Section 1: Identification

(a) Chlora-San (pints)
(b) Accessory Embalming Chemical
(c) For use by professional licensed embalmers only
(d) Manufacturer: TNPC, LLC – Dallas, TX 75236
(e) Privately labeled for & distributed by: Pierce Companies – 4722 Bronze Way – Dallas, TX 75236 – 214.333.4230
(f) Emergency Phone Number: CHEMTREC - 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 vapor.
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/vapors/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.
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 lace. 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	%	
Perchloroethylene	127-18-4	40 – 45	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
Isopropyl Alcohol	67-63-0	35 – 45	
Acetone	67-64-1	5 – 15	
Camphor	76-22-2	5 – 15	
Formaldehyde	50-00-0	0 – 5	
Methanol **	67-56-7	0 – 5	
Phenol	108-95-2	0 – 5	
Oil of Eucalyptus	8000-48-4	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, qualified personnel should administer oxygen. 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.
Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective firefighting clothing (includes firefighting 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

Section 8: Exposure Controls/Personal Protection

CHEMICAL NAME	CAS NUMBER	PEL OSHA	TLV-ACGIH
Perchloroethylene	127-18-4	25 pm 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
Acetone	67-64-1	1,000 ppm TWA	750 ppm TWA, 1000 ppm STEL
Camphor	76-22-2	2 mg/m^3 TWA	12 mg/m^3 TWA, 3 ppm STEL
Formaldehyde *	50-00-0	.75 ppm TWA 2 ppm STEL	.3 ppm Ceiling, A2
Methanol **	67-56-1	200 ppm TWA 250 ppm STEL	200 ppm TWA 250 ppm STEL
Phenol	108-95-2	5 ppm TWA	5 ppm TWA, 10 ppm STEL
Oil of Eucalyptus	8000-48-4	No information	No information

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 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
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 @ 117ºF
% VOLATILE BY WEIGHT: No information
APPEARANCE AND ODOR INFORMATION: Clear colorless liquid w/aromatic odor

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

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, vapor, > 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.

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
Aspiration hazard	**Product**	no data available
Other effects		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)
LC50 Rat, inhalative:	Information about Phenol: >900 mg/m^3/8h

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
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
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 castatum), 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.
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:
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 (Volatilization) at 20°C: H=0.022 Pa*m^3/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 groundwater, 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.

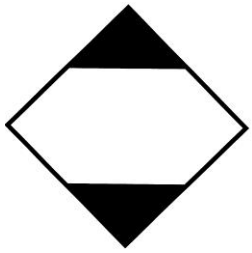
Dispose of spilled material in accordance with state and local regulations for hazardous waste. Recommended methods are incineration or biological treatment at a federally or state-permitted disposal facility. Note that this information applies to the material as manufactured; processing, use or contamination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

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 Regulated substances (29 CFR 1910.1001-1050)
None present or none present in regulated quantities.
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.
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
Chemicals associated with the product which are subject to the state right-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

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 01, 2023**
Supersedes:	**October 19, 2017**

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