

Section 1: Identification

- (a) Firmoyl
- (b) Arterial Embalming Fluid
- (c) For use by professional licensed embalmers only
- (d) Manufacturer: Pierce Companies – 4722 Bronze Way – Dallas, TX 75236 – 214.333.4230
- (e) Emergency Phone Number: 800.424.9300

Section 2: Hazard Identification

- (a) **OSHA/HCS status:** This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
- (b) **DANGER!** Flammable Liquid and Vapor; Pungent odor
- (c) **DANGER!** Contains Methanol - Poison. Vapor Harmful. May be fatal or cause blindness if swallowed. Prolonged and repeated skin contact can cause death or blindness. Causes respiratory tract irritation. Harmful if inhaled or absorbed through skin. May cause allergic respiratory and skin reaction. Cancer Hazard. Contains formaldehyde which can cause cancer. Risk of cancer depends on duration and level of exposure.



Section 3: Composition/Information on Ingredients

CHEMICAL NAME	CAS NUMBER	%	Trade Secret Information: Exact % of concentration is withheld to protect Trade Secret Information. Ranges are given in accordance with CFR 29 1910.1200(i), Appendix E
Formaldehyde *	50-00-0	20-35	
Methanol **	67-56-10	12-20	

Section 4: First-Aid Measures

Eye Contact: Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Chemical burns must be treated promptly by a physician. Get medical attention immediately.

Skin Contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Remove contaminated, soaked clothing immediately and dispose of safely. Get medical attention immediately.

Serious Skin Contact: Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation: Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth respiration. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Seek immediate medical attention.

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Ingestion: Wash out mouth with water. If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Protection of first aid personnel: No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. If it is suspected that dust, vapor, mist or gas are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus.

Section 5: Fire-fighting Measures

NFPA: Health: 3 Flammability: 2 Instability: 0

Flammability of product: Flammable liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard.

Suitable extinguishing media: Dry chemical, Carbon dioxide (CO₂), Aqueous film forming foam, Foam

Extinguishing media which must not be used for safety reasons: Do not use a solid water stream as it may scatter and spread fire

Special exposure hazards arising from the substance or preparation itself, its combustion products, or released gases: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. Under conditions giving incomplete combustion, hazardous gases produced may consist of carbon monoxide, carbon dioxide (CO₂).

Special protective equipment for fire-fighters: Self-contained breathing apparatus (EN 133)

Environmental precautions: Dike and collect water used to fight fire.

Other information: Cool containers/tanks with water spray

Special Remarks on Fire Hazards: Explosive in the form of vapor when exposed to heat or flame. Vapor is heavier than air and may settle in low places or spread long distances to source of ignition and flash back. Explosive atmospheres may linger. Closed containers can rupture and release toxic vapors or decomposition products. Keep away from sources of ignition – No smoking. Take necessary action to avoid static electricity discharge. Ground and bond containers when transferring material. Keep away from heat, sparks and flames. **Never puncture metal tab with a metal object. Under certain atmospheric conditions a static electrical charge can ignite flammable vapors from contents of plastic bottles.**

Section 6: Accidental Release Measures

Personal Precautions: Do not breathe vapors, aerosols. Do not get in eyes, on skin, or on clothing. Keep away from heat and sources of ignition. Provide adequate ventilation. Keep unnecessary people away; isolate hazard area and deny entry.

Environmental precautions: Prevent further leakage or spillage. Do not discharge into the drains/surface waters/ground water.

Methods for cleaning up: Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

Dispose of in accordance with all local, state and federal regulations. Contaminated equipment (brushes, rags) must be cleaned immediately with water. Remove all sources of ignition. Keep people away from and upwind of spill/leak.

Authority notification: Within the United States, call the National Response Center (800.424.8802) and appropriate state and local authorities if the quantity released over 24 hours is equal to or greater than the reportable quantity.

Section 7: Handling and Storage

Handling: Provide sufficient air exchange and/or exhaust in work rooms. Handle in accordance with good industrial hygiene and safety practice. Handle product only in closed system or provide appropriate exhaust ventilation at machinery. Keep containers tightly closed in a dry, cool and well-ventilated place. Do not breathe vapors/dust. Always

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open containers slowly to allow any excess pressure to vent. Decontaminate soiled clothing properly before re-use. Destroy contaminated leather clothing.

