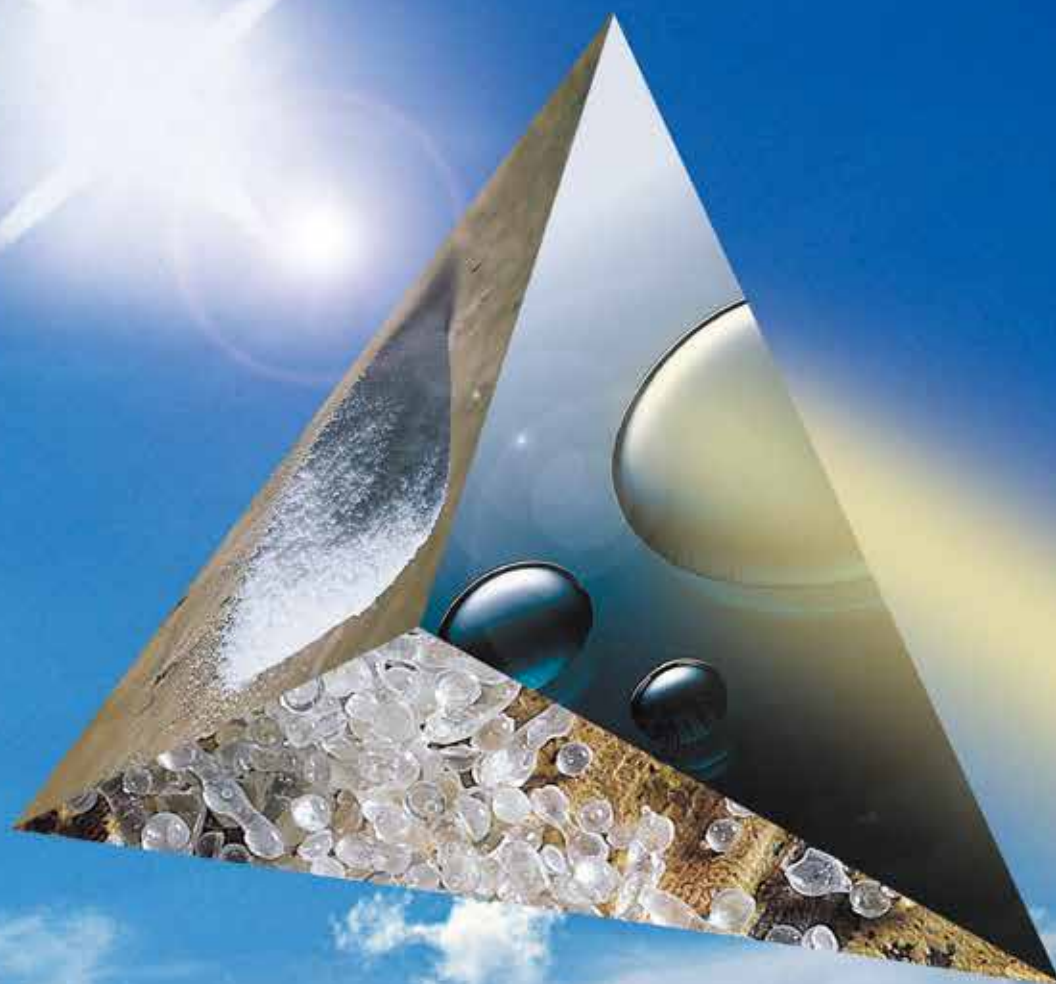


ADDITIVES FOR PLASTICS AND COATINGS



Light Stabilizers

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CHISORB BP-12	P.2
CHISORB BP-12H	P.3
CHISORB P	P.3
CHISORB 234	P.3
CHISORB 326	P.4
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CHISORB 5228	P.5
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CHISORB 5571	P.6
CHISORB 5582	P.6
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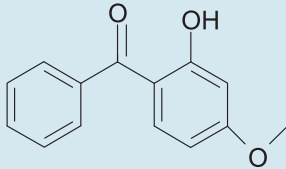
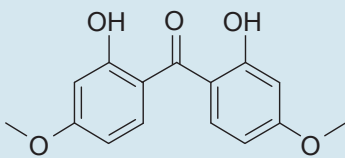
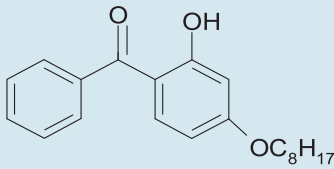
PVC Stabilizers

DOUBLESTAB 200G3	P.51
DOUBLESTAB 350G	P.51
DOUBLESTAB 719	P.51
DOUBLESTAB 719G3	P.52
DOUBLESTAB 20E	P.52
DOUBLESTAB 23	P.52
DOUBLESTAB 24E	P.53
DOUBLESTAB 26E	P.53

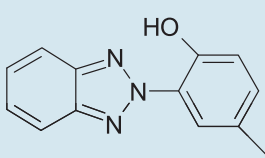
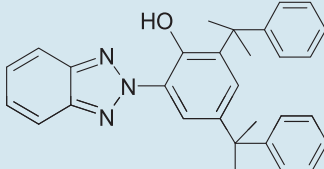
Functional Masterbatch

DOUBLEMASTER LLDPEX1-40	P.55
DOUBLEMASTER LLDPE51-40	P.55
DOUBLEMASTER LDPE62-40	P.55
DOUBLEMASTER LDPE78-40	P.56
DOUBLEMASTER LDPE94-40	P.56
DOUBLEMASTER PO-4	P.56

CHISORB
Light Stabilizers

Composition	CHISORB BP-3 2-Hydroxy-4-methoxybenzophenone	CHISORB BP-6 2,2'-dihydroxy-4,4'-dimethoxybenzophenone	CHISORB BP-12 2-Hydroxy-4-n-octyloxybenzophenone
	CAS No.: 131-57-7	CAS No.: 131-54-4	CAS No.: 1843-05-6
Structure			
Properties	Molecular formula C ₁₄ H ₁₂ O ₃ Molecular weight 228.2 Appearance Pale yellow crystalline powder Melting point 62°C min.	Molecular formula C ₁₅ H ₁₄ O ₅ Molecular weight 274.27 Appearance Light yellow crystalline powder Melting point 134°C min.	Molecular formula C ₂₁ H ₂₆ O ₃ Molecular weight 326.44 Appearance Pale yellow crystalline powder Melting point 46,5-49°C
	Solubility (g/100ml solvent) Acetone > 20 Chloroform > 20 Triglycerides of fatty acid ca.15 Isopropanol ca.10 Methanol ca. 5	Solubility (g/100ml solvent) Chloroform 61 Ethanol 2.5 Methanol 2 Ethyl acetate 44 Benzene 70	Solubility (g/100ml solvent) Chloroform 61 Ethanol 2.5 Methanol 2 Ethyl acetate 44 Benzene 70
Application	- Sunscreen : 0.5-5% - PE, PP, PVC (rigid/flexible) : 0.3-0.5% - PS, thermoset polyester and oily-based coatings	- UV absorber for: Plastics Paintings Polystyrene Polyester Cosmetics	- PE, PP, TPR, EVA, rubber and PVC
Advantage	- Highly efficient UV absorber - Low effect to color - Suitable for polyolefin, PVC, PS and thermoset polyester	- Wide UV filter	- Strong UV absorption and low color effect - Good compatibility with polymer, especially polyolefin - Better performance in flexible PVC - Suitable for food packaging

CHISORB
Light Stabilizers

Composition	CHISORB BP-12H Blend of light stabilizers	CHISORB P 2-(2'-Hydroxy-5'-methylphenyl)- benzotriazole	CHISORB 234 2-[2-hydroxy-3,5-di-(1,1-dimethylbenzyl)] -2H-benzotriazole
		CAS No.: 2440-22-4	CAS No.: 70321-86-7
Structure			
Properties	Appearance Yellowish powder Odor Odorless	Molecular formula C ₁₃ H ₁₁ N ₃ O Molecular weight 225.2 Appearance Pale yellowish crystalline powder Melting point 128-132°C	Molecular formula C ₃₀ H ₂₉ N ₃ O Molecular weight 447.6 Appearance Off-white to slightly yellowish crystalline powder Melting point 137-141°C
		Solubility (g/100ml solvent) Chloroform 13 Ethanol 0.3 Ethyl acetate 3.5 Acetone 3 n-Hexane 1	Solubility (g/100ml solvent) Chloroform 35 n-Hexane 1 Ethyl acetate 2 Acetone 2 Toluene 25
Application	- PE, PP, PVC, EVA, ABS, elastomers	- Suitable for a wide range of plastics - Better performance in rigid PVC than flexible - Not suggest to use in coatings and combined with metal ion containing additives	- PET films and fibers, PC, POM, PA - TPE compounding, TPU, Spandex - Coatings for high-temperature processing, ex. automotive coatings
Advantage	- Suitable for PP, PE, PVC - Excellent UV resistance	- Highly efficient UV absorber - Suitable for food packaging - Low effect to color	- Very low volatile - Suitable for applications involving high temperature processing - Not sensitive to metal ions - Suitable for food packaging

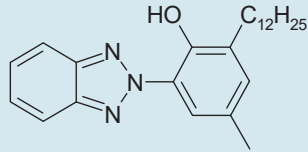
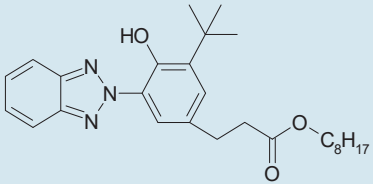
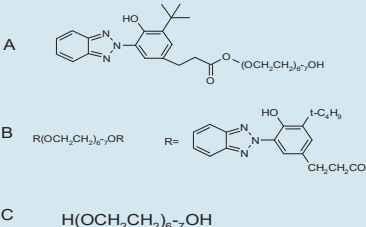
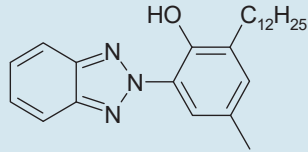
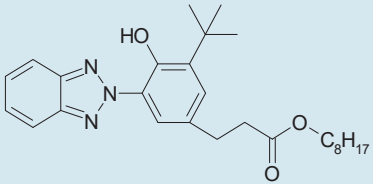
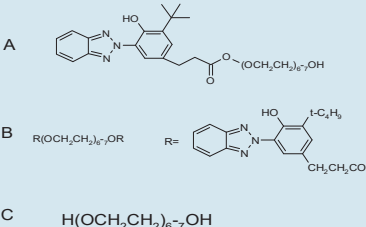
CHISORB
Light Stabilizers

Composition	CHISORB 326 2-(3'-t-butyl-2'-hydroxy-5'-methylphenyl)-5-chlorobenzotriazole CAS No.: 3896-11-5	CHISORB 327 2-(3',5'-di-tert-Butyl-2'-hydroxyphenyl)-5-chlorobenzotriazole CAS No.: 3864-99-1	CHISORB 328 2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol CAS No.: 25973-55-1
Structure			
Properties	Molecular formula C₁₇H₁₈N₃OCl Molecular weight 316 Appearance Light yellow powder Melting point 137-141°C Solubility (g/100ml solvent) Chloroform 11 Ethanol 0.2 Ethyl acetate 3 MEK 3 Acetone 1	Molecular formula C₂₀H₂₄ClN₃O Molecular weight 358 Appearance Pale yellow crystalline powder or granule Melting point 154-158°C Solubility (g/100ml solvent) Chloroform 19 MEK 4 Ethyl acetate 6 Cyclohexane 8 Xylene 15	Molecular formula C₂₂H₂₉N₃O Molecular weight 351.5 Appearance Off-white to pale yellow crystalline powder Melting point 79-88°C Solubility (g/100ml solvent) Chloroform 44 Ethanol 0.6 Ethyl acetate 20 MEK 24 Benzene 39
Application	- PE, PP, polyester, PMMA and coatings	- Suitable for a wide range of plastics, especially for ABS and polyolefin	- Polyolefin, POM, PA, PET, ASA - ABS, HIPS, PS, SAN, PVC, PU - Thermoset polyester - Coating systems
Advantage	- Excellent stability to heat and light - Not sensitive to metal ions - Suitable for sunglasses applications - Suitable for food packaging	- Strong and broad-band UV absorption - Not sensitive to metal ions	- Strong and broad-band UV absorption - Not sensitive to metal ions - Good solubility and resin compatibility - Suitable for food packaging

