Sarex Overseas
A division of Sarex Organics Pvt. Ltd.

POLYMER ADDITIVES
PRODUCTS

ENHANCING POLYMERS WITH UV ABSORBERS: YOUR SECRET TO LONG-LASTING BRILLIANCE

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**SAREX OVERSEAS MANUFACTURING COMPLEX,
TARAPUR, INDIA**

**SAREX OVERSEAS NEW PLANT,
TARAPUR, INDIA**

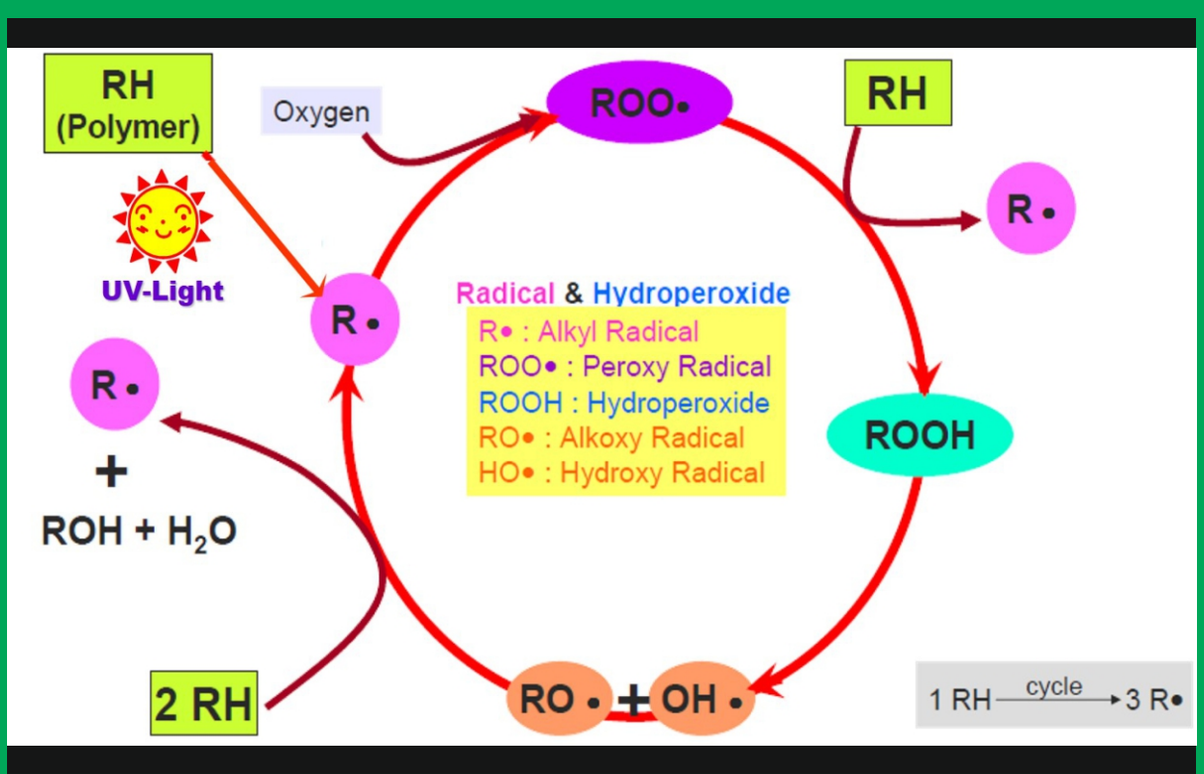
**BIRD EYE VIEW SAREX OVERSEAS
MANUFACTURING COMPLEX, TARAPUR, INDIA**

Contents

20+
Year of Experience

200+
No. of Customers Served

20+
Countries Served



About Sarex

Sarex Overseas Manufacturing Complex

Sarex Overseas is a Mumbai Based Company, manufacturing Fine Chemicals and Specialty Chemicals. Sarex Overseas is a division of Sarex Organics Pvt Ltd, Mumbai, India.

Sarex overseas is a leading manufacturer of Fine Chemicals and API Intermediates in India.

Sarex Overseas has corporate office in Mumbai. Sarex Overseas has its Manufacturing and R&D facility in Tarapur which is 100 Km from Mumbai.

Sarex Overseas manufacturing facility is GMP complied, but not certified. Many multinational companies have audited its facility and Sarex is their approved Vendor. Sarex is certified by ISO 9001, ISO 14001, and OHSAS 45001 by URS, UK. Besides Sarex has Ecovadis accreditation for business sustainability.

Sarex Overseas believes that People are their biggest strength and has most of the people working for many years at Sarex. Sarex Overseas has nearly 400 employees at various locations.

Over the years Sarex Overseas has become one of the largest leading manufacturer of Triazine based UV absorbers and light stabilizer and intermediates which are used in many Industries used as additive in plastics and coatings , Textile industry , Agro films, personal care industry to enhance their durability, colour fastness and performance. These UV absorbers are superior in their class as these have very low volatility at high process temperature of the plastics.

Sarex specializes in producing high value fine chemicals. Besides regular products, Sarex develop new products based on customer's requirements. R&D centre plays crucial role in handling complex chemistry and developing newer technologies. Other than additives for Plastic and Coatings Sarex Overseas also manufacture some API Intermediate as well as the contract manufacturer of the Fine Chemicals. Sarex is the market leader in Pharmaceutical intermediates of anti-diabetic API Pioglitazone Hydrochloride in India.

Sarex has a state of the art manufacturing facility with variety of unit operations. The entire plant operations is automated except solid charging / discharging using control system. Sarex Overseas have total 52 Reactors, in which 26 are Glass lined Reactors and 26 are Stainless Steel Reactors having 630 lit to 10kl capacity. Sarex Overseas have in house Primary, Secondary & Tertiary Effluent Treatment facility with Zero Liquid Discharge arrangement for liquid effluent.

Sarex has in-house Quality control development with HPLC, GC, UV-Vis Spectrophotometer, FTIR and many more analytical instruments with trained and skilled workforce. Sarex has in-house R&D facility with 8 fume hoods , rotary evaporator, Glass reactor etc. with high skilled & qualified manpower.

Glass Lined Reactors

Sarex is having adequate scrubbing arrangement to entrap gaseous emission.

Safety is one of the most important culture of Sarex. Utmost care has been taken while designing, operating and maintaining the plant. Majority of the safety is already built in the design of the plant and automation. Sarex is concerned with environment and committed to EHS (Environment, Health and safety).

Intellectual property rights and confidentiality is on the top priority list of Sarex.

