

PLASTIC ADDITIVES

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UV

AOX

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Who We Are

Greenchemicals S.r.l. is an Italian company highly specialized in flame retardant additives, with a particular focus on the development of halogen-free formulations and those with low environmental impact. Greenchemicals S.r.l. has always been considered a reliable global partner in the field of plastic additives.

Greenchemicals' products comply with REACH, CLP, SVHC, Food contact, ROHS requirements, if applicable.

ABOUT GREENCHEMICALS

- Founded in 2010 by Micaela Lorenzi
- **Headquarters in Desio – Italy;** fully owned companies: **Polichem S.r.l.** (Garlasco, ITALY) and **Greenchemicals SA** (Lugano, SWITZERLAND)



- Specialized in flame retardant formulations, it represents a reliable partner for **plastic additives** worldwide

MAIN FIELDS OF APPLICATION:

- XPS, EPS, X-EPS
- XPE, XPU
- Engineering Thermoplastics
- Reactive flame retardants

OTHER PRODUCTS:

- Antioxidants
- Uv
- Processing aids
- Color masterbatches

GC - VISION

Develop and promote performing solutions:

- Fire performance and thermal stability
- Superior Environmental and health profile (more sustainable with halogen free solutions)
- Compatibility with polymeric matrix
- Cost / Performance



QUALITY MANAGEMENT SYSTEM

Greenchemicals decided to adopt Quality Management System (QMS) in compliance with ISO 9001 STANDARD to improve all activities associated with the quality.

Greenchemicals has always supported agile working methods such as smart working, part time and flexible work schedules in order to allow for a better family management.



GC - PHYSICAL FORMS

- Masterbatches
- Powder Blends
- Compacted Blends
- Cold Extruded Pellets
- Liquid Dispersions

In 2024 Greenchemicals acquires



MEMBERSHIP:

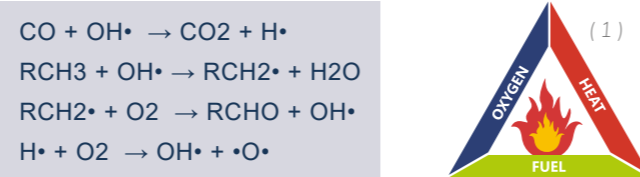


Flame Retardant Mechanism

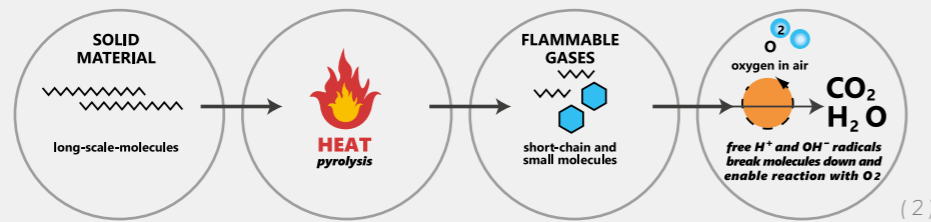
Flame retardants are substances which may reduce flammability of materials by interaction with the fire cycle (FIGURE 1) in order to prevent, delay or stop it. Flame retardants act at different stages, depending on their chemical basis.

COMBUSTION

Combustion is a chemical reaction of oxidation that involves heat, flames and smoke/gases with generation of high energy radicals.



The fire starts with an ignition source put on a combustible item. Solid materials do not burn directly, they are degraded by heat due to Pyrolysis: polymer's long-chain molecules are decomposed into smaller ones, with the emission of flammable gases in the Gas Phase and the formation of inert carbonised material in the Condensed Phase, char. (FIGURE 2) In the gas phase visible flames are generated by reaction of flammable gases with oxygen. High energy exothermic chemical reactions take place and generate heat energy that supports combustion.



FLAME RETARDANTS

Flame retardants prevent or even suppress the process of combustion during a particular phase of the fire cycle: heating, decomposition, ignition, flame spread.

Flame retardant action can be physical or chemical (FIGURE 3).