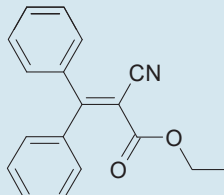
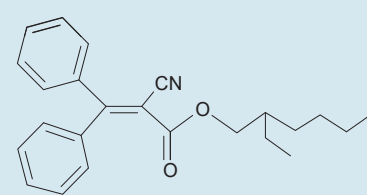
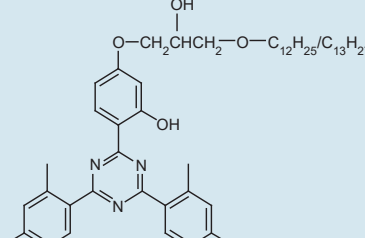
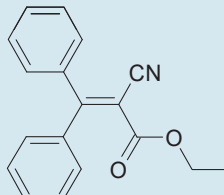
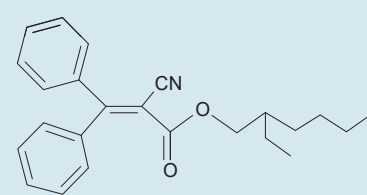
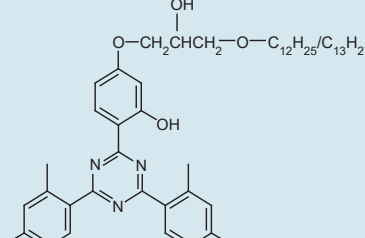
CHISORB
Light Stabilizers

Composition	CHISORB 5228 2-(2H-Benzotriazol-2-yl)-6-(1-methyl-1-phenylethyl)-4-(1,1,3,3-tetramethylbutyl) phenol CAS No.: 73936-91-1	CHISORB 5411 2-(2'-Hydroxy-5'-t-octylphenyl)- benzotriazole CAS No.: 3147-75-9	CHISORB 5431 2,2'-Methylene bis(6-(2H-benzotriazol-2-yl)-4-,1,1,3,3,tetramethylbutyl)phenol) CAS No.: 103597-45-1
Structure			
Properties	Molecular formula C₂₉H₃₅N₃O Molecular weight 441 Appearance Off-white or light yellowish crystalline powder Melting point 109-113°C Solubility (g/100ml solvent) Butyldiglycol 35 Butylacetate > 30 Ethylglycolacetate 10 Methoxypropylacetate 9.4 Butanol 17	Molecular formula C₂₀H₂₅N₃O Molecular weight 323.4 Appearance Off-white to pale yellow crystalline powder or granule Melting point 103-108°C Solubility (g/100ml solvent) Diocetyl phthalate 15 Styrene 22 Methyl cellosolve 5 Ethanol 0.6 Methyl methacrylate 12	Molecular formula C₄₁H₅₀N₆O₂ Molecular weight 659 Appearance Off-white to slightly yellow powder or granule Melting point 194-198°C Solubility (g/100ml solvent) Chloroform 10 n-Hexane 0.02 Ethyl acetate 0.04 Acetone 0.03 Toluene 3.4
Application	- Automotive coatings - Powder and coil coatings - Better performance in combination with HALS light stabilizer	- Polyolefin, POM, PA, PET, ASA - ABS, HIPS, PS, SAN, PVC, PU - Thermoset polyester	- PET, PC, PBT, PA, Acrylic resin
Advantage	- Good solubility - High efficiency of UV absorption - Suitable for low solvent-containing coating system	- Strong and broad-band UV absorption - Especially effective in PC and engineering plastics - Suitable for foodstuff packaging	- Very low volatile - Suitable for high temperature processing, ex. engineering plastics/fibers - Not sensitive to metal ions - No effect to the initial color

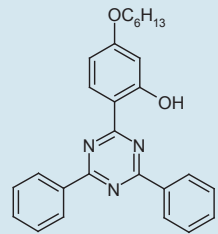
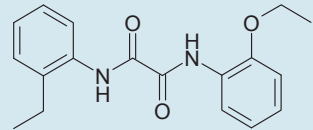
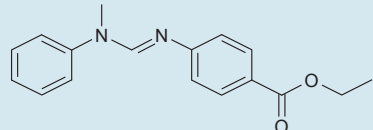
CHISORB
Light Stabilizers

Composition	CHISORB 5571 2-(2H-benzotriazol-2-yl)-6-dodecyl-4-methylphenol, branched and linear CAS No.: 23328-53-2 125304-04-3 104487-30-1	CHISORB 5582 Reaction mass of branched and linear C7-C9 alkyl 3-[3-(2H-benzotriazol-2-yl)-5-(1,1-dimethylethyl)-4-hydroxyphenyl]propionates CAS No.: 127519-17-9	CHISORB 5530 Hydroxyphenylbenzotriazole type CAS No.: A. 104810-48-2 B. 104810-47-1 C. 25322-68-3
			
Structure			
Properties	Molecular formula C ₂₅ H ₃₅ N ₃ O Molecular weight 393.6 Appearance Clear viscous yellow liquid Melting point -56°C Solubility (g/100ml solvent) Chloroform > 50 n-Hexane > 50 Ethyl acetate > 50 Acetone > 50 Ethanol 12	Molecular formula C ₂₇ H ₃₇ N ₃ O ₃ Molecular weight 451.6 Appearance Light yellow liquid Solvent content 5% MPA Solubility (g/100ml solvent) Soluble in most organic solvents Insoluble in water Dispersible in aqueous system	Content A. 30-60% B. 30-60% C. approx. 10% Appearance Yellow to light amber liquid Solubility (g/100ml solvent) Soluble in most organic solvents Insoluble in water Dispersible in aqueous system
Application	- TPU, coatings and films - PVC, PVB, PMMA, EVA and unsaturated polyester - Spin finishes for PA, PET, PU, and PP fibers - Latices, waxes, adhesives, styrene homo and copolymers, elastomers and polyolefins	- Automotive coatings - Coil coatings, wood coatings - Casting PU or PU Foam - Water borne application - Better performance in combination with HALS light stabilizer	- Automotive, coil and wood coatings - Water-borne applications - Better performance in combination with HALS - Not recommended to be applied in two-package PU coatings
Advantage	- Liquid form, easier for handling - Good compatibility with resin	- Liquid form, easier for handling - Good compatibility with resin - Suitable for low solvent-containing coating system	- Liquid form, easier for handling - Good compatibility with resin

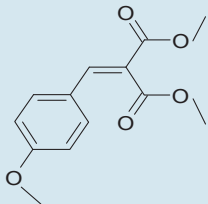
CHISORB
Light Stabilizers

Composition	CHISORB 335 Ethyl- 2-cyano-3,3-diphenyl acrylate CAS No.: 5232-99-5	CHISORB 336 2-Ethyhexyl- 2-cyano-3,3-diphenyl acrylate CAS No.: 6197-30-4	CHISORB T2400 Reaction products of 2-(4,6-bis (2,4-dimethylphenyl)-1,3,5-triazin-2-yl)-5-hydroxyphenol with ((C10-16, rich in C12-13 alkyloxy)methyl) oxyrane and 1-methoxypropan-2-ol CAS No.: 153519-44-9 CAS No.: 107-98-2
			
Structure			
Properties	Molecular formula C ₁₈ H ₁₅ NO ₂ Molecular weight 277 Appearance White to pale yellow crystalline powder Melting point 95-100°C Solubility (g/100ml solvent) Ethanol 4 Methyl ethyl ketone 27 Ethyl acetate 35 Acetone 27 Toluene 31	Molecular formula C ₂₄ H ₂₇ NO ₂ Molecular weight 361 Appearance Clear yellowish viscous oil Solubility (g/100ml solvent) Ethanol > 20 Paraffin oil > 20 Ethyl acetate > 50 Acetone > 50 Toluene > 50	Appearance Viscous, yellow liquid Miscibility Miscible with most organic solvents; Immiscible with water
Application	- PVC, PU, ABS, ASA, PC, Polyester gel coats - Nitrocellulose lacquers - Cellulose acetobutyrate - Butadiene-styrene latex	- Plasticized PVC and PVC plastisols - Sunscreens and cosmetics - Unsaturated polyesters, Silicone emulsions - Acrylic resin and Urea formaldehyde resin - Nitrocellulose lacquers - Butadiene-styrene latex	- Solventborne automotive OEM - Waterborne automotive OEM - Refinish coating systems - UV cured coatings
Advantage	- Excellent light stabilization to protect materials from imparting color	- Excellent performance in plasticized PVC and sunscreen applications	- Excellent performance in coatings, Solventborne and waterborne automotive OEM

CHISORB
Light Stabilizers

Composition	CHISORB T2577 2-(4,6-Diphenyl-1,3,5-triazin-2-yl)-5-hexyloxy-phenol CAS No.: 147315-50-2	CHISORB 1033 2-Ethyl-2'-ethoxy-oxalanilide CAS No.: 23949-66-8	CHISORB 971 Ethyl 4-[[[(methylphenylamino)methylene]amino]benzoate CAS No.: 57834-33-0
			
Structure			
Properties	Appearance Yellow powder Molecular weight 425 Ash 0.1% max. Melting point 147-151°C Solubility (g/100ml solvent) Acetone 3.1 Chloroform 254 Ethyl acetate 6.6 Ethanol 0.2 Methylene chloride 169 Methylmethacrylate 1.5 n-Hexane 0.7 Toluene 51	Molecular formula C ₁₈ H ₂₀ N ₂ O ₃ Molecular weight 312.36 Appearance White powder Melting point 120°C min. Solubility (g/100ml solvent) Chloroform 20 Ethanol 0.3 Ethyl acetate 3.0 Acetone 3.2 Toluene 5.2	Appearance Light yellow liquid Molecular weight 282 Freezing point < 40°C Odor Faint Solubility (g/100ml solvent) PEG (Mn=400) > 50 Ethanol > 50 Ethyl acetate > 50 Methyl ethyl ketone > 50 Water Nil
Application	- PC,PET , PC/ABS, PC/PBT , PPE/IPS, PPE/PA	- Polyamides, PVC, PET/PBT and PU - PC, PMMA and styrenic polymers	- Polyurethane and epoxy resin
Advantage	- Can be used alone or in a variety of blends and combinations with antioxidants	- Excellent compatibility with polyamides, PU, PVC and polyesters - Low initial color - High affinity with metal ions	- More solvent soluble and better resin compatibility - Better resistance to yellowing during baking - Low volatile

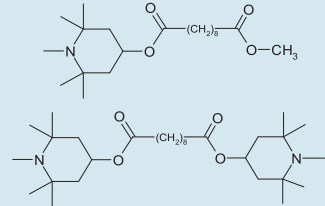
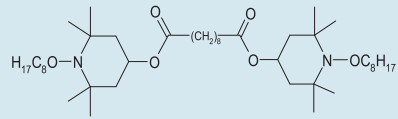
CHISORB
Light Stabilizers

Composition	CHISORB 2025 Dimethyl (p-methoxybenzylidene)malonate CAS No.: 7443-25-6	CHISORB 1268 Blend of UV absorber and antioxidant	CHISORB 2260 Blend of UV absorber and antioxidant
			
Structure			
Properties	Molecular formula C ₁₃ H ₁₄ O ₅ Molecular weight 277 Appearance White crystalline powder Melting point 55-59°C Odor Faint Solubility (g/100ml solvent) Soluble in organic solvent, and insoluble in water	Appearance Light yellow liquid Freezing point < 10°C Odor Faint Solubility (g/100ml solvent) Ethanol > 50 Ethyl acetate > 50 Methyl ethyl ketone > 50 PEG (Mn=400) > 50	Appearance Clear with light yellowish liquid Freezing point < 10°C Odor Faint Solubility (g/100ml solvent) Ethanol > 50 Ethyl acetate > 50 Methyl ethyl ketone > 50 PEG (Mn=400) > 50
Application	- PS, Unsaturated polyester, HIPS/ABS, PVC	- PU foam, leather, film, adhesive and coating - Polyester fiber - TPU, CPU and flexible PVC - Thermoset acrylic enamels	- PU resins, TPU, CPU - PU foam - Acrylic, PU based coatings
Advantage	- Excellent absorption at short-wavelength UV range (UVB) - Excellent light stability in coatings and resin	- Excellent performance on PU articles - Good solvent solubility - Better resin compatibility	- Good solvent solubility - Liquid form and good compatibility

