



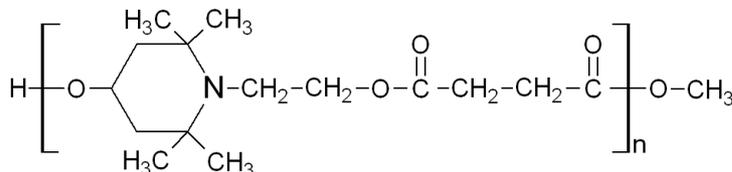
# Tiangang™ BW-10LD (622)

## Oligomeric Hindered Amine Light Stabilizer (HALS)

**Chemical name** Poly-(N-β-hydroxyethyl-2,2,6,6-tetramethyl-4-hydroxy-piperidyl-succinate)

**CAS number** 65447-77-0

**Structure**



**Description**

BW-10LD (622) is a highly effective radical scavenger belonging to the Hindered Amine Light Stabilizers (HALS) family of stabilizers. It is a polymeric HALS with low melting range, which is very suitable for use in polypropylene, polyethylene, polyurethane, metaformaldehyde, polyamine and polyester. BW-10LD typically demonstrates reduced interaction with co-additives such as pigments or other stabilizers and is an excellent stabilizer for systems containing high loadings of carbon black.

**Typical properties**

BW-10LD (622)	Appearance	Bulk density, kg/m <sup>3</sup>	Molecular weight	Specific gravity, g/ml@ 35°C	Melting range, °C	Flash point, °C
	Off-white solid	570	>2500	1.22	55~70	>250

**Thermogravimetric analyses (TGA) (10 mg@10°C/minute under N<sub>2</sub>)**

BW-10LD (622)	Temperature	250°C	300°C	325°C
	Weight loss	<1.0%	<3.1%	<8.4%

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

BW-10LD (622)	Water	Acetone	Methyl alcohol	Xylene	Ethyl acetate	Hexane	Toluene	Methylene chloride
	0.01	2	0.1	8	5	0.01	18	>67

**Safety & handling**

BW-10LD (622)	The use of proper protective equipment is recommended. Excess exposure to the product should be avoided. Wash thoroughly after handling. Store the product in a cool, dry, well-ventilated area away from incompatible materials.
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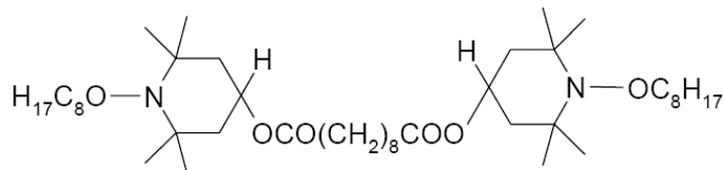
# Tiangang™ HS-112

## Liquid R-Substituted NOR Hindered Amine Light Stabilizer (HALS)

**Chemical name** Decanedioic acid, bis(2,2,6,6-tetramethyl-1-(octyloxy)-4-piperidinyl)ester, reaction products with 1,1-dimethylethylhydroperoxide and octane

**CAS number** 129757-67-1

**Structure**



**Molecular Weight** 737

**Description**

HS-112 is a highly effective radical scavenger belonging to the Hindered Amine Light Stabilizers (HALS) family of stabilizers based on an aminoether functionality, also called NOR HALS.

It is a liquid HALS with low basicity, and outstanding light stabilities in applications, like coatings, printing ink, and polyurethane lacquer. It prevents the surface from blowing-out, peeling-off, or chalking for pigmented paint, and is particularly suitable for high solid, acid catalyzed automotive and industrial coatings with high efficiency. Though not soluble in water, its liquid form also allows easy emulsification in water. It also has strong synergistic effect when used with a UV absorber.

