



MATERIAL SAFETY DATA SHEET

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.
Target organs Eyes. Skin. Respiratory system. Cardiovascular system. Heart. Blood. Nervous system. Liver. Kidney.
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.
Signs and symptoms Inhalation: Cough. Drowsiness and dizziness. Headache. Sore throat. Fever. Eye contact: May cause redness and pain. Skin contact: Irritating and may cause redness and pain. Blisters. Ingestion: Abdominal cramps. Diarrhea. Nausea and vomiting. Unconsciousness. 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.
Potential environmental effects Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

3. Composition / Information on Ingredients

Components	CAS #	Percent
Pentachlorophenol	87-86-5	86
Other Chlorophenols	Mixture	10
Hexachlorobenzene	118-74-1	max 5.0 ppm
Hexachlorodibenzo-8-dioxin	34465-46-8	max 4.0 ppm

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 Carbon Dioxide. Carbon monoxide. Chlorine. Chlorinated hydrocarbons. Decomposes on heating in the presence of water, forming corrosive fumes (hydrochloric acid).

6. Accidental Release Measures

Personal precautions Avoid dust formation. Keep unnecessary personnel away. Local authorities should be advised if significant spillages cannot be contained. Stay upwind. Keep people away from and upwind of spill/leak. Ventilate closed spaces before entering. Ensure adequate ventilation. If leakage cannot be stopped, evacuate area. Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Ventilate. Avoid any exposure. Wear suitable protective clothing. See Section 8 of the MSDS for Personal Protective Equipment.

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.

Never return spills in original containers for re-use.

Other information 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

US. ACGIH Threshold Limit Values

Components	Type	Value
Pentachlorophenol (87-86-5)	TWA	0.5 mg/m3

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Pentachlorophenol (87-86-5)	PEL	0.5 mg/m3

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Components	Type	Value
Pentachlorophenol (87-86-5)	TWA	0.5 mg/m3

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value
Pentachlorophenol (87-86-5)	TWA	0.5 mg/m3

Canada. Ontario OELs. (Ministry of Labor - Control of Exposure to Biological or Chemical Agents)

Components	Type	Value
Pentachlorophenol (87-86-5)	TWA	0.5 mg/m3

Canada. Quebec OELS. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)

Components	Type	Value
Pentachlorophenol (87-86-5)	TWA	0.5 mg/m3

Mexico. Occupational Exposure Limit Values

Components	Type	Value
Pentachlorophenol (87-86-5)	TWA	0.5 mg/m3
	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	Carbon oxides. Chlorinated hydrocarbons. Chlorine. Decomposes on heating in the presence of water, forming corrosive fumes (hydrochloric acid).
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data	
Components	Test Results
Pentachlorophenol (87-86-5)	Acute Dermal LD50 Rat: 96 mg/kg Acute Inhalation LC50 Rat: 0.2 mg/l Acute Oral LD50 Rat: 146 mg/kg
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 Inhalation: Cough. Drowsiness and dizziness. Headache. Fever. Sore throat. Eye contact: May cause redness and pain. Skin contact: Blisters. Ingestion: Abdominal cramps. Diarrhea. Nausea, vomiting. Unconsciousness.

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 %
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US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

Pentachlorophenol (CAS 87-86-5)	Listed.
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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.

Issue date

08-26-2011