To: Ms. Esther Barajas-Ochoa  
P65Public.Comments@oehha.ca.gov

Date: 11/03/15

Subject: NOIL – pentachlorophenol

http://oehha.ca.gov/prop65/CRNR_notices/admin_listing/intent_to_list/NOIL103015pentachlorophenol.html

From Chuck Idol

Dear Ms Barajas-Ochoa,

I have come across your Proposition 65 regulations and I agree that this chemical mixture of P9 Crude Oil with PentaChloroPhenol and its byproducts' will cause cancer and other illnesses.

I have been researching the very destructive path of this chemical dating back to 1930 when it was first introduced. My collection of information can be located at www.PentaChloroPhenol.info and specifically the documentation can be located at http://www.PentaChloroPhenol.info/DocShare.

I agree with listing PentaChloroPhenol - "Known to cause cancer" –

This chemical has no place in our society, as there are alternatives to wooden Chemical Poles such as Steel, and FRP Fiber Reinforced Polymer / Composite. http://www.creativepultrusions.com/index.cfm/fiberglass-pultruded-systems/composite-utility-poles/


I have attached some documentation for your consideration. If you have, any questions please feel free to contact me.

Sincerely
Chuck Idol
ChuckIdol@Hotmail.com
http://www.PentaChloroPhenol.info
Cancer and occupational exposure to pentachlorophenol and tetrachlorophenol (Canada).

RESULTS:
There were 1,495 fatal cancer and 2,571 incident cancers. There were no large or statistically significant excesses of any of the specific cancers were observed compared to the general population. Internal analyses showed strong dose-response relationships for non-Hodgkin’s lymphoma, multiple myeloma, and kidney cancer. These relationships were strongest when exposure was restricted to pentachlorophenol. The strength of the dose-response increased when exposure was lagged by 20 years.

Non-Hodgkin's Lymphoma
Evidence regarding the links between exposure to various pesticides and non-Hodgkin's lymphoma (NHL) continue to emerge. Substantial exposure to pesticides as a group in one population-based case-control study in Australia was associated with a 3-fold risk of NHL associated with substantial exposure specifically to organochlorine and “other” pesticides and herbicides, and smaller elevated risk for phenoxyherbicides (OR=1.75). A cohort study of sawmill workers found evidence of increased risk of NHL, including a significant dose-response trend based on years of dermal exposure to the fungicide, pentachlorophenol; this is likely to be contaminated with dioxin.

A total of 5,288 cancer cases (3,451 male and 1,837 female) were identified. PCP usage was correlated with the incidence of leukemia (r=0.88, P=0.002) for males, and with cancer of the esophagus for males (r=0.83, P=0.008) and females (r=0.71, P=0.020). Compared with the low exposure category, significant SRRs for total cancer sites was obtained for high PCP exposure category (SRR=1.61, 95%CI=1.59-1.62). Most SRR values of the cancer sites were significantly increased as exposure grade elevated and exposure time extended.

CONCLUSION: The present study found that community residents living in the PCP contaminated area had increased risk of cancers. Leukemias, lymphomas and nasopharyngeal and esophageal cancers are most possibly associated with PCP exposure.
Acute poisoning occurs with systemic absorption that can occur by any route of sufficient dosage, although most occupational poisonings occur through dermal contact. Most of the signs and symptoms of PCP are non-specific and, therefore, the diagnosis can be difficult. Symptoms include abdominal pain, anorexia, intense thirst, dizziness, restlessness and altered mental status weight loss. Serious poisoning may be manifested by hyperthermia, muscle spasm, tremor, respiratory distress, chest tightness and altered mental status, including lethargy and coma. Tachycardia and increased respiratory rate are usually apparent. Most adult fatalities have occurred in persons working in hot environments where hyperthermia is poorly tolerated. In severe poisonings that have resulted in death, severe hyperthermia with temperatures up to 108°F has been reported. Multiorgan system failure (seizures and coma, hepatic necrosis, renal failure, cardiovascular collapse and rhabdomyolysis) are often contributing factors in fatal outcomes.
This chemical is well documented by the manufacturing company as being lethal.


