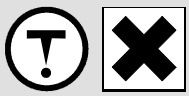
TCI AMERICA

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	**POSSIBLE CARCINOGEN. MINIMIZE EXPOSURE.** **Harmful compound, minimize exposure.** **Irritating to skin, eyes, and the respiratory system.**	

Section I. Chemical Product and Company Identification

Chemical Name: **4-(1,1,3,3-Tetramethylbutyl)phenol**

Catalog Number	T0144
Synonym	4-tert-Octylphenol
Chemical Formula	$C_{14}H_{22}O$
CAS Number	140-66-9

Supplier: TCI America
9211 N. Harborgate St.
Portland OR
1-800-423-8616

In case of Emergency Call: **Chemtrec®**
(800) 424-9300 (U.S.)
(703) 527-3887 (International)

Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
4-(1,1,3,3-Tetramethylbutyl)phenol	140-66-9	Min. 93.0 (GC)	This chemical is classified as a possible carcinogen. There is no acceptable exposure limit for a carcinogen.	Not available.

Section III. Hazards Identification

Acute Health Effects

Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death.
Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Chronic Health Effects

CARCINOGENIC EFFECTS : Equivocal tumorigenic agent by RTECS criteria.
MUTAGENIC EFFECTS : Not available.
TERATOGENIC EFFECTS : Tumorigenic Effects.
Mouse TDLo SKin 5280 mg/kg/12 weeks intermittent
TOXIC Effects - Tumorigenic - Equivocal tumorigenic agent by RTECS criteria
Skin and Appendages - Tumors
DEVELOPMENTAL TOXICITY: Reproductive Effects.
Rat TDLo Oral 250.4 mg/kg, male 8 weeks prior to mating
TOXIC Effects:
Effects on Embroy or Fetus - Fetal Death
Mouse TDLo Oral 14000 ng/kg, female 11-17 days of pregnancy
TOXIC Effects:
Specific Devbelopmental Abnormalities - Urogenital System
Rat TDLo Subcutaneous 1920 mg/kg, male 8 weeks prior to mating
TOXIC Effects:
Paternal Effects - Spermatogenesis
Pateral Effects - Testes, epididymis, sperm duct

Section IV. First Aid Measures

Eye Contact

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Skin Contact

In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Inhalation

If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.

Ingestion

INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive.

Continued on Next Page **Emergency phone number (800) 424-9300**

Section V. Fire and Explosion Data

Flammability	May be combustible at high temperature.	Auto-Ignition	360°C (680°F)
Flash Points	145°C (293°F).	Flammable Limits	Not available.
Combustion Products	These products are toxic carbon oxides (CO, CO_2).		
Fire Hazards	Not available.		
Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.		
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet. Consult with local fire authorities before attempting large scale fire-fighting operations.		

Section VI. Accidental Release Measures

Spill Cleanup Instructions	Possibly carcinogenic material. Harmful material. Irritating material. Stop leak if without risk. DO NOT get water inside container. DO NOT touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all sources of ignition. Consult federal, state, and/or local authorities for assistance on disposal.

Section VII. Handling and Storage

Handling and Storage Information	POSSIBLE CARCINOGEN. HARMFUL. IRRITANT. Keep container dry. Keep away from heat. Mechanical exhaust required. When not in use, tightly seal the container and store in a dry, cool place. Avoid excessive heat and light. Do not breathe dust. Wear suitable protective clothing. If you feel unwell, seek medical attention and show the label when possible. Treat symptomatically and supportively. Always store away from incompatible compounds such as oxidizing agents, alkalis (bases).

Section VIII. Exposure Controls/Personal Protection

Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection	Splash goggles. Face shield. Lab coat. Dust respirator. Dust respirator. Boots. Gloves. A MSHA/NIOSH approved respirator must be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. Face shield. Lab coat. Dust respirator. 
Exposure Limits	This chemical is classified as a possible carcinogen. There is no acceptable exposure limit for a carcinogen.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Solid. (White, Flakes.)	Solubility	Soluble in Methanol.
Specific Gravity	0.912 (water=1)		
Molecular Weight	206.32	Partition Coefficient	Not available.
Boiling Point	175°C (347°F)	Vapor Pressure	Not applicable.
Melting Point	83°C (181.4°F)	Vapor Density	Not available.
Refractive Index	Not available.	Volatility	8% (w/w).
Critical Temperature	Not available.	Odor	Not available.
Viscosity	Not available.	Taste	Not available.