**Typical properties**

	Appearance	Dynamic Viscosity (@ 20°C, mPa·s)	Density (@ 20°C, g/cm <sup>3</sup> )	Miscibility (@ 20°C)
HS-112	Clear, slightly yellow liquid	3,000	0.97	>50% in most commonly used paint solvents; <0.01% in water

**Recommended Concentrations**

	Automotive & Industrial Coatings	Decorative Wood Coatings
HS-112	0.5-2% HS-112 + 1-3% UV absorbers	0.5-2% HS-112 alone, or + 1-3% UV absorbers

**Safety & handling**

HS-112	The use of proper protective equipment is recommended. Excess exposure to the product should be avoided. Wash thoroughly after handling. Store the product in a cool, dry, well ventilated area away from incompatible materials.
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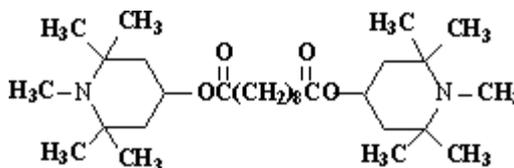
# Tiangang<sup>TM</sup> HS-765

## Liquid Hindered Amine Light Stabilizer (HALS)

**Chemical name** Bis(1,2,2,6,6-pentamethyl-4-piperidiny) sebacate and methyl(1,2,2,6,6-pentamethyl-4-piperidiny) sebacate

**CAS number** 41556-26-7 / 82919-37-7

**Structure**



**Description**

HS-765 is a highly effective liquid radical scavengers belonging to the Hindered Amine Light Stabilizer family of light stabilizers, well suited for use in a wide range of polymers to improve weatherability in applications including polyurethanes, sealants, adhesives, elastomers, unsaturated polyesters, acrylics, vinyl polymers (PVB, PVC), styrene homo- and copolymers, polyolefins, liquid color concentrates, and other organic substrates. It has low volatility and outstanding thermal stability. Its liquid form makes it easy for handling and incorporation. It has synergistic effect when used with a UV absorbent.

### Typical properties

HS-765	Appearance	Molecular weight	Melting range	Specific gravity g/ml@ 20°C
	Clear, slightly yellow liquid	508	n/a	0.99

### Solubility @ 20°C (g/100 ml solvent)

HS-765	Water	Acetone	Chloroform	Cyclohexane	Ethanol	Hexane	Methylene chloride	Toluene
	0.001	> 50	> 50	> 50	> 50	> 50	> 50	> 50

### Safety & handling

HS-765	The use of proper protective equipment is recommended. Excess exposure to the product should be avoided. Wash thoroughly after handling. Store the product in a cool, dry, well ventilated area away from incompatible materials.
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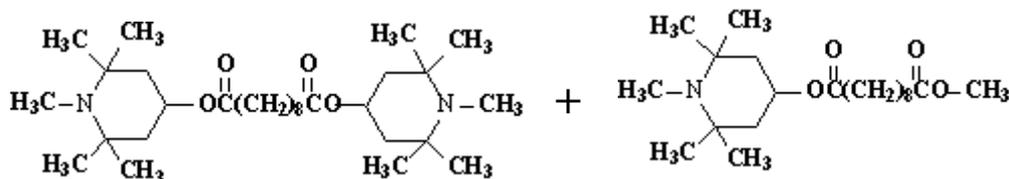
# Tiangang™ HS-508 (292)

## Liquid High Effectiveness Hindered Amine Light Stabilizer (HALS)

**Chemical name** Mixture of bis(1,2,2,6,6-pentamethyl-4-piperidinyl) sebacate and methyl(1,2,2,6,6-pentamethyl-4-piperidinyl) sebacate

**CAS number** 41556-26-7 / 82919-37-7

**Structure**



**Description**

HS-508(292) is a highly effective radical scavenger belonging to the Hindered Amine Light Stabilizers (HALS) family of stabilizers. It is a liquid HALS that displays outstanding light stabilities in applications, like coatings, printing ink, and polyurethane lacquer, preventing the surface from blowing-out or peeling-off. It is widely used for light stability in polypropylene, polyethylene, styrenics, unsaturated polyester, acrylics, vinyl polymers (PVC, PVB), including plastisols, elastomers, adhesives, sealants and coatings. In particular, it is often recommended for polyurethanes because of its solubility in polyols. HS-508 (292) typically demonstrates reduced interaction with co-additives such as pigments or other stabilizers. HS-508 (292) has strong synergy effect with UV absorbent of benzotriazo family, particularly when used in coatings for automobiles and wooden furniture.

