STABILIZER

TECHNOLOGY

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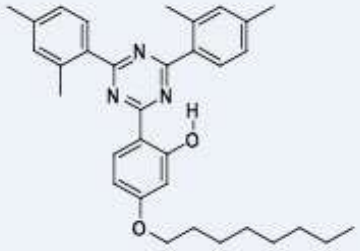
- Light stabilizers Chiguard® 07-08
- Anti-oxidants DEOX 09-12
- Flame retardants Zuran® 13-15
- Other additives 16

Chiguard® 1064
Triazine based UV absorber for PET

Structure



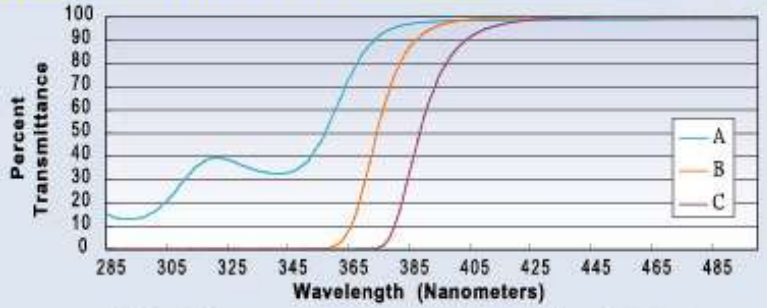
Suggested Applications

Chiguard® 1064 is most suitable for the protection of polyesters, automotive clear coats, powder coatings for plastics and wood, and high performance industrial coatings. The dosage of Chiguard® 1064 ranges between 0.1% and 5% are recommended for protection. It depends on the substrate and performance requirement of the final application.

Characteristic data

CAS No.	: 2725-22-6
Appearance	: Light yellow powder
Odor	: Faint
Melting point	: 89-91°C
Specific gravity	: 1.15 @25°C
Solubility in water	: <0.01 g/100mL

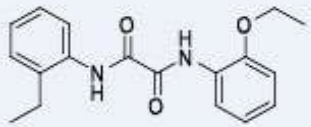
UV transmittance spectra



> Solvent: toluene
> Concentration of A: 6.5mg/L
> Concentration of B: 65mg/L
> Concentration of C: 650mg/L

Chiguard® 1033
Oxalanilide UV absorber for PVC, NYLON

Structure



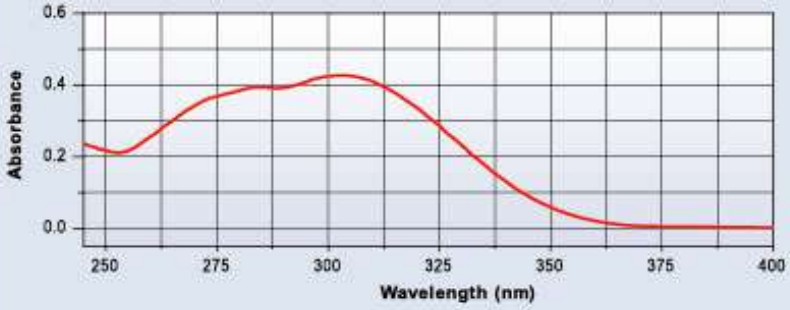
Suggested Applications

Chiguard® 1033 is most suitable for the protection of polar polymers such as polyamides, polyvinyl chlorides and polyesters due to its excellent solubility in these matrices. It also exhibits very good efficiency when applied in various polymers like PUR, PMMA, and polycarbonates. The dosage of Chiguard® 1033 ranges between 0.1% and 1.5% is recommended for protection. It depends on the substrate and performance requirement of the final application.

Characteristic data

CAS No.	: 23949-66-8
Appearance	: White powder
Odor	: Faint
Melting point	: 124-128°C
Boiling point	: > 400°C
Specific gravity	: 1.26 @20°C