Centrifuge, SS Reactors

Sarex Overseas is engaged in the Bulk manufacturing and

- Our company is largest manufacturer of anti-diabetic Pioglitazone Hydrochloride intermediates 5 Ethylpyridine-2-ethanol and 2,4-Thiozolidenedione in India.
- Our company is Largest manufacturer of Triazine UV absorbers for Plastics, coatings additive , Textile industry and personal care industry India.
- Bulk chemical manufacturer for Pharmaceuticals, Plastics, Coatings, Electronics, Dyes & Pigment industries, Photoinitiator, Resin Raw materials, Antioxidants and Flame retardants.

Sarex not only avails you with the exceptional chemicals, but also shoulders the responsibility of after sales service. Thus, we provide thorough going service through our Technical support. Our quality analysts scrutinize each & every product before its delivery. We value your money &endeavour to bring you the optimum product service in exchange of that.

We are one of the India's largest chemicals exporter & major portion of our produce is exported to more than 40 countries, primarily to the USA & Europe where our products have been well received & we have been successful in nurturing excellent relationships with our clients. We have been acclaimed a lot many times for our noteworthy range of chemicals.

Rotary Vacuum Paddle Dryer

Agitated Nutch Filter

Sarex stands for quality products!

Importance of UV Absorbers for Polymer Additives

The polymer additive industry is a vital sector that provides a wide range of chemical compounds designed to enhance and modify the properties of polymers and plastics. These additives are incorporated into polymer formulations during processing to impart specific characteristics or improve overall performance. The industry's main objective is to tailor polymer materials to meet the diverse requirements of various applications across numerous industries. Here is a brief overview of the polymer additive industry:

TYPES OF ADDITIVES

The polymer additive industry offers a vast array of additives, each serving unique purposes. Some common types include:

STABILIZERS
Additives like antioxidants and UV absorbers protect polymers from degradation caused by heat, light, and oxidative reactions.

PLASTICIZERS
These additives improve the flexibility and process ability of plastics, making them easier to shape and mold.

FLAME RETARDANTS
Essential for fire safety, these additives inhibit or delay the spread of flames in polymer materials.

COLORANTS AND PIGMENTS
Used to impart various colors and visual effects to plastics and polymers.

PROCESSING AIDS
Substances that assist in the manufacturing process, improving flow, reducing viscosity, and reducing energy consumption.

INDUSTRY APPLICATIONS

The polymer additive industry serves a wide range of sectors, including:

PACKAGING
Additives improve the performance and shelf-life of plastic packaging materials for food, beverages, and other consumer goods.

AUTOMOTIVE
Polymers with additives find use in automotive parts, improving fuel efficiency, safety, and overall performance.

CONSTRUCTION
Additives enhance the durability and weather resistance of polymers used in construction materials.

ELECTRONICS
Specialized additives are used in electronic components, providing electrical insulation and protection against environmental factors.

UV absorbers are a class of polymer additives used to protect polymers and plastics from the harmful effects of ultraviolet (UV) radiation. When exposed to sunlight or other sources of UV light, polymers can undergo degradation, leading to discoloration, reduced mechanical properties, and ultimately, material failure. UV absorbers play a crucial role in preventing these adverse effects and extending the lifespan of polymer-based products.

Mechanism of Action: UV absorbers function by absorbing the energy from UV radiation and converting it into heat. By doing so, they prevent the UV light from reaching the polymer chains, minimizing the possibility of degradation.

UV absorbers are used in all synthetic material such as Plastics which is made up of Polycarbonate (PC), Polyesters, Polyamide (PA), Polyethylene (PE), Polyethylene terephthalate (PET) and so on.

IN THE UV ABSORBERS THERE ARE 3 TYPES

- Benzophenone
- Benzotriazole
- Triazine

Triazine UV absorbers are the latest class of products.

Triazine chemistry - known for best UV stability there is

These products have the advantages of high efficiency (low addition and good effect), low color (making it more widely used), high processing temperature, good compatibility (good dispersion and easy chemical modification of the molecule itself) and excellent broad-spectrum (in the UVA and UVB ultraviolet range with a high molar absorption coefficient).

Triazine is a nitrogen-containing heterocyclic aromatic compound with a six-membered ring structure composed of three carbon atoms and three nitrogen atoms. It is a highly stable and versatile compound that finds use in a wide range of applications, including UV Absorbers, Polymer additives, Coating, Dyes and Textile, Flame Retardant, Healthcare and Personal care, Automotive Industry, Agro films, etc.

Triazine UV absorbers enable polymer retain color, gloss, and physical properties under long term UV light exposure, regarded an effective solution for polymer degradation caused by high-energy light.

KEY FEATURES

- A Triazine UV absorber has excellent properties. In addition, the dosage you need to put into your polymer is usually lower compared to other UV absorbers.
- In the automotive industry, that UV-absorbers (UVA) based on hydroxyphenyl-s- triazines (HPT) are capable of fulfilling the requirements such as higher performance and quality as well as cost pressures where 2-(2-hydroxyphenyl)-benzotriazoles (BTZ) tend to fail or show inferior properties.
- Investigations have shown that HPT has very low-vapor pressure and the best photo permanence (resistant to the loss of stabilizer during the light exposure
- Besides the photo permanence, the heat resistance (i.e., the low volatility)/heat stability is a key point.
- HPT shows, in addition, excellent chemical resistance without interaction with metals or strong alkalis.
- Triazines have very high thermal stability.
- Triazine shows best performance in terms of gloss and color retention.
- Intended for use in contact with food.
- High UV absorption efficiency (less dosage with better effect).
- Broad absorption spectrum.

WHY TRIAZINE BETTER TO USE OVER BENZOTRIAZOLES AND BENZOPHENONES.

When comparing Triazines and Benzotriazole and Benzophenone, there are several factors to consider.

Here are some potential reasons why Triazines may be considered better than Benzotriazole:

ENVIRONMENTAL IMPACT

Triazines are generally considered less persistent and less toxic to aquatic organisms compared to benzotriazole.

REGULATIONS

Triazines are more heavily regulated compared to benzotriazole, which means their use is subject to more scrutiny and restrictions, ensuring that they are used responsibly and safely.

AVAILABILITY

Triazines are more widely available compared to benzotriazole, which can make them a more accessible and cost-effective option.

PERSISTENCE

Triazines have a shorter half-life in soil compared to benzophenone and benzotriazoles, which means they break down more quickly and are less likely to persist in the environment.

MOBILITY

Triazines are less mobile in soil compared to benzophenone and benzotriazoles, which means they are less likely to leach into groundwater and contaminate water sources.