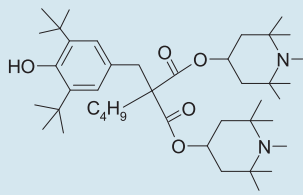
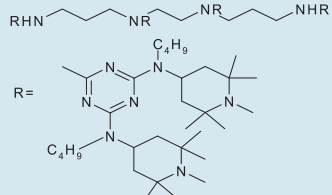
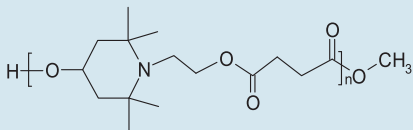
CHISORB
Light Stabilizers

Composition	CHISORB B2500 Blend of UV absorbers, light stabilizers and antioxidants	CHISORB B2661N Blend of UV absorbers, light stabilizers and antioxidants	CHISORB QUV Blend of UV absorbers and antioxidants
Structure			
Properties	Appearance White powder Softening point > 70°C Odor Faint Solubility (g/100ml solvent) Easily soluble in organic solvent Insoluble in water	Appearance Light yellow liquid Odor Faint Solubility (g/100ml solvent) Methl ethyl ketone > 50 Ethanol > 50 Ethyl acetate > 50 Acetone > 50 PEG (Mn=400) > 50	Appearance Clear light yellowish liquid Freezing point < 0°C Odor Faint Solubility (g/100ml solvent) Methl ethyl ketone > 50 Ethanol > 50 Ethyl acetate > 50 Acetone > 50 PEG (Mn=400) > 50
Application	- TPU, ABS, AS, PS, polyester and PMMA	- PU foam, leather and film - TPU	- PU foam, leather, film, adhesive and coating - TPU, CPU
Advantage	- Low initial color and excellent UV resistance on TPU applications	- Effectively prevent PU from the damage of UV irradiation - Offer anti-oxidation property at the same time	- Outstanding resistance to UV irradiation

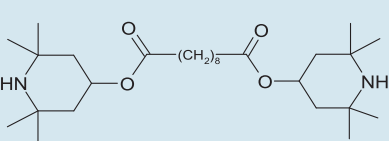
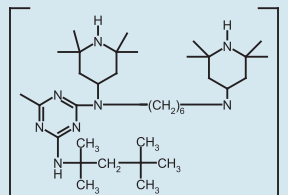
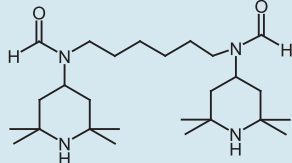
CHISORB
Light Stabilizers

Composition	CHISORB SUV Blend of UV absorbers and HALS	CHISORB 292 Bis (1,2,2,6,6-pentamethyl-4-piperidyl) sebacate and Methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate CAS No.: 41556-26-7 CAS No.: 82919-37-7	CHISORB 523 Decanedioic acid, bis(2,2,6,6-tertramethyl-1-(octyloxy)-4-piperidinyl)ester, reaction products with 1,1-dimethylethylhydroperoxide and octane CAS No.: 129757-67-1
Structure			
Properties	Appearance Clear light yellowish liquid Boiling point > 200°C Odor Faint Solubility (g/100ml solvent) PEG (Mn=400) > 50 Ethanol > 50 Ethyl acetate > 50 Acetone > 50 Water Nil	Appearance Light yellowish liquid Molecular weight 508.8 and 369.6 Odor Odorless Solubility (g/100ml solvent) Butanol > 50 Ethyl glycol > 50 Butyl acetate > 50 Methyl ethyl ketone > 50 Styrene > 50	Molecular formula C ₄₄ H ₈₄ N ₂ O ₆ Molecular weight 737 Appearance Light yellowish liquid Odor Odorless Solubility (g/100ml solvent) Chloroform > 50 n-Hexane > 50 Ethyl acetate > 50 Acetone > 50 Methanl > 50 Dichloromethane > 50
Application	- PU foam, leather, film, adhesive and coating - TPU, CPU	- Various coating applications, Ink, PU - Can be emulsified and applied in waterborne systems	- PU, automotive coatings, industrial coatings and decorative paint
Advantage	- Outstanding resistance to UV irradiation - Liquid form and good compatibility with resin	- Good solvent solubility and resin compatibility - Low basicity	- Effectiveness is independent to the film thickness - Long-term heat stability - Can be emulsified and applied in waterborne systems

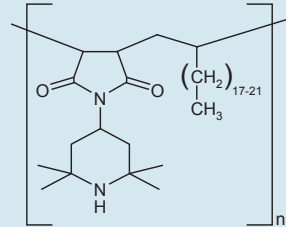
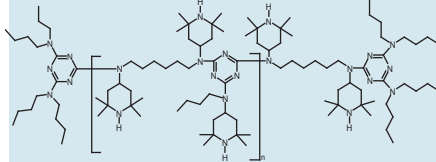
CHISORB
Light Stabilizers

Composition	CHISORB 5144 Bis(1,2,2,6,6-pentamethyl-4-piperidyl) ((3,5-bis(1,1-dimethylethyl)- -4-hydroxyphenyl)methyl)butylmalonate CAS No.: 63843-89-0	CHISORB 519 N,N,N,N-tetrakis(4,6-bis(butyl-(N-methyl-2,2,6,6- tetramethylpiperidin-4-yl)amino)triazin-2-yl)- 4,7-diazadecane-1,10-diamine CAS No.: 106990-43-6	CHISORB 622LD 4-Hydroxy-2,2,6,6-tetramethyl-1- piperidineethanolpolymer with dimethyl succinate CAS No.: 65447-77-0
Structure			
Properties	Molecular formulaC₄₂H₇₂N₂O₅ Molecular weight685 AppearanceWhite to slightly yellow powder Melting point144°C min. Solubility(g/100ml solvent) Butanol2.5 Butylacetate10 Ethylglycol1.5 Butylcarbitol1.5 Methylethylketone9 WaterNil	Molecular weight> 2000 AppearanceWhite to light yellow granule Softening point115-150°C Solubility(g/100ml solvent) Chloroform20 n-Hexane1 Ethyl acetate1 Acetone2 Toluene25	Molecular weight> 2500 AppearanceLow dust white crystal Softening point55-80°C Solubility(g/100ml solvent) Chloroform> 40 n-Hexane< 0.01 Ethyl acetate3 Acetone4 Ethanol0.08
Application	- Automotive coatings, coil coatings, powder coatings, primer and topcoating	- Polyolefin, EVA and other ethylene copolymers	- Polyolefin, PU fiber, PA, PVC and ABS
Advantage	- Excellent electrostatic adhesion - Improved powder adhesion - Outstanding performance on topcoating	- Better resistance to acid - Suitable for green film applications	- Low basicity and acid resistant - Long-term heat and light stabilizer - Suitable for food packaging

CHISORB
Light Stabilizers

Composition	CHISORB 770 Bis(2,2,6,6-Tetramethyl-4-piperidyl) sebacate CAS No.: 52829-07-9	CHISORB 944 N,N'-bis(2,2,6,6-Tetramethyl-4- piperidiny) -1, 6-hexanediamine, polymer with 2,4,6-trichloro -1,3,5-triazine and 2,4,4-trimethyl-1, 2-pentanamine CAS No.: 71878-19-8 CAS No.: 70624-18-9	CHISORB 945 N,N'-1,6-hexanediylbis(N-(2,2,6,6-tetramethyl -piperidin-4-yl)-formamide CAS No.: 124172-53-8
Structure			
Properties	Molecular formulaC₂₈H₅₂N₂O₄ Molecular weight480.7 AppearanceWhite crystalline powder or granule Melting point80-86°C Solubility(g/100ml solvent) Dichloromethane56 n-Hexane5 Ethyl acetate24 Acetone19 Methanol38	Molecular weight1800-3300 AppearanceLow dust light yellow granule or powder Softening point105-135°C Solubility(g/100ml solvent) Dichloromethane> 60 n-Hexane40 Ethyl acetate> 50 Acetone> 50 Styrene> 50	Molecular weight450 AppearanceWhite crystalline powder Melting point155-160°C Density1.08 g/cm³ @ 20°C Solubility(g/100ml solvent) Chloroform6 n-Hexane< 0.01 Ethyl acetate0.3 Acetone0.3 Methanol11 Water0.5
Application	- Polyolefin, PS, SAN, ABS, PU, PA	- Polyolefin, PVC and ABS	- Thick-walled PP molding, PP fiber, PS, ABS, PA6, PA66 and polyesters
Advantage	- Better weatherability - Higher basicity - Low molecular weight may result in migration in thin articles of polyolefin	- Good weatherability - High molecular weight results in lower possibility of migration - Suitable for food packaging	- Effectively improve the yellowing - Excellent light stabilizing effect - Better initial color of the resin - Excellent heat resistance - Good resin compatability and non-migratable

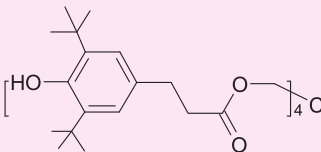
CHISORB
Light Stabilizers

Composition	CHISORB 955 Alkenes, C20-24 α-, polymers with maleic anhydride, reaction products with 2,2,6,6-tetramethyl-4-piperidinamine CAS No.:152261-33-1	CHISORB H2020 1,6-Hexanediamine, N,N-bis(2,2,6,6-tetramethyl-4-piperidinyl)-, polymer with 2,4,6-trichloro-1,3,5-triazine, reaction products with, N-butyl-1-butanamine and N-butyl-2,2,6,6-tetramethyl-4-piperidinamine CAS No.: 192268-64-7	CHISORB 511 Blends of hindered amine light stabilizers																								
Structure																											
Properties	<table><tr><td>Molecular weight</td><td>approx. 3500</td></tr><tr><td>Appearance</td><td>Yellowish granule</td></tr><tr><td>Melting point</td><td>95-125°C</td></tr><tr><td>Solubility</td><td>(g/100ml solvent)</td></tr><tr><td>Tetrahydrofuran</td><td>> 40</td></tr><tr><td>Toluene</td><td>> 40</td></tr><tr><td>Water</td><td>< 0.01</td></tr></table>	Molecular weight	approx. 3500	Appearance	Yellowish granule	Melting point	95-125°C	Solubility	(g/100ml solvent)	Tetrahydrofuran	> 40	Toluene	> 40	Water	< 0.01	<table><tr><td>Appearance</td><td>Slightly yellow granules</td></tr><tr><td>Melting point</td><td>120-150 °C</td></tr><tr><td>Specific gravity</td><td>1.01 @ 20 °C</td></tr></table>	Appearance	Slightly yellow granules	Melting point	120-150 °C	Specific gravity	1.01 @ 20 °C	<table><tr><td>Appearance</td><td>White powder or granule</td></tr><tr><td>Odor</td><td>Faint</td></tr></table>	Appearance	White powder or granule	Odor	Faint
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Odor	Faint																										
Application	- All polyolefins - PVC, PA and TPU - ABS and PET	- Polyolefins (PP, PE) - EVA - PVC	- PP and PE - Olefin copolymers																								
Advantage	- Excellent compatibility with pigments - Performs very well in fibers, greenhouse films and injection-molded parts	- Long-term heat stabilizer for plastics such as PE, PP - Provides superior light/thermal stability to the polymer and improved properties like enhanced color yield of pigments	- Long-term light stabilizer and antioxidant																								

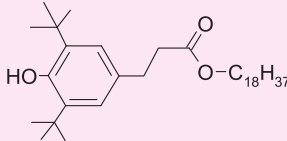
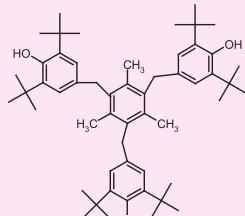
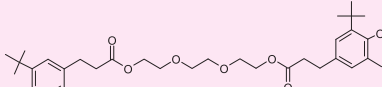
CHISORB
Light Stabilizers

Composition	CHISORB 783 CHISORB 944 :CHISORB 622=50%:50%	CHISORB 788 CHISORB 944 :CHISORB 622=55%:45%	CHISORB X-100S Blend of light stabilizers
Structure			
Properties	Appearance White crystal granule or powder Solubility (g/100ml solvent) Dichloromethane > 60 n-Hexane 40 Ethyl acetate > 50 Acetone > 50 Methanol 3	Appearance Low dust light yellow granule or powder Solubility (g/100ml solvent) Dichloromethane > 60 n-Hexane 40 Ethyl acetate > 50 Acetone > 50 Methanol 3	Appearance Yellow to orange flaky granules or powder Odor Faint Softening point 50-80°C Density 1.03 @ 20°C
Application	- Polyolefin, EVA	- Polyolefin, EVA	- Agricultural films - Light stabilizer for polyolefins - EVA optical films - TPU, PU leather
Advantage	- Long-term heat stability and weatherbility - Effectiveness is independent to the film thickness	- Long-term heat stability and weatherbility - Effectiveness is independent to the film thickness	- Low alkalinity - Pesticide resistance - Excellent weather resistance - Excellent light stability - Not easy to break