MECHANISM	WAY	EFFECT
WATER VAPOR	PHYSICAL	Cooling Release of water vapor
GAS PHASE	CHEMICAL	Release of inert gases
CHAR	CHEMICAL / PHYSICAL	Cooling Char Layer
INTUMESCENT	CHEMICAL / PHYSICAL	Cooling Expanded Char Layer
DRIPPING	CHEMICAL	Polymer Chain Scission

CHEMICAL REACTION CAN OCCUR:

- In the gas phase by cooling the system and reducing flammable gases.
- In the condensed phase by generation of a char layer providing a barrier against the heat source

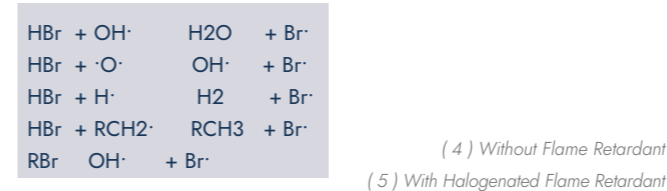
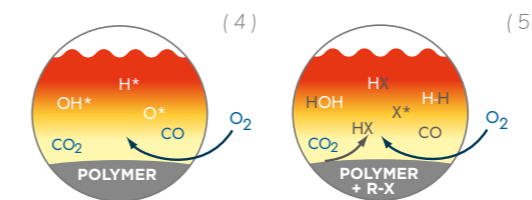
PHYSICAL ACTION CAN TAKE PLACE BY:

- Cooling:** release of water that cools the underlying substance
- Coating:** formation of solid or gaseous layer that protects material
- Dilution:** dilution of the fuel by formation of non-combustible gas

Mechanism:

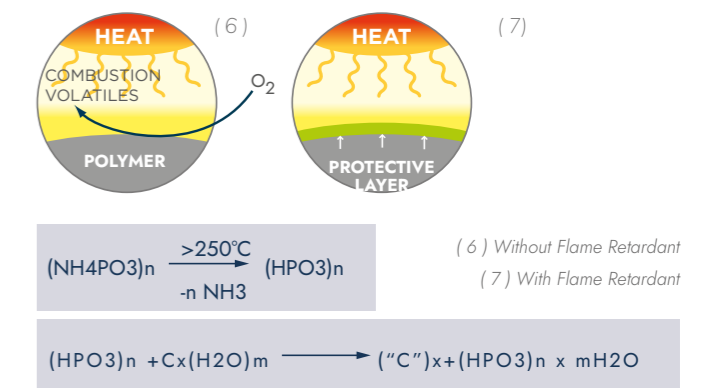
1. GAS PHASE

Brominated flame retardants interrupt the radical chain mechanism of the combustion process in the gas phase thanks to generation of lower energy halogen radicals and dilution of flammable gases.



2. CHAR

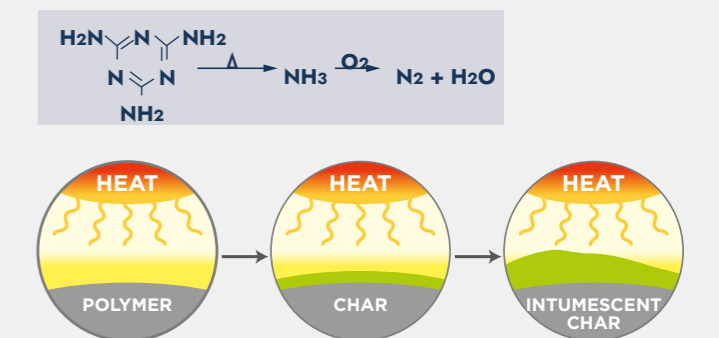
Flame retardancy is obtained by formation of a solid charred surface layer of phosphorus compounds. The flame retardant is transformed into phosphoric acid by thermal degradation in the condensed phase, and water is released from the substrate in the solid phase developing protective layer: char.



