

Section 1: Identification

- (a) Chlorasan
- (b) Accessory Embalming Chemical
- (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

This material is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200

Flammable liquids – Category 2

Eye irritation – Category 2A

Specific target organ toxicity – single exposure – Category 3



Signal word: **DANGER!**

Hazards

Highly flammable liquid and vapour.

Causes serious eye irritation.

May cause drowsiness or dizziness.

May cause cancer.

Precautionary statements

Prevention

Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Keep container tightly closed.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wash skin thoroughly after handling,

Use only outdoors or in a well-ventilated area.

Wear protective gloves/eye protection/face protection.

Response

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

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IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: get medical advice/attention.

IN CASE OF FIRE: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

STORAGE

Store in a well-ventilated place. Keep container tightly closed.

Store in a well-ventilated place. Keep cool.

Store locked up.

Disposal

Dispose of contents/container to an approved waste disposal plant.

Other hazards

No data available

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 |
|-------------------|------------|---------|---|
| Perchloroethylene | 127-18-4 | 40 – 45 | |
| Isopropyl Alcohol | 67-63-0 | 25 – 30 | |
| Camphor | 76-22-2 | 5 – 10 | |
| Acetone | 67-64-10 | 5 – 10 | |
| Oil of Eucalyptus | 8000-48-4 | 0 – 5 | |
| Formaldehyde | 50-00-0 | 0 – 5 | |
| Phenol | 108-95-2 | 0 - 5 | |

Section 4: First-Aid Measures

Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc.). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

Skin contact: Wash off with plenty of water.

Eye contact: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: Maintain adequate ventilation and oxygenation of the patient. Because rapid absorption may occur through the lungs if aspirated and cause systemic effects, the decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. Hemodialysis may be of benefit if substantial amounts have been ingested and the patient is showing signs of intoxication. Consider hemodialysis for patients with persistent hypotension or coma unresponsive to standard therapy (isopropanol levels > 400-500 mg/dl). (Goldfrank 1998, King et al, 1970). No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Skin contact may aggravate preexisting dermatitis.

Section 5: Fire-fighting Measures

NFPA: Health: 3 Flammability: 3 Reactivity: 0

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Unsuitable extinguishing media: Do not use direct water stream. Straight or direct water streams may not be effective to extinguish fire.

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide, Carbon dioxide.

Unusual Fire and Explosion Hazards: Container may vent and/or rupture due to fire. When product is stored in closed containers, a flammable atmosphere can develop. Electrically ground and bond all equipment. Flammable mixtures of this product are readily ignited even by static discharge. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Flammable mixtures may exist within the vapor space of containers at room temperature. Flammable concentrations of vapor can accumulate at temperatures above flash point; see Section 9.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gasses (fumes) can accumulate. Water may not be effective in extinguishing fire. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Eliminate ignition sources. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Use caution and test if material is burning before entering area. Material burns with invisible flame.

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Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

Section 6: Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7, Handling, for additional precautionary measures. Keep personnel out of low areas. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Vapor explosion hazard. Keep out of sewers. For large spills, warn public of downwind explosion hazard. Check area with combustible gas detector before reentering area. Ground and bond all containers and handling equipment. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Ground and bond all containers and handling equipment. Pump with explosion-proof equipment. If available, use foam to smother or suppress. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

Section 7: Handling and Storage

Precautions for safe handling: Keep away from heat, sparks and flame. Avoid contact with eyes. Avoid breathing vapor. Wash thoroughly after handling. Keep container closed. Use only with adequate ventilation. No smoke, open flames or sources of ignition in handling and storage area. Electrically bond and ground all containers and equipment before transfer or use of material. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Vapors are heavier than air and may travel a long distance and accumulate in low lying area. Ignition and/or flash back may occur. Never use air pressure for transferring product. See Section 8, Exposure Controls and Personal Protection.

Conditions for safe storage: Minimize sources of ignition, such as static build-up, heat, spark or flame. Keep container closed. Flammable mixtures may exist within the vapor space of containers at room temperature.