Stockholm International Treaty on POPs Achieves Global Ban on Pentachlorophenol


FOR IMMEDIATE RELEASE
16 May 2015

Toxic pesticide globally banned after unprecedented vote at UN meeting on chemicals

(Geneva, Switzerland) – Delegates from more than 90 countries took the unprecedented step of voting for a global ban on pentachlorophenol – a proven toxic pesticide and contaminant found in wildlife and human biomonitoring studies worldwide. The historic vote came at the combined meetings of the Basel, Rotterdam, and Stockholm Conventions – which usually make decisions by consensus – after India repeatedly blocked action.

https://chemicalwatch.com/biocideshub/23858/pentachlorophenol-banned-under-pops-convention
http://www.panna.org/blog/victory-another-global-pesticide-ban
http://beyondpesticides.org/dailynewsblog/2015/05/international-treaty-bans-pentachlorophenol-u-s-continues-use-on-utility-poles-and-railroad-ties/
PentaChloroPhenol Teratogenic effects “studies, especially those of Schwetz et al. (1974) and Welsh et al. (1987), showed toxic effects of pentachlorophenol in offspring that occurred at dose levels below those producing maternal toxicity. In addition, it is recognized that the contaminants hexachlorodioxidin and 2,3,7,8 tetrachlorodioxidin are considered teratogenic chemicals. Due to this reason combined with the knowledge that hexachlorodioxidin is a contaminant of pentachlorophenol, the warning labels on pentachlorophenol formulations with respect to potential teratogenic effects have remained.”

www.PentaChloroPhenol.org

Agent Orange / Agent Blue :
chlorophenoxy or chlorophenols acid herbicides

Dioxins are also generated in such as chlorine bleaching fibers for chlorinated phenols, Compounds involved include the wood preservative pentachlorophenol, and also herbicides such as 2,4-dichlorophenoxyacetic acid (or 2,4-D) and 2,4,5-trichlorophenoxyacetic acid (2,4,5-T). Higher levels of chlorination require higher reaction temperatures and greater dioxin production. Dioxins may also be formed during the photochemical breakdown of the common antimicrobial compound triclosan. [17]

www.PentaChloroPhenol.org
"Because of their higher rate of breathing, children are more highly exposed to pesticides that remain in indoor air. Compared to their parents, children living in homes with indoor air contaminated with the pesticide pentachlorophenol (PCP), were found to have close to twice as much PCP in their blood as their parents. Children also spend a lot of time closer to the ground than adults thus they are more likely to come into contact with pesticides that concentrate in this breathing zone. Children also have greater hand-to-mouth activity, increasing opportunities for direct ingestion of pesticide residues in dirt or dust."

www.PentaChloroPhenol.org
Editorial: Contamination remedy shows customers are top priority

By Republic Editorial - The Republic (editorial@therepublic.com)
Published: 10/1/15 7:43 pm EDT

Good customer service is important for any business, but steps taken by a public utility on behalf of one of its customers go above and beyond what most would consider a normal response.

Since nearly all residents rely on utilities to heat and cool their homes, having dependable service is a basic quality-of-life issue.

When REMC customer David Carothers noticed a strange odor coming from the well that provides drinking water for his home on Lowell Road, he reached out to the utility for help. He also reported to the utility that 26 fish in a pond fed by the well water had died. The only recent change he was aware of was installation of new power lines and poles by REMC near his home.

When he investigated the poles, he found that one — located about 52 feet from the well — had the same odor as the well water.

REMC came to Carothers’ home and tested the water for chemicals. The results showed 13 chemicals in the well water, including pentachlorophenol, a substance used to treat utility poles.

The utility company acknowledged that the pole was the likely culprit of contamination, despite no definite link. However, REMC said heavy rains and flooding that plagued Columbus in July could have moved the chemical down the pole and into the ground.

As a precaution, the wooden poles near Carothers’ home were replaced with galvanized steel poles not treated with the chemical. Additionally, REMC installed a water filtration system to purify water coming from the well, making sure it’s consumable for drinking, cooking and other uses.