UV Spectrum

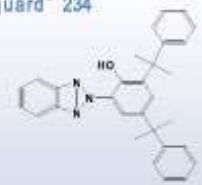


04 UV absorbers Chiguard®

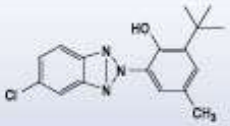
Name	CAS No.	Appearance	Melting point	Applications
Chiguard® 234	70321-86-7	Pale yellow powder	137°C min.	Automobile coating/powder coating
Chiguard® 326	3896-11-5	Light yellow powder	137-141°C	PVC/PET/liquid color concentrate
Chiguard® 327	3864-99-1	Pale yellow powder	153°C min.	ABS/PET/dye/pigment.
Chiguard® 328	25973-55-1	Pale yellow powder	79-84°C	Automobile coating
Chiguard® 335	5232-99-5	White powder	95-100°C	PVC/PMMA
Chiguard® 336	6197-30-4	Clear yellowish liquid	----------	PVC/PMMA
Chiguard® 380	18600-59-4	Off-white powder	300°C min.	PET
Chiguard® 5411	3147-75-9	Off-white powder	102-107 °C	PVC/PET
Chiguard® 5431	103597-45-1	Pale yellow powder	190°C min.	PC/PET
Chiguard® 5540	4221-80-1	White powder	193°C min.	PP/PE/TPE/TPV
Chiguard® 5571	125304-04-3	Yellow liquid	----------	PU
Chiguard® 9735	---------	Light yellow liquid	----------	EPOXY
Chiguard® ABZ	70356-09-1	White powder	81-86°C	Cosmetics
Chiguard® BP-1	131-56-6	Yellow powder	142-145°C	Cosmetics
Chiguard® BP-2	131-55-5	Pale yellow powder	58°C min.	Cosmetics/industrial coatings
Chiguard® BP-3	131-57-7	Light yellow powder	63-65°C	PVC/ cosmetics
Chiguard® BP-4	4065-45-6	White powder	107°C min.	Cosmetics
Chiguard® BP-6	131-54-4	Light yellow powder	130°C min.	Cosmetics
Chiguard® BP-12	1843-05-6	Light yellow powder	46.5-48.5°C	PVC
Chiguard® OMC	5466-77-3	Colorless yellow liquid	----------	Cosmetics
Chiguard® P	2440-22-4	Light yellow crystal	128°C min.	PVC/acrylics
Chiguard® U-750	---------	Light yellow liquid	----------	TPU
Chiguard® U-1100	---------	Light yellow liquid	----------	TPU