CHINOX
Antioxidants

Composition	CHISORB EPL Blend of UV absorbers	CHISORB X-100S1 Blend of UV absorbers	CHINOX 1010 Pentaerythritol tetrakis(3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate)			
	CAS No.: Proprietary	CAS No.: Proprietary	CAS No.: 6683-19-8			
Structure						
Properties	Appearance Odor	Light yellow liquid Faint	Appearance Odor Softening point	Yellow to orange flake or powder Faint 50 - 80°C	Molecular formula Molecular weight Appearance Melting point	C ₇₃ H ₁₀₈ O ₁₂ 1178 White powder or free flowing granule 110-125°C
	Solubility Ethyl acetate Ethanol Methyl ethyl ketone PEG (Mn = 400) Water	(g/100ml solvent) > 50 > 50 > 50 > 50 Nil	Solubility Chloroform Ethanol Ethyl acetate Acetone Toluene	(g/100ml solvent) 70 1.5 47 45 60		
Application	- Epoxy resin - Epoxy acrylate - Thermoset acrylic enamels	- Agricultural film - Suitable for PE, PP, EVA and PBAT	- Various polymers, elasomers and adhesives			
Advantage	- Good solvent solubility - Better resin compatibility - Less volatility - Stability better than other UV absorbers based on benzotriazole or benzophenone	- Low alkalinity - Resistant to pesticide - Weather resistance - Excellent light stability	- The most commonly used antioxidant - Cheaper			

CHINOX
Antioxidants

Composition	CHINOX 1076 Octadecyl 3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate	CHINOX 1330 3,3',3'',5,5',5''-hexa-tert-butyl-α,α',α''-(mesitylene-2,4,6-triyl)tri-p-cresol	CHINOX 245 Ethylenebis(oxyethylene) bis-(3-(5-tert-butyl-4-hydroxy-m-tolyl)-propionate
	CAS No.: 2082-79-3	CAS No.: 1709-70-2	CAS No.: 36443-68-2
Structure			
Properties	Molecular formula Molecular weight Appearance Melting point	Molecular formula Molecular weight Appearance Melting point	Molecular formula Molecular weight Appearance Melting point
	Solubility Chloroform Ethanol Ethyl acetate Acetone Toluene	Solubility Chloroform n-Hexane Ethyl acetate Dichloromethane Methanol	Solubility Chloroform Methanol Ethyl acetate Acetone Toluene
Application	- Polyolefin, engineering plastics, PU, elastomers and adhesives	- Polyolefin, engineering plastics, PVC and PU	- ABS, MBS, SBR, PA, PU, PVC, POM - Thermoplastic polyesters
Advantage	- Better cost performance	- Excellent resistance to hydrolyzation - Excellent resistance to extraction makes it an good candidate to various piping materials, ex. PPR	- Good compatibility with resins - Good heat resistance

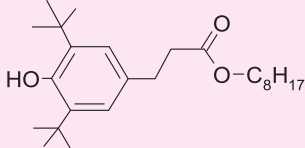
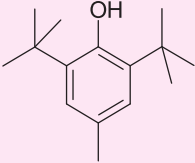
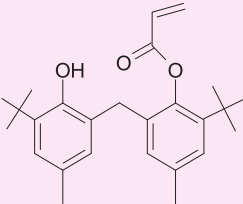
CHINOX
Antioxidants

Composition	CHINOX 1545 1,1,3-Tri(3-tert-butyl-4-hydroxy-6-methylphenyl)butane CAS No.: 1843-03-4	CHINOX 1790 1,3,5-tris[[4-tert-butyl-3-hydroxy-2,6-xylyl]methyl]- 1,3,5-triazine-2,4,6(1H,3H,5H)-trione CAS No.: 40601-76-1	CHINOX 3114 1,3,5-tris(3,5-di-tert-butyl-4-hydroxybenzyl)- 1,3,5-triazine-2,4,6(1H,3H,5H)-trione CAS No.: 27676-62-6
Structure			
Properties	Molecular formulaC₄₈H₄₂N₃O₆ Molecular weight545 AppearanceWhite to light yellow powder Melting point> 180°C Solubility(g/100ml solvent) Soluble in alcohol, ketone solvents Insoluble in water	Molecular formulaC₄₂H₅₇N₃O₆ Molecular weight699 AppearanceFree-flowing white powder Melting point156-166°C Solubility(g/100ml solvent) Toluene> 40 Ethyl acetate> 50 Acetone> 50 Ethanol> 20 Water2	Molecular formulaC₄₈H₄₂N₃O₆ Molecular weight784 AppearanceWhite crystalline powder Melting point218-223°C Solubility(g/100ml solvent) Chloroform21 n-Hexane0.6 Ethanol1.5 Acetone29 Methanol0.5 Water2
Application	- PP, PE, PVC, PA, ABS, PS - White or light-colored rubber applications	- Polyolefin(film, fiber, plate, injection molding parts) - POM, PA, PU	- Polyolefin(film, fiber, plate, injection molding parts) - POM, PA, PU
Advantage	- Low volatility and better heat stability - No contamination and without imparting color - No degradation during high-temperatruer processing	- Very low volatility - Excellent resistance to oxidation and gas-fading - Excellent performance in Spandex, Nylon and PP fiber	- Better resistance to gas-fading - More effective in polyolefin

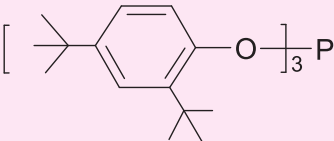
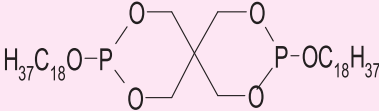
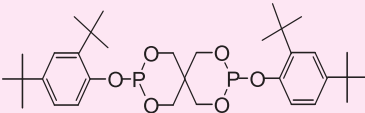
CHINOX
Antioxidants

Composition	CHINOX 1024 3-(3',5'-Di-t-butyl-4'-hydroxyphenyl) Propionyl dihydrazide CAS No.: 32687-78-8	CHINOX 1098 N,N'-hexane-1,6-diylbis[3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionamide] CAS No.: 23128-74-7	CHINOX 7 Phenol, 4-methyl-, reaction products with dicyclopentadiene and isobutylene CAS No.: 68610-51-5
Structure			
Properties	Molecular formulaC₃₄H₅₂N₂O₄ Molecular weight552.8 AppearanceWhite to off-white crystalline powder Melting point221-232°C Solubility(g/100ml solvent) Chloroform0.4 n-Hexane< 0.01 Toluene0.1 Acetone4 Methanol4	Molecular formulaC₄₀H₆₄N₂O₄ Molecular weight637 AppearanceWhite crystalline powder or granule Melting point155-162°C Solubility(g/100ml solvent) Methanol6 80% Caprolactam3 Ethyl acetate1 MEK2 Toluene0.1	Average molecular weightapprox.455 -650 AppearanceFree flowing cream powder Melting range105-115°C Solubility(g/100ml solvent) Easily soluble in aromatic solvents Insoluble in water and paraffin solvents
Application	- PE cable, thermoplastics, SBR - Crosslinking of polymers by irradiation used in wire and cable	- PA, PU, polyesters and EVA	- Natural or synthetic rubbers, adhesives, ABS, PU
Advantage	- Excellent anti-oxidation - Excellent metal deactivator	- Excellent processing stability, long-term heat resistance and anti-oxidation - Low volatility and copper-tolerant - Especially effective in PA	- Better heat resistance anti-oxidation than low MW antioxidants

CHINOX
Antioxidants

Composition	CHINOX 35 Reaction mass of isomers of: C7-9-alkyl 3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate CAS No.: 125643-61-0	CHINOX BHT 2,6-di-tert-butyl-p-cresol CAS No.: 128-37-0	CHINOX GM 2-(1,1-dimethylethyl)-6-[[3-(1,1-dimethylethyl)-2-hydroxy-5-methylphenyl]methyl]-4-methylphenyl acrylate CAS No.: 61167-58-6
Structure			
Properties	Molecular formula C₂₅H₄₂O₃ Molecular weight 390 Appearance Clear pale yellow liquid Melting range < 10°C Density 0.95-1.0 g/cm³ @ 20°C Heat loss TGA 160°C: < 1.0% (air) Heat loss TGA 200°C: < 10% (air) Solubility (g/100ml solvent) Chloroform 57 PEG (Mn=400) > 50 Ethyl acetate > 50 Acetone > 50 Benzene > 50	Molecular formula C₁₅H₂₄O Molecular weight 220 Appearance White crystal Melting point 69-70°C Solubility (g/100ml solvent) Soluble in various organic solvents Insoluble in water	Molecular formula C₂₆H₃₄O₃ Molecular weight 394 Appearance White to off-white, free-flowing powder Melting point 130-138°C Solubility (g/100ml solvent) Soluble in various organic solvents Insoluble in water
Application	- PU coating, foam, leather, film, plate, etc. - Synthesis of polyether	- FDA-approved for food packaging and food additive - Suitable for light-colored industrial articles - PU applications - Chemical synthetic articles and industrial oil	- PMMA, thermoplastics, elastomers, adhesives
Advantage	- Liquid form - Better performance in PU and polyether - Good substitution for BHT in PU applications	- Excellent performance - Cheaper	- Excellent heat and light stability - Low degree of migration

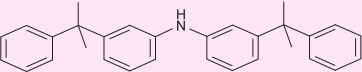
CHINOX
Antioxidants

Composition	CHINOX 168 Tris(2,4-ditert-butylphenyl) phosphite CAS No.: 31570-04-4	CHINOX 618 O,O'-dioctadecylpentaerythritol bis(phosphite) CAS No.: 3806-34-6	CHINOX 626 3,9-bis(2,4-di-tert-butylphenoxy)-2,4,8,10-tetraoxa-3,9-diphosphaspiro[5.5]undecane CAS No.: 26741-53-7
Structure			
Properties	Molecular formula C₄₂H₆₃O₃P Molecular weight 647 Appearance White crystalline powder or Granule Melting point 184-187°C Solubility (g/100ml solvent) Chloroform 36 n-Hexane 11 Ethyl acetate 4 Benzene 34 Water Nil	Molecular formula C₄₁H₈₂O₆P₂ Molecular weight 732 Appearance White flake Melting point 40-62°C Solubility (g/100ml solvent) Chloroform 45 n-Hexane 25 Benzene 15 Cyclohexane 20 Toluene 30	Molecular formula C₃₃H₅₀O₆P₂ Molecular weight 604 Appearance White powder Melting point 160-180°C Solubility (g/100ml solvent) THF 35 n-Hexane 4.8 Methanol 1.9 Acetone 8.5 Toluene 35.7
Application	- Polyolefin, engineering plastics, polyesters, elastomers and adhesives	- Polyolefin, polyesters, elastomers and adhesives	- Polyolefin, PVC, PU, ABS, EVA, PA - Elasmers (IIR, SBR, SEBS,EPN, EPDM)
Advantage	- The most commonly available phosphite - Excellent resistance to hydrolysis	- Better heat resistance during processing - Excellent color stability during processing, fabrication, and end use	- Better heat resistance during processing - Excellent color stability during processing, fabrication, and end use

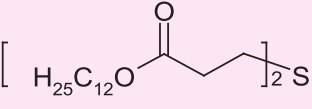
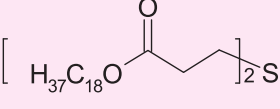
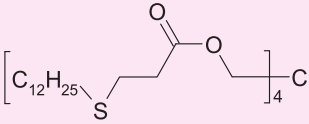
CHINOX
Antioxidants

