PRODUCT DATA SHEET

2,6 Di-tert-butyl-para cresol

BHT (Food Grade Antioxidant)

Introduction:

RCPL BHT (Butylated Hydroxy Toluene) food grade antioxidant is offered to prevent rancidity. It can stabilise a variety of organic materials against deterioration due to oxidation and is particularly useful in preventing fats and fat containing foods from becoming rancid. Extensive lab and field tests have proved that this antioxidant, even at extremely low concentration, prevents oxidation in a variety of substrates. It is particularly useful in preventing oxidation in prepared, baked, fried or otherwise processed foods.

Specifications:

Chemical Name: 2,6 Di-tert-butyl-para cresol (2,6 DBPC)
Butylated Hydroxy Toluene
Synonyms: 2,6 - di tertbutyl - 4 - methylphenol
CAS no.: 128-37-0
Purity wt%: 99.0 min
Colour, Molten: 50.0 APHA max
Sulphated Ash % wt: 0.01 max
Moisture % wt: 0.1 max
Residue on ignition: 0.002 % max
Arsenic: 3 ppm max
Heavy Metal (as Lead): 10 ppm max

Physical Properties:

Appearance: White crystalline solid
Specific Gravity: 20 / 40°C : 1.01
Freezing Point: 69°C min
Boiling Point: 265°C - (760 mm)
190°C - (100 mm)
Flash Point: 245°F ASTM D93-73
(Closed Cup) 118.3°C
Refractive Index: 1.486
Bulk Density: 37.5 lb / cu.ft
Viscosity: 3.5 (80°C)

Structural Formula
Solubility at 25°C (Approx %):

- Water: Insoluble
- Propylene Glycol: Insoluble
- Ethanol: 25
- Glyceryl Monooleate: 15
- Soyabean Oil: 30
- Cottonseed Oil: 25

Applications:
The antioxidant activity of BHT can be transferred to baked products if it is used as an antioxidant in the shortenings used in their manufacture. BHT acts as a synergist with BHA and mixtures of these antioxidants are commonly used for stabilising fats and oils as given weight of the mixture imparts a greater stability to the fat or oil than would the same weight of BHT or BHA if used individually.

BHT is a particularly good antioxidant for stabilizing meat, fish and bone meals. BHT may be used, either alone or in combination with BHA, to stabilise edible tallows and fats, fish and fish liver oils, vitamins and essential oils.

The maximum usage levels weight % of fat or oil as permissible by FDA and USDA are 0.02 and 0.01 respectively.

Oxidation - (Cause and Cure):

Natural fats, oils, vitamins (especially Vitamins A, B, C, D, E and K), essential oils, cosmetics, perfumes and waxes contain varying amounts of unsaturation. These unsaturated sites are susceptible to oxidation. Light and heat can start the oxidation process, which takes place in two steps. During the first step, or induction period, there is a slow accumulation of peroxide. At this point the flavour and odour of the substrate are only slightly affected. During the second step, the auto catalysed reaction of unsaturated hydrocarbons with oxygen causes a sharp build up of peroxides and increases the rate of decomposition. This chain reaction produces oxidation products of the unsaturates, which have a marked effect on odour and flavour. When this occurs within the fat content of a food product the quality of the food is adversely affected. The antioxidant is used to provide phenoxy radicals, which break the chain and terminate auto-oxidation. However the antioxidant cannot reverse the action of oxidation nor can it generate a rancid product. Thus the antioxidant must be added to freshly produced oil or fat before the auto-oxidation reaction has a chance to start.
**Synergism:**

Formulations of antioxidants offer a combination of the best properties of each antioxidant. The BHT and/or BHA content of formulation provides antioxidant potency and carry through. Synergism, between BHT and BHA; BHA and TBHQ; and between BHA and Propyl Gallate provides greater antioxidant potency than that which might be expected from the contribution of each individual antioxidant. In addition, regulations for some uses such as animal fat, permit greater concentrations of antioxidants combination than of any one individual antioxidant.

**Methods of Applications:**

RCPL BHT antioxidant is readily soluble at use levels in fats and oils and in a number of food grade solvents. While applying antioxidants to food products one should ensure that the antioxidant thoroughly dissolves and dispersed in the fat or oil portions. Since only small amounts of antioxidants are required for protection of food, the method of incorporating the antioxidants may determine the success of stabilisation. The method of processing depends upon the product and the available equipment.

Some of the methods that can be followed for the application of RCPL BHT are Direct method, Antioxidant Concentrate method, Proportionate method, Spray method etc.

**Other applications:**

Technical grade BHT can be used effectively in plastics and rubber industry. It is also a very effective antioxidant for lubricating oils, speciality oils, synthetic lubricants, motor gasoline, aviation turbine fuels, transformer oils, feed and forage products, industrial fats, fatty acids, paraffin waxes etc.

**Storage and Handling:**

Even though RCPL BHT is relatively non toxic and non irritating, practical safety measures should be observed during handling operation. Solid RCPL BHT can be satisfactorily stored in either metal or fiberboard containers. RCPL BHT is non-hygroscopic, but closed containers are recommended to avoid a natural yellow discouluration. Molten RCPL BHT should be stored in stainless steel tanks at 80 – 85°C. RCPL BHT dust or vapours may create irritation of eyes, nose and throat or skin. Proper water rinse is sufficient for eyes and skin.
**Packing:**
RCPL BHT is available in 5 Kg cartons and 25 kg paper sacks. (Any other type of packing will be considered on request.)