TOXICITY

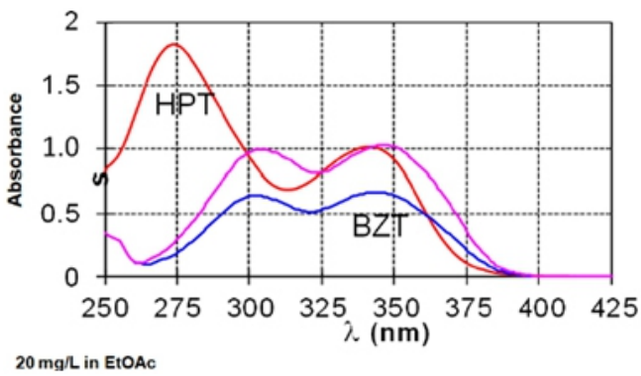
While both triazines and benzotriazolescan have negative impacts on the environment, triazines are generally considered less toxic to aquatic organisms compared to benzophenone and benzotriazoles.

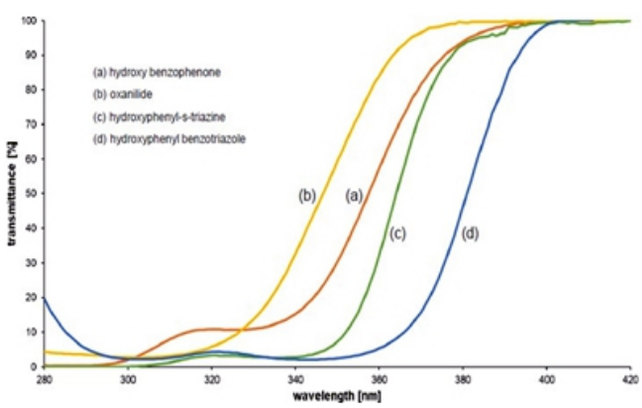
PERFORMANCE EXCELLENCE

Apart from the above Triazines (Hydroxy Phenyl Triazine, HPT) has performance excellence over Benzophenone, Benzotriazoles as a UVA absorber polymer additive. It has very high thermal degradation temperature. It is stable at high process temperature. It do not migrate or leech out.

COMPARISON OF UV ABSORBANCE SPECTRA

The spectral properties of the HPT exhibit the strongest absorption in the region of 300 nm, with two absorption maxima; in the shortwave UV at about 300 nm (strong) and in the longwave UV at about 340 nm (less pronounced).





RECOMMENDATIONS OF UVA FOR PLASTICS FOR THE FUTURE

- BZP 81 and BZT 326 in PE films industrial packaging substitute by HPT1164.
- BZT 234 in Polyamide and polyester test HPT 1164 and 1577.
- Use HPT 1164 for high performance agro PE films for high resistance to pesticides.
- Use HPT 1164 in PE applications for protection of content.
- HPT 1577 and newly developed HPT 1000 for engineering plastics type PC and PET glazing.

APPLICATION OF TRIAZINE

Triazines have a wide range of applications in various industries, including:

UV ABSORBER POLYMER ADDITIVES

Triazines are widely used as UV absorber additives in polymers like plastics, resins and coatings. It has distinct advantage over the rest of UVA absorbers such as Benzophenones (BZP) and Benzotriazoles (BZT). Some UV absorber for complex mouldings, fibers, plain and corrugated sheets, twin wall sheets, thin films, co-injected or coextruded semi-finished parts, allows polycarbonates and polyesters to achieve a higher resistance to weathering than conventional benzotriazole UV absorbers.

POLYMERS

Triazines can be used as monomers in the synthesis of novel polymers with desirable properties such as thermal stability, electrical conductivity, and mechanical strength.

COATINGS

Triazine is the best UV Absorbers. It helps to protect the coating by absorbing sunlight instead of letting it reach the adhesives, plastics, coatings, and elastomers. It is useful to protect adhesives, plastics, coatings, and elastomers from the damaging effects of outdoor weathering.

TEXTILES & DYES

Triazine compounds can be used to produce a range of dyes, including reactive dyes, acid dyes, and direct dyes. Triazine can be used as UV absorber in textile auxiliary. It can also be used in polycarbonates, injection moulding, thermoplastics, fibres, textiles and carpets for enhanced durability, color fastness and performance. It suitable for Dyeing and printing of polyester fibres, modified polyester fibres and their blends that are exposed to critical light and heat conditions, For both Technical Textiles Such as upholstery fabrics , interior linings and seat belts, and Apparel textile e.g. sportswear, uniforms, beach, swim and leisure wear, Hats, parasol fabrics(Umbrella, Tent) etc. It can be used in industrial paints and automotive paints with high thermal stability and durability requirements.

FLAME RETARDANTS

Triazines are used as flame retardants in a range of materials, including plastics, textiles, and construction materials.

HEALTHCARE & PHARMACEUTICALS

Triazine derivatives widely used in Healthcare and personal care industry. Triazine derivatives used as UV absorbers in sunscreen cream.s-Triazine is extensively studied because of its wide applications in biological systems as an antibacterial, antiviral, anticancer, and antifungal agent.