Storage stability

Shelf Life: Use within 24 months

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Section 8: Exposure Controls/Personal Protection

| CHEMICAL NAME | CAS NUMBER | PEL OSHA | TLV-ACGIH |
|-------------------|------------|--|---|
| Perchloroethylene | 127-18-4 | 25 ppm A3 170 mg/m ³ TWA, 100 ppm A3; 685 mg/m ³ STEL | 25 ppm A3 170 mg/m ³ TWA 100 ppm A3; 685 mg/m ³ STEL |
| Isopropyl Alcohol | 67-63-0 | 400 ppm TWA, 500 ppm STEL | 400 ppm TWA, 500 ppm STEL |
| Camphor | 76-22-2 | 2 mg/m ³ TWA | 12 mg/m ³ TWA, 3 ppm STEL |
| Acetone | 67-64-10 | 1,000 ppm TWA | 750 ppm TWA, 1000 ppm STEL |
| Oil of Eucalyptus | 8000-48-4 | No information | No information |
| Formaldehyde * | 50-00-0 | .75 ppm TWA 2 ppm STEL | .3 ppm Ceiling, A2 |
| Phenol | 108-95-2 | 5 ppm TWA | 5 ppm TWA, 10 ppm STEL |

Control parameters

Exposure controls

Engineering controls: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles. If exposure causes eye discomfort, use a full-face respirator.

Skin protection

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Chlorinated polyethylene. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). Examples of acceptable glove barrier materials include: Polyvinyl alcohol ("PVA"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Wear clean, body-covering clothing.

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

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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: 78°F (ASTM D93)

BOILING POINT: 180°F

EVAPORATION RATE (BUTYL ACETATE=1): >1

MELTING POINT: No information

pH: 3.44

SOLUBILITY IN WATER: Insoluble

APPEARANCE AND ODOR INFORMATION: Clear colorless liquid with aromatic odor

FLAMMABLE LIMITS: LEL=0.6% UEL=73%

SPECIFIC GRAVITY (WATER=1): 1.109 g/ml

VAPOR DENSITY (AIR=1): 2.0

VAPOR PRESSURE (mm HG): 216 mm @ 117°F

% VOLATILE BY WEIGHT: No information

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 alkalis 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

Toxicological information on this product or its components appear in this section when such data is available.

ISOPROPYL ALCOHOL

Acute toxicity

Acute oral toxicity

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. May cause central nervous system depression. May cause nausea and vomiting. Signs and symptoms of excessive exposure may include: Facial flushing. Low blood pressure. Irregular heartbeats.

LD50, Rat, 5,840 mg/kg OECD 401 or equivalent

Lethal Dose, Humans, 100 ml Estimated.

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

LD50, Rabbit, > 12,800 mg/kg

Acute inhalation toxicity

With good ventilation, single exposure is not likely to be hazardous. In poorly ventilated areas, vapors or mists may accumulate and cause respiratory irritation. Prolonged excessive exposure may cause adverse effects. Excessive exposure (400 ppm) to isopropanol may cause eye, nose and throat irritation. Incoordination, confusion, hypotension, hypothermia, circulatory collapse, respiratory arrest and death may follow a longer duration or higher levels. Observations in animals may include middle ear lining damage upon exposure to vapors of isopropanol. However, the relevance of this to humans is unknown.

LC50, Rat, male and female, 6 Hour, vapour, > 10000 ppm

Skin corrosion/irritation

Prolonged exposure not likely to cause significant skin irritation.
May cause drying and flaking of the skin.

Serious eye damage / eye irritation

May cause pain disproportionate to the level of irritation to eye tissues.
May cause moderate eye irritation.
May cause moderate corneal injury.
Vapor may cause eye irritation experienced as mild discomfort and redness.
Vapor may cause lacrimation (tears).

Sensitization

Did not demonstrate the potential for contact allergy in mice.
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systematic Toxicity (Single Exposure)

May cause drowsiness or dizziness.
Route of Exposure: Ingestion
Target Organs: Central nervous system

Specific Target Organ Systemic Toxicity (Repeated Exposure)

In animals, effects have been reported on the following organs:
Kidney
Liver
Kidney effects have been observed in male rats. These effects are believed to be species specific and unlikely to occur in humans.
Observations in animals include:
Lethargy.

