



BNX 1010

Antioxidant & Thermal Stabilizer

Introduction: BNX® 1010 is a high molecular weight hindered phenolic antioxidant. It is an effective, non-discoloring stabilizer that provides excellent long-term heat stability by preventing thermo-oxidative degradation during processing and service life. This antioxidant also provides good compatibility with resins and excellent extraction resistance. BNX® 1010 can be used in a wide variety of organic substrates such as plastics, synthetic fibers, elastomers, adhesives, waxes, oils, and fats.

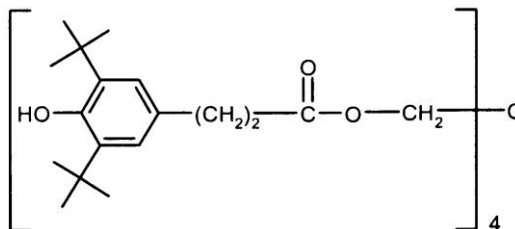
Material Description: Antioxidant and Thermal Stabilizer

Chemical Name: Tetrakis [Methylene-3 (3',5'-di-tert-butyl-4-hydroxyphenyl)propionate] methane

Empirical Formula: C₇₃H₁₀₈O₁₂

CAS#: 6683-19-8

Chemical Structure:



Physical Properties:	Appearance:	White Crystalline granular
	Molecular Weight:	1177.7
	Melting Range:	110 - 125°C
	Color of Toluene Solution:	40 APHA Max.
	Volatile Matter:	< 0.5%
	Solubility (10 g/100ml Toluene):	Clear (25°C)
	% Transmittance:	425nm – 95% Min 500nm – 97% Min

Solubility:

Solubility at 20°C (g/100ml solvent):

Solvent	Solubility
Acetone	47%
Benzene	56%
Chloroform	71%
Ethanol	1.5%
Ethyl Acetate	46%
Hexane	0.3%
Methanol	1%
Methylene Chloride	63%
Toluene	60%
Water	< 0.01%

Applications:

BNX® 1010 is a primary antioxidant that can be applied in polyolefins, such as polyethylene polypropylene, polybutene and olefin copolymers such as ethylene-vinyl acetate copolymers. This high molecular weight phenolic antioxidant also provides excellent stabilization in other polymers such as polyacetals, polyamides and polyurethanes, polyesters, PVC, styrene homo- and copolymers, ABS, elastomers such as butyl rubber, SBS, SEBS, EPM, and EPDM as well as other synthetic rubbers, latex, adhesives, natural and synthetic tackifier resins. It is also suggested for use with polyethylene wire and cable insulation and for use with synthetic diester fluids, oils, fats, waxes, and other organic substrates. BNX® 1010 can also be used in combination with other secondary antioxidants like Benefos® 1680 to provide enhanced performance. BNX® 1010 can also be used synergistically with light stabilizers and UV absorbers.

- Highly compatible with a wide range of organic substrates
- Non-staining and non-discoloring
- Excellent resistance to extraction
- Odorless and tasteless
- Improvement of long-term stability
- Low volatility
- Extensive FDA clearances
- Ease of compatibility with other stabilizers

Loading

Instructions:

The loading data and results are based on laboratory work (and field-testing) under controlled conditions and do not necessarily indicate the result that the buyer or user will attain. For this reason we strongly recommend testing of your own system under the actual conditions of processing and end-use prior to full scale testing. The recommended loading concentrations in polyolefins range between 0.05% and 0.5% depending on substrate, processing conditions, and long-term stability requirements. Concentration levels of BNX® 1010 in hot melt adhesives range from 0.2% to 1%, and in synthetic tackifier resins, BNX® 1010 concentrations range between 0.1% and 0.5%. Exact loading must be determined by compositions of the specific polymer system.

Packaging:

BNX® 1010 is available in powder form in a 50 kg (110.2 pound) fiber drum, net weight, with an inner PE liner.

Storage:

This product may be stored up to two years in a sealed container. Containers should be stored in a cool, dry area. Extended storage at elevated temperatures or exposure to direct heat or sunlight could reduce product life. Keep containers sealed when not in use.

Toxicity & Safety:

This material is not intended for use in products for which prolonged contact with mucous membranes or abraded skin, or implantation within the human body is specially intended, unless the finished product has been tested in accordance with the Food and Drug Administration and/or other applicable safety testing requirements. Because of wide range of such potential uses, Mayzo, Inc. is not able to recommend this material as safe and effective for such uses and assumes no liability for any such uses. Read and understand the Material Safety Data Sheet before using or handling this product.

FDA:

<u>Existing Regulations</u>	<u>Maximum Concentration</u>	<u>Thickness</u>	<u>Food Allowed</u>	<u>Temperatures Allowed</u>
Antioxidant for polymers, 178.2010 Tetrakis [Methylene-3 (3',5'-di-tert-butyl-4-hydroxyphenyl)propionate] methane All polymers used as indirect additives in food packaging	0.5%	no restrictions	no restrictions	no restrictions
Polyoxymethylene copolymer complying with 177.2470	1%	no restrictions	no restrictions	no restrictions
Adhesives complying with 175.105	no restrictions	no restrictions	no restrictions	no restrictions
Pressure sensitive adhesives complying with 175.125	1%	no restrictions	no restrictions	no restrictions
Can end cements complying with 175.300 (b) (3) (xxxii)	1%	no restrictions	no restrictions	no restrictions
Terpene resins complying with 175.300 (b) (2) (xi) when used in accordance with 176.170 (b)	1%	no restrictions	no restrictions	no restrictions
Side seam cements complying with 175.300 (b)(3)(xxxii)	no restrictions	no restrictions	no restrictions	no restrictions
Petroleum wax or synthetic petroleum wax complying with 176.170 (a) (5)	0.1%	no restrictions	no restrictions	no restrictions
Petroleum alicyclic hydrocarbon resins or their hydrogenated products complying with 175.320 (b) (3) or 176.170 (b) (2)	1%	no restrictions	no restrictions	no restrictions
Resins and polymers complying with 176.180	1%	no restrictions	no restrictions	no restrictions
Rosin and rosin derivatives used in accordance with parts 125 through 178	1%	no restrictions	no restrictions	no restrictions
Closures with sealing gaskets complying with 177.1210	1%	no restrictions	no restrictions	no restrictions
Petroleum hydrocarbon resins complying with 178.3800 (b)	1%	no restrictions	no restrictions	no restrictions
Reinforced wax complying with 178.3850	1%	no restrictions	no restrictions	no restrictions

The information contained herein is believed to be reliable. However, Mayzo, Inc. makes no warranty, whether expressed or implied, including warranties of merchantability or of fitness for a particular purpose, for the product or products referred to herein. No statements or recommendations contained herein are to be constructed as inducements to infringe any relevant patent, now or hereafter existence. Under no circumstances shall Mayzo, Inc. be liable for incidental, consequential, or other damages from alleged negligence, breach of warranty, strict liability, or any other legal theory, arising out of the use of handling of the product or products referred to herein. The sole remedy of the buyer and sole liability of Mayzo, Inc. for any claims shall be limited to the buyers purchase price of the product which is subject of the claim or the amount actually paid for each product, whichever is less. Technical advice furnished by seller shall not constitute a warranty, which is expressly disclaimed, all such advice being given and accepted at the buyers risk.