Since the changes, additional tests have shown the levels of pentachlorophenol decreasing, and the water after purification to be safe to drink.

By owning the situation and taking decisive action, REMC has made one customer happy and let him and others know that the utility has customers’ best interests in mind, which is exactly what they expect and deserve.

Think your friends should see this? Share it with them!
Phenol and Its Toxicity: A Case Report

Mahesh Chand Meena¹, Rahul Band¹, Girish Sharma¹

Received: 15.08.2014
Accepted: 28.09.2014

ABSTRACT

Background: Phenol and its derivatives like dinitrophenol and pentachlorophenol (carbolic acid) are widely used as insecticides, but they are very toxic substances. Phenol is a general protoplasmic poison with corrosive local effects that denature proteins. Poisoning with phenol compounds may occur by ingestion, inhalation, and absorption through skin. In this report we presented the toxicity effects of Phenol and its derivatives like dinitrophenol and pentachlorophenol on humans.

Case report: A 27-year-old married female was found unconscious at her residence in September 2013. She was expired after hospitalization in Lady Hardinge Medical College and its associated hospital on the same day after six hours. On examination, corrosion of skin, at angle of mouth and chin, and brown discoloration in mucosa of the esophagus were seen. Histological examination showed exfoliation of esophageal mucosa and coagulative necrosis of gastric mucosa. In toxicological analyses, carbolic acid was detected.

Conclusion: Strict precautionary measures are advised when using this compound.

Keywords: Corrosion, Phenol, Toxicity.

INTRODUCTION

Phenol is a hydroxybenzene which is used commercially as a disinfectant. Phenol and its derivatives like dinitrophenol and pentachlorophenol are very toxic substances with a toxicology rating of 4 [1]. Exposure may occur by inhalation, cutaneous absorption, or oral ingestion. Phenols denature and precipitate cellular proteins and thus may rapidly cause poisoning [2]. They are metabolized by conjugation and oxidation [3]. Both local and systemic effects have been reported following ingestion of phenol, including cardiovascular effects, respiratory distress, metabolic acidosis, renal failure, neurological effects, shock, coma, and death [4]. Intense burning of the mouth and throat may occur following swallowing a significant concentrated dose of phenol, leading to necrosis of the skin and mucous membranes of the throat, as well as abdominal pain and gastrointestinal irritation, nausea, vomiting, sweating, and diarrhea. Phenol is considered to be very toxic to humans through oral exposure. Ingestion of 1 g phenol is reported to be lethal with symptoms, including muscle weakness and tremors, loss of coordination, paralysis, convulsions, coma, and respiratory arrest [5].

CASE REPORT

A 27-year-old married female was found unconscious at her residence in September 2013. She was expired after hospitalization in Lady Hardinge Medical College and its associated hospital on the same day after six hours. On external examination of the body, hypostasis was fixed and rigor mortis was complete. Corrosion of skin at angle of mouth and chin was seen (Figure 1). Corrosions were initially white but turned brown in color. Signs of splashing were also noted. On internal examination, the tongue was white and swollen. Mucous membrane of mouth, throat, and lips was sodden with ash gray. The mucosa of the esophagus was tough and grayish-white (Figure 2). Mucosa of the stomach was also tough, white or gray, corrugated and arranged in longitudinal folds, and looking leathery (Figure3). The gastrointestinal mucosa was congested and hemorrhagic, with bluish discoloration of mucosa. All internal organs were congested. The stomach contained about 300 ml of phenol odor emitting fluid (Figure4). During autopsy, samples of biologic fluids were taken for toxicological examination. Histological examination showed exfoliation of esophageal...
mucosa and coagulative necrosis of gastric mucosa. In Toxicological analyses, carbolic acid was detected. On this report was conducted ethics compliance with the carcasses of the human body.

