Material Safety Data Sheet
TERTIARY BUTYL CATECHOL, 85% IN METHANOL

1. Product Identification

Synonyms: 4-(1,1-Dimethylethyl) 1,2-benzenediol; Tertiary Butyl Catechol; TBC
CAS No.: N/A
Molecular Weight:
Chemical Formula: C_{10}H_{14}O_{2}
Product Codes: 1724

2. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS No</th>
<th>Percent</th>
<th>Hazardous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tertiary Butyl Catechol</td>
<td>98-29-3</td>
<td>85%</td>
<td>Yes</td>
</tr>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>15%</td>
<td>Yes</td>
</tr>
</tbody>
</table>

3. Hazards Identification

Emergency Overview

APPEARANCE: COLORLESS LIGHT YELLOW LIQUID WITH PHENOLIC ODOR. FLAMMABLE LIQUID AND VAPOR. CORROSIVE TO SKIN AND EYES. CORROSIVE: INGESTION (SWALLOWING) MAY CAUSE SEVERE AND PERMANENT DAMAGE TO THE MOUTH, THROAT, AND STOMACH.
CONTACT MAY CAUSE SKIN SENSITIZATION, AN ALLERGIC REACTION WHICH BECOMES EVIDENT ON RE-EXPOSURE TO THIS MATERIAL. MAY BE HARMFUL OR FATAL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN.

WILL CAUSE BLINDNESS.

Potential Health Effects
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**Inhalation:**
Harmful if inhaled. Inhalation of vapor or aerosol causes irritation of the respiratory tract (nose, throat, and lungs). Inhalation of vapor or aerosol may cause central nervous system depression with symptoms that include headache, excitation, euphoria, drowsiness, light-headedness, nausea, impaired judgment, confusion, blurred vision, fatigue, tremors, convulsions, loss of coordination, dizziness, loss of consciousness, coma, respiratory arrest and death, depending on the concentration and duration of exposure.

**Ingestion:**
TOXIC. This material may be fatal if swallowed. Corrosive and may cause severe and permanent damage to mouth, throat, and stomach. May cause metabolic acidosis and visual system damage. Effects of exposure by ingestion may also include those indicated by the inhalation route.

**Skin Contact:**
Harmful if absorbed through skin. Contact causes skin irritation. Corrosive. Contact causes skin burns. Contact may cause skin sensitization, an allergic reaction which becomes evident on re-exposure to this material.

Acute or Chronic overexposure to this material or its components may cause systemic toxicity, including adverse effects to the following: liver, brain, kidney, eye, cardiovascular and central nervous system.

**Eye Contact:**
Direct contact with this material causes severe eye irritation. Corrosive. Direct contact with eyes will cause severe burns and may cause permanent damage, including blindness. Vapors cause eye irritation.

**Chronic Exposure:**
Overexposure to methanol may cause systemic toxicity, including adverse effects to the liver, brain, kidney, eye, cardiovascular and central nervous systems. It may also cause adverse reproductive and/or developmental effects. Pregnant women may be at risk from exposure. Ingestion of alcoholic beverages by pregnant women is associated with fetal alcohol syndrome in offspring. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage (sometimes referred to as solvent or painter’s syndrome). Intentional misuse by deliberately concentrating or inhaling this component may be harmful or fatal.

**Carcinogenicity:**
This material does not contain 0.01% or more of any chemical listed by the International Agency for Research on Cancer (IRAC), the National Toxicology Program (NTP), or regulated by the Occupational Safety and Health Administration (OSHA) as a carcinogen.
4. First Aid Measures

**Inhalation:**
Remove victim to fresh air. Keep warm and quiet. If not breathing, give artificial respiration. If breathing is difficult, give oxygen by trained personnel. GET IMMEDIATE MEDICAL ATTENTION.

**Ingestion:**
DO NOT INDUCE VOMITING. CORROSIVE HAZARD: this material may cause further damage if vomiting is induced. Immediately give the victim one or two glasses of water or milk to drink. Never give anything to an unconscious person. GET IMMEDIATE MEDICAL ATTENTION. Aspiration of this material into the lungs can cause serious damage and chemical pneumonitis. If spontaneous vomiting occurs, keep head below hips to prevent aspiration and monitor for breathing difficulty.

