4-Cresol

sc-256805

Material Safety Data Sheet

Hazard Alert Code Key:	EXTREME	HIGH	MODERATE	LOW

Section 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
4-Cresol

STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA

SUPPLIER
Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, California 95060
800.457.3801 or 831.457.3800
EMERGENCY
ChemWatch
Within the US & Canada: 877–715–9305
Outside the US & Canada: +800 2436 2255
(1–800-CHEMCALL) or call +613 9573 3112

SYNONYMS
C7-H8-O, CH3C6H4OH, para-cresol, "para cresol", "p-cresylic acid", 1-hydroxy-4-methylbenzene, p-methylhydroxybenzene, 1-methyl-4-hydroxybenzene, 4-cresol, "paramethyl phenol", p-oxytoluene, p-toluol, "p-tolyl alcohol"

Section 2 – HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability:	1	
Toxicity:	3	
Body Contact:	3	
Reactivity:	1	
Chronic:	2	

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4

CANADIAN WHMIS SYMBOLS

EMERGENCY OVERVIEW

RISK
Causes burns.
Risk of serious damage to eyes.
Toxic in contact with skin and if swallowed.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED
■ Toxic effects may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 40 gram may be fatal or may produce serious damage to the health of the individual.
■ The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.
■ Some phenol derivatives can cause damage to the digestive system.
If absorbed, profuse sweating, thirst, nausea, vomiting diarrhea, cyanosis, restlessness, stupor, low blood pressure, gasping, abdominal pain, anemia, convulsions, coma and lung swelling can happen followed by pneumonia.
■ Several cases of ingestion have shown cresol to be corrosive to body tissues and to cause toxic effects on the vascular system, liver, kidneys and pancreas.
EYE
■ The material can produce chemical burns to the eye following direct contact.
Vapors or mists may be extremely irritating.
■ If applied to the eyes, this material causes severe eye damage.
■ Concentrated cresols instilled into the eyes of rabbits caused permanent opacification and vascularisation.
A 33% solution applied as a drop to rabbit eyes and removed with irrigation within 60 seconds caused moderate and reversible injury.
■ Some phenol derivatives may produce mild to severe eye irritation with redness, pain and blurred vision.
Permanent eye injury may occur; recovery may also be complete or partial.
SKIN
■ Skin contact with the material may produce toxic effects; systemic effectsmay result following absorption.
■ The material can produce chemical burns following direct contactwith the skin.
■ The material may cause moderate inflammation of the skin either following direct contact or after a delay of some time.
Repeated exposure can cause contact dermatitis which is characterized by redness, swelling and blistering.
■ Dilute cresol solutions cause redness, vesiculation and burning of the skin.
Skin absorption produces toxic effects within 30 minutes.
■ Phenol and its derivatives can cause severe skin irritation if contact is maintained, and can be absorbed to the skin affecting the cardiovascular and central nervous system.
Effects include sweating, intense thirst, nausea and vomiting, diarrhea, cyanosis, restlessness, stupor, low blood pressure, hyperventilation, abdominal pain, anemia, convulsions, coma, lung swelling followed by pneumonia.
■ Open cuts, abraded or irritated skin should not be exposed to this material.
■ Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.
Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
INHALED
■ If inhaled, this material can irritate the throat andlungs of some persons.
■ Inhalation of vapors, aerosols (mists, fumes) or dusts, generated by the material during the course of normal handling, may produce serious damage to the health of the individual.
■ Acute cresol poisoning occurs from exposure by inhalation, combined with ingestion and skin absorption.
Acute exposure by all routes of absorption may cause muscular weakness, gastro-enteric disturbances, pancreas and spleen injury.
■ Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.
■ If phenols are absorbed via the lungs, systemic effects may occur affecting the cardiovascular and nervous systems.
Inhalation can result in profuse perspiration, intense thirst, nausea, vomiting, diarrhea, cyanosis, restlessness, stupor, falling blood pressure, hyperventilation, abdominal pain, anemia, convulsions, coma, swelling and inflammation of the lung.

CHRONIC HEALTH EFFECTS
■ Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue.
Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.
Chronic exposure to the skin by cresol can cause facial peripheral nerve damage, impairment of renal function and even necrosis of the liver and kidneys.
Symptoms of chronic poisoning are abundant production of saliva, vomiting, diarrhoea, loss of appetite, headache, dizziness, mental disturbances and fainting. Contact dermatitis may also occur.
Workers exposed to cresol vapour for 1.5 to 3 years experienced headaches that were frequently accompanied by nausea and vomiting. Other symptoms included elevated blood pressure, signs of impaired kidney function,blood calcium imbalance and marked tremors.
Isomers of cresol are tumor promoters.
Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung.
Long-term exposure to phenol derivatives can cause skin inflammation, loss of appetite and weight, weakness, muscle aches and pain, liver damage, dark urine, loss of nails, skin eruptions, diarrhea, nervous disorders with headache, salivation, fainting, discoloration of the skin and eyes, vertigo and mental disorders, and damage to the liver and kidneys.