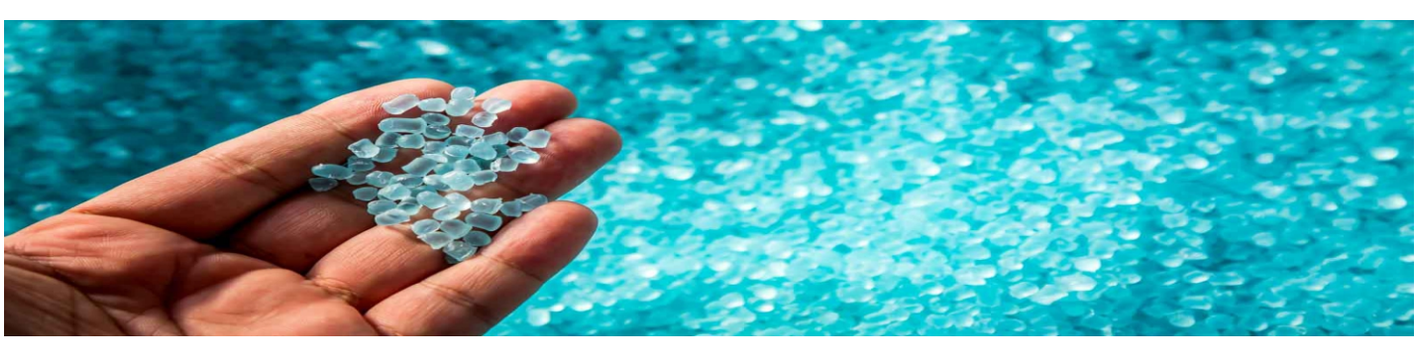
AUTOMOTIVE / ELECTRONIC INDUSTRY

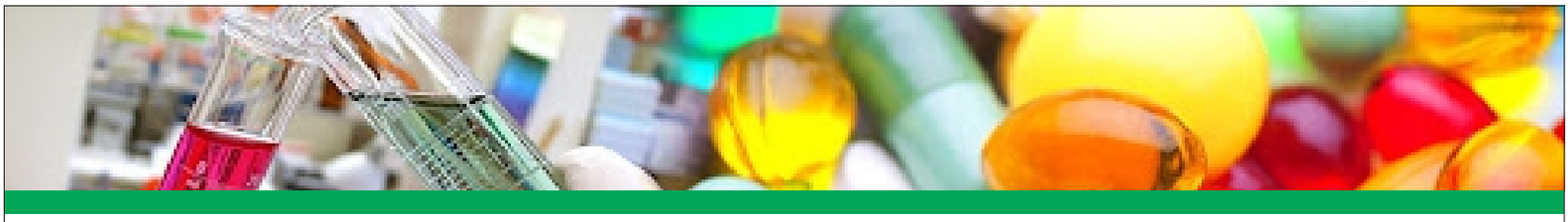
In the automotive industry, that UV-absorbers (UVA) based on hydroxyphenyl-s-triazines (HPT) are capable of fulfilling the requirements such as higher performance and quality as well as cost pressures where 2-(2-hydroxyphenyl)-benzotriazoles (BTZ) tend to fail or show inferior properties.

AGRO FILM

Triazine can be used as a light stabilizer (UV-absorber) for all kinds of polymers. in high performance agro PE films for high resistance to pesticides.

Appolo series deliver superior UV protection to enhance the performance of polymers in plastic resins and coatings, , preventing against degradation problems such as discoloration, gloss loss, as well as surface chalking. UV absorbers are typically added to the polymer during the compounding process. They are usually incorporated into the polymer matrix in the form of masterbatches, pellets, or liquid dispersions.





UV ABSORBERS FOR
POLYMER ADDITIVES

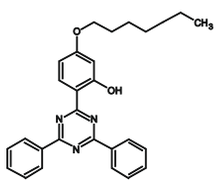
01

Product Code : **002967 (APPOLO-1577)**

2-(2-Hydroxy-4-hexyloxyphenyl)-4,6-Bis(phenyl)-1,3,5-triazine

CAS No : 147315-50-2
Molecular formula : $C_{27}H_{27}N_3O_2$
Molecular weight : 425.00
Safety & transit hazards : Non Hazardous material

Application : Good compatibility with most polymers, additives and formulation resins.



Typical properties

Appearance : Yellowish powder
Melting Point : 148-150 °C
Purity (HPLC) : NLT 98.5%
Transmittance @ 450nm : NLT 87.5%
Transmittance @ 500nm : NLT 98%
Solubility : Clear Solution

Annual Capacity : 200 MT

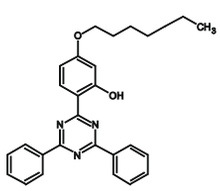
02

Product Code : **005630 (APPOLO-1577 (FLK))**

2-(2-Hydroxy-4-hexyloxyphenyl)-4,6-Bis(phenyl)-1,3,5-triazine

CAS No : 147315-50-2
Molecular formula : $C_{27}H_{27}N_3O_2$
Molecular weight : 425.00
Safety & transit hazards : Non Hazardous material

Application : Good compatibility with most polymers, additives and formulation resins.



Typical properties

Appearance : **Yellowish Flakes**
Melting Point : 148.0 to 150.0°C
Purity (HPLC) : NLT 98.5%
Transmittance @ 450nm : NLT 87.50%
Transmittance @ 500nm : NLT 98.0%

Annual Capacity : 80 MT

Advantages : ***At the time of Application, it avoid dusting problem and facilitate with good flowability & it also avoid cohesion of the particle.***

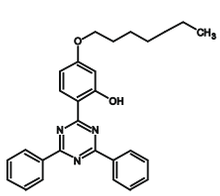
03

Product Code : **010637 (APPOLO-1577 (GRANULES))**

2-(2-Hydroxy-4-hexyloxyphenyl)-4,6-Bis(phenyl)-1,3,5-triazine

CAS No : 147315-50-2
Molecular formula : $C_{27}H_{27}N_3O_2$
Molecular weight : 425.00
Safety & transit hazards : Non Hazardous material

Application : Good compatibility with most polymers, additives and formulation resins.



Typical properties

Appearance : **Yellowish Granules**
Melting Point : 148.0 to 150.0°C
Purity (HPLC) : NLT 98.5%
Transmittance @ 450nm : NLT 87.50%
Transmittance @ 500nm : NLT 98.0%

Annual Capacity : 100 MT

Disclaimer
Typical properties should not be considered as specification.
Product covered by valid patents are not offered or supplied for commercial use. The Patent position should be verified by the customer.
Products currently covered by valid US patents are offered for R&D use in accordance with 35 USC 271 (e) (l).
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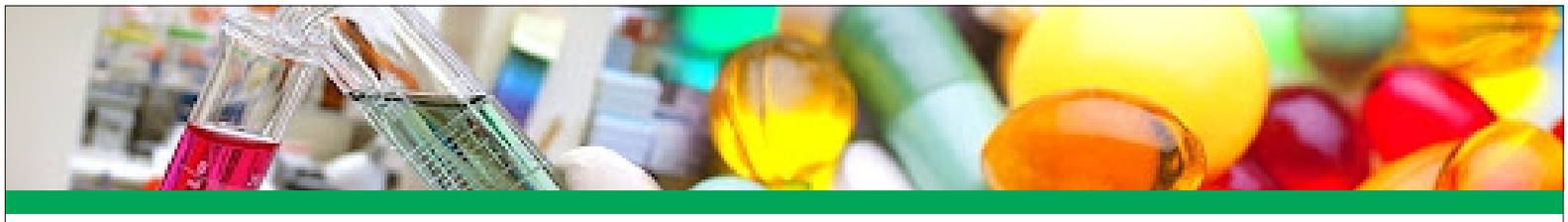


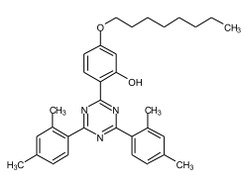
UV ABSORBERS FOR
POLYMER ADDITIVES

04

Product Code : **001305 (APPOLO-1164)**

2,4-Bis(2,4-dimethylphenyl)-6-(2-hydroxy-4-octyloxyphenyl)-1,3,5-triazine

CAS No : 2725-22-6
Molecular formula : $C_{33}H_{39}N_3O_2$
Molecular weight : 509.68
Safety & transit hazards : Non Hazardous material



Application : UV absorber additive in general plastics, automotive coatings, Agro films

Typical properties

Appearance : Off white to yellowish powder
Melting Point : 90 to 92 °C
Purity (HPLC) : Min 99%
Volatiles : Max 0.50 %
Transmittance @ 460nm : Min 90%
Transmittance @ 500nm : Min 95%

