

# Tertiary Butyl Hydroquinone (Food Grade)

Tertiary Butyl Hydroquinone(TBHQ) is a Synthetic food grade antioxidant, that is used to stabilize foods, fats and vegetable oils against oxidative deterioration and thus extending their storage life. Basically in simple terms TBHQ can be called a chemical that is used as a preservative. It helps in Preserving food products.

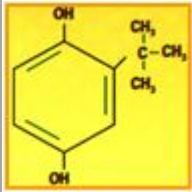
There is a natural antioxidant called Tocopherol that is present in vegetable oils that is insufficient for oxidative stability, even if external Tocopherol is added to the vegetable oil it does not increase the stability hence a synthetic antioxidant is required.

**There are 2 types of antioxidants that can be used**

- Tertiary Butyl Hydroquinone
- Propyl Gallate

Propyl Gallate is prone to discolouration in the presence of Iron, while Tertiary butyl Hydroquinone gives an outstanding stabilization effect in unsaturated fats, Polyunsaturated vegetable oils, and inedible animal fats. TBHQ can also be advantageous in essential oils, nuts, butter fat and food packaging material thus being a better and healthier option to be used as a preservative.

TBHQ is certified as safe for human consumption. In many major developing organisations like FDA (Food and Drug Administration), FSIS (Food Safety and Inspection Service) and others permit the use of TBHQ or combinations with BHA (Butylated Hydroxy Anisole) or BHT (Butylated Hydroxy Toluene) at concentrations up to 0.02% by weight of the fat or oil content of the food.

<b>Chemical Name:</b>	TERTIARY BUTYL HYDROQUINONE	
<b>Chemical formula:</b>	C <sub>10</sub> H <sub>14</sub> O <sub>2</sub>	
<b>Molecular Weight:</b>	166.24	
<b>Trade Name:</b>	TBHQ	
<b>CAS No.:</b>	1948-33-0	
<b>PARAMETER</b>	<b>NORMS</b>	<b>ANALYSIS METHOD</b>
<b>Appearance</b>	White Crystalline	Visual

	Powder	
<b>Purity by HPLC</b>	99.00% Min	HPLC
<b>Melting Point</b>	126.5°C to 128°C	Capillary Melting Point
<b>Tert. Butyl-p-Benzo Quinone</b>	0.20% Max	HPLC
<b>2,5- Di-tert.butyl Hydroquinone % by mass</b>	0.20% Max	HPLC
<b>Arsenic (as AS)</b>	3 ppm Max	AAS
<b>Hydroquinone, % by mass</b>	0.10% Max	HPLC
<b>Toluene</b>	25 ppm Max	HPLC
<b>Heavy Metals (as Pb)</b>	10 ppm Max	AAS
<b>U.V.Absorbance (Polynuclear Hydrocarbon)</b>	PASSES TEST	Spectra U.V.

## Area of Application:

- Vegetable oils
- Baked and confectionary Products
- Cosmetics
- Edible Fats
- Emulsifiers
- Flavoring and spices
- Margarine
- Snack foods like Fried Potato chips, Instant Noodles
- Citrus oils
- Butter Fats
- Fried Nuts
- Pat Foods
- Cereal and Grains
- Lard
- Essential oils like Peppermint oil, Orange oil etc.

# Tertiary Butyl Hydroquinone - Solution

We have developed SOLN which is directly applied in edible oil and for the smoother applicability of TBHQ. It is a Yellow or light brown liquid and it is soluble in water.

Below mentioned are the standard specifications.

<b>NAME OF THE PRODUCT</b>	TERTIARY BUTYL HYDROQUINONE - SOLUTION
<b>PHYSICAL APPEARANCE</b>	YELLOW TO LIGHT BROWN LIQUID
<b>SPECIFIC GRAVITY ( AT 25° C)</b>	1.080 + 0.03 gms/ml
<b>PROPYLENE GLYCOL (FOOD GRADE)</b>	70% w/w
<b>TERTIARY BUTYL HYDROQUINONE (FOOD GRADE)</b>	20% w/w
<b>CITRIC ACID (ANHYDROUS)</b>	10% w/w
<b>BOILING POINT</b>	184° C
<b>FLASH POINT</b>	150° C
<b>SOLUBILITY IN WATER</b>	SOLUBLE
<b>ODOUR</b>	TYPICAL

## Applications:

- Edible Oils

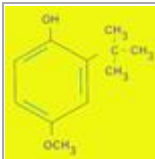


## Applications:

- Edible Oils

## Butylated Hydroxyanisole(BHA)

Butylated hydroxyanisole (BHA) is a mixture of two isomeric organic compounds, 2-tert-butyl-4-hydroxyanisole and 3-tert-butyl-4-hydroxyanisole. It is prepared from 4-methoxyphenol and isobutylene. It is a white or pale yellow solid (Crystal or Flake) with a faint aromatic odour. The areas of application for BHA and the specifications are mentioned below.