Composition	CHINOX 890 Polymeric phosphite antioxidant	CHINOX TP-20 Polymeric phosphite antioxidant	CHINOX TP-80 Mixture of organic phosphite compounds
Structure			
Properties	Appearance Yellowish hazy liquid Odor Mild Freezing point < 10°C Solubility (g/100ml solvent) MEK > 50 Ethanol > 50 Ethyl acetate > 50 PEG (Mn=400) > 50 Water Insoluble	Appearance Clear liquid Odor Faint Specific gravity 1.168-1.18 @ 25°C Solubility (g/100ml solvent) MEK > 50 Ethyl acetate > 50 Ethanol > 50 PEG (Mn=400) > 50 Water Nil	Appearance Clear liquid Odor Faint Solubility (g/100ml solvent) MEK > 50 Ethyl acetate > 50 Isopropanol > 50 PEG (Mn=400) > 50 Water Nil
Application	- Synthetic resin, PVC - PU foam, leather and coating	- Synthetic resin, PVC - PU foam, leather and coating	- PU foam, leather and coating
Advantage	- Easily soluble in organic solvent - Good resin compatibility - Better anti-oxidation in PU, synthetic resin and PVC	- Good resin compatibility - Better anti-oxidation in PU, synthetic resin and PVC	- Good resin compatibility - Better anti-oxidation in PU foam - Improvement of anti-scorching - Without free phenol

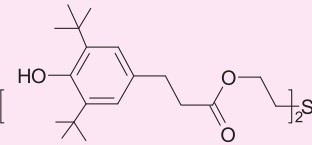
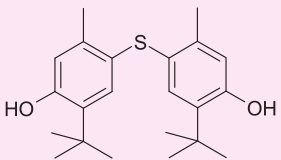
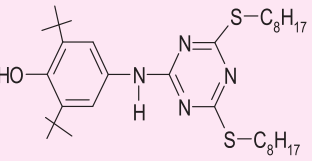
CHINOX
Antioxidants

Composition	CHINOX 323TP Blend of antioxidants	CHINOX 3072S Blend of antioxidants	CHINOX N445 4-(1-methyl-1-phenylethyl)-N-[4-(1-methyl-1-phenylethyl)phenyl]aniline CAS No.: 10081-67-1
Structure			
Properties	Appearance Slightly turbid to clear purple liquid Odor Faint Viscosity 500-1200 cps @ 25°C Acidity and alkalinity Neutral	Appearance Light yellow liquid Odor Faint Viscosity 500-1200 cps @ 25°C	Molecular formula C ₃₀ H ₃₁ N Mocular weight 406 Appearance White powder Odor Faint Melting point 98-100°C Solubility (g/100ml solvent) Acetone 41 Butanone 41 Cyclohexane 3.5 Methanol 0.7 Toluene 33
Application	- Underwear PU foam	- Spandex - Thermoplastic polyurethane (TPU)	- Thermoplastic elastomers, ABS and rubbers
Advantage	- Does not contain phenol - Excellent heat resistance - Indoor yellowing resistance - Fume resistance - Hydrolysis resistance	- Environmentally friendly without free phenol - Low odor - Migration resistance - Excellent heat resistance - Indoor yellowing resistance - Nox resistance - Hydrolysis resistance - Anti-chlorine	- Excellent long-term heat stability and resistance to discoloration - Very low volatility

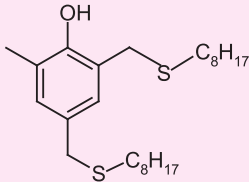
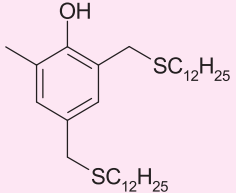
CHINOX
Antioxidants

Composition	CHINOX DLTDP	CHINOX DSTDP	CHINOX S4P
	Dilauryl thiodipropionate	Diocadecyl 3,3'-thiodipropionate	2,2-bis[[3-(dodecylthio)-1-oxopropoxy]methyl]-propane-1,3-diyl bis[3-(dodecylthio)propionate]
Structure	CAS No.: 123-28-4	CAS No.: 693-36-7	CAS No.: 29598-76-3
			
Properties	Molecular formula C ₃₀ H ₅₈ O ₄ S Mocular weight 515 Appearance White powder Odor Sweetish odor Melting point 39°C min.	Molecular formula C ₄₂ H ₈₂ O ₄ S Mocular weight 683 Appearance White powder Melting point 63.5-68.5°C	Molecular formula C ₆₅ H ₁₂₄ O ₈ S ₄ Molecular weight 1162 Appearance White, crystalline powder Melting point 48-54°C
	Solubility (g/100ml solvent) Soluble in various organic solvents Insoluble in alcohol and water	Solubility (g/100ml solvent) Soluble in various organic solvents Insoluble in alcohol and water	Solubility (g/100ml solvent) Acetone 2.5 N-Hexane 21 Benzene 83 Methanol Nil Water Nil
Application	- Polyolefin, PU, ABS, PA - Elasmers (IIR, SBR, SEBS,EPN, EPDM)	- Polyolefin, PU, ABS, PA - Elastomers (IR, SBR, SEBS, EPN, EPDM)	- Long term, high temperature PP, PE, ABS, polystyrene and other engineering thermoplastic applications
Advantage	- Good compatibility and long-term heat stability - Low volatility - Improvemetrn of melting fluidity - Good resistance to yellowing - Cheaper	- Good compatibility and long-term heat stability - Low volatility - Better cost performance	- Excellent heat-resistance - Good color protection - Low volatility

CHINOX
Antioxidants

Composition	CHINOX S35	CHINOX 300	CHINOX 1165
	3,5-Bis(1,1-dimethylethyl)-4-hydroxy-benzenepropanoic acid thiodi-2,1-ethanediyl ester	6,6'-di-tert-butyl-4,4'-thiodi-m-cresol	2,6-di-tert-butyl-4-(4,6-bis(octylthio) - 1,3,5-triazin-2-ylamino)phenol
Structure	CAS No.: 41484-35-9	CAS No.: 96-69-5	CAS No.: 991-84-4
			
Properties	Molecular formula C ₃₈ H ₅₈ O ₆ S Molecular weight 643 Appearance White powder Melting point 63-82°C Odor Odorless	Molecular formula C ₂₂ H ₃₀ O ₂ S Molecular weight 359 Appearance White powder TGA, 214°C 5% (N ₂) TGA, 228°C 10% (N ₂)	Molecular formula C ₃₃ H ₅₆ N ₄ S ₂ O Molecular weight 589 Appearance White to yellowish powder
	Solubility (g/100ml solvent) Acetone 56 N-Hexane 5 Benzene 56 Methanol 5 Ethyl acetate 50 Water Nil	Solubility (g/100ml solvent) Acetone 20 Ether 0.5 Ethanol 47 N-Hexane 0.5-1 Carbon tetrachloride 0.5 Methanol 79 Water Nil	Solubility (g/100ml solvent) Acetone 20 Ethyl acetate 46 Benzene 43 Methanol 1.4 Chloroform 39 Water Nil
Application	- Polyolefin (LDPE, XLPE wireline, PP) - ABS, PE, PVA, PU - Elastomer, hot melt adhesive	- PS, ABS, rosins	- It is suitable used in BR, IR, SBR, NBR, XSBP and SBS, SIS - Adhesives, natural and synthetic tackifier resins EPDM, ABS, impact polystyrene, polyamides, and polyolefins
Advantage	- Low volatility - Good plastic compatibility - Non-staining property - Water extration resistance - Low odor	- Its combined use with DLTDP and DSTDP provides good synergistic effect - It can provide protection to plastics in terms of antioxidation and yellowing prevention during plastics processing	- Prevention of gel formation - Low volatility - Non-staining property - Low dosage

CHINOX
Antioxidants

Composition	CHINOX 3520 4,6-bis (octylthiomethyl)-o-cresol		CHINOX 5726 4,6-bis (dodecylthiomethyl)-o-cresol		CHINOX B1004 Blend of antioxidants	
	CAS No.: 110553-27-0		CAS No.: 110675-26-8			
Structure						
Properties	Molecular formula C ₂₅ H ₄₄ OS ₂ Molecular weight 424.7 Appearance Yellow liquid		Molecular formula C ₃₃ H ₅₈ OS ₂ Molecular weight 524.8 Appearance White solid Melting point 28°C		Appearance White powder Oodr Odorless Volatile < 0.5%	
	Solubility (g/100ml solvent) Acetone > 50 Toluene > 50 Ethanol > 50 Ethyl acetate > 50 N-Hexane > 50 Methanol > 50 Chloroform > 50 Methylene chloride > 50 Water < 0.01		Solubility (g/100ml solvent) Acetone > 50 Cyclohexane > 50 Ethyl acetate > 50 N-Hexane > 50 Methanol 1 Toluene > 50 Water < 0.1 mg/L			
Application	- BR, SBR, NBR, IR, SBS, SIS - Natural rubber		- Stabilization of organic polymers, such as adhesives materials, especially for hot melt, solvent and water born adhesives, for block-copolymers such as SBS and SIS, as well as for PUR-Products such as PUR sealants		- TPE, SBS, rubber	
Advantage	- Long-term heat aging stability - Good light stabilizers - Low migration - It can be used in food contact applications		- High molecure weight phenolic antioxidant		- Non-yellowing	

CHINOX
Antioxidants

Composition	CHINOX B1026 Blend of antioxidants		CHINOX B1525 Blend of antioxidants		CHINOX B1225B Blend of antioxidants	
Structure						
Properties	Appearance White to off-white powder Oodr Odorless Volatile < 0,5%		Appearance White powder Odor Faint Volatile 0.5% max.		Appearance White crystalline powder Odor Faint Volatile 0.5% max.	
Application	- Plastics, especially PE and XLPE wire		- PU and TPU - Spandex products		- Antioxidant for PE - Recommended dosage: 0.2 - 0.4%	
Advantage	- Excellent antioxidant - Good hydrolysis resistance - Protected plastic from ageing and yellowing, and maintain physical properties		- High-performance stabilizer for Spandex products - Excellent long-term indoor color stability of spandex, PU and TPU products		- Significantly improve the oxidation induction time - Excellent anti-oxidative performance and heat stability	

CHINOX
Antioxidants

Composition	CHINOX B1607 Blend of antioxidants	CHINOX B1625 Blend of antioxidants	CHINOX B215 CHINOX 1010 :CHINOX 168=33%:67%
Structure			
Properties	Appearance White powder Odor Faint	Appearance White powder Odor Faint Volatile 0.5% max.	Appearance White crystalline powder or granule Oodr Odorless Solubility (g/100ml solvent) Ethyl alcohol 1.5 Toluene 60 Methanol 1.0 Chloroform 70 Ethyl acetate 47 Acetone 45 Water < 0.01
Application	- Stabilizer for nylon - The recommended dosage is 0.2 - 1.0%	- Provide outstanding processing stability in PP and PE - Can be used in a variety of substrates such as aliphatic polyketone, styrene homo- and copolymers, polyurethanes, elastomers, adhesives, and other organic substrates. - The recommended dosage is typically 0.05-0.15%	- Polyolefin, PVC, PU, ABS, EVA etc elastomer (Butyl rubber, SBR, SEBS, EPN, EPDM)
Advantage	- Extend product physical property maintenance rate at high temperature - Improved resistance to salt corrosion - Improved performance of green color after placement	- Improved melt flow control - Low initial color and outstanding color maintenance - Superior effectiveness at high processing temperature for demanding applications - Lower use levels leading to improved additive compatibility - Additional performance improvements can be achieved in synergistic combinations with other DBC's additives (e.g. thioethers)	- Good compatability - Long-term thermal stability - Low volatility - Good fluxility to fluid product - High ratio to prevent yellowing