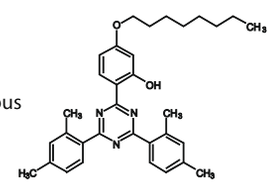
Annual Capacity : 250 MT

05

Product Code : **010631 (APPOLO-1164 (M))**

2,4-Bis(2,4-dimethylphenyl)-6-(2-hydroxy-4-octyloxyphenyl)-1,3,5-triazine

CAS No : 2725-22-6
Molecular formula : $C_{33}H_{39}N_3O_2$
Molecular weight : 509.68
Safety & transit hazards : Non Hazardous material



Application : UV absorber additive in general plastics, automotive coatings, Agro films

Typical properties

Appearance : Yellowish Fine Powder
Melting Point : 89.5 to 92.0 °C
Purity (HPLC) : NLT 99.0%
Transmittance @ 460nm : NLT 90.0%
Transmittance @ 500nm : NLT 95.0%
Particle Size : **Less Than 800 Micron (90%)**

Annual Capacity : 50 MT

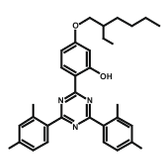
Advantages : ***High rate of dissolution, Improved performance of final product & UV radiation absorption increases with smaller particles.***

06

Product Code : **001323 (APPOLO–1164L)**

2-(4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl)-5-((2-ethylhexyl)oxy)phenol

CAS No : 652991-75-8
Molecular formula : $C_{33}H_{39}N_3O_2$
Molecular weight : 509.68
Safety & transit hazards : Hazardous material



Application : UV absorber additive for polyurethanes, unsaturated polyester, coatings, resins and paints

Typical properties

Appearance : Yellow orange liquid
Specific gravity : 1.0 - 1.02
Assay : NLT 65%

Annual Capacity : 100 MT

Disclaimer
Typical properties should not be considered as specification.
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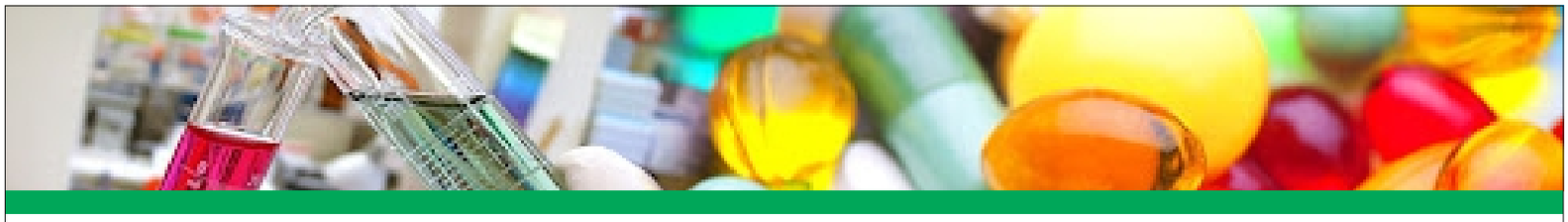


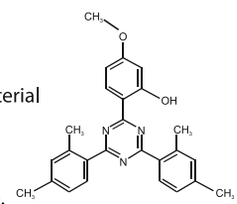
UV ABSORBERS FOR
POLYMER ADDITIVES

07

Product Code : **010072 (APPOLO-1164 GL)**

2,4-Bis-(2,4-dimethyl phenyl)-6-(2-hydroxy-4-methoxyphenyl)-1,3,5-triazine

CAS No : 1820-28-6
Molecular formula : $C_{26}H_{25}N_3O_2$
Molecular weight : 411.50
Safety & transit hazards : Non Hazardous material



Application : UV absorber used as polymer additive. UV absorber used in polymer fibers.

Typical properties

Appearance : Light Yellow Powder
Purity (HPLC) : NLT 99%
Volatiles : NMT 0.2%

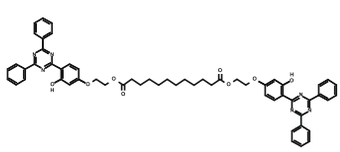
Annual Capacity : 50 MT

08

Product Code : **010136 (APPOLO-1000)**

Bis[2-[4-(4,6-diphenyl-1,3,5-triazine-2-yl)-3-hydoxyphenoxy]ethyl]dodacenedioate

CAS No : 1482217-03-7
Molecular formula : $C_{58}H_{56}N_6O_8$
Molecular weight : 965.10
Safety & transit hazards : Non Hazardous material



Application : Used as UV absorber additive in general plastics, engineering plastics especially Polycarbonate

Typical properties

Appearance : Pale Yellow Powder
Purity (HPLC) : NLT 98%
Volatiles : NMT 1%
Melting Point : 180 to 190 °C

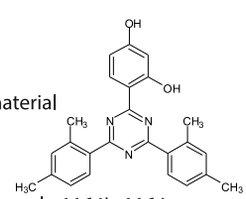
Annual Capacity : 50 MT

09

Product Code : **009560 (APPOLO-107)**

2,4-Bis(2,4-dimethylphenyl)-6-(2,4-dihydroxyphenyl)-1,3,5-triazine

CAS No : 1668-53-7
Molecular formula : $C_{25}H_{23}N_3O_2$
Molecular weight : 397.69
Safety & transit hazards : Non Hazardous material



Application : Intermediate for Appolo 1164L, 1164, 400, 405. The UV absorber additives for Plastics & Coatings

Typical properties

Appearance : Off white to pale yellow powder
Purity (HPLC) : Min 99%
Volatiles : Max 0.5%
Transmittance @ 450nm : Min 70%
Transmittance @ 500nm : Min 80%

Annual Capacity : 120 MT

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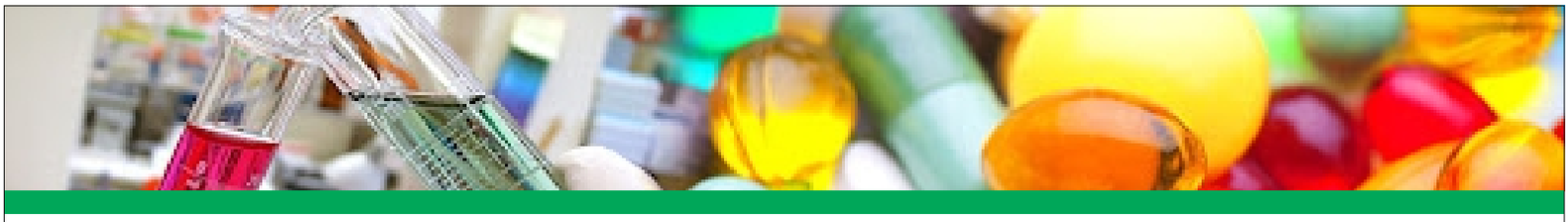