**Skin Contact:**
Wash with soap and water. Immediately flush skin with water for at least 15 minutes while removing contaminated clothing. Get immediate medical attention. Wash contaminated clothing before reuse or discard the contaminated clothing (See Section 13 for Disposal Considerations).

**Eye Contact:**
IMMEDIATELY FLUSH EYES with large quantities of clean water for at least 15 minutes. GET IMMEDIATE MEDICAL ATTENTION.

**Note to Physician:**
Corrosive material; gastric lavage hazardous and if used should be performed under endotracheal or esophagoscopy control. If spontaneous vomiting has occurred, the patient should be monitored for symptoms of pneumonitis, as this effect may be delayed up to 48 hours.

5. Fire Fighting Measures

**NFPA Ratings:** Health: 3 Flammability: 2 Reactivity: 0

**Flash Point:** 39°C (102°F)
**Flash Point Method Used:** TCC
**Flammable Limits in Air (Lower):** 6% in air  Methanol
**Flammable Limits in Air (Upper):** 36.5% in air  Methanol
**Autoignition:** 385°C (725°F)  Methanol

**Fire and Explosion:**
FLAMMABLE LIQUID. Vapors can form an explosive mixture with air. Vapor can travel to a source of ignition (spark or flame) and flash back. May burn with invisible flame.

**Fire Extinguishing Media:**
Use carbon dioxide, foam, dry chemical or water fog to extinguish fire.

**Fire Fighting Equipment:**
Wear self-contained breathing apparatus (SCBA) and full fire-fighting protective clothing.
Thoroughly decontaminate all protective equipment after use.

**Hazardous Combustion Products:**
Combustion may produce carbon monoxide, carbon dioxide and irritating or toxic vapors and gases.

**General Hazards:**
Flammable liquid. Containers of this material may build up pressure if exposed to heat (fire). See information in Fire Fighting Instruction in this section.

**Fire Fighting Instructions:**
Evacuate all persons from the fire area to an explosion-protected location. Move non-burning material, as feasible, to a safe location as soon as possible. Fire fighters should be protected from potential explosion hazard while extinguishing the blaze. Containers of this material may build up pressure if exposed to heat (fire). Use water spray to cool fire exposed containers. Use water spray to disperse vapors if a spill or leak has not ignited. DO NOT extinguish a fire resulting from the flow of this flammable liquid until the flow of liquid is effectively shut off. This precaution will help prevent the accumulation of an explosive vapor-air mixture after the initial fire is extinguished. The vapor or gas released from this material may burn with an invisible (colorless) flame. Fire fighting equipment should be thoroughly decontaminated after use. See Section 13 for disposal considerations.

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### 6. Accidental Release Measures

**FOR SMALL SPILLS:**
Remove all sources of ignition. NO SMOKING. Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Use non-sparking (non-metallic) tools to clean up spill.

**FOR LARGE SPILLS:**
Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). NO SMOKING. Persons not wearing protective equipment (see Section 8) should be excluded from the area of the spill until clean-up has been completed. Stop spill at source. Prevent spilled material from contaminating soil or entering drains, sewers, streams or other bodies of water. Prevent spilled material from spreading. Immediately notify authorities of any reportable spill as may be required pursuant to regulations. See Section 15 for applicable CERCLA reportable quantities. Pump or vacuum transfer spilled product to clan containers for recovery. Absorb unrecoverable product. Transfer contaminated absorbent, soil and other waste materials to waste containers for disposal See Section 13 for disposal considerations.

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### 7. Handling and Storage

**Handling:**
WARNING! Avoid inhalation and contact with eyes, skin and clothing. Wash hands thoroughly after handling and before eating or drinking. Remove and wash contaminated clothing before reuse. Use with adequate ventilation. An eyewash station and a safety
shower should be readily accessible to workers wherever this material is stored or used. Ground and bond containers when transferring the material to prevent static electricity sparks which could ignite the vapor. Use spark-proof tools and explosion-proof equipment. Empty containers may retain product residue (liquid and/or vapor). Do not pressurize, cut, weld, braze, solder, drill, grind, or expose these containers to heat, flame, sparks, static electricity, or other sources of ignition as the container may explode and may cause injury or death. Empty drums should be completely drained and properly bunged. Empty drums should be promptly returned to a drum reconditioner or properly disposed.