Structures

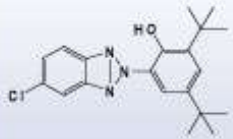
Chiguard® 234



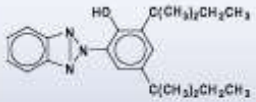
Chiguard® 326



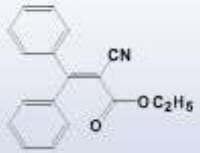
Chiguard® 327



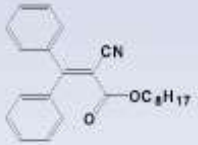
Chiguard® 328



Chiguard® 335

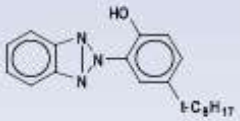


Chiguard® 336

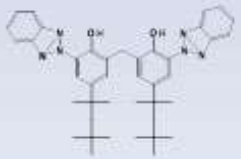


Chiguard® 380

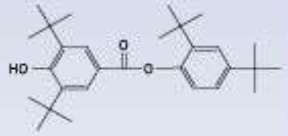
Chiguard® 5411



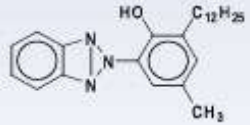
Chiguard® 5431



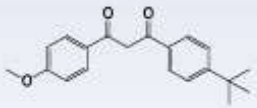
Chiguard® 5540



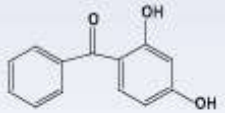
Chiguard® 5571



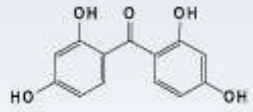
Chiguard® ABZ



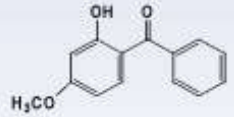
Chiguard® BP - 1



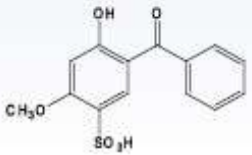
Chiguard® BP - 2



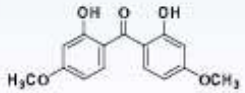
Chiguard® BP - 3



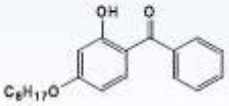
Chiguard® BP - 4



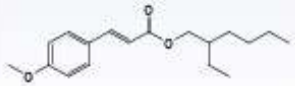
Chiguard® BP - 6



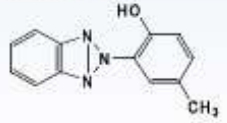
Chiguard® BP - 12



Chiguard® OMC



Chiguard® P



06 UV absorbers Chiguard®

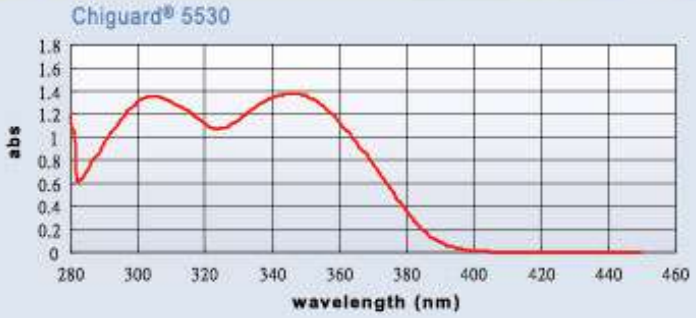
UV absorbers for automobile coating

Chiguard® 5530

Characteristic data

CAS No.	:	104810-48-2 104810-47-1 25322-68-3
Appearance	:	Yellow to light amber liquid
Assay	:	> 85.0%
Clarity	:	Clear
UV Transmittance	:	95% min. @460 nm 97% min. @500 nm

UV Spectrum

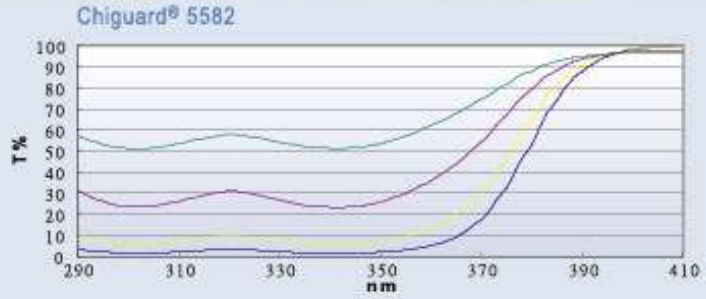


Chiguard® 5582

Characteristic data

CAS No.	:	127519-17-9 & 108-65-6
Appearance	:	Yellow liquid
Assay	:	98% min.
UV Transmittance (5%)	:	95% min. @460 nm 97% min. @500 nm
Volatiles	:	6% max.
Viscosity	:	1100 cps min.

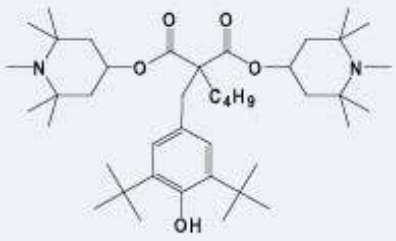
UV Transmittance Spectrum



> Green line : 0.001% by weight
> Purple line : 0.02% by weight
> Yellow line : 0.04% by weight
> Blue line : 0.06% by weight

Chiguard® 100
Light stabilizer for powder coating

Structure



Suggested Application

Chiguard® 100 belongs to the family of hindered amine light stabilizers (HALS), which protect against ultraviolet radiation. In addition, Chiguard® 100 has a hindered phenol type of anti-oxidant moiety, which provides the light stabilizer an extended life. Due to this, Chiguard® 100 is more effective in reducing coating defects like cracking and gloss loss for automobile coating and industry coating.

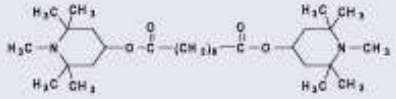
Characteristic data

CAS No.	: 63843-89-0
Appearance	: White to slightly yellow powder
Odor	: None
Boiling point	: > 300°C
Melting point	: 146-150°C

Name	CAS No.	Appearance	Melting point	Applications
Chiguard® 228	106990-43-6	Light yellow powder	115-150°C	PP/PE
Chiguard® 353	41556-26-7	Colorless liquid	----------	PU/Coating
Chiguard® 622LD	65447-77-0	Low dust white crystal	55°C min.	PP/PE
Chiguard® 770	52829-07-9	White powder or granule	80-86°C	PP/PE
Chiguard® 944LD	70624-18-9	Light yellow granule	105-135°C	PP/PE