UV ABSORBERS FOR
POLYMER ADDITIVES

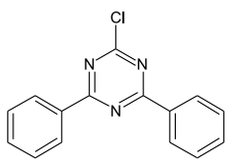
10

Product Code : **010078 (APPOLO-115)**

2-Chloro-4,6-diphenyl-1,3,5-triazine

CAS No : 3842-55-5
Molecular formula : $C_{15}H_{10}ClN_3$
Molecular weight : 267.71
Safety & transit hazards : Non Hazardous material

Application : Intermediate for Appolo 1577 additive for Plastics. Used in electronics industries in LED



Typical properties

Appearance : Off White To Light Brown Powder
Purity (HPLC) : NLT 95%
Volatiles : Max 0.50%
Tris Impurity : NMT 4%

Annual Capacity : 60 MT

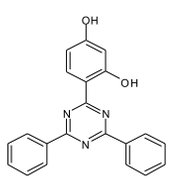
11

Product Code : **001326 (APPOLO-116)**

2-(2,4-Dihydroxyphenyl)-4,6-diphenyl-1,3,5-triazine

CAS No : 38369-95-8
Molecular formula : $C_{21}H_{15}N_3O_2$
Molecular weight : 341.00
Safety & transit hazards : Non Hazardous material

Application : Intermediate for Appolo 1577 additive for Plastics



Typical properties

Appearance : White To Pale Yellow Powder
Identification (HPLC) : Identical
Loss on drying : NMT 0.50%
Purity (HPLC) : NLT 99%

Annual Capacity : 60 MT

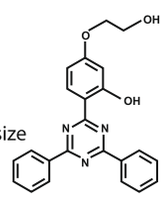
12

Product Code : **001334 (APPOLO-117)**

2-(2-Hydroxy-4-ethoxyphenyl)-4,6-bis(phenyl)-1,3,5-triazine

CAS No : 184782-88-5
Molecular formula : $C_{23}H_{19}N_3O_3$
Molecular weight : 385.42
Safety & transit hazards : Non Hazardous material

Application : Intermediate for synthesize various UV Absorbers. Intermediate for Appolo-1000



Typical properties

Appearance : Off White to Light Brownish Powder
Identification (HPLC) : Identical
Solubility : Clear to Slight Hazy Solution (2% in NMP)
Volatile : NMT 1.00%
Purity : NLT 97%
Annual Capacity : 100 MT

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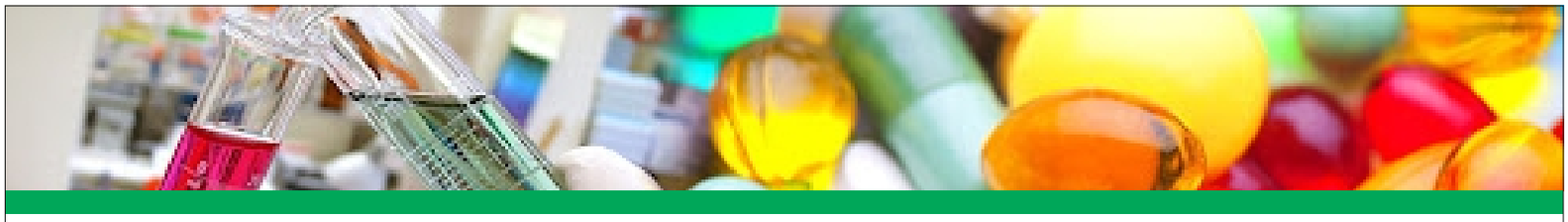


UV ABSORBERS FOR POLYMER ADDITIVES

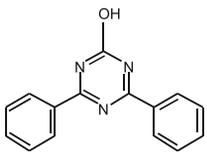
13

Product Code : **010032 (APPOLO-114)**

2,4-Diphenyl-6-hydroxy-1, 3, 5- triazine

CAS No : 1917-44-8
Molecular formula : $C_{15}H_{11}N_3O$
Molecular weight : 249.27
Safety & transit hazards : Non Hazardous material

Application : Used as Intermediate of UV absorber



Typical properties

Appearance : White To Yellowish Powder
Identification (HPLC) : Identical
Loss on drying : NMT 0.50%
Purity (HPLC) : NLT 98.0%

Annual Capacity : 50 MT

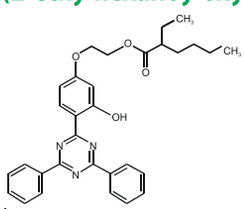
14

Product Code : **010197 (APPOLO-46)**

2-(4,6-Diphenyl-1,3,5-triazin-2-yl)-5-[2-(2-ethylhexanoyloxy)ethoxy]phenol

CAS No : 371146-04-2
Molecular formula : $C_{31}H_{33}N_3O_4$
Molecular weight : 511.62
Safety & transit hazards : Non Hazardous material

Application: UV absorber additive in engineering plastic PBT, PC, PET. It Offers Low volatility and excellent thermal stability. It offers high absorption between 280 nm & 300 nm UV region.



Typical properties

Appearance : Light Yellow Flakes Or Powder
Volatiles : NMT 0.5%
Purity (HPLC) : NLT 98%
Solubility : Clear Solution

Annual Capacity : 50 MT

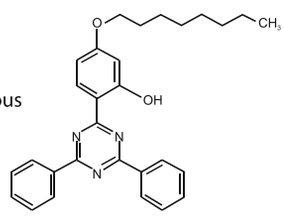
15

Product Code : **010074 (APPOLO-1578)**

2,4-Bisphenyl-6-(2-hydroxy-4-n-octyloxyphenyl)-1,3,5-triazine

CAS No : 139123-70-9
Molecular formula : $C_{29}H_{31}N_3O_2$
Molecular weight : 453.58
Safety & transit hazards : Non Hazardous material

Application : UV absorber additive for general plastics



Typical properties

Appearance : Yellow Powder
Purity (HPLC) : NLT 98%
Identification (HPLC) : RT of Sample should match with RT of Standard
Loss on Drying : NMT 0.5%