**Storage:**
Keep away from ignition sources: flames, pilot lights, electrical sparks, and sparking tools. NO SMOKING. Do not store in direct sunlight. Store separate from oxidizing materials, peroxides, and metal salts. Keep containers closed when not in use. Methanol is corrosive to lead and aluminum.

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### 8. Exposure Controls/Personal Protection

**Exposure Guidelines:**
The American Industrial Hygiene Association (AIHA) have established, for tertiary butyl catechol, a Workplace Environmental Exposure Level (WEEL) of 5 mg/m$^3$ Time Weighted Average (TWA), with a skin notation, for an 8 hour exposure. The US Occupational Safety and Health Administration (OSHA) has established, for Methanol, a Permissible Exposure Limit (PEL) of 200 ppm or 260 mg/m$^3$ for an 8-hour Time Weighted Average (TWA).
The American Conference of Governmental Industrial Hygienists (ACGIH) has established, for Methanol, a Threshold Limit Value (TLV) of 200 ppm for an 8 hour TWA and a Short Term Exposure Limit (STEL) of 250 ppm. The ACGIH TLV includes the skin designation for potential skin absorption.

**Personal Respirators (NIOSH Approved):**
Engineering or administrative controls should be implemented to reduce exposure. A NIOSH/MSHA approved air purifying respirator with organic vapor cartridge or canister may be necessary under certain circumstances where airborne concentrations are expected to exceed exposure limits. A respiratory protection program that meets OSHA’s 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator’s use. Protection provided by air purifying respirators is limited. Use a positive pressure air-supplied respirator if 1) there is any potential for an uncontrolled release, 2) exposure levels are not known, or 3) during other circumstances where air purifying respirators may not provide adequate protection. See Section 2 and 8 for applicable occupational exposure limits.

**Skin Protection:**
Gloves made of Viton® should be provide protection against skin contact. Gloves made of other materials may NOT provide adequate protection. Consult your supplier of personal protective equipment for additional instructions on proper usage.

**Eye Protection:**
Wear 1) safety glasses with side shields and a faceshield or 2) goggles and a faceshield. Facilities storing or utilizing this material should be equipped with an eyewash station and safety shower.

**Engineering Controls:**
The use of general or local exhaust ventilation may be required to maintain exposures below
the regulatory or recommended occupational exposure limits. See occupational exposure limits in Section 2 and under Exposure Guidelines in Section 8.

9. Physical and Chemical Properties

**Appearance:** Colorless to Light Yellow.
**Odor:** Phenolic odor.
**Solubility in Water:** 0.5 g/100 g water.
**Specific Gravity:** 1.03 (Water=1) @ 25ºC (77ºF)
**pH:** 3.5-3.7
**% Volatile:** 15% by weight.
**Boiling Point:** 68ºC (154ºF) Methanol
**Freezing Point:** Not applicable
**Vapor Density (Air=1):** 1.11 (Air=1) Methanol
**Vapor Pressure (mm Hg):** 96 mm Hg at 68ºF (20ºC) Methanol
**Evaporation Rate (BuAc=1):** >1 (BuAc=1) Methanol

10. Stability and Reactivity

**Stability:**
This material is stable during storage and during its intended use. Elevated temperatures will cause product to dealkylate and rearrange to quinone type compounds.

**Hazardous Decomposition Products:**
Thermal decomposition of tertiary butyl catechol may produce quinines and flammable butylenes.

**Hazardous Polymerization:**
Hazardous polymerizations will not occur.

**Incompatibilities:**
Avoid contact with oxidizing materials such as peroxides, chlorates, and permanganates. Methanol is corrosive to lead, zinc, and aluminum. Incompatible with some rubber materials.

**Conditions to Avoid:**
Ignition sources. Contamination of those materials referred to under Incompatibility. Temperatures above ambient.

11. Toxicological Information

**Chronic/Carcinogenicity:**
This material does not contain 0.1% or more of any chemical listed by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or regulated by the United States Occupational Safety and Health Administration (OSHA) as a carcinogen.
The American Conference of Governmental Industrial Hygienists (ACGIH) has adopted the listing of methanol as “A4-Not Classifiable as Human Carcinogen.” There is inadequate data to classify the agent in terms of its carcinogenicity in humans and/or animals.