**Figure 1.** Corrosion of skin (brownish) over mouth and chin.

**Figure 2.** Mucosa of the esophagus (tough and greyish-white).

**Figure 3.** Mucosa of stomach (tough, corrugated and arranged in longitudinal folds and looking like leather).

**Figure 4.** Stomach content (about 300 ml of phenol-odor-emitting fluid).

**DISCUSSION**

Phenol absorption is really fast (about 30 min). It is quickly excreted into urine [6]. The toxicity of conjugated forms of phenol is less than that of free compounds. Therefore, the free phenol concentrations in the blood can be regarded as an index of poisoning [7]. The average fatal dose is 25-50 ml of household phenol.

Derivatives of phenol, such as cresol, are endogenously produced in normal subjects. They may also be present in urine at concentrations of 20-200 mg/ml, mainly in the conjugated form. Endogenous phenol concentration in urine is about 5-10 mg/ml on average [3]. There are many reports on toxic injuries with phenols including cases with fatal outcome [1, 7, 8]. Intense burning of the mouth and throat may occur following swallowing a significant dose of concentrated phenol, leading to necrosis of the skin and mucous membranes of the throat, as well as abdominal pain, gastrointestinal irritation, nausea, vomiting, sweating, and diarrhea. Storage of energy in the form of adenosine triphosphate is prevented, thereby leading to a compensatory increase in the basal metabolic rate which is responsible for most of the principal clinical features of the toxicity of this substance.

In the present case, hypotension with shock was observed which can be ascribed to the combined effect of gastrointestinal bleeding and dehydration. Phenol is depressant of the nervous system, especially the respiratory centre. Respiratory effects are often characterized by an initial increase in respiratory rate followed by a decrease in both its rate and magnitude, leading to respiratory failure, which is the most common cause of death following acute ingestion of phenol [9]. Cardiovascular effects such as bradycardia, have been reported following phenol ingestion [4]. However, following ingestion of one ounce of 89 % phenol, respiratory arrest within 30 minutes and ventricular tachycardia within 60 minutes are expected, which subsequently may progress to supraventricular and ventricular dysrhythmias. The signs of GI irritation as esophagitis and GI bleeding occur within one week of exposure [9]. Dark urine may be produced following ingestion of phenol. Acute renal failure may also occur [4].
Death has been reported within 10 minutes of ingestion of 4.8 g phenol. Other cases have been reported in which death has occurred within hours after ingestion of 10–20 g phenol. In the latter case, tachypnea was initially observed, followed by dyspnea. On autopsy, pulmonary edema is reported [9]. The lowest dose at which death has occurred in humans is 140 mg/kg body weight.

Santa et al. have reported a case of hemolytic anemia following accidental ingestion of phenol in 2003 [10]. Intravascular hemolysis after inhalation of phenol compounds has been reported as well [11].

Phenol vapors are irritating to the upper respiratory tract and produce wheezing. Other effects associated with phenol inhalation include anorexia, weight loss, headache, vertigo, salivation, and dark urine. Phenol is corrosive and can also cause severe ocular damage including corneal opacification [4].

Dermal exposure produces dermal inflammation, erythema, and painless blanching. However, once pain becomes evident, serious burns, corrosion, and necrosis have already occurred. Effects are worse if the affected sites are bandaged [4, 9].

Cardiovascular shock, cardiac arrhythmias and bradycardia, as well as metabolic acidosis have been reported within 6 hours after skin peeling procedures with phenol [9]. Hyperventilation, acute renal failure, and methemoglobinemia have also been reported.

CONCLUSION

Phenol ingestion can lead to severe and life-threatening effects, with high mortality in severe cases due to the combined effect of gastrointestinal bleeding and dehydration, hypotension, and shock. Strict precautionary measures are, therefore, advised when using this compound.

ACKNOWLEDGEMENTS

We would like to thank all the physicians and staff of the Department of Forensic Medicine, Lady Hardinge Medical College, India, for their timely support.

REFERENCES

1. Product and Company Identification

Material name: Penta OL Technical Pentachlorophenol
Revision date: 08-26-2011
Version #: 01
CAS #: Mixture
Product use: Wood preservative.
Synonym(s): None.
Manufacturer/Supplier: KMG- Bernuth, Inc.
9555 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77099
Phone Number: 713-600-3800

Emergency CHEMTREC: 1-800-424-9300
Emergency medical treatment: 1-800-322-8177

2. Hazards Identification

Physical state: Solid.
Appearance: Crystals.