Section 3 – COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
p-cresol	106–44–5	>99

Section 4 – FIRST AID MEASURES

SWALLOWED
■

- Give a slurry of activated charcoal in water to drink. NEVER GIVE AN UNCONSCIOUS PATIENT WATER TO DRINK.
- At least 3 tablespoons in a glass of water should be given.

■ If poisoning occurs, contact a doctor or Poisons Information Center.
EYE
■ If this product comes in contact with the eyes:

- Immediately hold eyelids apart and flush the eye continuously with running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

SKIN
■ If spilt on skin:

- Remove contaminated clothing, swab repeatedly with glycerin, PEG (polyethylene glycol), or PEG/ methylated spirit mixture or if necessary with methylated spirit alone*
- Contamination of skin with phenol and some of its derivatives may produce rapid collapse and death.
- After skin contamination, keep patient under observation for at least 24–48 hours.
- Phenol-decontaminating fluid is more effective than water in removing phenol from the skin and retarding absorption; olive oil or vegetable oil may also be used; do not use mineral oil.
- Alcohols* (methylated spirit, for example) may enhance absorption and their use alone may be ill-advised; some authorities however continue to advise the use of such treatment.
- Rapid water dilution of phenol burns may increase systemic absorption by decreasing the extent of the coagulum and thus allowing greater absorption (1).

(1) Ellenhorn and Barceloux: Medical Toxicology: Diagnosis and Treatment of Human Poisoning.
INHALED
■

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.

Inhalation of vapors or aerosols (mists, fumes) may cause lung edema. Corrosive substances may cause lung damage (e.g.

NOTES TO PHYSICIAN
■ Preplacement and annual medical examinations are recommended for workers exposed to cresol. Preplacement examinations should include:

- work histories evaluating preexisting disorders particularly of the lungs, liver, kidneys, pancreas, nervous and cardiovascular systems, and skin.
- physical examination with emphasis on the lungs, liver, kidneys, pancreas, skin, and nervous and cardiovascular systems. urinalysis that includes a microscopic examination.
- additional tests such as complete blood counts, and liver and kidney function tests.

Annual examinations should include the above tests, and monitor cases of skin abnormalities, such as scaling, crusting, or irritation.
(Source: Occupational Diseases; NIOSH.
For acute or short term repeated exposures to phenols/ cresols:

- Phenol is absorbed rapidly through lungs and skin. [Massive skin contact may result in collapse and death]*
- [Ingestion may result in ulceration of upper respiratory tract; perforation of esophagus and/or stomach, with attendant complications, may occur. Esophageal stricture may occur.]*

Depending on the degree of exposure, periodic medical examination is indicated. The symptoms of lung edema often do not manifest until a few hours have passed and they are aggravated by physical effort.

Section 5 – FIRE FIGHTING MEASURES

Vapour Pressure (mmHG):	Not available
Upper Explosive Limit (%):	Not available.

Specific Gravity (water=1):	1.039
Lower Explosive Limit (%):	Not available

EXTINGUISHING MEDIA
■

- Water spray or fog.
- Alcohol stable foam.
- Dry chemical powder.
- Carbon dioxide.

FIRE FIGHTING
■

- Alert Emergency Responders and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS
■

- Combustible solid which burns but propagates flame with difficulty.
- Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust may burn rapidly and fiercely if ignited.

Combustion products include: carbon monoxide (CO), carbon dioxide (CO_2), other pyrolysis products typical of burning organic material.
May emit poisonous fumes.
FIRE INCOMPATIBILITY
■ Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids,chlorine bleaches, pool chlorine etc. as ignition may result.

PERSONAL PROTECTION
Glasses:
Chemical goggles.
Full face- shield.
Gloves:
1.PE/EVAL/PE
Respirator:
Particulate

Section 6 – ACCIDENTAL RELEASE MEASURES

MINOR SPILLS
■

- Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material.
- Check regularly for spills and leaks.

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Control personal contact by using protective equipment.
- Use dry clean up procedures and avoid generating dust.
- Place in a suitable, labelled container for waste disposal.