**Acute Eye Toxicity:**
Methanol 40 mg (rabbit) moderate response, 100 mg/24 hours (rabbit) moderate response.

**Acute Skin Toxicity:**
Tertiary butyl catechol: dermal LD50(mouse), 2100 mg/kg. Methanol: dermal LD50 (rat) 1.58 g/kg; Skin irritation: draize (rabbit) 20 mg/24 hour moderate reaction.

**Acute Inhalation Toxicity:**
Methanol: inhalation LC50 (rat) 64,000 ppm/4 hr.

**Acute Oral Toxicity:**
Tertiary butyl catechol: oral LD50(rat), 2820 mg/kg; LD50(mouse), 990 mg/kg. Methanol: dermal LD50 (rat) 5,628 mg/kg; (mouse) 7,300 mg/kg; (rabbit) 14,200 mg/kg.

**Mutagenicity:**
Methanol is reported to show limited evidence of mutagenicity (mouse lymphoma forward mutation assay) when tested by the in vitro method. There is no information by the in vivo method.
Negative results were obtained in Ames Test conducted on tertiary butyl catechol.

**Reproduction:**
Methanol is reported to cause birth defects in rats exposed to high levels of vapors (20,000 ppm).

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### 12. Ecological Information

**Ecotoxicity:**
Methanol LC50 (Fathead minnow), 29400 mg/L/96 hr tertiary butyl catechol: LC50 (Dryzias latipes), 3.9 ppm/24 hrs.; 2.7 ppm/48 hrs.

**Environmental Fate:**
It is reported that methanol is expected to be biodegradable in soil and water. Evaporation from dry surfaces can be expected to occur. Aquatic hydrolysis, oxidation, photolysis, absorption to sediment, and bioconcentration are not significant. Atmospheric methanol can also react with nitrogen dioxide in polluted air to yield methyl nitrite.
Tertiary butyl catechol is not readily biodegradable and is highly toxic to fish.

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### 13. Disposal Considerations

**Waste Disposal Method:**
RCRA HAZARDOUS WASTE. This material and containers that are not empty, if discarded, would be regulated as a hazardous waste under RCRA. Treatment an/or disposal must be completed at a RCRA-permitted Treatment, Storage and Disposal Facility (TSD). The storage and transportation of RCRA hazardous wastes are also regulated by the USEPA. For further information, contact your local, state, provincial, or federal agency.
"Empty Containers”, as defined under 40 CFR 261.7 or other applicable state or provincial
regulations or transportation regulations, are not classified as hazardous wastes.

**RCRA Hazard Class:**
D001 (IGNITABLE): When discarded in its purchased form, this material would be regulated under 40 CFR 261.21 as EPA Hazardous Waste Number D001 based on the characteristics of ignitability.

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**14. Transport Information**

**Domestic (Land, D.O.T.)**

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**Proper Shipping Name:** CORROSIVE LIQUID, FLAMMABLE, N.O.S.
**Technical Name:** TERTIARY BUTYL CATECHOL, METHANOL
**Hazard Class:** 8
**UN/NA:** UN2920
**Packing Group:** II
**Label:** Corrosive, Flammable Liquid
**Placard:** Corrosive, Flammable Liquid
**ERG Number:** 132

**IATA: Non-Bulk**

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**Proper Shipping Name:** CORROSIVE LIQUID, FLAMMABLE, N.O.S.
**Technical Name:** TERTIARY BUTYL CATECHOL, METHANOL
**Hazard Class:** 8 (3)
**UN/NA:** UN2920
**Packing Group:** II
**Label:** Corrosive, Flammable Liquid
**Placard:** Corrosive, Flammable Liquid
**ERG Number:** 153

**IMDG: Bulk and Non-Bulk**

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**Proper Shipping Name:** CORROSIVE LIQUID, FLAMMABLE, N.O.S
**Technical Name:** TERTIARY BUTYL CATECHOL, METHANOL
**Hazard Class:** 8 (3)
**UN/NA:** UN2920
**Packing Group:** PG II
**Label:** Corrosive, Flammable Liquid
**Placard:** Corrosive, Flammable Liquid
**ERG Number:** 153

**TDG: Bulk and Non-Bulk**

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**Proper Shipping Name:** CORROSIVE LIQUID, FLAMMABLE, N.O.S
**Technical Name:** TERTIARY BUTYL CATECHOL, METHANOL
**Hazard Class:** 8 (3)
**UN/NA:** UN2920
15. Regulatory Information

**NFPA Ratings:** Health: 3 Flammability: 2 Reactivity: 0

**Clean Air Act-Hazardous Air Pollutants (HAP):**
Methanol (67-56-1) is listed under Section 112 as a Hazardous Air Pollutant (HAP).