CHINOX
Antioxidants

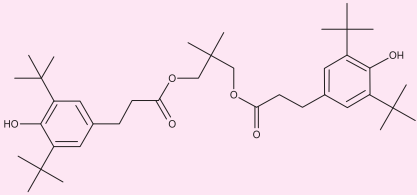
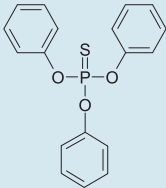
Composition	CHINOX B225 CHINOX 1010 :CHINOX 168=50%:50%	CHINOX B561 CHINOX 1010 :CHINOX 168=20%:80%	CHINOX B900 CHINOX 1076 :CHINOX 168=20%:80%
Structure			
Properties	Appearance White crystalline powder or granule Odor Odorless Solubility (g/100ml solvent) Soluble in organic solvent, low solubility in alcohols Insoluble in water	Appearance White crystalline powder or granule Odor Odorless Solubility (g/100ml solvent) Soluble in organic solvent, low solubility in alcohols Insoluble in water	Appearance White crystalline powder Volatiles 0.5% max Odor Odorless Solubility (g/100ml solvent) Soluble in organic solvent, low solubility in alcohols Insoluble in water
Application	- Polyolefin, EVA, engineering plastics - PU, elastomer and adhesive etc.	- Polyolefin, PVC, PU, ABS, EVA etc elastomer (Butyl rubber, SBR, SEBS, EPN, EPDM)	- Polyolefin, PVC, PU, ABS, EVA etc elastomer (Butyl rubber, SBR, SEBS, EPN, EPDM)
Advantage	- Provide antioxidant and non-yellowing for plastics in process - Good compatability - Good heat-resistance - Good fluxility to fluid product - Low volatility	- Good compatability - Good heat-resistance - Provide anti-oxidation and non-yellowing for plastics in process	- Good compatability with resins - Good heat-resistance, low volatile - Non-yellowing - More economic price

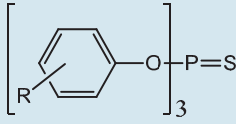
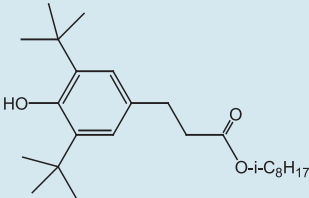
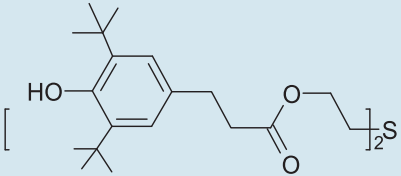
CHINOX
Antioxidants

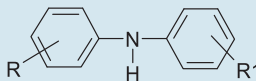
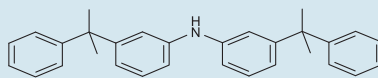
Composition	CHINOX B1171 CHINOX 1098 :CHINOX 168=50%:50%	CHINOX 1604E Emulsion type antioxidant	CHINOX 4018 Emulsion type antioxidant
Structure			
Properties	Appearance White powder Odor Odorless Solubility (g/100ml solvent) Soluble in organic solvent, low solubility in alcohols Insoluble in water	Appearance Slightly yellowish liquid Viscosity 1500 cps max. @ 25°C	Appearance White liquid Viscosity < 500 cps @ 25°C
Application	- Polyamide molded parts, films and fibers - The recommended dosage:0.05-1.0%	- ABS, PVC, SBR, Latex and other plastic	- ABS, PVC, SBR, Latex and other plastic
Advantage	- Good compatability with resins - Long-term thermal stability, low volatile - Non-yellowing - More economic price	- It protect products from oxidation, which cause yellowing, brittle, and cracking	- Good antioxidant and chain termination agent for PVC polymerization - Water based, non- ionic system, suitable for all water borne system - Good compatibility - More efficiency than solid antioxidant

CHINOX
Antioxidants

Composition	CHINOX AO-602L Dispersed antioxidant	CHINOX TP-10H Blend of hindered phenolic and phosphite antioxidant	CHINOX B1904 Blend of antioxidants
Structure			
Properties	Appearance White liquid Viscosity < 500 cps @ 25°C	Appearance Clear liquid Odor Faint Solubility (g/100ml solvent) Ethyl acetate > 50 Ethanol > 50 Methyl ethyl ketone > 50 PEG (Mn=400) > 50 Water Nil	Appearance White powder Odor Faint Volatile 0.5% max.
Application	- ABS, PVC, SBR, Latex and other plastic	- PU foam, PU leather and film, PU coating and PU plate - Recommend dosage:0.2%-3.0%	- Petroleum resin
Advantage	- Good antioxidant and chain termination agent for PVC polymerization - Water based ,non- ionic system, suitable for all water borne system - Good compatibility - More efficiency than solid antioxidant	- Good solvent solubility, and better resin compatibility - Be used with UV absorber provides better non-yellowing property	- Can be used for petroleum resin under high temperature

Composition	CHINOX B1786 Blend of antioxidants		CHINOX 3580 Neopentyl glycol bis[β-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate]		DBC TPPT	
			CAS No.: 10493-50-2		CAS No.: 597-82-0	
Structure						
Properties	Appearance Odor Volatile Ash		White powder Odorless 1% max. 0.5% max.		Appearance Melting point Volatile Phosphorus content Sulphur content	
			Light yellow liquid Faint		White powder or flake 50-57 °C 0,5% max. 8.9% 9.3%	
Solubility					(g/100ml solvent)	
					Water < 0.01 Mineral oil 2%	
Application	- POM		- Foam sponge - PU leather - Spandex - TPU - PU resin		- Lubricants	
Advantage	- Good color retention - Lower the content of formaldehyde - Melamine free		- Environmentally friendly reactive antioxidant - Phenol free - Low odor - Resistance to migration - Resistance to heat pressure - Resistance to indoor display - Smoke resistance - Hydrolysis resistance		- Excellent anti-wear activity - Excellent thermal stability - Low coefficient of friction	

Composition	DBC TNPS		CHINOX 35 Benzenepropanoic acid, 3,5-bis(1,2-dimethylethyl)-4-hydroxy-,C7-C9 branched alkyl esters		CHINOX S35 3,5-Bis(1,1-dimethylethyl)-4-hydroxybenzene-propanoic acid thiodi-2,1-ethanediyl ester	
	CAS No.: 126019-82-7		CAS No.: 125643-61-0		CAS No.: 41484-35-9	
Structure						
Properties	Appearance Odor Acid value		Brown liquid Faint 1 max.		Appearance Melting point Specific gravity TGA, 160 °C TGA, 200 °C	
			Clear pale yellow liquid < 10 °C 0.95-1.00 < 1% (Air) < 10% (Air)		White powder Odorless 63-82 °C 0.5% max. 0.8%(N ₂)	
Solubility					(g/100ml solvent)	
					Chloroform 57 PEG (Mn=400) > 50 Ethyl acetate > 50 Acetone > 50 Benzene > 50 Water Nil	
Application	- Metalworking Lubricant - Passenger car motor oils - Heavy duty diesel engine oils - Marine diesel engine oils		- PU foams, coatings leathers, films, etc. - Polyester polymerzation		- Polyolefin (LDPE, XLPE wireline, PP) - ABS, PE, PVA, PU - Elastomer, hot melt adhesive	
Advantage	- Excellent hydrolytic stability, thermal stability and film strength - Good solubility in mineral oil, esters and PAOs - Low coefficient of friction		- Low volatility - Better solvent solubility, and good resin compatibility - Long-term thermal stability - Replacing BHT in PU application		- Low volatility - Good plastic compatibility - Non-staining property - Water extraction resistance - Low odor	

Composition	CHINOX F57 Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	CHINOX N445 4-(1-methyl-1-phenylethyl)-N-[4-(1-methyl-1-phenylethyl)phenyl]aniline	CHISORB 5228S Water soluble UV absorber
	CAS No.: 68411-46-1	CAS No.: 10081-67-1	
Structure	 R, R1=H, C4H9, or C8H17		
Properties	Appearance Yellowish to yellow liquid Odor Odorless	Molecular formula C ₃₀ H ₃₁ N Mocular weight 406 Appearance White powder Odor Faint Melting point 98-100°C	Appearance Brown liquid Solid content 30% min. Viscosity, cps 50 max.@25°C pH value 8-10 Ionic character Anionic
	Solubility (g/100ml solvent) Mineral > 5% Ester > 5% Water < 0.01%	Solubility (g/100ml solvent) Acetone 41 Butanone 41 Cyclohexane 3.5 Methanol 0.7 Toluene 33	Solubility (g/100ml solvent) Soluble in water
Application	- Mineral oil, synthetic lubricant, engine lubricating oil	- Thermoplastic elastomers, ABS and rubbers	- Polyamide(Nylon) , Wool, Silk, Rayon
Advantage	- Excellent stabilizer for lubricant which inhibit viscosity changes cauesed by heat aging - Excellent seal compatibility and stability	- Excellent long-term heat stability and resistance to discoloration - Very low volatility	- Protect from the damage of UV light - Good light fastness of dye and pigment

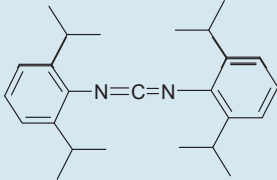
Composition	CHISORB SPF-2 Dispersed UV absorber	DOUBLETEX AP-20 Dispersed UV absorber	CHISORB B2492E Blending of UV absorbers and light stabilizers																																				
Structure																																							
Properties	<table><tr><td>Appearance</td><td>Milky-white liquid</td></tr><tr><td>Solid content</td><td>20% min.</td></tr><tr><td>Particle size</td><td>< 1 um</td></tr><tr><td>pH value</td><td>6.5 ± 1</td></tr><tr><td>Ionic character</td><td>Non-ionic</td></tr><tr><td>Solubility</td><td>(g/100ml solvent)</td></tr><tr><td colspan="2">Dispersible in water</td></tr></table>	Appearance	Milky-white liquid	Solid content	20% min.	Particle size	< 1 um	pH value	6.5 ± 1	Ionic character	Non-ionic	Solubility	(g/100ml solvent)	Dispersible in water		<table><tr><td>Appearance</td><td>Light yellow-white liquid</td></tr><tr><td>pH value</td><td>6-8</td></tr><tr><td>Viscosity (25°C)</td><td>120±60cps</td></tr><tr><td>Ionic character</td><td>Anionic</td></tr><tr><td>Solubility</td><td>(g/100ml solvent)</td></tr><tr><td colspan="2">Dispersible in water</td></tr></table>	Appearance	Light yellow-white liquid	pH value	6-8	Viscosity (25°C)	120±60cps	Ionic character	Anionic	Solubility	(g/100ml solvent)	Dispersible in water		<table><tr><td>Appearance</td><td>Milky white to yellow liquid</td></tr><tr><td>pH</td><td>8-10 (10x dilute)</td></tr><tr><td>Odor</td><td>Odorless</td></tr><tr><td>Active content</td><td>25-30%</td></tr><tr><td>Viscosity</td><td>< 200 cps @ 25°C</td></tr></table>	Appearance	Milky white to yellow liquid	pH	8-10 (10x dilute)	Odor	Odorless	Active content	25-30%	Viscosity	< 200 cps @ 25°C
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Application	- Textile finishing - Water borne PU - Water borne Acrylics - PRC (Pigment Resin Color), water-based ink - Leather finishing agent	- Polyester - Improving the light-fastness - Stir completely before using	- Wood coatings - Vinyl coatings - Plastic coatings - Coatings on glass such as architectural glassing, packaging materials - Architectural coatings - Overprint varnishes over metal, board, paper, laminates - Adhesives and sealants - Post-processing on textile																																				
Advantage	- Excellent stabilizer for lubricant which inhibit viscosity changes cauesed by heat aging - Excellent seal compatibility and stability	- Good dispersing ability can be used with disperse dyes in the same dyeing bath	- Excellent long-term performance - Low VOC - Water impermeability and blocking resistance, hardness and scratch resistance are not affected - Can be added during post-treatment to improve the light fastness of textiles																																				

Composition	CHISORB B2537E Blending of UV absorbers and light stabilizers	CHISORB 292E Hindered amine light stabilizer	CHISORB 523E Hindered amine light stabilizer
Structure			
Properties	Appearance Milky-white liquid pH 4-6 (10 times dilution) Odor Odorless Active content 40%	Appearance Milky white to yellow liquid pH 7-9 (x10 dil.) Odor Odorless Active content > 40% Viscosity 50-100 cps @ 25°C	Appearance Milky white liquid pH 6-7 Odor Odorless Active content Active content: 30% Viscosity < 100 cps @ 25°C Particle size D50 < 1500 nm
Application	- Wood coatings - Vinyl coatings - Plastic coatings - Coatings on glass such as architectural glassing, packaging materials - Architectural coatings - Overprint varnishes over metal, board, paper, laminates - Adhesives and sealants - Post-processing on textile	- Automotive paints - General industrial paints - Plastic coatings - Overprint varnishes - Architectural coatings - Glass and ceramic coatings - Adhesives - Wood stains and coatings, waxes and wood care products - Post-processing on textile	- Automotive paints - General industrial paints - Plastic coatings - Overprint varnishes - Architectural coatings - Glass and ceramic coatings - Adhesives - Wood stains and coatings, waxes and wood care products - Post-processing on textile
Advantage	- Excellent long-term performance - Low VOC - Water impermeability and blocking resistance, hardness and scratch resistance are not affected - Can be added during post-treatment to improve the light fastness of textiles	- Allow to add into low/zero VOC coatings - Can be added during post-treatment to improve the light fastness of textiles - Improve coating durability and service life	- Low basicity - NOR-HALS ideal for use in coatings containing an acid catalyst or acidic pigments - Allow to add into low/zero VOC coatings - Can be added during post-treatment to improve the light fastness of textiles - Improve coating durability and service life