### Typical properties

HS-508 (292)	Appearance	Active content	Ash	Specific gravity g/ml
	Clear, colorless liquid	≥ 97%	≤ 0.10%	0.99

### Solubility @ 25°C (g/100 ml solvent)

HS-508 (292)	Water	Styrene	Acetone	Cyclohexane	Isopropyl alcohol	Hexane	Toluene	Xylene
	0.001	110	340	110	238	230	327	268

### Safety & handling

HS-508 (292)	The use of proper protective equipment is recommended. Excess exposure to the product should be avoided. Wash thoroughly after handling. Store the product in a cool, dry, well ventilated area away from incompatible materials.
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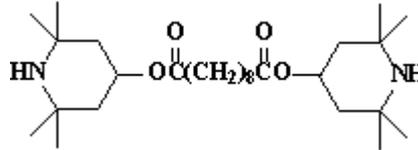


# Tiangang<sup>TM</sup> HS-770

## Hindered Amine Light Stabilizer (HALS)

**Chemical name** Bis(2,2,6,6-tetramethyl-4-piperidyl)-sebacate  
**CAS number** 52829-07-9

### Structure



### Description

HS-770 is a highly effective radical scavenger that protects organic polymers against degradation caused by exposure to ultraviolet radiation. It is widely used in a variety of applications including polypropylene, polystyrene, polyurethanes, ABS, SAN, ASA, polyamides and polyacetals. Its high effectiveness as a light stabilizer makes it well suitable for applications in both thick section and films, independent of the thickness of the articles. Combined with Tiangang's other HALS products, HS-770 displays strong synergistic effects.

### Typical properties

	Appearance	Molecular weight	Specific gravity, g/ml@ 20°C	Melting range °C	Flash point °C
HS-770	White crystalline granules	481	1.05	81 ~ 85	> 150

### Solubility @ 20°C (g/100 ml solvent)

	Water	Hexane	Methanol	Acetone	Ethyl acetate
HS-770	0.001	5	38	19	24

### Safety & handling

HS-770	The use of proper protective equipment is recommended. Excess exposure to the product should be avoided. Wash thoroughly after handling. Store the product in a cool, dry, well-ventilated area away from incompatible materials.
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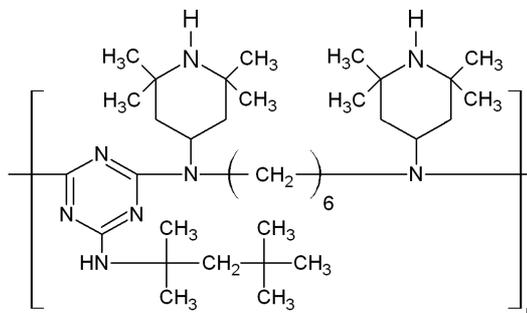
# Tiangang™ HS-944

## Oligomeric Hindered Amine Light Stabilizer (HALS)

**Chemical name** Poly-[[6-[(1,1,3,3-tetramethylbutyl)amino]-1,3,5-triazine-2,4-diy]][(2,2,6,6-tetramethyl-4-piperidinyl)imino]-1,6-hexanediyl[(2,2,6,6-tetramethyl-4-piperidinyl)imino]

**CAS number** 71878-19-8

**Structure**



**Description**

HS-944 is a highly effective radical scavenger that protects organic polymers against degradation caused by exposure to ultraviolet radiation. It is an oligomeric HALS characterized by extremely low volatility, high thermal stability and excellent compatibility with many substrates. Its oligomeric structure makes it particularly effective when used in thin section articles such as fiber and film. HS-944 is suited for use in polypropylene, LDPE, HDPE, XPE, EVA and PP blends with elastomers. HS-944 is also effective as an antioxidant for long term thermal stability.

