # females mated) and post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants).

Mutagenicity: DNA Inhibition: Human, HeLa cell = 19 mmol/L.; Sister Chromatid Exchange: Human, Lymphocyte = 10 mmol/L.; Micronucleus Test: Oral, rat = 4 mmol/kg.; Unscheduled DNA Synthesis: Oral, rat = 1 gm/kg.; Sister Chromatid Exchange: Hamster, Embryo = 100 umol/L.

Neurotoxicity: No information found

12. ECOLOGICAL INFORMATION

Ecotoxicity: Fish: Channel catfish: LC50 = 75 ppm; 96 Hr; Unspecified Fish: Rainbow trout: LC50 = 43.8 mg/L; 96 Hr; Static bioassay Fish: Fathead Minnow: LC50 = 129.0 mg/L; 96 Hr; Static bioassay (pH = 7.6-8.3) Fish: Bluegill/Sunfish: LC50 = 100.0 mg/L; 96 Hr; Static bioassay Water flea Daphnia: EC50 = 28.9 mg/L; 48 Hr; Static bioassay The majority of the environmental releases from industrial uses are to the atmosphere; releases to water and land will be primarily lost by evaporation and will end up in the atmosphere. Release to the atmosphere may be transported long distances and will photodegrade with a half-life of a few months. Spills and other releases on land will also leach into the groundwater where it will reside for long periods of time.

Environmental: Chloroform will not be expected to bioconcentrate into the food chain but contamination of food is likely due to its use as an extractant and its presence in drinking water.

Physical: No information available.

Other: No information available.

13. DISPOSAL CONSIDERATIONS

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series:

CAS# 67-66-3: waste number U044.

14. TRANSPORT INFORMATION

Domestic (Land, D.O.T.)

Proper Shipping Name: CHLOROFORM

Hazard Class: 6.1

UN/NA: UN1888

Packing Group: III

International (Water, I.M.O.)

Proper Shipping Name: CHLOROFORM

Hazard Class: 6.1

UN/NA: UN1888

Packing Group: III

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

Proper Shipping Name: CHLOROFORM

Hazard Class: 6.1

UN/NA: UN1888

Packing Group: III

15. REGULATORY INFORMATION

US FEDERAL

TSCA

CAS# 67-66-3 is listed on the TSCA inventory.

CAS# 513-35-9 is listed on the TSCA inventory.

Health & Safety Reporting List

CAS# 67-66-3: Effective 6/1/87, Sunset 6/1/97

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

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
Chloroform	67-66-3	10 lb

SARA Section 302 Extremely Hazardous Substances

CAS# 67-66-3: 10000 lb TPQ

SARA Codes

CAS # 67-66-3: immediate, delayed.

CAS # 513-35-9: immediate, fire, reactive.

Section 313

This material contains Chloroform (CAS# 67-66-3, 99+%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:

CAS# 67-66-3 is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

CAS# 67-66-3 is listed as a Hazardous Substance under the CWA. CAS# 67-66-3 is listed as a Priority Pollutant under the Clean Water Act. CAS# 67-66-3 is listed as a Toxic Pollutant under the Clean Water Act.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 67-66-3 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 513-35-9 can be found on the following state right to know lists: Pennsylvania, Massachusetts.

California Prop 65

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Chloroform

European/International Regulations**European Labeling in Accordance with EC Directives****Hazard Symbols:**

XN

Risk Phrases:

R 22 Harmful if swallowed.

R 38 Irritating to skin.

R 40 Limited evidence of a carcinogenic effect.

R 48/20/22 Harmful : danger of serious damage to health by prolonged exposure through inhalation and if swallowed.

Safety Phrases:

S 36/37 Wear suitable protective clothing and gloves.

WGK (Water Danger/Protection)

CAS# 67-66-3: 3

CAS# 513-35-9: 1

Canada - DSL/NDSL

CAS# 67-66-3 is listed on Canada's DSL List.

CAS# 513-35-9 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D2A, D2B, D1B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 67-66-3 is listed on the Canadian Ingredient Disclosure List.

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.