Carcinogenicity

Did not cause cancer in laboratory animals.

Teratogenicity

Isopropanol has been toxic to the fetus in laboratory animals at doses toxic to the mother.

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Reproductive toxicity

In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.

Mutagenicity

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard

May be harmful if swallowed and enters airways.

PERCHLOROETHYLENE

Symptoms related to the physical, chemical and toxicological characteristics

Ingestion: no data available
Inhalation: no data available
Skin contact: no data available
Eye contact: no data available

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral

Product: ATEmix (): 2,400 mg/kg

Dermal

Product: Not classified for acute toxicity based on available data.

Inhalation

Product: no data available

Specified substance(s):

Perchloroethylene LC50 (Mouse, 6 h): 2,978 mg/l LC 50 (Rat, 6 h): 4,100 mg/l
LC 50 (Rat, 8 h): 5,000 mg/l LC 50 (Mouse, 4 h): 5,200 mg/l

Repeated dose toxicity Product no data available

Skin corrosion/irritation product no data available

Serious eye damage / eye irritation product no data available

Respiratory or skin sensitization product no data available

Carcinogenicity product no data available

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

Perchloroethylene Overall evaluation: 2A. Probably carcinogenic to humans

US National Toxicology Program (NTP) Report on Carcinogens:

Perchloroethylene Reasonably anticipated to be a human carcinogen

US OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):

No carcinogenic components identified

Germ cell mutagenicity

In vitro **Product** no data available

In vivo **Product** no data available

Reproductive toxicity **Product** no data available

Specific target organ toxicity – single exposure **Product** no data available

Specific target organ toxicity – repeated exposure **Product** no data available

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Aspiration hazard
Other effects

Product

no data available
no data available

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 |
| | NOAEL: 15 mg/kg bw/day |

PHENOL

Information on Toxicological Effects:

Acute Toxicity:

| | |
|-------------------|---|
| LD50 Rat, oral: | Information about Phenol: 340 mg/kg bw (OECD 401) |
| LDLo human, oral: | Information about Phenol: 140 mg/kg bw |
| LD50 Rat, dermal: | Information about Phenol: 660 mg/kg bw (OECD 402) |

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LC50 Rat, inhalative: Information about Phenol: >900 mg/m³/8h

Toxicological effects:

Acute toxicity (oral): Acute Tox. 3; H301 = Toxic if swallowed.

Acute toxicity (dermal): Acute Tox. 3; H311 = Toxic in contact with skin

Acute toxicity (inhalative): Acute Tox. 3; H331 = Toxic if inhaled.

Skin corrosion / irritation, eye damage/irritation: Skin corr. 1B; H314 = Causes severe skin burns and eye damage.

Sensitization to the respiratory tract: Lack of data.

Skin sensitization: Based on available data, the classification criteria are not met. Not known to cause sensitization.

Germ cell mutagenicity/Genotoxicity: Muta. 2; H341 = Suspected of causing genetic defects.

Mutagenicity: Bacterial mutagenicity: negative

Chromosomal aberrations in-vitro: positive

Micronucleus test: in-vitro: positive

Gene-mutations mammalian cells in-vitro: positive

Sister chromatid exchange in-vitro: positive

Micronucleus test: in-vivo: weak positive

Carcinogenicity: Based on available data, the classification criteria are not met. Specific symptoms in animal studies: None carcinogenic effect.

Reproductive toxicity: Based on available data, the classification criteria are not met.

Specific symptoms in animal studies: No reproductive hazards have been observed.

Effects on or via lactation: Lack of data

Specific target organ toxicity (single exposure): Lack of data.

Specific target organ toxicity (repeated exposure): STOT RE 2; H373 = May cause damage to organs through prolonged or repeated exposure. Specific target organ toxicity: Harmful effects are not known.

Aspiration hazard: lack of data

Carcinogenic, germ cell mutagen and reproduction effect:

Muta. Cat 3 – Possible risk of irreversible effects.