**Typical properties**

	Appearance	Molecular weight	Specific gravity, g/ml @ 20°C	Softening range °C	Flash point °C
HS-944FD	Pale yellow pastilles	2000~3100	1.01	100 ~ 135	> 160
HS-944	Pale yellow powder				

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

HS-944	Acetone	Chloroform	Hexane	Benzene	Methyl chloride	Methanol	Water
	50	50	40	50	50	30	< 0.01

**Safety & handling**

HS-944	The use of proper protective equipment is recommended. Excess exposure to the product should be avoided. Wash thoroughly after handling. Store the product in a cool, dry, well-ventilated area away from incompatible materials.
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**Disclaimer**

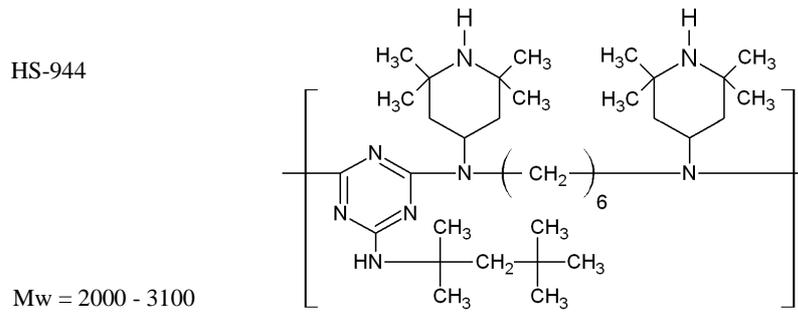
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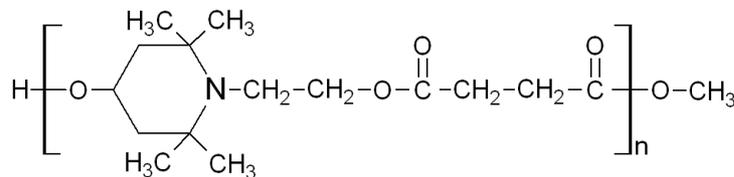
# Tiangang™ HS-962

## Synergistic Mixture of Oligomeric Hindered Amine Light Stabilizer

<b>Chemical name</b>	HS-944: Poly-[[6-[(1,1,3,3-tetramethylbutyl)amino]-1,3,5-triazine-2,4-diy]][(2,2,6,6-tetramethyl-4-piperidinyl)imino]-1,6-hexanediyl[(2,2,6,6-tetramethyl-4-piperidinyl)imino]]
<b>CAS number</b>	Preparation: 71878-19-8 and 65447-77-0

**Structure**


BW-10LD (622)


 M<sub>w</sub> > 2500

**Description**

HS-962 is a synergistic mixture of BW-10LD and HS-944. It is a highly effective radical scavenger belonging to the Hindered Amine Light Stabilizers (HALS) family of stabilizers. HS-962 is a versatile UV stabilizer with outstanding extraction resistance, low fading and low pigment interaction. HS-962 is particularly well suited for LDPE, LLDPE, HDPE films, tapes and thick sections and for PP in fibers and films. It is also the product of choice for thick sections where indirect food contact approval is required.

**Typical properties**

	Appearance	Density g/L	Melting range °C	Flash point °C
HS-962	Off-white solid pastilles	618	55~140	> 192

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

HS-962	Acetone	Chloroform	Hexane	Benzene	Methyl chloride	Methanol	Water
	50	50	40	50	50	30	< 0.01

**Safety & handling**

HS-962	The use of proper protective equipment is recommended. Excess exposure to the product should be avoided. Wash thoroughly after handling. Store the product in a cool, dry, well-ventilated area away from incompatible materials.
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