Protection-fire and explosion: Keep away from heat, sparks and flames. Keep away from sources of ignition – no smoking. Take necessary precaution to avoid static electricity discharge. Ground and bond containers when transferring material. In case of fire, emergency cooling with water spray should be available. **Never puncture metal tab with a metal object. Under certain atmospheric conditions, a static electrical charge can ignite flammable vapors from contents of plastic bottles.**

Technical measures/Storage Conditions: Keep tightly closed in a dry, cool and well-ventilated place. Handle and open container with care. Take measures to prevent the build up of electrostatic charge.

Incompatible products: Keep away from acids, bases, amines, oxygen, oxidizing agents, reducing agents

Section 8: Exposure Controls/Personal Protection

CHEMICAL NAME	CAS NUMBER	PEL OSHA	TLV-ACGIH
Formaldehyde *	50-00-0	.75 ppm TWA 2 ppm STEL	.3 ppm Ceiling, A2
Methanol **	67-56-10	200 ppm TWA 250 ppm STEL	200 ppm TWA 250 ppm STEL

Engineering measures: General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local ventilation is usually preferred. Explosion-proof equipment (for example fans, switches and grounded ducts) should be used in mechanical ventilation systems.

Protective equipment: A safety shower and eyebath should be readily available.

General advice: Do not breathe vapors or spray mist. Do not get in eyes, on skin or on clothing. Remove and wash contaminated clothing before re-use.

Respiratory protection: For formaldehyde concentrations > 1 and < 10 times the occupational exposure level: Use air-purifying respirator with full facepiece fitted with either cartridge(s) or canister specifically approved for protection against formaldehyde, or a full facepiece powered air-purifying respirator fitted with either cartridge(s) or canister specifically approved for protection against formaldehyde. The air purifying equipment must have an end of service life indicator, or a documented change out schedule established. Otherwise, use supplied air.

For concentrations more than 10 times the occupational exposure level and less than the lower of either 100 times the occupational exposure level or the IDLH: Use Type C full facepiece supplied air respirator operated in positive pressure or continuous flow mode.

For concentrations > 100 times the occupational exposure level or greater than the IDLH level or unknown concentrations (such as in emergencies): Use self-contained breathing apparatus with full facepiece in positive pressure mode or Type C positive-pressure full facepiece supplied-air respirator with an auxiliary positive-pressure self-contained breathing apparatus escape system.

For escape: Use positive-pressure self-contained breathing apparatus with full facepiece or full facepiece mask with chin style or front or back mounted type industrial size canister specifically approved for protection against formaldehyde.

Skin Protection: Wear impervious clothing and gloves to prevent contact. Butyl rubber is recommended. Other protective material may be used, depending on the situation, if adequate degradation and permeation data is available. If other chemicals are used in conjunction with this chemical, material selection should be based on protection for all chemicals present.

Eye/Face Protection: In addition to goggles, wear a face shield if there is a reasonable chance for splash to the face.

Section 9: Physical and chemical properties

FLASH POINT: 126°F (ASTM D93)

BOILING POINT: 204.8°F

EVAPORATION RATE (BUTYL ACETATE=1): <1

MELTING POINT: No information

pH: 6.20

SOLUBILITY IN WATER: Soluble

FLAMMABLE LIMITS: LEL=6% UEL=73%

SPECIFIC GRAVITY (WATER=1): 1.0551 g/ml

VAPOR DENSITY (AIR=1): 1.0

VAPOR PRESSURE (mm HG): 28 mm Hg @ 71°F

% VOLATILE BY WEIGHT: 36.28%

APPEARANCE AND ODOR INFORMATION: Milky pinkish-orange solution w/pungent odor

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Section 10: Stability and Reactivity

UNSTABLE: NO STABLE: YES

CONDITIONS TO AVOID: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow the inadvertent mixing of formaldehyde with hydrochloric acid since such mixtures may produce bis-chloro-methylether, a known carcinogen.

INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizing agents, caustics, strong alkalies and inorganic acids.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Decomposition occurs from heat and reaction with materials above. Decomposition products include carbon dioxide, carbon monoxide, hydrogen and formaldehyde gas.

HAZARDOUS POLYMERIZATION: Will not occur **CONDITIONS TO AVOID FOR POLYMERIZATION:** Not applicable

Section 11: Toxicological Information

Formaldehyde

Acute oral toxicity	LD50: 460 mg/kg
Acute dermal toxicity	Data waiving: formaldehyde has corrosive properties.
Acute inhalation toxicity	LC50 (4h): 1000 mg/m3
Method	OECD 403
Skin corrosion/irritation	irritating
Species	Humans
Method	OECD 404
Skin sensitization	positive
Species	mouse
Method	OECD 429
Serious eye damage/eye irritation	corrosive
	Highly irritating
Species	rabbit eye
Method	OECD 405
Species	rats
Carcinogenic Effects	oral
Species	rats
Study	oral (drinking water) lifetime study
	NOAEL: 82 mg/kg
In vitro Mutagenicity	Ames Test: positive – with and without metabolic activation
Method	OECD 471
In vivo Mutagenicity	Formaldehyde is a direct acting locally effective mutagen, with genotoxic effects limited to those cells in direct contact with formaldehyde (OECD SIDS). Did not cause chromosomal damage in rat bone marrow. Method: EU B.12
Reproductive toxicity	No toxicity to reproduction
Developmental effects	no adverse developmental effects
Routes of exposure	oral gavage
Species	mouse
Developmental effects	no adverse developmental effects
Routes of exposure	inhalation
Species	rat
Repeated Exposure	Repeated Exposure
Routes of exposure	oral drinking water
Species	rats
Method	OECD 453

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NOAEL: 15 mg/kg bw/day

Methanol

Acute oral toxicity	LD50: > 5000 mg/kg
Acute dermal toxicity	LD50: > 5000 mg/kg
Acute inhalation toxicity	LC50 (4h): > 5 mg/l
Skin corrosion / irritation	irritating
Skin sensitization	nonsensitizer
Species	guinea pig
Method	Maximization
Serious eye damage/eye irritation	irritant
Species	rabbit eye
Carcinogenic effects	No evidence of carcinogenicity
Species	rats
Study	inhalation lifetime study
Carcinogenic effects	No evidence of carcinogenicity
Species	Mice
Study	inhalation lifetime study
In vitro Mutagenicity	Ames Test: Negative – with and without metabolic activation – Method: OECD 471 Mouse lymphoma cell gene-mutation: positive – with and without metabolic activation – method: OECD 471 In Vitro Sister Chromatid Exchange Assay in Chinese Hamster Ovary (CHO): negative – with and without metabolic activation – Method: OECD 479 in vitro Mammalian cell transformation Test: Negative – without metabolic activation – EU-Method B.21
In vivo Mutagenicity	Positive and negative results
Reproductive toxicity	Some indication of reproductive toxicity in animals at non-physiological levels
Developmental effects	Some indication of developmental toxicity in animals at non- physiological levels

Section 12: Ecological Information

Formaldehyde

Acute fish toxicity	LC50: 6.7 mg/l (96h)
Species	Danio rerio (Zebra fish)
Method	OECD 203
Acute daphnia toxicity	EC50: 5.8 g/l (48h)
Species	Daphnia pulex
Method	OECD 202
Species	Desmodesmus subspicatus
Method	OECD 201
Species	Ec50 (biomass): 4.89 mg/l (72h)
Method	Scenedesmus quadricauda OECD 201
Biodegradation	in fresh water Readily biodegradable
Method	OECD 301 C

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Bioconcentration factor (BCF)	0.396 l/kg
Bioaccumulation	Bioaccumulative potential – low
Other potential hazards	The substance does not meet the criteria for PBT / vPvB according to REACH, Annex XIII