Other information: Strong skin absorption as main danger of phenol poisoning at the workplace with paralysis of the central nervous system (with lethal consequences in severe cases) as well as liver and kidney damage.

Symptoms:

In case of inhalation:

Mucous membrane irritation, cough, shortage of breath, damage of respiratory trace

After contact with skin:

Strong skin absorption as main danger of phenol poisoning at the workplace with paralysis of the central nervous system (with lethal consequences in severe cases) as well as liver and kidney damage.

Section 12: Ecological Information

Ecotoxicological information on this product or its components appear in this section when such data is available.

ISOPROPYL ALCOHOL

Toxicity

Acute toxicity to fish

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Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50?LL50>100 mg/L in the most sensitive species tested).

LC50, Pimephales promelas (fathead minnow), flow-through test, 96 Hour, 9,640 mg/l, OECD Test Guideline 203 or equivalent

Acute toxicity to aquatic invertebrates

LC50, Daphnia magna (Water flea), static test, 24 hour, > 1,000 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

NOEC, alga Scenedesmus sp., static test, 7 d, Growth inhibition (cell density reduction), 1,800 mg/l

ErC50, alga Scenedesmus sp., static test, 72 Hour, Growth rate inhibition, > 1,000 mg/l

Chronic aquatic toxicity

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), semi-static test, 21 d, 30 mg/l

Persistence and degradability

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10 day Window: Pass

Biodegradation: 95%

Exposure time: 21 d

Method: OECD Test Guideline 301E or Equivalent

10 day Window: Pass

Biodegradation: 53%

Exposure time: 5 d

Method: Other guidelines

Theoretical Oxygen Demand: 2.40 mg/mg

Chemical Oxygen Demand: 2.09 mg/mg

Biological oxygen demand (BOD)

| Incubation time | BOD |
|-----------------|-----------|
| 5 d | 20 – 72 % |
| 20 d | 78 – 86% |

Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitizer: OH radicals

Atmospheric half-life: 1.472 d

Method: Estimated

Bioaccumulative potential

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water (log Pow): 0.05 Measured

Mobility in soil

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Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient (Koc): 1.1 Estimated.

PERCHLOROETHYLENE

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish

Product: no data available

Specified substance(s):

Perchloroethylene

LC 50 (Fathead minnow (*Pimephales promelas*), 72 h): 13.9 – 15.8 mg/l mortality

LC 50 (Fathead minnow (*Pimephales promelas*), 72 h): 15.3 – 22.1 mg/l mortality

LC 50 (Rainbow trout, Donaldson trout (*Oncorhynchus mykiss*), 72 h): 4.73 – 5.27 mg/l mortality

LC 50 (Rainbow trout, Donaldson trout (*Oncorhynchus mykiss*), 72 h): 5.06 – 6.67 mg/l mortality

LC 50 (Flagfish (*Jordanella floridae*), 72 h): 8.877 mg/l mortality

Aquatic invertebrates

Product: no data available

Specified substance(s):

Perchloroethylene

EC 50 (Water flea (*Daphnia magna*), 24 h): 3.2 mg/l Intoxication

EC50 (Water flea (*Daphnia magna*), 48 h): 6.1 - 9 mg/l Intoxication

EC50 (Water flea (*Daphnia magna*), 48 h): 7 - 11mg/l Intoxication

LC50 (Water flea (*Moina macrocopa*), 3h): 1.8 mg/l Mortality

LC50 (Water flea (*Daphnia magna*), 24 h): 17 – 20 mg/l Mortality

Chronic hazards to the aquatic environment

Fish **product** no data available

Aquatic invertebrates **product** no data available

Toxicity to aquatic plants **product** no data available

Persistence and degradability

Biodegradation **product** no data available

BOD/COD ratio **product** no data available

Bioaccumulative potential

Bioconcentration factor (BCF) **product** no data available

Specified substance(s): Perchloroethylene

Diatom (*Skeletonema costatum*), Bioconcentration factor (BCF): 118 (Static)

Bioconcentration factor calculated using dry weight tissue conc

Diatom (*Skeletonema costatum*), Bioconcentration factor (BCF): 113 (Static)