Emergency overview: DANGER
May be fatal if inhaled or absorbed through skin. Harmful if swallowed. Causes skin, eye and respiratory tract irritation. Can cause cardiovascular effects. May cause damage to the heart.

OSHA regulatory status: This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

Potential health effects
Routes of exposure: Eye contact. Skin contact. Inhalation. Ingestion.
Eyes: Causes eye irritation.
Skin: May be fatal if absorbed through skin. Causes skin irritation. Readily absorbed through the skin.
Inhalation: May be fatal if inhaled. Causes respiratory tract irritation.
Ingestion: Harmful if swallowed.


Chronic effects: Possible cancer hazard - may cause cancer based on animal data. Human exposure to pentachlorophenol may result in the development of chloracne. Mild cases resemble other forms of acne or skin changes observed with aging. May cause blood damage. May cause central nervous system effects. May cause damage to the heart. May cause damage to the liver and kidneys. Pentachlorophenol has been determined to be embryo and fetotoxic to rats but not to hamsters. Pentachlorophenol has not been found to cause teratogenic effects (birth defects) in lab animals, but can cause delays in normal fetal development. EPA has expressed an opinion that pentachlorophenol may produce defects in the offspring of lab animals.


Potential environmental effects: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

3. Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS #</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pentachlorophenol</td>
<td>87-86-5</td>
<td>86</td>
</tr>
<tr>
<td>Other Chlorophenols</td>
<td>Mixture</td>
<td>10</td>
</tr>
<tr>
<td>Hexachlorobenzene</td>
<td>118-74-1</td>
<td>max 5.0 ppm</td>
</tr>
<tr>
<td>Hexachlorodibenzo-8-dioxin</td>
<td>34465-46-8</td>
<td>max 4.0 ppm</td>
</tr>
</tbody>
</table>
Composition comments
All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First Aid Measures
First aid procedures
Eye contact
Do not rub eye. Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Get medical attention if irritation develops and persists.

Skin contact
In case of accidents: Call an ambulance immediately! Remove contaminated clothes and rinse skin thoroughly with water for at least 15 minutes.

Inhalation
Immediately remove from further exposure. Get immediate medical assistance. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. Give supplemental oxygen, if available. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

Ingestion
Rinse mouth thoroughly with water and give large amounts of milk or water to people not unconscious. Only induce vomiting at the instruction of medical personnel. Get medical attention.

Notes to physician
In case of shortness of breath, give oxygen. Keep victim warm.

General advice
Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire Fighting Measures
Flammable properties
The product is non-combustible.

Extinguishing media
Suitable extinguishing media
Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media
None.

Protection of firefighters
Specific hazards arising from the chemical
During fire, gases hazardous to health may be formed.

Fire fighting equipment/instructions
Selection of respiratory protection for fire fighting: follow the general fire precautions indicated in the workplace. Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Specific methods
Use standard firefighting procedures and consider the hazards of other involved materials.

Hazardous combustion products

6. Accidental Release Measures
Personal precautions

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not contaminate water.

Methods for containment
Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Prevent entry into waterways, sewers, basements or confined areas.

Methods for cleaning up
Reduce airborne dust and prevent scattering by moistening with water.

Large Spills: Absorb in vermiculite, dry sand or earth and place into containers. Sweep up and place in a clearly labeled container for chemical waste. Containers with collected spillage must be properly labeled with correct contents and hazard symbol. Collect and dispose of spillage as indicated in section 13 of the MSDS.

Small Spills: Sweep or scoop up and remove. Collect in containers and seal securely.

Other information
Never return spills in original containers for re-use.

Clean up in accordance with all applicable regulations.
7. Handling and Storage

Handling
Exposure to pentachlorophenol during pregnancy should be avoided. Avoid dust formation. Local exhaust is recommended. Avoid any exposure. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

Storage
Store in closed original container in a dry place. Do not store near heat sources or expose to high temperatures. Keep container tightly closed. Keep in a well-ventilated place. Keep this material away from food, drink and animal feed. Store away from incompatible materials.