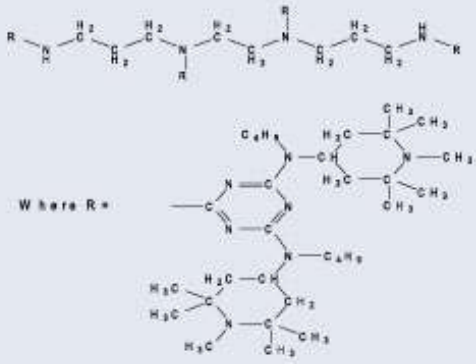
Structures

Chiguard® 353

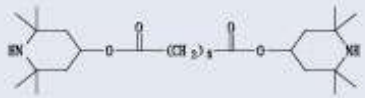


Chiguard® 622LD

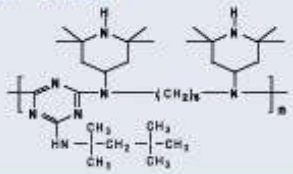
Chiguard® 228



Chiguard® 770



Chiguard® 944LD



DEOX SP-3000

Anti-oxidant and heat stabilizer for polymer

General

DEOX SP-3000 is a synergistic blend of a sterically hindered phenolic antioxidant, a phosphite stabilizer and a proprietary carbon-centered radical scavenger. Being a multi-functional antioxidant, DEOX SP-3000 provides outstanding performance in a variety of polymers such as PP, PE, PB, styrenics and adhesives. Its superior effectiveness over conventional antioxidant systems is particularly pronounced in improved MFR control, good color maintenance and long-term thermal stabilization.

Characteristic data

Appearance	: White to off-white powder
Odor	: Odorless
Melting point	: 114-160°C
Specific gravity (25°C, g/mL)	: 0.93
Bulk density (g/mL)	: ca. 0.60

Comparison performances of melt-flow index (MFI) and color with various anti-oxidants in ABS

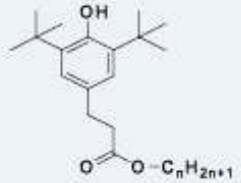
Extrusion pass	0	1	2	3	4	5	Δ
ABS	7.06	7.46	7.65	7.74	7.89	8.10	0.64
DEOX B-225	7.06	7.19	7.31	7.43	7.57	7.67	0.48
DEOX SP-3000	7.06	7.11	7.25	7.30	7.35	7.46	**0.44**

Test condition: 10 min/g under 10.0 kg weight pressure at 220°C

Liquid anti-oxidant for polymer

DEOX BS-1000

Structure



n = 7~9

Characteristic data

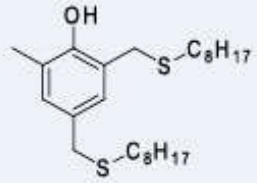
CAS No	: 125643-61-0
Appearance	: Colorless to light yellow liquid
Melting point	: < 10°C
Specific gravity	: 1.1- 1.2 @25°C

Suggested Application

DEOX BS-1000 is a liquid anti-oxidant based on hindered phenolic chemistry. It is ideal for those applications where liquid form is critical such as polyurethane foam or liquid color concentrate.

DEOX 1520

Structure



Characteristic data

CAS No	: 110553-27-0
Appearance	: Colorless to light yellow liquid
Melting point	: <15°C
Specific gravity	: 0.96~1.03 @25°C

Suggested Application

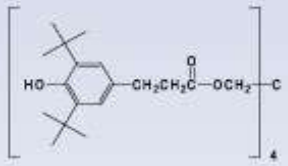
DEOX 1520 is a multi-functional antioxidant based on hindered phenol and thioether chemistry. It is ideal for the protection of substrate such as elastomers, adhesives, lubricants and sealants against thermal degradation. It can be used alone at low levels or together with phosphate-containing secondary antioxidants and benzofuranone. However it is not recommended for odor sensitive hot melt adhesives.

11 Anti-oxidants DEOX

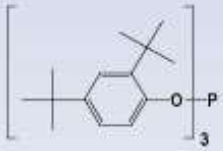
Name	CAS No.	Appearance	Melting point	Applications
DEOX 10	6683-19-8	White powder	110-125°C	General application
DEOX 68	31570-04-4	White powder	180°C min.	General application
DEOX 76	2082-79-3	White powder	49-54°C	General application
DEOX 112	119-47-1	White powder	128°C min.	Rubber
DEOX 115	33145-10-7	White powder	160-164°C	ABS/PVC
DEOX 604	26741-53-7	White powder	140°C min.	PP/PE
DEOX 1330	1709-70-2	White powder	240-245°C	TPO/PP/PE
DEOX 1412	29598-76-3	White powder	48-52°C	PPO/PBT
DEOX 1790	40601-76-1	White powder	159-163°C	Spandex
DEOX 3114	27676-62-6	White powder	218-223°C	General application
DEOX MD-1024	32687-78-8	White powder	221-232°C	Metal deactivator
DEOX MD-1072	69851-61-2	White powder	170°C min.	Metal deactivator
DEOX MD-1098	23128-74-7	White powder	156-161°C	Metal deactivator