Bioconcentration factor calculated using dry weight tissue conc

Algae (*Heterosigma akashiwo*), Bioconcentration factor (BCF): 312 (Static)

Bioconcentration factor calculated using dry weight tissue conc

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Algae (Heterosigma akashiwo), Bioconcentration factor (BCF): 280 (Static)
Bioconcentration factor calculated using dry weight tissue conc
Bluegill (Lepomis macrochirus), Bioconcentration factor (BCF): 49 (Flow through)

Partition coefficient n-octanol / water (log Kow)

Product: No data available

Specified substance(s):

Perchloroethylene Log Kow: 3.40

Mobility in soil: no data available

Known or predicted distribution to environmental compartments

Perchloroethylene no data available

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 |
| Ec50 (biomass): | 4.89 mg/l (72h) |
| Species | Scenedesmus quadricauda |
| Method | OECD 201 |
| Biodegradation | in fresh water |
| | Readily biodegradable |
| Method | OECD 301 C |
| 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 |

PHENOL

Toxicity:

Aquatic toxicity: Harmful to aquatic life with long lasting effects.
Information about Phenol:
Algae toxicity:
EC50 Pseudokirchnerella subcapitata, (freshwater, cell number): 61.1 mg/L 96H
EC50 Entomoneis cf punctulata, (marine water, growth rate): 76 mg/L/72h
Bacterial toxicity:
IC50 Mitrosomonas sp: 21 mg/L/24h
Daphnia toxicity:
EC50 Ceriodaphnia dubia: 3.1 mg/L 48h
Fish toxicity:
LC50 Oncorhynchus mykiss: 8.9 mg/L/96h
Long term fish toxicity:

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60 d NOEC (Cirrhina mrigala): 0.077 mg/L
Long term daphnia toxicity:
16 d EC10 (Daphnia magna, growth): 0.46 mg/L

Persistence and Degradability:

Further details:

Information about Phenol:

Abiotic degradation:

Air (Indirect photodegradation by reaction with OH radicals.) : half-time (DT50) approx: 14 d

Water: Not susceptible to hydrolysis.

Biodegradation:

Activated sludge: 62%/100h, readily biodegradable (OECD 301C).

Activated sludge (anaerobic): 80.1%/50d, rapidly biodegradable under anaerobic conditions (ECETOC method).

Water: 86 – 96% / 20d, easily biodegradable (BOD-test APHA)

COD: 2.3 g/g

ThOD: 2.26 mg/L

Bioaccumulative Potential:

Information about Phenol:

Significant bioaccumulation potential is not to be expected.

Bioconcentration factor (BCF):

17.5 (fish: Danio rerio)

Mobility in Soil:

Information about Phenol:

Adsorption coefficient:

Koc: 82.8 L/kg at 20°C (calculated is log Pow).

The soil sorption coefficient indicates a low sorption of phenol onto soil organic matter.

Evaporation rate (Volatilisation) at 20°C: $H=0.022 \text{ Pa}\cdot\text{m}^3/\text{mol}$.

The calculated Henry's Law constant indicates a low to moderate volatility from aqueous solution.

Results of PBT and vPvB

Assessment:

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

Other Adverse Effects:

Do not allow to enter into ground-water, surface water or drains.

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.

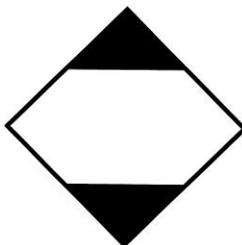
Safety Data Sheet: Chlorasan (Item #PW0418500)

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

Perchloroethylene

US Federal regulations OSHA Specifically
None present or none present in regulated quantities.

Regulated substances (29 CFR 1910.1001-1050)

CERCLA Hazardous Substance List (40 CFR 302.4):

Perchloroethylene Reportable quantity: 100 lbs.

Superfund amendments and reauthorization act of 1986 (SARA)

Hazard categories not listed

SARA 302 Extremely hazardous substance None present or none present in regulated quantities

SARA 304 Emergency release notification Perchloroethylene RQ 100 lbs

SARA 311/312 Hazardous chemical Perchloroethylene Threshold Planning QTY 500 lbs

SARA 313 (TRI Reporting)

Reporting threshold for other uses: 10,000 lbs

Reporting threshold for mfg and processing: 25,000 lbs

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)

None present or none present in regulated quantities.