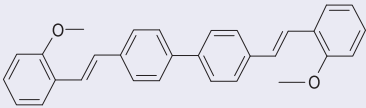
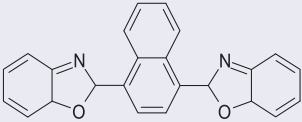
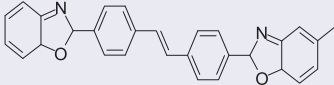
Composition	CHINOX 4018 Butylated phenolic antioxidant	CHINOX AO-50L Butylated phenolic antioxidant	CHINOX AO-602L Butylated phenolic antioxidant
Structure			
Properties	Appearance Milky white liquid Viscosity Less than 500 cps @ 32°C pH 7.9-9.5 (*10 dil.) Solid content 40.0% min.	Appearance White liquid pH 8.0-9.5 (*10 dil.) Non volatile matter 50.0±1.5% by wt.	Appearance White liquid Viscosity Less than 500 cps @ 25°C pH 5.0-8.5 (*10 dil.) Non volatile matter 40.0% min. Electrical resistance 3.5×10 ¹³ ohms
Application	- Recommended for ABS, PVC, SBR, Latex and other plastic.	- Recommended for ABS, PVC, SBR, Latex and other plastic.	- Recommended for ABS, PVC, SBR, Latex and other plastic.
Advantage	- Non- ionic system, suitable for all water-based system - Good compatibility - Useful for the reduction of environmental pollution - Ease to handle - More efficiency than solid antioxidant	- Water based, non- ionic system, suitable for all water borne system - Excellent compatibility - Useful for the reduction of environmental pollution - Ease to handle - More efficiency than solid antioxidant	- Water based, non- ionic system, suitable for all water borne system - Excellent compatibility - Useful for the reduction of environmental pollution - Ease to handle - More efficiency than solid antioxidant

Composition	DOUBLETEX AP-22 Blend of UV absorbers		DOUBLETEX AP-29 Blend of UV absorbers		DOUBLETEX AP-30 Blend of UV absorbers	
	CAS No.: Proprietary		CAS No.: Proprietary		CAS No.: Proprietary	
Structure						
Properties	Appearance	Milky white to light yellow liquid	Appearance	Milky white to light yellow liquid	Appearance	Milky white to light yellow liquid
	Odor	Odorless	Odor	Odorless	Odor	Odorless
Application	- Protection of polyester		- Protection of polyester		- Protection of polyester	
Advantage	- Water-dispersible - Less volatile - Better polyester compatibility		- Highly stable in dye baths and print pastes - Low viscosity and high storage stability - High affinity for the polyester fibers - Stable to heat and fast to sublimation - Increase color stability, stability of polyester fibers and light fastness of disperse dyestuff		- Water-dispersible - Less volatile - Better polyester compatibility	

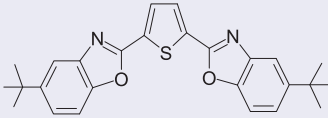
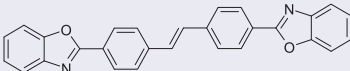
Anti-hydrolysis Agents

Composition	CHINOX P-500 High performance solid acrylic antioxidant		CHINOX SA-1 bis(2,6-diisopropylphenyl)carbodiimide		CHINOX SA-2 Antioxidant	
			CAS No.: 2162-74-5			
Structure						
Properties	Appearance	White to off-white granule	Molecular Formula	C ₂₅ H ₃₄ N ₂	Appearance	Bright yellow liquid
	Softening range	100-110°C	Appearance	White crystal	Viscosity	1000-6000 mPa·s @ 23°C
	Specific gravity	1.23 @ 20°C	Melting point	≥ 49°C	Density	1.10 g/cm³
	Bulk density	0.43 g/ml @ 20°C			Freezing point	< 5°C
	Volatile content	0.5% max			Solubility	Water soluble @ 25°C, soluble in organic solvents, e.g. acetone, dichloromethane
Application	- PC (polycarbonate), PET, PBT, polyester resin		- Biodegradable materials such as PLA, PBS, PHA, PHB, PCL under high temperature and humidity		- Polyester casting polyurethane - Polyester polyurethane adhesive - Polyester thermoplastic polyurethane - Polyurethane sole system made of polyester polyol	
Advantage	- Good compatibility with resins - Reduction in polymer degradation during processing, which will cause dramatically viscosity reduction - Excellent color stability		- Soluble in organic solvent - Good compatibility with resins - Improve the physical properties such as tensile strength, elongation, etc.		- Versatile anti-hydrolytic stabilizer	

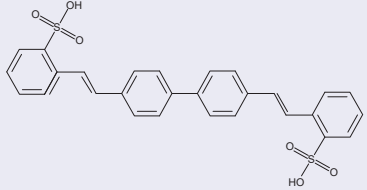
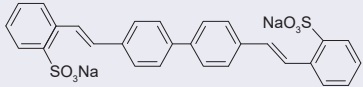
DOUBLETEX
Optical Brighteners

Composition	DOUBLETEX 127 4,4'-bis(2-methoxystyryl)-1,1'-biphenyl	DOUBLETEX KCB 1,4-bis(2-benzoxazolyl)naphthalene	DOUBLETEX KSN Benzoxazole, 2-[4-[2-[4-(2-benzoxazolyl)phenyl]ethenyl]phenyl]-5-methyl-
	CAS No.: 40470-68-6	CAS No.: 5089-22-5	CAS No.: 5242-49-9
Structure			
Properties	Molecular formula C ₃₀ H ₂₆ O ₂ Molecular weight 418,5 Appearance Yellowish fine powder Melting point 216°C min.	Molecular Formula C ₂₄ H ₁₄ O ₂ N ₂ Molecular Weight 362 Appearance Slightly green-yellow powder Melting point 210-212°C	Molecular formula C ₂₉ H ₂₀ N ₂ O ₂ Molecular weight 427,4 Appearance Green-yellow crystalline powder Melting point > 270°C
	Solubility (g/100ml solvent) Chloroform 0.4 DMAC 1.4 Ethyl acetate <0.1 Acetone <0.1 Water Nil	Solubility (g/100ml solvent) Slightly soluble in high polar organic solvent Insoluble in water	Solubility (g/100ml solvent) Slightly soluble in high polar organic solvent Insoluble in water
Application	- PVC, PMMA, PU, PS, ABS	- EVA, PE, PP, PVC, PS, ABS, PET, TPR	- Plastics, synthetic fiber, coating, ink
Advantage	- Brilliant white degree - Be suitable used in soft and hard product	- A high performance optical brightener for EVA and TPR	- Good light fastness - Widely used

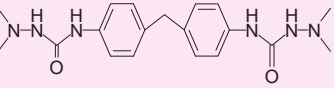
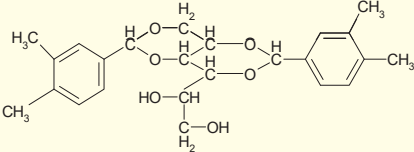
DOUBLETEX
Optical Brighteners

Composition	DOUBLETEX OB 2,2'-(2,5-Thiophenediyl)-Bis(5-tert-butylbenzoxazole)	DOUBLETEX OB-1 2,2'-(1,2-Ethenediyl)di-4,1-phenylene-bisbenzoxazole	DOUBLETEX OB-90 Optical brightener dispersed in polyol
	CAS No.: 7128-64-5	CAS No.: 1533-45-5	
Structure			
Properties	Molecular formula C ₂₆ H ₂₆ N ₂ O ₂ S Molecular weight 431 Appearance Yellowish powder Melting point 196°C min.	Molecular formula C ₂₈ H ₁₈ N ₂ O ₂ Molecular weight 414,4 Appearance Yellowish crystalline powder Melting point 356-362°C	Appearance Yellowish paste Viscosity 500-1500 cps @ 25 °C
	Solubility (g/100ml solvent) Chloroform 14 Acetone 0.5 Xylene 5 MEK 1.3 Ethyl alcohol 1.5 Water Nil	Solubility (g/100ml solvent) NMP < 1 Chloroform < 0.01 n-Hexane < 0.01 Methanol < 0.01 Acetone < 0.01 Water Nil	Solubility (g/100ml solvent) Dispersible in polyol
Application	- PVC, PS, ABS, PE, PP, Acrylic coating, pigment, ink	- PET, ABS, PS, HIPS, PA, PC - PP, hard PVC - Not suitable used in soft product	- PU foam, leather and film
Advantage	- Good solubility in solvent - Enhance whiteness for color pigmented coating	- Excellent heat stability - Low dosage	- Easy to disperse - Small particle size

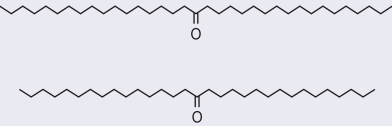
Anti-yellowing Agents (Anti-NOx)

Composition	DOUBLETEX CBS-1 4,4'-bis(2-sulfostryl)-biphenyl disodium salt	DOUBLETEX DET 4,4'-bis(2-sulfostryl)-biphenyl disodium salt	CHISORB 1300 1,6-Hexamethylene bis(N,N-dimethyl semicarbazide)
	CAS No.: 27344-41-8	CAS No.: 27344-41-8	CAS No.: 69938-76-7
Structure	 • 2 Na		
Properties	Appearance Yellowish green crystalline powder Water content (%) 5 max. 1% Extinction value 980-1020	Appearance Yellowish green crystalline powder water content (%) 5 max. Extinction value 0.829-0.885 1% Extinction value 1105-1180	Molecular Formula C ₁₂ H ₂₈ N ₆ O ₂ Molecular Weight 288.4 Appearance White crystalline powder Melting point 135°C min. pH value 7.0 (3 % solution)
Application	- Optical brightening agents of cotton, linen, silk, wool, polyamide fiber and papers etc. - Suitable for the optical brightening of synthetic detergents, scented soaps.	- Optical brightening agents for cotton, linen, silk, wool, polyamide fiber and paper. - Can be added to synthetic detergents, scented soaps, soaps or dissolved in an ingredient and blended equably at all stages of processing.	- PU, polyamide and polyethylene oxide system
Advantage	- Exceptional whitening properties - Excellent light fastness - Readily soluble in water - Liable to biology degradation - Excellent bleaching-resistant property - High stability with sodium hypochlorite	- Excellent whitening properties. - Excellent light fastness. - Easily soluble in water. - Liable to biological degradation.	- Good non-yellowing - Excellent anti-NOx

Nucleating Agents

Composition	CHISORB 1500 1,1,1',1'-Tetramethyl-4,4'(methylene-di-p-phenylene) di-semicarbazide	CHICLEAR 386 Nucleating Agent	CHICLEAR 390 1,3:2,4-bis-O-(3,4-dimethyl bezylidene)-D-sorbitol
	CAS No.: 85095-61-0		CAS No.: 135861-56-2
Structure			
Properties	Molecular Formula C ₁₉ H ₂₆ N ₆ O ₂ Molecular Weight 370.46 Appearance White powder Odor Odorless Melting point 170°C min.	Appearance White powder Melting point 233-248°C Solubility (g/100ml solvent) Insoluble in water	Appearance White powder Melting point 245-255°C 97% of the size ≥ 30µm Solubility (g/100ml solvent) Insoluble in water
Application	- PU (fiber, foam, coating) - Nylon, polyester powder coating - Polyamide - Polyethylene oxide system	- Polyolefins, PP	- PP - Cosmetic bottles - Food storage containers - Clear packaging for optical media storage, as DVD, CD box - Injection stretch blow molding (ISBM) bottle for juices
Advantage	- Anti-yellowing and anti-gas fading agent for PU - Heat stabilizer for polyethylene oxide system	- Increases resin throughout, and boosts PP productivity	- Non toxic and no odor - Enhance the transparency, gloss and strength resistance for PP