8. Exposure Controls / Personal Protection

Occupational exposure limits

<table>
<thead>
<tr>
<th>US. ACGIH Threshold Limit Values</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component</td>
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<td></td>
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<tr>
<td>Pentachlorophenol (87-86-5)</td>
<td>TWA</td>
<td>0.5 mg/m³</td>
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<thead>
<tr>
<th>US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)</th>
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<thead>
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<th>Canada. Alberta OELs (Occupational Health &amp; Safety Code, Schedule 1, Table 2)</th>
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<thead>
<tr>
<th>Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)</th>
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<thead>
<tr>
<th>Canada. Ontario OELs. (Ministry of Labor - Control of Exposure to Biological or Chemical Agents)</th>
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<tr>
<th>Mexico. Occupational Exposure Limit Values</th>
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<tr>
<td>Component</td>
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</table>

| STEL                                      | 1.5 mg/m³ |

Exposure guidelines
No exposure standards allocated.

Engineering controls
Provide adequate ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of dust.

Personal protective equipment

Eye / face protection
Wear approved safety goggles.

Skin protection
Wear protective gloves. Suitable gloves can be recommended by the glove supplier. Wear appropriate chemical resistant clothing to prevent any possibility of skin contact.

Respiratory protection
If engineering measures are not sufficient to maintain concentrations of dust particulates below the OEL, suitable respiratory protection must be worn. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA Standard 63 FR 1152, January 8, 1998. Use a NIOSH/MSHA approved air purifying respirator as needed to control exposure. Consult with respirator manufacturer to determine respirator selection, use, and limitations. Use positive pressure, air-supplied respirator for uncontrolled releases or when air purifying respirator limitations may be exceeded. Follow respirator protection program requirements (OSHA 1910.134 and ANSI Z88.2) for all respirator use.

General hygiene considerations
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke. Launder contaminated clothing before reuse. Remove and isolate contaminated clothing and shoes. Observe any medical surveillance requirements.
9. Physical & Chemical Properties

Appearance
Crystals.
Color
Brownish-grey.
Odor
Phenolic.
Odor threshold
Not available.
Physical state
Solid.
Form
Solid.

pH
Not applicable.
Melting point
374 °F (190 °C)
Freezing point
Not applicable.
Boiling point
590 °F (310 °C) (760 mm Hg)
Flash point
Non flammable.
Evaporation rate
Not applicable.

Flammability limits in air, upper, % by volume
Not applicable.
Flammability limits in air, lower, % by volume
Not applicable.

Vapor pressure
40 mm Hg (211.2°C)
Vapor density
9.2
Specific gravity
1.98 (Water = 1.0)
Solubility (water)
14 ppm (20°C)
Partition coefficient (n-octanol/water)
Not available.
Auto-ignition temperature
Not applicable.
Decomposition temperature
Not available.
Bulk density
123.6 lb/ft³ (20°)
Density
1.98
Percent volatile
No data available.

Molecular weight
266.32
Molecular formula
C₆Cl₅OH

10. Chemical Stability & Reactivity Information

Chemical stability
Stable under normal temperature conditions.
Conditions to avoid
Avoid dust formation. Elevated temperatures. Decomposes on heating above 200°C, producing toxic and corrosive fumes including dioxins.
Incompatible materials
Strong oxidizing agents.
Hazardous decomposition products
Possibility of hazardous reactions
Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

<table>
<thead>
<tr>
<th>Components</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pentachlorophenol (87-86-5)</td>
<td>Acute Dermal LD50 Rat: 96 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Acute Inhalation LC50 Rat: 0.2 mg/l</td>
</tr>
<tr>
<td></td>
<td>Acute Oral LD50 Rat: 146 mg/kg</td>
</tr>
</tbody>
</table>

Acute effects
May be fatal if inhaled or absorbed through skin. Harmful if swallowed. Can cause cardiovascular effects. May cause damage to the heart.
Local effects
Causes skin, eye and respiratory tract irritation.
US ACGIH Threshold Limit Values: Skin designation
Pentachlorophenol (CAS 87-86-5) Can be absorbed through the skin.