MAJOR SPILLS
■

- Clear area of personnel and move upwind.
- Alert Emergency Responders and tell them location and nature of hazard.

Section 7 – HANDLING AND STORAGE

PROCEDURE FOR HANDLING
■

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.

Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.

- Do NOT cut, drill, grind or weld such containers.
- In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorisation or permit.

RECOMMENDED STORAGE METHODS
■

- Lined metal can, Lined metal pail/drum
- Plastic pail

For low viscosity materials

- Drums and jerricans must be of the non-removable head type.
- Where a can is to be used as an inner package, the can must have a screwed enclosure.

All inner and sole packagings for substances that have been assigned to Packaging Groups I or II on the basis of inhalation toxicity criteria, must be hermetically sealed.
STORAGE REQUIREMENTS
■

- Store in original containers.
- Keep containers securely sealed.

Section 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m³	STEL ppm	STEL mg/m³	Peak ppm	Peak mg/m³	TWA F/CC	Notes
US NIOSH Recommended Exposure Limits (RELs)	p-cresol (p-Cresol)	2.3	10						
Canada – Alberta Occupational Exposure Limits	p-cresol (1-Bromopropane)	10	50						
Canada – Nova Scotia Occupational Exposure Limits	p-cresol (p-Cresol)	5							TLV Basis: eye, skin & upper respiratory tract irritation
Canada – Prince Edward Island Occupational Exposure Limits	p-cresol (p-Cresol)		20						TLV Basis: upper respiratory tract irritation
US ACGIH Threshold Limit Values (TLV)	p-cresol (p-Cresol)		20						TLV Basis: upper respiratory tract irritation
US – Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	p-cresol (Cresol, all isomers)	5	22						
US – Washington Permissible exposure limits of air contaminants	p-cresol (Cresol (all isomers))	5		10					
US OSHA Permissible Exposure Levels (PELs) – Table Z1	p-cresol (Cresol, all isomers)	5	22						
US – Idaho – Limits for Air Contaminants	p-cresol (Cresol, all isomers)	5	22						
Canada – British Columbia Occupational Exposure Limits	p-cresol (Cresol, all isomers)		10						Skin

Canada – Quebec Permissible Exposure Values for Airborne Contaminants (English)	p-cresol (Cresol (all isomers))	5	22				
US – Tennessee Occupational Exposure Limits – Limits For Air Contaminants	p-cresol (Cresol, all isomers)	5	22				
US – California Permissible Exposure Limits for Chemical Contaminants	p-cresol (Cresol (all isomers))	5	22				
US – Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	p-cresol (Cresol, all isomers)	5	22				
US – Alaska Limits for Air Contaminants	p-cresol (Cresol, all isomers)	5	22				
US – Hawaii Air Contaminant Limits	p-cresol (Cresol, all isomers)	5	22				
Canada – Saskatchewan Occupational Health and Safety Regulations – Contamination Limits	p-cresol (Cresol, all isomers)	5		10			Skin
Canada – Northwest Territories Occupational Exposure Limits (English)	p-cresol (Cresol, all isomers – Skin)	5	22	10	44		
US – Oregon Permissible Exposure Limits (Z-1)	p-cresol (Cresol (all isomers))	5	22				
US – Michigan Exposure Limits for Air Contaminants	p-cresol (Cresol, all isomers)	5	22				

PERSONAL PROTECTION




RESPIRATOR
• particulate.
Consult your EHS staff for recommendations
EYE
■

- Chemical goggles.
- Full face shield.

HANDS/FEET
■ Wear chemical protective gloves, eg. PVC.
Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended.

- Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.
OTHER
■

- Overalls.
- PVC Apron.

ENGINEERING CONTROLS
■

- Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
- Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.

Section 9 – PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Solid.
Does not mix with water.
Sinks in water.
Corrosive.

State	Divided solid	Molecular Weight	108.15
Melting Range (°F)	95	Viscosity	Not Applicable
Boiling Range (°F)	396	Solubility in water (g/L)	Partly miscible
Flash Point (°F)	Not available	pH (1% solution)	Not available
Decomposition Temp (°F)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	1036	Vapour Pressure (mmHG)	Not available
Upper Explosive Limit (%)	Not available.	Specific Gravity (water=1)	1.039
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	Not available
Volatile Component (%vol)	Not available.	Evaporation Rate	Not available
Gas group	IIA		

p-cresol	
log Kow (Prager 1995):	1.94
log Kow (Sangster 1997):	1.98

APPEARANCE
Crystalline mass with phenol-like odour. Soluble in hot water, alcohol, ether and chloroform.

log Kow 1.92–1.94 Environmental toxicity is a function of the n-octanol/ water partition coefficient (log Pow, log Kow). Phenols with log Pow >7.4 are expected to exhibit low toxicity to aquatic organisms.<\div>.