Section X. Stability and Reactivity Data

Stability	This material is stable if stored under proper conditions. (See Section VII for instructions)
Conditions of Instability	Avoid excessive heat and light.
Incompatibilities	Reactive with oxidizing agents, strong alkalis (bases).

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Section XI. Toxicological Information

RTECS Number	SM9625000
Routes of Exposure	Eye Contact. Ingestion. Inhalation.
Toxicity Data	Not available.
Chronic Toxic Effects	**CARCINOGENIC EFFECTS** : Equivocal tumorigenic agent by RTECS criteria. **MUTAGENIC EFFECTS** : Not available. **TERATOGENIC EFFECTS** : Tumorigenic Effects. Mouse TDLo SKin 5280 mg/kg/12 weeks intermittent TOXIC Effects - Tumorigenic - Equivocal tumorigenic agent by RTECS criteria Skin and Appendages - Tumors **DEVELOPMENTAL TOXICITY**: Reproductive Effects. Rat TDLo Oral 250.4 mg/kg, male 8 weeks prior to mating TOXIC Effects: Effects on Embroy or Fetus - Fetal Death Mouse TDLo Oral 14000 ng/kg, female 11-17 days of pregnancy TOXIC Effects: Specific Devbelopmental Abnormalities - Urogenital System Rat TDLo Subcutaneous 1920 mg/kg, male 8 weeks prior to mating TOXIC Effects: Paternal Effects - Spermatogenesis Pateral Effects - Testes, epididymis, sperm duct
Acute Toxic Effects	Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Section XII. Ecological Information

Ecotoxicity	Not available.
Environmental Fate	4-(1,1,3,3-Tetramethylbutyl)phenol's production and use as a chemical intermediate may result in its release to the environment through various waste streams. 4-(1,1,3,3-Tetramethylbutyl)phenol may also be formed as a degradation product of alkylphenol surfactants in wastewater. If released to the atmosphere, 4-(1,1,3,3-tetramethylbutyl)phenol should exist in both the vapor and particulate phases based on an extrapolated vapor pressure of 4.8X10-4 mm Hg. Vapor-phase 4-(1,1,3,3-tetramethylbutyl)phenol is degraded in the atmosphere by reaction with photochemically produced hydroxyl radicals with an estimated half-life of about 9 hours. An estimated Koc of 18,000 suggests that 4-(1,1,3,3-tetramethylbutyl)phenol will be immobile in soil. Rapid infiltration studies indicate, however, that this compound has some mobility in sandy or gravelly soils and is able to reach groundwater systems, although in much lower concentrations than in the original effluent. These reduced concentrations may be due to biodegradation as well as to adsorption processes. 4-(1,1,3,3-Tetramethylbutyl)phenol was biodegraded under both aerobic and anaerobic conditions using a mixed soil population. Seven percent of this compound was mineralized in 16 hours in soil acclimated to 4-(1,1,3,3-tetramethylbutyl)phenol. In water, 4-(1,1,3,3-tetramethylbutyl)phenol should adsorb to sediment and particulate matter based on its Koc value. Biodegradation may be an important fate process in the water column. Volatilization from water surfaces may occur; estimated half-lives for a model river and lake are 8 and 61 days, respectively. This compound is expected to bioaccumulate in aquatic organisms based on an estimated BCF value of 6000.

Section XIII. Disposal Considerations

Waste Disposal	Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.

Section XIV. Transport Information

DOT Classification	DOT CLASS 9: Miscellaneous Hazardous Material
PIN Number	UN3077
Proper Shipping Name	Environmentally hazardous substnace, solid, n.o.s.
Packing Group (PG)	III
DOT Pictograms	

Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA)	This compound is **ON** the EPA Toxic Substances Control Act (TSCA) inventory list.
WHMIS Classification (Canada)	On DSL
EINECS Number (EEC)	205-426-2
EEC Risk Statements	R20/21/22- Harmful by inhalation, in contact with skin and if swallowed. R36/37/38- Irritating to eyes, respiratory system and skin.
Japanese Regulatory Data	ENCS No. 3-503

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Section XVI. Other Information

Version 1.0
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Notice to Reader

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.