Methanol

Acute fish toxicity	LC50: 28 g/l (96h)
Species	Pimephales promelas (fathead minnow)
Methanol	Flow-through
Chronic fish toxicity	Chronic fish toxicity
	LC50: 15.4 g/l (96h)
Species	Lepomis macrochirus (Bluegill sunfish)
Method	Flow-through
Acute daphnia toxicity	EC50: 24.5 g/l (48h)
Species	Daphnia magna
Toxicity to aquatic plants	EC50: 7.1 mg/l (48h)
Species	Selenastrum capricornutum (green algae)
Biodegradation	48% (5d)
Bioconcentration factor (BCF)	Bioconcentration factor (BCF)
Bioaccumulation	Bioaccumulative potential – low
Other potential hazard	The substance does not meet the criteria for PBT / vPvB according to REACH, Annex XIII

Section 13: Disposal Considerations

Waste disposal: The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

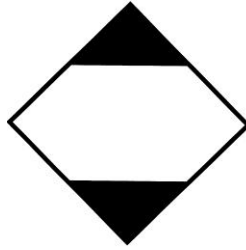
Dispose of spilled material in accordance with state and local regulations for hazardous waste. Recommended methods are incineration or biological treatment at a federally or state-permitted disposal facility. Note that this information applies to the material as manufactured; processing, use or contamination may make this information inappropriate, inaccurate, or incomplete.

Note that this handling and disposal information may also apply to empty containers, liners and rinsate. State or local regulations or restrictions are complex and may differ from federal regulations. This information is intended as an aid to proper handling and disposal; the final responsibility for handling and disposal is with the owner of the waste.

Empty bottles: DO NOT RECYCLE!

Section 14: Transport Information

DOT/UN HAZARD CLASSIFICATION: N/A



Section 15: Regulatory Information

US State Regulations

Chemicals associated with the product which are subject to the state right-to-know regulations are listed along with the applicable state(s):

Formaldehyde 50-00-0

Pennsylvania	Listed
New York	Listed
New Jersey	Listed
Illinois	Listed
Louisiana	Listed
Massachusetts	Listed
Rhode Island	Listed

Methanol 67-56-1

Pennsylvania	Listed
New York	Listed
New Jersey	Listed
Illinois	Listed
Massachusetts	Listed
Rhode Island	Listed

California Prop.65

WARNING: This product contains the following chemicals that are known to the State of California to cause cancer, birth defects or other reproductive harm.

Formaldehyde 50-00-0	Listed
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U.S. FEDERAL REGULATIONS

TSCA Inventory:

We certify that all components are either on the TSCA inventory or qualify for an exemption.

OSHA FORMALDEHYDE STANDARD: This product is capable of emitting free formaldehyde and is covered by the OSHA Formaldehyde Standard, 29 CFR 1910.1048.

Environmental Regulations:

Formaldehyde 50-00-0

EPCRA Section 313	Listed
CERCLA Hazardous Substance	Listed
Extremely Hazardous Substance	Listed

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Methanol 67-56-1

EPCRA Section 313 Listed
CERCLA Hazardous Substance Listed

SARA 311:

Acute Health:	Yes	Chronic Health:	Yes
Fire:	Yes	Sudden release of pressure:	No
Reactive:	No		

INTERNATIONAL REGULATIONS

Australia (AICS)
Canada (DSL)
China (IECSC)
Europe (EINECS)
Japan (ENCS)
Korea (KECI)
Philippines (PICCS)

CANADIAN REGULATIONS

WHMIS CLASSIFICATION: This product has been classified in accordance with the hazard criteria of the CPR and the SDS contains all the information required by the CPR.

Class B, Division 3. Class D, Division 1, Subdivision A. Division 2, Subdivision A; Division 2, Subdivision B.

Section 16: Other Information

Hazardous Material Information System III (USA)

Health:	3
Flammability:	2
Physical Hazards:	0

National Fire Protection Association (USA)

Health:	3
Flammability:	2
Instability:	0

HMIS ratings are based on a 0-4 scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS ratings are not required on Safety Data Sheets under 29 CFT 1910.1200, the preparer may choose to provide them. HMIS ratings are to be used with a fully implemented HMIS program. HMIS is a registered mark of the National Paint & Coatings Association (NPCA).

Prepared by: Pierce Companies Regulatory Department

Date of Preparation/Revision: December 8, 2014

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