Sensitization Not a skin sensitizer.

Chronic effects May cause blood damage. May cause central nervous system effects. May cause damage to the heart. May cause damage to the liver and kidneys.

Carcinogenicity Possible cancer hazard - may cause cancer based on animal data.

ACGIH Carcinogens
Pentachlorophenol (CAS 87-86-5) A3 Confirmed animal carcinogen with unknown relevance to humans.

IARC Monographs. Overall Evaluation of Carcinogenicity
Pentachlorophenol (CAS 87-86-5) 2B Possibly carcinogenic to humans.

Mutagenicity No data available.

Neurological effects No data available.

Reproductive effects Pentachlorophenol has not been found to cause teratogenic effects (birth defects) in lab animals, but can cause delays in normal fetal development. EPA has expressed an opinion that pentachlorophenol may produce defects in the offspring of lab animals.

Teratogenicity Pentachlorophenol has been determined to be embryo and fetotoxic to rats but not to hamsters.

Symptoms and target organs
The usual symptoms of chloracne are the formation of blackheads, whiteheads and yellow cysts over the temples and around the ears. Symptoms reverse upon removal of exposure source.

Further information Human exposure to pentachlorophenol may result in the development of chloracne. Mild cases resemble other forms of acne or skin changes observed with aging. The registrant has complied with all terms and conditions of the registration governing the composition of this product as approved by the United State Environmental Protection Agency under section 3 of the Federal Insecticide, Fungicide, and Rodenticide Act. The use of this product for any purpose other than those stated on the label, including use of this product in the manufacture or formulation of other pesticide products or in repackaging of the product, is prohibited.

12. Ecological Information

Ecotoxicological data

Components Test Results
Pentachlorophenol (87-86-5) EC50 Water flea (Daphnia magna): 0.08 mg/l 48 hours
LC50 Zebra danio (Danio rerio): 0.0004 - 0.0005 mg/l 96 hours

Ecotoxicity Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Persistence and degradability No data available.

Bioaccumulation / Accumulation No data available.

Partition coefficient (n-octanol/water) Not available.

Mobility in environmental media The product is insoluble in water.

13. Disposal Considerations

Waste codes D037: Waste Pentachlorophenol

Disposal instructions Dispose of this material and its container at hazardous or special waste collection point. Do not incinerate sealed containers. Do not allow this material to drain into sewers/water supplies. Dispose in accordance with all applicable regulations.

Waste from residues / unused products Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.
14. Transport Information

DOT

Basic shipping requirements:
- UN number: UN3155
- Proper shipping name: Pentachlorophenol
- Hazard class: 6.1
- Packing group: II
- Environmental hazards:
  - Marine pollutant: Yes
- Labels required: 6.1
- Additional information:
  - Special provisions: IB8, IP2, IP4, T3, TP33
- Packaging exceptions: None
- Packaging non bulk: 212
- Packaging bulk: 242
- ERG number: 154

IATA

Basic shipping requirements:
- UN number: 3155
- Proper shipping name: Pentachlorophenol
- Hazard class: 6.1
- Packing group: II
- Environmental hazards:
  - Marine pollutant: Yes
- Additional information:
  - ERG code: 6L

IMDG

Basic shipping requirements:
- UN number: 3155
- Proper shipping name: PENTACHLOROPHENOL
- Hazard class: 6.1
- Packing group: II
- Environmental hazards:
  - Marine pollutant: Yes
- EmS No.: F-A, S-A

TDG

Basic shipping requirements:
- Proper shipping name: PENTACHLOROPHENOL
- Hazard class: 6.1
- UN number: UN3155
- Packing group: II
- Marine pollutant: Yes

General
Read safety instructions, MSDS and emergency procedures before handling.

15. Regulatory Information

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

TSCA Section 12(b) Export Notification(40 CFR 707, Subpt. D)
Not regulated.