**Occupational Safety and Health Act (OSHA):**
This material is classified as a hazardous chemical under the criteria of the US Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, 29 CFR 1910.1200.

**SARA Title III: Section 304- CERCLA:**
Methanol (CAS# 67-56-1): Reportable Quantity=5,000 lb.

**SARA Title III: Section 311-312- Hazard Communication Standard (HCS):**
This material is classified as an IMMEDIATE HEALTH HAZARD, DELAYED HEALTH HAZARD, and FLAMMABILITY HAZARD under the US Superfund Amendment and Reauthorization Act (Section 311/312).

**SARA Title III: Section 313 Toxic Chemical List (TCL):**
Methanol (67-56-1)

**TSCA Section 8(b)- Inventory Notification:**
All components of this material are listed on the US Toxic Substances Control Act (TSCA) inventory.

**Australian Inventory Status:**
This products contains only chemicals which are currently listed on the Australian Inventory of Chemical Substances.

**Canadian Inventory Status:**
All components of this material are listed on the Canadian Domestic Substances List (DSL).

**Canadian WHMIS:**
This material is classified by the Canadian Workplace Hazardous Material Information System as: B3 (combustible liquid) D1A (materials causing immediate and serious toxic effects, very toxic material) E (corrosive liquid).

**European Inventory Status (EINECS):**
All components are either listed or exempt from being listed, on the EINECS chemical inventory.

**Korean Inventory Status:**
This product contains only chemicals which are currently listed on the Korean Chemical Substances List.

**California Proposition 65:**
This product is not known to contain any chemicals listed by the State of California (Safe Drinking Water and Toxic Enforcement Act 1986) to cause cancer or reproductive toxicity.

**New Jersey Right-to-Know:**
Methanol (CAS# 67-56-1) is listed on the New Jersey Right-to-Know List as a Special
Hazardous Substance and an Environmentally Hazardous Substance.

**Pennsylvania Right-to-Know:**
Tertiary butyl catechol (CAS# 98-29-3) is listed on the Pennsylvania Right-to-Know List.
Methanol (CAS# 67-56-1) is listed on the Pennsylvania Right-to-Know List as an Environmental Hazard.

**Additional Canadian Regulatory Information:**
The following chemicals are listed on the WHMIS Ingredient Disclosure Lists: Tertiary butyl catechol (CAS# 98-29-3). Methanol (CAS#67-56-1)

The following chemical(s) are listed on the Canadian National Pollutant Release Inventory (NPRI):
Methanol (CAS#67-56-1)

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**16. Other Information**

**Disclaimer:**
THE INFORMATION CONTAINED IN THIS DATA SHEET IS BASED ON THE DATA AVAILABLE TO PURITAN PRODUCTS AT THIS TIME. WHILE BELIEVED TO BE ACCURATE, PURITAN PRODUCTS DOES NOT CLAIM IT TO BE ALL INCLUSIVE. IT IS PROVIDED INDEPENDENT OF ANY SALE OF THE PRODUCT, FOR THE PURPOSE OF HAZARD COMMUNICATION, AND AS A GUIDE FOR THE APPROPRIATE PRECAUTIONARY HANDLING OF THE PRODUCT BY PROPERLY TRAINED INDIVIDUALS. IT IS NOT INTENDED TO PROVIDE PRODUCT PERFORMANCE OR APPLICABILITY INFORMATION, AND NO EXPRESS OR IMPLIED WARRANTY OF ANY KIND IS MADE WITH RESPECT TO THE PRODUCT, THE UNDERLYING PRODUCT DATA, OR THE INFORMATION CONTAINED HEREIN. YOU ARE URGED TO OBTAIN MATERIAL SAFETY DATA SHEETS FOR ALL PRODUCTS YOU BUY, PROCESS, USE OR DISTRIBUTE, AND ARE ENCOURAGED TO ADVISE THOSE WHO MAY COME IN CONTACT WITH SUCH PRODUCTS OF THE INFORMATION CONTAINED THEREIN.

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