Structures

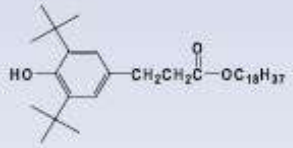
Deox 10



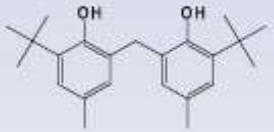
Deox 68



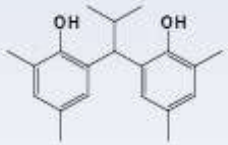
Deox 76



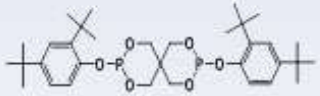
Deox 112



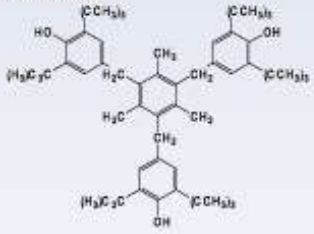
Deox 115



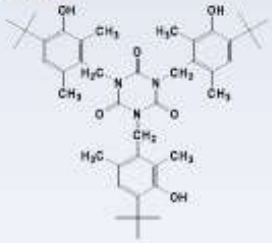
Deox 604



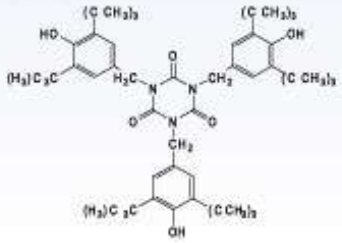
Deox 1330



Deox 1790

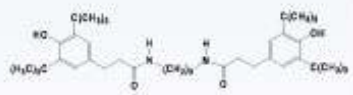


Deox 3114

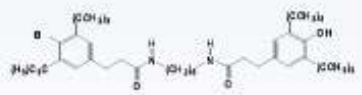


Deox MD-1024

Deox MD-1072



Deox MD-1098



Zuran® 484

Highly efficient non-halogenated intumescent flame retardant

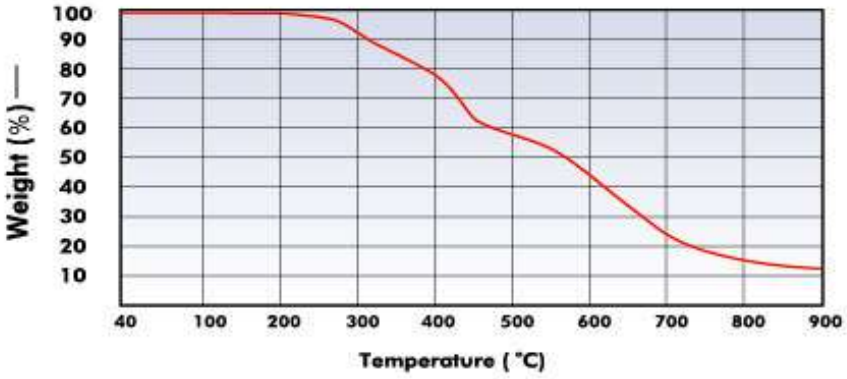
Features of Zuran® 484

- 3-in-1 intumescent flame retardant (IFR)
- halogen-free, RoHS/WEEE compliant
- phosphorus/nitrogen synergism
- excellent thermal stability (up to 250°C)
- broad operating window (190~250°C)
- high efficiency for TPE, PP, PE and EVA

Benefits of using Zuran® 484

- superb water resistance
- migration free
- low smoke density
- no black and corrosive smoke
- low impact on mechanical properties
- high weathering stability
- pre-drying is not required

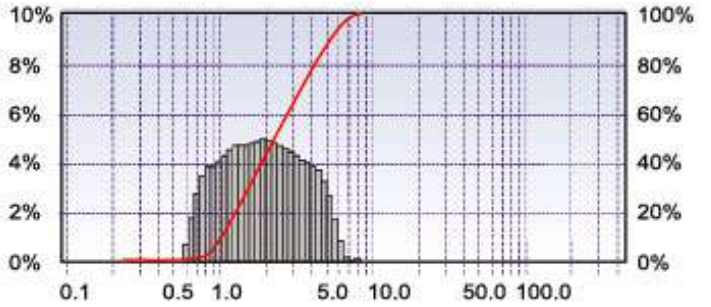
Themogravimeteric Analysis (TGA)