US CAA Section 112 Hazardous Air Pollutants (HAPs) List
PENTACHLOROPHENOL (CAS 87-86-5)

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration
Pentachlorophenol (CAS 87-86-5) 0.1 %

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance
Pentachlorophenol (CAS 87-86-5) Listed.
CERCLA (Superfund) reportable quantity (lbs) (40 CFR 302.4)
Pentachlorophenol: 10

Superfund Amendments and Reauthorization Act of 1986 (SARA)
Hazard categories
Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 302 extremely hazardous substance (40 CFR 355, Appendix A)
No

Section 311/312 (40 CFR 370)
Yes

Drug Enforcement Administration (DEA) (21 CFR 1308.11-15)
Not controlled

Canadian regulations
This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

WHMIS status
Controlled

WHMIS classification
D1A - Immediate/Serious-VERY TOXIC
D2A - Other Toxic Effects-VERY TOXIC
D2B - Other Toxic Effects-TOXIC

WHMIS labeling

Inventory status

Country(s) or region       Inventory name                          On inventory (yes/no)*
---                          ---                                ---
Australia                   Australian Inventory of Chemical Substances (AICS)  No
Canada                      Domestic Substances List (DSL)  No
Canada                      Non-Domestic Substances List (NDSL)  No
China                       Inventory of Existing Chemical Substances in China (IECSC)  No
Europe                      European Inventory of Existing Commercial Chemical Substances (EINECS)  No
Europe                      European List of Notified Chemical Substances (ELINCS)  No
Japan                       Inventory of Existing and New Chemical Substances (ENCS)  No
Korea                       Existing Chemicals List (ECL)  No
New Zealand                 New Zealand Inventory  No
Philippines                 Philippine Inventory of Chemicals and Chemical Substances (PICCS)  No
United States & Puerto Rico Toxic Substances Control Act (TSCA) Inventory  No

* A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

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

US - California Hazardous Substances (Director's): Listed substance
Pentachlorophenol (CAS 87-86-5) Listed.

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance
Pentachlorophenol (CAS 87-86-5) Listed.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance
Pentachlorophenol (CAS 87-86-5) Listed: January 1, 1990 Carcinogenic.

US - Massachusetts RTK - Substance: Listed substance
Pentachlorophenol (CAS 87-86-5) Listed.

US - New Jersey Community RTK (EHS Survey): Reportable threshold
Pentachlorophenol (CAS 87-86-5) 500 LBS

US - New Jersey RTK - Substances: Listed substance
Pentachlorophenol (CAS 87-86-5) Listed.
**US - Pennsylvania RTK - Hazardous Substances: Listed substance**
Pentachlorophenol (CAS 87-86-5) Listed.

**US - Pennsylvania RTK - Hazardous Substances: Special hazard**
Pentachlorophenol (CAS 87-86-5) Special hazard.

**Mexico regulations**
This safety data sheet was prepared in accordance with the Official Mexican Standard (NOM-018-STPS-2000).

### 16. Other Information

**Further information**
HMIS® is a registered trade and service mark of the NPCA.
J - Goggles, Gloves, Apron, Dust, Vapor Respirator

**HMIS® ratings**
Health: 3*
Flammability: 0
Physical hazard: 0
Personal protection: J

**NFPA ratings**
Health: 3
Flammability: 0
Instability: 0

**Disclaimer**
NOTICE: The information presented herein is based on data considered to be accurate as of the date of preparation of this Safety Data Sheet (SDS) and was prepared pursuant to Government regulation(s) that identify specific types of information to be provided. This SDS may not be used as a commercial specification sheet of manufacturer or seller, and no warranty or representation, expressed or implied, is made as to the accuracy or comprehensiveness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. Additional information may be needed to evaluate other uses of the product, including use of the product in combination with any materials or in any processes other than those specifically referenced. Information provided herein with respect to any hazards that may be associated with the product is not meant to suggest that use of the product in a given application will necessarily result in any exposure or risk to workers or the general public. No responsibility can be assumed by vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product. Purchasers and users assume all risk of use, storage and handling of the product in compliance with applicable federal, state and local laws and regulations. Purchasers and users of the product specifically should advise all of their employees, agents, contractors and customers who will use the product of this (M)SDS.

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