



## BLS® 1944

### Hindered Amine Light Stabilizer

#### Introduction:

BLS® 1944 is a high molecular weight hindered amine light stabilizer. It provides outstanding light stability to many polymers and it also provides long-term stability to polyolefins by a radical trapping mechanism similar to that of hindered phenols. Significant levels of stabilization are achieved at relatively low concentrations. Because of its polymeric structure, BLS® 1944 has a very low volatility (even at high temperatures), low extractability and low migration rate from polymeric substrates. When compounded, BLS® 1944 imparts no negative effects on a substrate's initial color, its low dust, free-flowing form makes it exceptionally convenient to handle.

#### Material Description:

Hindered Amine Light Stabilizer (HALS)

#### Chemical Name:

Poly[[6-[(1,1,3,3,-tetramethylbutyl)amino]-s-triazine-2,4-diyl][2,2,6,6-tetramethyl-4-piperidyl]imino]]hexamethylene[(2,2,6,6-tetramethyl-4-piperidyl)imino]]

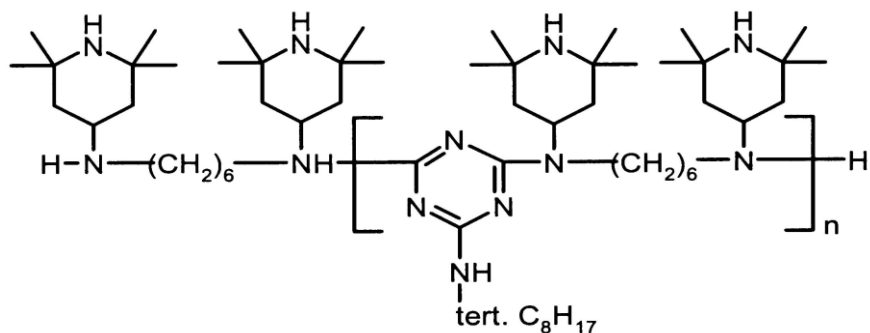
#### Empirical Formula:

(C<sub>35</sub>H<sub>82</sub>N<sub>8</sub>)<sub>x</sub>

#### CAS #:

70624-18-9

#### Chemical Structure:



#### Physical Properties:

Appearance:	White to slightly yellow granular
Molecular Weight:	M <sub>n</sub> > 2,500
Melting Range:	100 - 135°C

**Solubility at 20°C (g/100ml solvent):**

Solvent	Solubility
Acetone	> 50%
Benzene	> 50%
Chloroform	> 50%
Ethanol	< 0.1%
Ethyl Acetate	> 50%
Hexane	41%
Methanol	3%
Methylene Chloride	> 50%
Toluene	> 50%
Water	< 0.01%

**Applications:**

BLS® 1944 is a polymeric hindered amine light stabilizer offering excellent protection against ultraviolet degradation. BLS® 1944 areas of application include polyolefins (polypropylene, polyethylene), olefin copolymers such as EVA as well as blends of polypropylene with elastomers. In addition, BLS® 1944 can be highly effective in polyacetals polyamides, polyurethanes, flexible and rigid PVC, as well as PVC blends and in some styrenic elastomer and adhesive specialty applications.

**Advantages:**

- Free-flowing, low dust
- Excellent resistance to extraction
- Excellent long-term light stability in thick cross sections specifically polyethylene applications
- Excellent long-term light stability, particularly in thin articles like fibers and films
- Low volatility
- 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 thick sections of HDPE, LLDPE, LDPE and PP range between 0.05% and 0.6% depending on substrate, processing conditions, and long-term stability requirements. Concentration levels of BLS® 1944 in films like LLDPE and LDPE range from 0.1% to 1%, and in tapes like PP and HDPE, BLS® 1944 concentrations range between 0.2% and 0.8%. Concentration levels of BLS® 1944 in fibers of PP range between 0.1% to 1.0%. Exact loading must be determined by compositions of the specific polymer system. The presence of a UV absorber like BLS® 1328 is recommended in unpigmented articles or slightly pigmented articles or to improve light fastness of certain organic pigments.

**Packaging:**

BLS® 1944 is available in granular form in a 40 kg (88.16 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 Regulations:**

<u>Existing Regulations</u>	<u>Maximum Concentration</u>	<u>Thickness</u>	<u>Food Allowed</u>	<u>Temperatures Allowed</u>
Stabilizer for polymers, <b>178.2010</b> Poly[[6-[(1,1,3,3,-tetramethylbutyl)amino]-s-triazine-2,4-diy][2,2,6,6-tetramethyl-4-piperidyl)imino]]hexamethylylene[(2,2,6,6-tetramethyl-4-piperidyl)imino]]				
Polypropylene complying with <b>177.1520</b>	0.3%	No restrictions	no restrictions	no restrictions
Polyethylene complying with <b>177.1520</b> that has a density of $\geq 0.94$ g/cc	0.2%	No restrictions	no restrictions	no restrictions
Polyethylene complying with <b>177.1520</b> that has a density of $<0.94$ g/cc	0.3%	No restrictions	no restrictions, but with fatty foods the finished article must have a thickness of at least 18.9 liters	212°F
Olefin polymers and copolymers complying with <b>177.1520</b> , items 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, and 4	0.3%	No restrictions	no restrictions, but with fatty foods the finished article must have a volume of at least 18.9 liters	212°F

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