Formaldehyde Scavenger		Acid Scavenger		Slipping Agents	
Composition	DOUBLECATCH 23 Amine derivative	DOUBLECATCH HT-1 Nano-hydrotalcite prepared by inter-calation	DOUBLESIP 36D Slipping agent		
Structure					
Properties	Appearance White crystalline powder Melting point 177-184°C	Molecular formula $Mg_4Al_2(OH)_{12}CO_3 \cdot 4H_2O$ Appearance White powder Particle size 3μm Odor Odorless pH value 7-9 Solubility (g/100ml solvent) Suspensible in water-alcohol solutions Insoluble in water and organic solvents	Appearance White flake Melting point 59-61°C		
Application	- Formaldehyde quenching agent - Curing agent	- Plastics and synthetic fiber	- PMMA, AS, ABS, PU		
Advantage	- Effective in removal of formaldehyde	- Acid absorber for polyolefins - Heat co-stabilizer and flame retardant for PVC	- Good non-yellowing property - Transparency of PMMA can be maintained		

For Shoe Applications			
Composition	DOUBLESIP SK 18-Pentatriacontanone and 16-Hentriacontanone CAS No.: 504-53-0 and 502-73-8	DOUBLESIP SK-E Emulsified slipping agent	CHISORB B2851N-2 Liquid UV absorber
			
Structure			
Properties	Appearance White bead Molecular weight 483.6-486.4 Melting point 77.5-80.0°C pH pH: 6.2-7.2 Acid value 8 mg KOH/g max. Color 4 max. (Gardner) Particle size Around 1 mm Solubility Soluble in toluene Insoluble in methanol and ethanol	Appearance Milky white liquid Odor Faint Solid content 35±2% Active ingredients 18-Pentatriacontanone	Appearance Light yellow liquid Odor Faint
Application	- Lubricant - Anti-blocking agent - Dispersing agent - Pharmaceutical intermediate - Viscosity controlling agent for cosmetics	- Paper waterproof - Textile smoothing bristles agent - Water repellent	- PU material for shoe
Advantage		- Can be evenly and well dispersed in water	- Good resin compatibility - Low volatility - Good weather resistance

Composition	CHISORB B2077PF-2 Liquid UV absorber	CHISORB B2664N-1 Liquid UV absorber	CHISORB B2345-6 Liquid UV absorber
Structure			
Properties	Appearance Odor Volatile Blue purplish liquid Faint < 2%	Appearance Odor Volatile Color Yellow liquid Faint < 2% < 6 (Gardner)	Appearance Odor Volatile Specific gravity Violet liquid Faint 2% max. 1.05 @ 20°C Solubility PEG 400 Water (g/100ml solvent) Easy to disperse < 0.01
Application	- PU foam for shoes and bra	- PU material for shoe	- PU material for shoe
Advantage	- Phenol-free - Good resistance to yellowing	- Good resistance to yellowing - Excellent solubility in resin	- Good solubility - Good compatibility - Low volatility - UV resistance - Hydrolysis resistance - Yellowing resistance - Wide range of UV absorption wavelength

Composition	CHISORB B2751N Liquid UV absorber	CHINOX B1122NPF Blend of UV absorber and antioxidant	CHISORB B2515N-12 Blend of UV absorber and antioxidant
Structure			
Properties	Appearance Odor Yellow liquid Faint	Appearance Odor Volatile Yellow liquid Faint < 2%	Appearance Odor Volatile Blue liquid Faint < 2%
Application	- PU material for shoe	- PU material for shoe - Medical sponge, bandaid	- PU material for shoe
Advantage	- Good resin compatibility - Low volatility - Good weather resistance - Wide range of UV absorption wavelength - Yellowing resistance	- Yellowing resistance - QUV J52 method B, 3hrs for 3~4 grades Excellent indoor color stability (without heatpress) - Cost effective	- Yellowing resistance - Heat press resistance - Good polymer compatibility - Low volatility - Customized for shoes application, heavier color. - Good flowability

For Bra Application

Composition	CHINOX B1121PF Blend of antioxidant	CHISORB B2420PF-2 Blend of UV absorber and antioxidant	CHISORB B2416PF-13 Blend of antioxidant
Structure			
Properties	Appearance Violet paste Odor Faint Volatile < 2%	Appearance Purple paste liquid Odor Faint	Appearance Violet paste Odor Faint Volatile < 2%
Application	- PU material for bra	- PU material for bra	- PU material for bra
Advantage	- Without phenol - Heat resistance (200DC for 360 secs) - Low odor during foaming and heat pressing - Better resistance to indoor yellowing - Good compatibility with polymers - Easy to handle with low volatility	- Low odor during foaming and heat-pressing - Resistant to indoor yellowing and better resistance to waste gas and smoke - Phenol-free - Do not contain UV-320 and UV-328 - Good compatibility with polymers - Low volatility	- Low odor during foaming and heat pressing - Without phenol - Excellent resistance to phenolic yellowing - Better resistance to indoor yellowing and hydrolysis - Good compatibility with polymers - Easy to handle with low volatility - Good flowability

Composition	CHISORB B2416NPF-4D Blend of antioxidant	CHINOX B1121 Blend of UV absorber and antioxidant	CHISORB B2515-12 Blend of UV absorber and antioxidant
Structure			
Properties	Appearance Yellow paste liquid Odor Faint Volatile < 2%	Appearance Blue purple paste Odor Faint Volatile < 2%	Appearance Purple paste liquid Odor Faint Volatile < 2%
Application	- PU material for bra	- PU material for bra	- PU material for bra
Advantage	- Low odor when heat pressing - Yellowing resistance - Weathering resistance - Hydrolysis resistance - No free phenol - No fluorescence brightener	- Heat resistance - Low odor during foaming and heat pressing - Better resistance to indoor yellowing and hydrolysis - Good compatibility with polymers - Easy to handle with low volatility	- Brightening effect - Yellowing resistance - Heat press resistance - UV resistance - Good compatibility with polymers - Low volatility

For Anti-scorching

Composition	CHISORB B2408PF-2 Blend of UV absorber and antioxidant		CHINOX B1233-1 Blend of non-amine antioxidant		CHINOX B1231 Blend of antioxidant	
Structure						
Properties	Appearance	Blue purple paste liquid	Appearance	Light yellow transparent liquid	Appearance	Light yellow liquid
	Odor	Faint	Odor	Faint	Odor	Faint
Application	- PU material for bra		- PU material for anti-scorching		- PU material for anti-scorching	
Advantage	- Low odor during foaming and heat-pressing - Resistant to indoor yellowing and better resistance to waste gas and smoke - Phenol-free - Do not contain UV-320 and UV-328 - Good compatibility with polymers - Low volatility		- Good scorching resistance - Prevent indoor yellowing - Easily soluble in organic solvents - Good compatibility with resins - Good heat and oxidation resistance		- Easily soluble in organic solvents - Good compatibility with resins - Good heat and oxidation resistance - Good scorching resistance	

PVC Stabilizers

Composition	DOUBLESTAB 200G3 Calcium / zinc heat stabilizer		DOUBLESTAB 350G Calcium / zinc heat stabilizer		DOUBLESTAB 719 Calcium / zinc heat stabilizer	
	CAS No.: Proprietary		CAS No.: Proprietary		CAS No.: Proprietary	
Structure						
Properties	Appearance	White powder	Appearance	White to yellowish powder	Appearance	White powder
	Volatile	< 3%	Volatile	< 3%	Volatile	< 0.5%
Application	- Transparent copper wire		- Dark or varicolored electrical cable		- Highly transparent extrusion, injection molding and granulation products	
Advantage	- Excellent thermal stability. - Prevent the inner copper wire from getting rust. - Complying with the EU environmental demands.		- Easily solutes in any kind of plasticizers. - Good anti-migration. - Excellent thermal stability. - Complying with the EU environmental demands.		- Excellent thermal stability. - Complying with the EU environmental demands.	

DOUBLESTAB
PVC Stabilizers

Composition	DOUBLESTAB 719G3 Calcium / zinc heat stabilizer	DOUBLESTAB 20E Calcium / zinc heat stabilizer	DOUBLESTAB 23 Calcium / zinc heat stabilizer
	CAS No.: Proprietary	CAS No.: Proprietary	CAS No.: Proprietary
Structure			
Properties	Appearance Volatile	White powder < 3%	Appearance Volatile
			White powder < 3%
Application	- Colored and dark polyvinyl chloride products. - Soft PVC products.	- Rigid PVC processing of injection and extrusion in pipe, profiles, sheet, foamed articles.	- Transparent or colored and dark PVC products - Rigid PVC products
Advantage	- Excellent thermal stability. - Complying with the EU environmental demands.	- Good plasticizing, processing properties. - Excellent thermal stability. - Outstanding initial color and color maintenance ability. - Outstanding weathering resistance.	- Excellent thermal stability and weather resistance. - Suitable for products with high requirements. - Good replacement for organic Tin in rigid PVC.

DOUBLESTAB
PVC Stabilizers

Composition	DOUBLESTAB 24E Calcium / zinc heat stabilizer	DOUBLESTAB 26E Calcium / zinc heat stabilizer	
	CAS No.: Proprietary	CAS No.: Proprietary	
Structure			
Properties	Appearance Odor	White powder Faint	Appearance Odor
			White powder Faint
Application	- Heat stabilizer for rigid PVC	- Heat stabilizer for opaque soft PVC	
Advantage	- Excellent thermal stability - Good initial whiteness - Good replacement for organotin - Suitable for translucent or opaque rigid PVC	- Excellent thermal stability - Good initial whiteness - Competitively priced	

DOUBLESTAB

PVC Stabilizers

Functional Masterbatch

PVC application			Grade	Property				
				Heat stability	Coloring	Transparency	Economical property	Congo red test
PVC Cable	Transparent	UL 105	DS 200G3	★★★★☆	★★☆☆☆	★★★★☆	★★★★☆	
	Non-transparent	UL 60 / J70	DS 316V	★☆☆☆☆	★★★★☆		★★★★★	★☆☆☆☆
		UL 105	DS 608G	★★☆☆☆	★★★★☆		★★★★☆	★★☆☆☆
			DS 350G	★★★★☆	★★★★☆		★★★★☆	★★★★☆
		UL 125 / J90	DS 800H	★★★★★	★★★★☆		★★☆☆☆	★★★★★
Flexible PVC	Highly transparent		DS 719	★★★★☆	★★★★☆	★★★★★	★☆☆☆☆	
	Transparent/non-transparent: injection, texteline, mat, leather		DS 719G	★★★★★	★★★★★	★★★★☆	★★☆☆☆	
			DS 719G3	★★★★★	★★☆☆☆	★★★★☆	★★★★☆	
Rigid PVC	Transparent		DS 719G	★★★★★	★★★★★	★★★★☆	★★☆☆☆	
	Non-transparent		DS 20E	★★★★☆	★★☆☆☆		★★★★☆	

Composition	DOUBLEMASTER LLDPEX1-40		DOUBLEMASTER LLDPE51-40		DOUBLEMASTER LDPE62-40	
	Masterbatch		Masterbatch		Masterbatch	
Structure	CAS No.: Proprietary		CAS No.: Proprietary		CAS No.: Proprietary	
Properties	Appearance Odor		Appearance Odor		Appearance Odor	
	Orange pellet Faint		White to yellow pellet Faint		White to yellow pellet Faint	
Application	- LLDPE film - Agricultural film		- LLDPE film - Agricultural film		- LLDPE film - Agricultural film	
	- Excellent compatibility and uniformity - Improve the weather resistance		- Excellent compatibility and uniformity - Improve the weather resistance		- Excellent compatibility and uniformity - Improve the weather resistance	

Composition	DOUBLEMASTER LDPE78-40		DOUBLEMASTER LDPE94-40		DOUBLEMASTER PO-4	
	Masterbatch		Masterbatch		Masterbatch	
Structure	CAS No.: Proprietary		CAS No.: Proprietary		CAS No.: Proprietary	
Properties	Appearance White to yellow pellet		Appearance White to yellow pellet		Appearance Off-white pellet	
	Odor Faint		Odor Faint		Odor Faint	
Application	- LLDPE film		- LLDPE film		- Polyolefin film	
	- Agricultural film		- Agricultural film			
Advantage	- Excellent compatibility and uniformity		- Excellent compatibility and uniformity		- Excellent compatibility and uniformity	
	- Improve the weather resistance		- Improve the weather resistance		- Improve the weather resistance	

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