Characteristic data

Appearance	White powder
Melting point	270°C min.
Volatile	1.0 % max.
Average particle size (D50)	10 µm max.
Phosphorus content	18–21%
Nitrogen content	20–24%

Particle size distribution



Typical dosages for UL94 V-0 rating at 1/16"

Polymers	Dosage	
PP homo polymer	25-28%	22-25% with PTFE
PP copolymer	25-30%	22-25% with PTFE
LDPE	35%	30% with PTFE
TPE/TPO	35%	30% with PTFE
EVA	35%	

Recommended procesing conditions

Extrusion (Twin/screwers)	
Barrel temperature	210-230°C
Die temperature	210-230°C
Screw speed	150-200 rpm

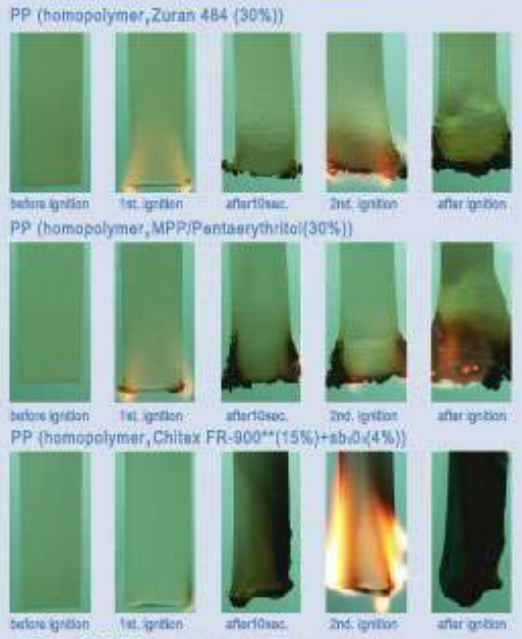
Injection	
Barrel temperature	190-210°C
Nozzle temperature	190-210°C

Intumenscence

The same weight (0.7g) of samples were put in oven at 400°C

Zuran® 484 | MPP/Pentaerythritol | APP type

UL 94 flammability test



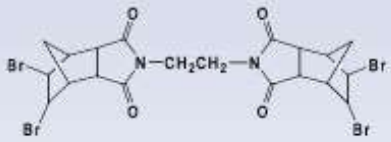
**Chitex FR-900 is a halongenated flame restardant

Highly efficient bromine type fame retardants

Name	CAS No.	Appearance	Bromine Content	Melting Point	Applications
Chitex FR-910	52907-07-0	Off-white powder	45% min.	290°C min.	PP/PE
Chitex FR-920	42757-55-1	Off-white powder	64% min.	100°C min.	PP/PE
Chitex FR-950	19186-97-1	White powder	68% min.	175°C min.	PE/PP/PC
Chitex FR-960	88497-56-7	Amber powder	65% min.	150°C min.	Rubber

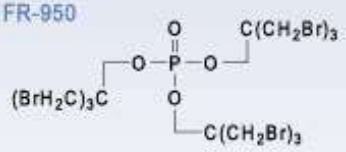
Structures

Chitex FR-910

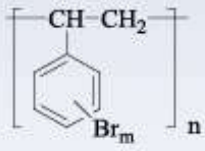


Chitex FR-920

Chitex FR-950



Chitex FR-960



Heat stabilizers

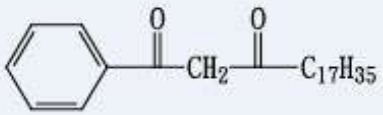
Name	CAS No.	Appearance	Melting point	Applications
SBM 50	58446-52-9	White to off-white powder	57°C min.	PVC
DBM 83	120-46-7	Off-white to pale yellow powder	76-80°C	PVC

Optical brightners

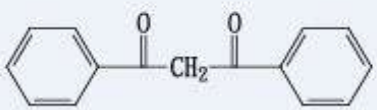
Name	CAS No.	Appearance	Melting Point	Applications
Chitex OB	7128-64-5	Yellow crystalline powder	197°C min.	Polymer/UV coating/ink

Structures

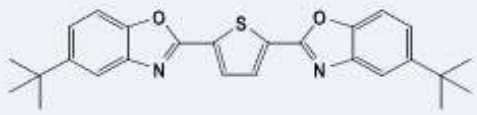
SBM 50



DBM 83



Chitex OB



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