Material	Value

Section 10 – CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY
■

- Presence of incompatible materials.
- Product is considered stable.

STORAGE INCOMPATIBILITY
■ Cresols:

- are incompatible with strong acids, oxidisers, aldehydes, alkalis, aliphatic amines, amides, chlorosulfonic acid, fuming sulfuric acid (oleum)
- can attack plastics, rubber and many metals

- Phenols are incompatible with strong reducing substances such as hydrides, nitrides, alkali metals, and sulfides.
- Avoid use of aluminium, copper and brass alloys in storage and process equipment.
- Heat is generated by the acid-base reaction between phenols and bases.

- Phenols are sulfonated very readily (for example, by concentrated sulfuric acid at room temperature), these reactions generate heat.
- Phenols are nitrated very rapidly, even by dilute nitric acid.
- Nitrated phenols often explode when heated. Many of them form metal salts that tend toward detonation by rather mild shock.

Avoid reaction with oxidizing agents.

For incompatible materials – refer to Section 7 – Handling and Storage.

Section 11 – TOXICOLOGICAL INFORMATION

p-cresol

TOXICITY AND IRRITATION
P-CRESOL:
■ unless otherwise specified data extracted from RTECS – Register of Toxic Effects of Chemical Substances.

TOXICITY	IRRITATION
Oral (rat) LD50: 207 mg/kg	Skin (rabbit): 517 mg/24h SEVERE
Dermal (rabbit) LD50: 301 mg/kg	Eye (rabbit): 103 mg SEVERE

■ The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
The material may cause severe skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin. Repeated exposures may produce severe ulceration.
Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

CARCINOGEN

	US – Rhode Island Hazardous Substance List	IARC	
P-CRESOL	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	IRIS
VPVB_(VERY~	US – Maine Chemicals of High Concern List	Carcinogen	CA Prop 65; IARC; NTP 11th ROC

SKIN

p-cresol	US – Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants – Skin	Skin Designation	X
p-cresol	US – Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants – Skin	Skin Designation	X
p-cresol	US – Washington Permissible exposure limits of air contaminants – Skin	Skin	X
p-cresol	US – Tennessee Occupational Exposure Limits – Limits For Air Contaminants – Skin	Skin Designation	X
p-cresol	US – Minnesota Permissible Exposure Limits (PELs) – Skin	Skin Designation	X
p-cresol	US – Hawaii Air Contaminant Limits – Skin Designation	Skin Designation	X
p-cresol	US OSHA Permissible Exposure Levels (PELs) – Skin	Skin Designation	X
p-cresol	Canada – Alberta Occupational Exposure Limits – Skin	Substance Interaction	1

Section 12 – ECOLOGICAL INFORMATION

This material and its container must be disposed of as hazardous waste.

Ecotoxicity Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
p-cresol	LOW	LOW	LOW	MED

Section 13 – DISPOSAL CONSIDERATIONS

US EPA Waste Number & Descriptions

A. General Product Information
Corrosivity characteristic: use EPA hazardous waste number D002 (waste code C)
Toxicity characteristic: use EPA hazardous waste number D025 (waste code E) if this substance, in a solid waste, produces an extract containing greater than 200 mg/L of p-Cresol.
B. Component Waste Numbers
When p-cresol is present as a solid waste as a discarded commercial chemical product, off-specification species, as a container residue, or a spill residue, use EPA waste number U052 (waste code T).
Disposal Instructions
All waste must be handled in accordance with local, state and federal regulations.
¦ Puncture containers to prevent re-use and bury at an authorized landfill.
Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.
A Hierarchy of Controls seems to be common – the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.
DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.

- Recycle wherever possible.
- Consult manufacturer for recycling options or consult Waste Management Authority for disposal if no suitable treatment or disposal facility can be identified.