3. INTUMESCENT

Intumescent mechanism provides efficient flame retardancy to polymers who do not contain heteroatoms in the chain. Char layer is not sufficient and a foaming agent is required to obtain a voluminous protective layer. Intumescent flame retardant systems consist of:

- Carbon agent
- Acid based on phosphorous
- Compound containing nitrogen



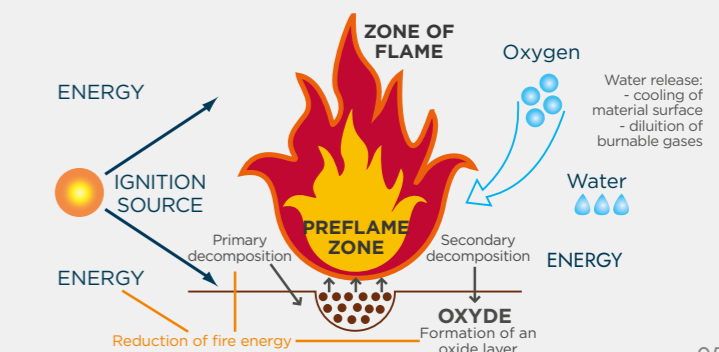
4. DRIPPING

Flame retardant decomposes into radical species that cut polymer chains and cause dripping of the polymer. The reaction is endothermic.



5. WATER VAPOUR

Flame retardancy is provided by water release. Endothermic reaction cools material surface and dilute burnable gases with formation of a charred layer.



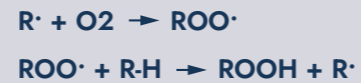
Antioxidants

UV Absorbers / Light Stabilizers

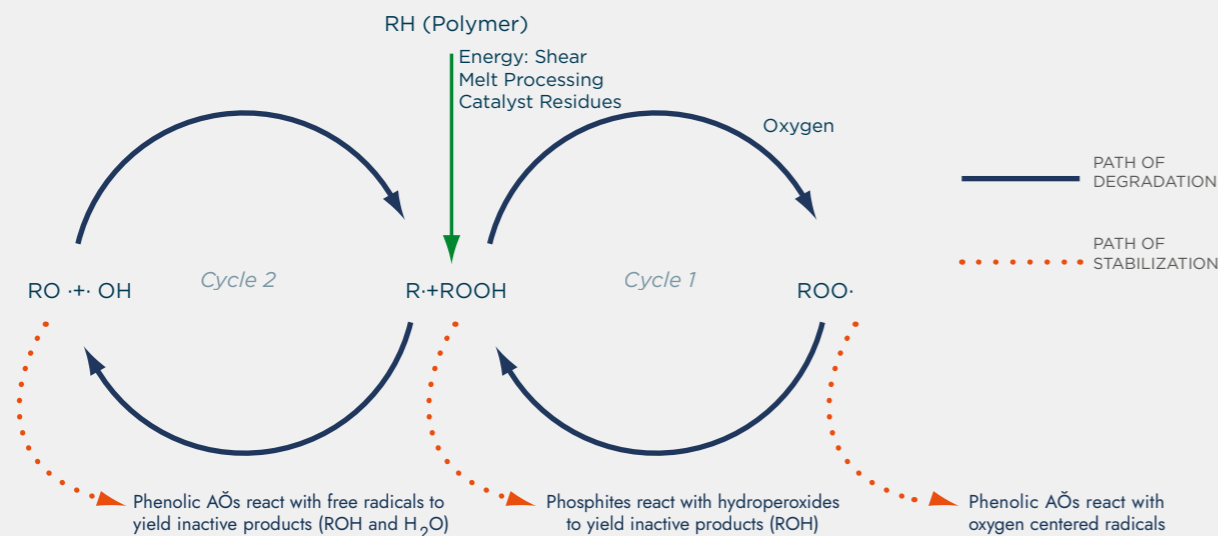
ANTIOXIDANTS CYCLE

Weathering of polymers is caused by absorption of UV lights, which results in radical initiated auto-oxidation by contact with atmospheric oxygen and generation of free radicals such as $R\cdot$, $RO\cdot$, $ROO\cdot$, $HO\cdot$.