Annual Capacity : 50 MT

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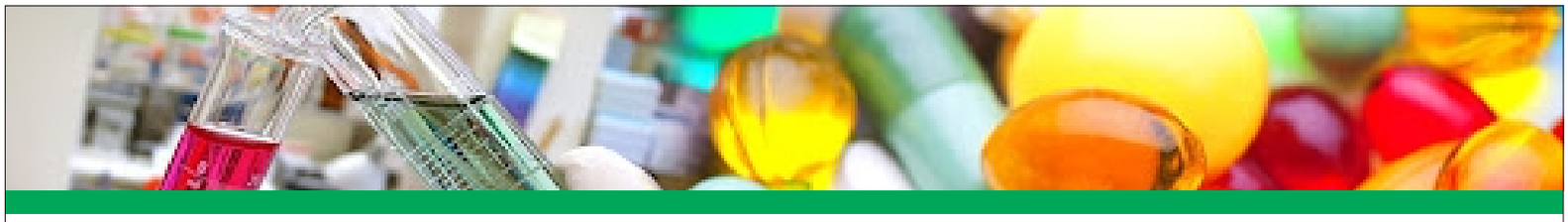


UV ABSORBERS FOR
POLYMER ADDITIVES

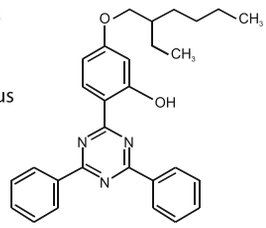
16

Product Code : **010075 (APPOLO-1580)**

2-(4,6-diphenyl-1,3,5-triazin-2-yl)-5-((2-ethylhexyl)oxy)phenol

CAS No : 1251831-39-6
Molecular formula : $C_{29}H_{31}N_3O_2$
Molecular weight : 453.58
Safety & transit hazards : Non Hazardous material

Application : UV absorber additive for general plastics



Typical properties

Appearance : Yellow Powder
Purity (HPLC) : NLT 99%
Volatiles : NMT 0.5%

Annual Capacity : 50 MT

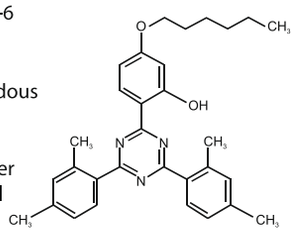
17

Product Code : **010073 (APPOLO-1163)**

2,4-Bis-(2,4-dimethyl phenyl)-6-(2-hydroxy-4-hexyloxyphenyl)-1,3,5-triazine

CAS No : 168921-86-6
Molecular formula : $C_{31}H_{35}N_3O_2$
Molecular weight : 481.64
Safety & transit hazards : Non Hazardous material

Application : UV absorber for general plastics



Typical properties

Appearance : Yellow Powder
Purity (HPLC) : NLT 99%
Volatiles : NMT 0.5%

Annual Capacity : 50 MT

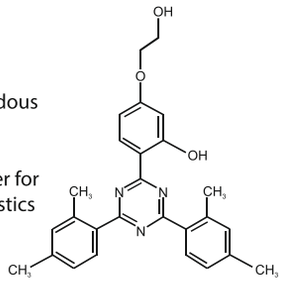
18

Product Code : **009674 (APPOLO-1166)**

2,4-Bis-(2,4-dimethyl phenyl)-6-(2-hydroxy-4-ethoxyphenyl)-1,3,5-triazine

CAS No : 1440-08-0
Molecular formula : $C_{27}H_{27}N_3O_3$
Molecular weight : 441.20
Safety & transit hazards : Non Hazardous material

Application : UV absorber for general plastics



Typical properties

Appearance : Off White to Pale Yellow Powder
Purity (HPLC) : NLT 97.5%
Volatiles : NMT 0.5%

Annual Capacity : 50 MT

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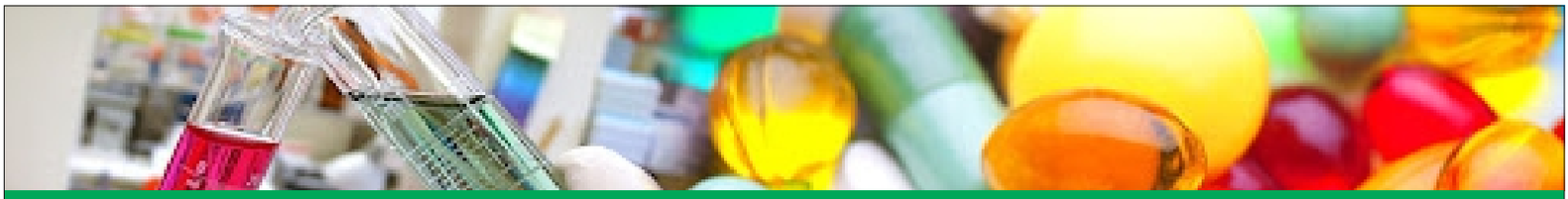

UV ABSORBERS FOR POLYMER ADDITIVES

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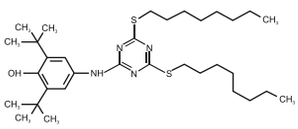
Product Code : **010071 (APPOLO-565)**

Under Development

2,4-Bis-(octylthio)-6-(3,5-di tert butyl-4-hydroxyanilino)-1,3,5-triazine

CAS No : 991-84-4
Molecular formula : $C_{33}H_{56}N_4OS_2$
Molecular weight : 588.95
Safety & transit hazards : Non Hazardous material



Application : Antioxidant for unsaturated elastomers such as BR, IR & SBR

Typical properties

Appearance : White to Yellow Powder
Melting Point : 91- 96°C
Purity (GC) : NLT 99%
Loss On Drying : NMT 0.5%

Annual Capacity : 50 MT

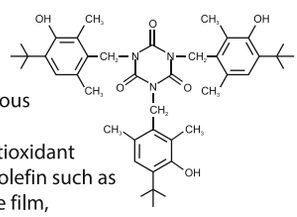
20

Product Code : **010076 (APPOLO-1790)**

Under Development

1,3,5-Tris(4-tert- butyl-3-hydroxy-2,6-dimethyl benzyl)1,3,5-triazine-(1H,3H,5H)-trione

CAS No : 40601-76-1
Molecular formula : $C_{42}H_{57}N_3O_6$
Molecular weight : 699.93
Safety & transit hazards : Non Hazardous material



Application : Phenolic antioxidant used in polyolefin such as polyethylene film, polypropylenes film, polyacetals, polyamides etc.

Typical properties

Appearance : White powder
Melting range : 158- 162°C
Purity (HPLC) : NLT 96%

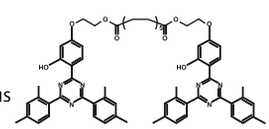
Annual Capacity : 50 MT

21

Product Code : **010761 (APPOLO-1100)**

Bis(2-(4-(4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl)-3-hydroxphenoxy)ethyl) dodecanedioate

CAS No : 1939280-95-1
Molecular formula : $C_{66}H_{72}N_6O_8$
Molecular weight : 1077.34
Safety & transit hazards : Non Hazardous material



Application : It is used in Polycarbonate, polyethylene terepthalates etc.