Section 14 – TRANSPORTATION INFORMATION

DOT:

Symbols:	None	Hazard class or Division:	6.1
Identification Numbers:	UN3455	PG:	II
Label Codes:	6.1, 8	Special provisions:	IB8, IP2, IP4, T3, TP33
Packaging: Exceptions:	153	Packaging: Non-bulk:	212
Packaging: Exceptions:	153	Quantity limitations: Passenger aircraft/rail:	15 kg
Quantity Limitations: Cargo aircraft only:	50 kg	Vessel stowage: Location:	B
Vessel stowage: Other:	None		

Hazardous materials descriptions and proper shipping names:
Cresols, solid
Air Transport IATA:

ICAO/IATA Class:	6.1 (8)	ICAO/IATA Subrisk:	None
UN/ID Number:	3455	Packing Group:	II
Special provisions:	None		
Cargo Only			
Packing Instructions:	50 kg	Maximum Qty/Pack:	15 kg
Passenger and Cargo		Passenger and Cargo	
Packing Instructions:	675	Maximum Qty/Pack:	668
Passenger and Cargo Limited Quantity		Passenger and Cargo Limited Quantity	
Packing Instructions:	1 kg	Maximum Qty/Pack:	Y644

Shipping Name: CRESOLS, SOLID
Maritime Transport IMDG:

IMDG Class:	6.1	IMDG Subrisk:	8
UN Number:	3455	Packing Group:	II

EMS Number:	F-A , S-B	Special provisions:	None
Limited Quantities:	500 g		

Shipping Name: CRESOLS, SOLID

Section 15 – REGULATORY INFORMATION

p-cresol (CAS: 106–44–5) is found on the following regulatory lists;
"Canada – Alberta Occupational Exposure Limits","Canada – Nova Scotia Occupational Exposure Limits","Canada – Prince Edward Island Occupational Exposure Limits","Canada – Prince Edward Island Occupational Exposure Limits – Carcinogens","Canada Domestic Substances List (DSL)","Canada Ingredient Disclosure List (SOR/88–64)","Canada Toxicological Index Service – Workplace Hazardous Materials Information System – WHMIS (English)","International Council of Chemical Associations (ICCA) – High Production Volume List","International Fragrance Association (IFRA) Survey: Transparency List","OECD Representative List of High Production Volume (HPV) Chemicals","US – California Air Toxics ""Hot Spots"" List (Assembly Bill 2588) Substances for which emissions must be quantified","US – California Code of Regulation; Identification and Listing of Hazardous Waste, Table 1 – Maximum Concentrations for the Toxicity Characteristics","US – California OEHHA/ARB – Chronic Reference Exposure Levels and Target Organs (CRELs)","US – California Toxic Air Contaminant List Category V","US – Massachusetts Oil & Hazardous Material List","US – Pennsylvania – Hazardous Substance List","US – Vermont Hazardous Waste – Maximum Contaminant Concentration for Toxicity","US ACGIH Threshold Limit Values (TLV)","US ACGIH Threshold Limit Values (TLV) – Carcinogens","US CAA (Clean Air Act) – HON Rule – Organic HAPs (Hazardous Air Pollutants)","US CERCLA Priority List of Hazardous Substances","US Clean Air Act – Hazardous Air Pollutants","US Cosmetic Ingredient Review (CIR) Cosmetic ingredients with insufficient data to support safety","US CWA (Clean Water Act) – List of Hazardous Substances","US Department of Transportation (DOT) List of Hazardous Substances and Reportable Quantities – Hazardous Substances Other Than Radionuclides","US DOE Temporary Emergency Exposure Limits (TEELs)","US EPA Carcinogens Listing","US EPA High Production Volume Program Chemical List","US EPA Master Testing List – Index I Chemicals Listed","US EPA Master Testing List – Index II Chemicals Removed","US EPA National Priorities List – Superfund Chemical Data Matrix (SCDM) – Hazard Ranking System – Hazardous Substance Benchmarks","US EPCRA Section 313 Chemical List","US Food Additive Database","US List of Lists – Consolidated List of Chemicals Subject to EPCRA, CERCLA and Section 112(r) of the Clean Air Act","US NIOSH Recommended Exposure Limits (RELs)","US RCRA (Resource Conservation & Recovery Act) – Appendix IX to Part 264 Ground-Water Monitoring List 1","US RCRA (Resource Conservation & Recovery Act) – List of Hazardous Inorganic and Organic Constituents 1","US RCRA (Resource Conservation & Recovery Act) – Phase 4 LDR Rule – Universal Treatment Standards","US Toxic Substances Control Act (TSCA) – Inventory","US TSCA Section 4/12 (b) – Sunset Date/Status","US TSCA Section 8 (d) – Health and Safety Data Reporting"

Section 16 – OTHER INFORMATION

Reasonable care has been taken in the preparation of this information, but the author makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The author makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use. For additional technical information please call our toxicology department on +800 CHEMCALL.

■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.
A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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