<b>Common Name</b>	BHA
<b>Molecular Weight</b>	180.25
<b>Empirical Formula</b>	C <sub>11</sub> H <sub>16</sub> O <sub>2</sub>
<b>CAS Number</b>	25013-16-5
<b>Structural Formula</b>	
<b>Description</b>	A white or pale yellow solid (Crystal or Flake) and faint aromatic odour.
<b>Assay (As C<sub>11</sub>H<sub>16</sub>O<sub>2</sub>) Chromatographic</b>	Min. 98.50%
<b>3-Tert Butyl 4-Hydroxyanisole (3-BHA)</b>	Min. 95.00 %
<b>Melting Range</b>	Between 48oC to 63oC
<b>Heavy Metals (As Pb)</b>	Max. 2 mg/kg.
<b>Arsenic</b>	Arsenic

<b>Sulphated Ash</b>	Max. 0.01% m/m
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## **Areas of Applications:**

- Cosmetic especially lipsticks and eye shadows
- Butter, meats, cereals, chewing gums, backed goods.
- Snack foods, dehydrated potatoes, nuts etc.
- Beverages
- Edible fats and oils
- Pharmaceuticals

## **Estimated Life :**

- 2 Year from the date of Manufacturing

## **Identification**

- Dissolve about 10 mg. in 2 ml. of alcohol add 1ml. of a 1.0 g/L solution of Testosterone Propionate in alcohol and 2ml. of Dilute Sodium Hydroxide Solution. Heat in a water bath at 80 C for 10 min. and allow to cool, a red colour develops.

## **Butylated Hydroxy Toluene (BHT)**

Butlyated Hydroxyanisole is a synthetic antioxidant that is a commonly used fat soluble food preservative since 1947, with broad biological activities. It prevents spoilage by reacting with oxygen. It slows development of off-flavours, odours and colour changes caused by oxidation. It protects animals aganist radiation and the acute toxicity of various xenobiotics and mutagens.

Butylated hydroxyanisole (BHA) is a mixture of two isomeric organic compounds, 2-tert-butyl-4-hydroxyanisole and 3-tert-butyl-4-hydroxyanisole. It is prepared from 4-methoxyphenol and isobutylene. It is normally insoluble in water, but for commercial applications, it can be converted to a soluble form. BHT was first used as an antioxidant food additive in 1954. An antioxidant is a substance that prevents the oxidation of materials with which it occurs. BHT, therefore, prevents the spoilage of food to which it is added. BHT has grown to be very popular among food processors and is now used in a great range of products that include breakfast cereals, chewing gum, dried potato flakes, enriched rice, potato chips, candy, sausages, freeze-dried meats, and other foods containing fats and oils. BHT is sometimes used in conjunction with a related compound, butylated hydroxyanisole (BHA) as a food additive. BHT does have other commercial uses, as in animal feeds and in the manufacture of synthetic rubber and plastics, where it also acts as an antioxidant.

<b>Chemical Name:</b>	BUTYLATED HYDROXY TOLUENE
<b>Trade Name:</b>	BHT
<b>DISCRIPTION</b>	WHITE CRYSTALS
<b>ODOUR</b>	NO ABNOXIOUS ODOUR
<b>COLOUR (APHA) OF SOLUTION</b>	10 HAZEN MAX.
<b>MOISTURE CONTENT</b>	0.1% MAX.
<b>FREEZING POINT</b>	69.2° C MIN.
<b>PURITY (% Wt.)</b>	99% MIN.
<b>RESIDUE ON IGNITION</b>	0.002% MAX.
<b>HEAVY METALS (AS LEAD)</b>	MAX. 10 PPM

## Application:

- Breakfast cereals
- Chewing gum
- Dried potato flakes
- Enriched rice
- Potato chips
- Candy
- Sausages
- Freeze-dried meats
- Other foods containing fats and oils.

# Tertiary Butyl Hydroquinone - Technical Grade

We have developed Tertiary Butyl Hydroquinone - Technical Grade for its application in bio diesel, ink and polyester resins. In spite of it being a technical grade it gives excellent results for such application. It is a white crystalline powder and has characteristic odour. It is soluble in alcohol and insoluble in water.

Following mentioned are the standard specifications.

<b>NAME OF THE PRODUCT</b>	TERTIARY BUTYL HYDROQUINONE 95 % (Tech Grade)
<b>MOLECULAR WEIGHT</b>	166.22
<b>DISCRIPTION</b>	WHITE CRYSTLINE POWDER HAVING CHARACTERISTIC ODOUR. IT IS SOLUBLE IN ALCOHOL AND PRACTICALLY INSOLUBLE IN WATER.
<b>ASSAY (TITRIMETRIC)</b>	MIN. 95.0%
<b>2, 5 Di-Tert. Butyl Hydroquinone</b>	MAX. 5.00%
<b>HYDROQUINONE (% by Mass)</b>	MAX. 5.00%
<b>MOISTURE</b>	0.50% MAX.
<b>ARSENIC (AS As)</b>	MAX. 3 PPM
<b>MELTING RANGE</b>	124.0 C TO 126.0 C
<b>HEAVY METALS (AS LEAD)</b>	MAX. 10 PPM

## Applications:

- Cosmetics.
- Bio fuel
- Polymerization inhibitor in the manufacturing of Acrylics, Methacrylics. R