Clean Air Act (CAA) Section 112 (r) Accidental Release Prevention (40 CFR 68.130):

None present or none present in regulated quantities

US State Regulations

US California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

Perchloroethylene Carcinogenic

US. New Jersey Worker and Community Right-to-Know Act

Perchloroethylene Listed

US. Massachusetts RTK – Substance List

Perchloroethylene Listed

US. Pennsylvania RTK – Hazardous Substances

Perchloroethylene Listed

US. Rhode Island RTK

Perchloroethylene Listed

Inventory Status

Australia AICS

Not in compliance with the inventory.

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| | |
|--|---|
| Canada DSL Inventory List | Not in compliance with the inventory. |
| EU EINECS List | On or in compliance with the inventory. |
| EY ELINCS List | Not in compliance with the inventory. |
| Japan (ENCS) List | Not in compliance with the inventory. |
| EU No Longer Polymers List | Not in compliance with the inventory. |
| China Inv. Existing Chemical Substances: | Not in compliance with the inventory. |
| Korea Existing Chemicals Inv. (KECI) | Not in compliance with the inventory. |
| Canada NDSL Inventory: | Not in compliance with the inventory. |
| Philippines PICCS: | Not in compliance with the inventory. |
| US TSCA Inventory | On or in compliance with the inventory. |
| New Zealand Inventory of Chemicals | Not in compliance with the inventory. |
| Japan ISHL Listing: | Not in compliance with the inventory. |
| Japan Pharmacopoeia Listing | Not in compliance with the inventory. |

OSHA Hazard Communication Standard

This product is a "Hazardous Chemical as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Fire Hazard

Acute Health Hazard

Chronic Health Hazard

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-To-Know Act of 1986) Section 313

Components

CAS RN

Isopropanol

67-63-0

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103

This product contains the following substances which are subject to CERCLA Section 103 reporting requirements and which are listed in 40 CFR 302.4.

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List

The following product components are cited in the Pennsylvania Hazardous Substance List and/or the Pennsylvania Environmental Substance List, and are present at levels which require reporting.

Components

CAS RN

Isopropanol

67-63-0

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

United States TSCA Inventory (TSCA)

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

US State Regulations

Safety Data Sheet: Chlorasan (Item #PW0418500)

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 |

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 |
|----------------------|--------|

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 |

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

National Fire Protection Association (USA)

| | |
|---------------|---|
| Health: | 3 |
| Flammability: | 3 |
| Reactivity: | 0 |

Legend

| | |
|----------|--|
| ACGIH | USA. ACGIH Threshold Limit Values (TLV) |
| OSHA Z-1 | USA. Occupational Exposure Limits (OSHA) – Table Z-1 Limits for Air Contaminants |
| STEL | Short-term exposure limit |
| TWA | 8-hour, time-weighted average |

Safety Data Sheet: Chlorasan (Item #PW0418500)

PHENOL Further Information:

Wording of the H-phrases

- H301 = Toxic if swallowed
- H311 = Toxic in contact with skin
- H314 = Causes severe skin burns and eye damage
- H331 = Toxic if inhaled
- H341 = Suspected of causing genetic defects
- H373 = May cause damage to organs through prolonged or repeated exposure
- H411 = Toxic to aquatic life with long lasting effects.

Wording of the R-phrases

- R 23 / 24 / 25 = Toxic by inhalation, in contact with skin and if swallowed.
- R34 = causes burns
- R 48/20/21/22 = Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.
- R68 = Possible risk of irreversible effects.

Literature: REACH Registration Dossier Phenol. P&D REACH Consortium, 2010

Information Source and References

This SDS is prepared by Pierce Companies Regulatory Department referencing the SDS from the Manufacturer who supplies the hazardous ingredients in our finished product.

Prepared by: Pierce Companies Regulatory Department
Date of Preparation/Revision: June 17, 2015

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