Typical properties

Appearance : Yellow Powder
Purity (HPLC) : NLT 98%
Loss on Drying : NMT 1.00%
Melting Point : 158 to 160 °C

Annual Capacity : 50 MT

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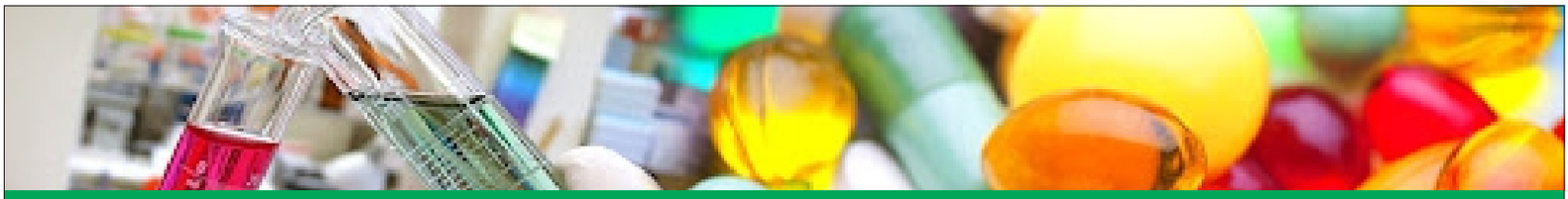


UV ABSORBERS FOR
POLYMER ADDITIVES

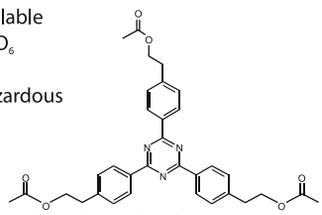
22

Product Code : **010684 (APPOLO-567)**

Under Development

1,3,5-triazine-2,4,6-triyl)tris(benzene-4,1-diyl))tris(ethane-2,1-diyl) triacetate

CAS No : Not available
Molecular formula : $C_{33}H_{33}N_3O_6$
Molecular weight : 567.64
Safety & transit hazards : Non Hazardous material



Application : It is triazine based UV Absorber used in general plastic.

Typical properties

Purity (HPLC) : NLT 95%
Volatiles : NMT0.5%
Ash : NMT 0.1%
Transmittance @ 460nm : NLT 60%
Transmittance @ 500nm : NLT 75%

Annual Capacity : 50 MT

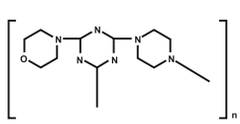
23

Product Code : **011336 (APPOLO PPM TRIAZINE HF)**

Under Development

Poly [6-(4-morpholinyl)-1,3,5-triazine-2,4-diyl]-1,4-piperazinediyl

CAS No : 93058-67-4
Molecular formula : $(C_{11}H_{16}N_6O)n$
Molecular weight : Approx. 2755
Safety & transit hazards : Non Hazardous material



Application : It acts as flame retardant. The protective layer also imparts a heat-insulation effect, reduces oxygen permeability and prevents dripping of molten polymer.

Typical properties

Appearance : Off-white Crystalline Powder
Identification (HPLC) : Identical
Melting Point : Infusible (> 290 °C)
Solubility : Insoluble In Water

Annual Capacity : 50 MT

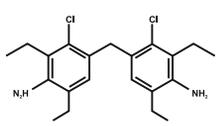
24

Product Code : **011367 (4,4'-Methylenebis[3-chloro-2,6-diethylbenzenamine])**

Under Development

4,4'-Methylenebis[3-chloro-2,6-diethylbenzenamine]

CAS No : 106246-33-7
Molecular formula : $C_{21}H_{28}Cl_2N_2$
Molecular weight : 379.37
Safety & transit hazards : Non Hazardous material



Application : Used as a chain extender for polyurethanes and as a curing agent for epoxides.
Provides good dynamics, temperature, chemical and abrasion resistance, hydrolytic stability and low water absorption in polyurethanes.

Typical properties

Appearance : White to Pale Yellow Solid
Identification (HPLC) : NLT 98%
Melting Point : 86.0 - 90.0 °C

Annual Capacity : 50 MT

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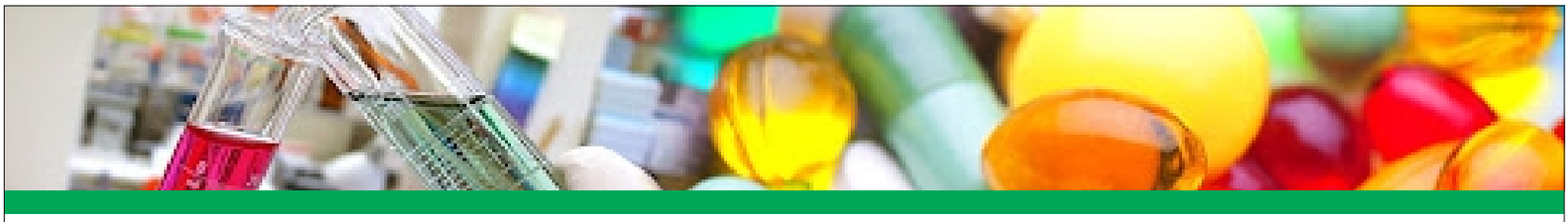


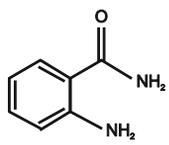
UV ABSORBERS FOR POLYMER ADDITIVES

25

Product Code : **002776 (Anthranilamide)**

Anthranilamide

CAS No : 88-68-6
Molecular formula : $C_7H_8N_2O$
Molecular weight : 136.15
Safety & transit hazards : Non Hazardous material



Application : It is used as acetaldehyde scavenging agent in Polyethylene terepthalate (PET) blends.

Typical properties

Appearance : Off White to Pink Powder
Melting Point : 110-114 °C
Moisture Content (KF) : NMT 0.5%
Solubility (2.5% Wt/V in methanol) : Clear Solution
Purity (HPLC) : NLT 99%

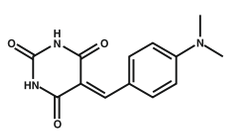
Annual Capacity : 120 MT

26

Product Code : **011111 (Saralite RL-1000 (DMBA))**

5-[4-(Dimethylaminobenzylidene)barbituric acid]

CAS No : 1753-47-5
Molecular formula : $C_{13}H_{13}N_3O_3$
Molecular weight : 259.26
Safety & transit hazards : Non Hazardous material



Application : It is a photoselective additive for plastic agricultural applications such as covers that helps improve crop quality and productivity.

Typical properties

Appearance : Bright Crimson Red Powder
Solubility : Clear Solution (1% in DMSO)
Melting Point : 258.0 to 263.0 °C
Moisture Content (KF) : NMT 0.50%

Annual Capacity : 100 MT

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