These free radicals further react with atmospheric oxygen to produce more and more free radicals.



Antioxidants inhibit the formation of free radicals, enhancing the stability of polymers against light and heat, by termination of the oxidation reactions that involve polymers:

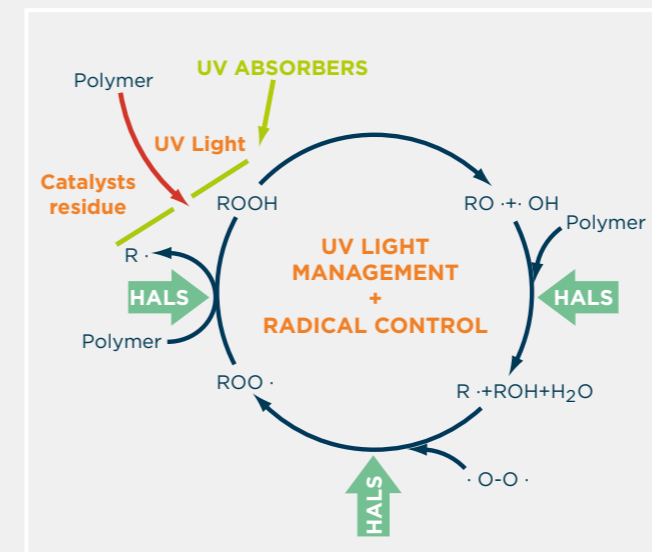


UV STABILIZERS

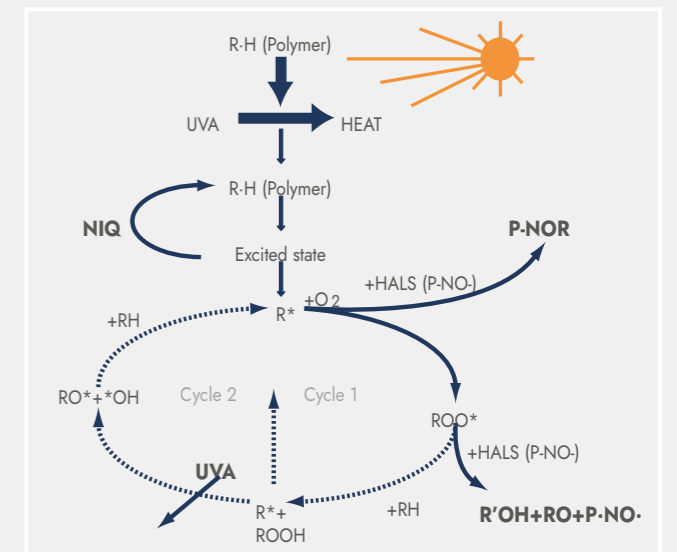
UV stabilizers are chemical compounds capable of interfering with the physical and chemical processes of light-induced degradation.

They prevent the formation of free radicals that can be generated by interaction of UV radiation with tertiary carbon bonds in polymer chain structures or with aromatic rings.

They can act in different ways:



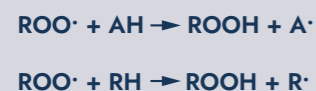
(1) Photo-oxidation



(2) Light stabilizer mechanism

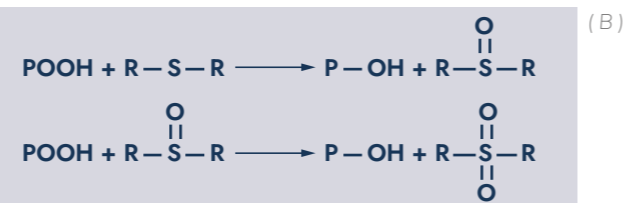
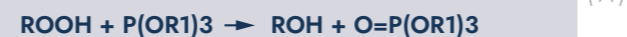
PRIMARY

Hydrogen-donating antioxidants (AH), such as hindered phenols, quinone based compounds, piperidinoxyl based compounds and secondary aromatic amines, inhibit oxidation by competing with organic substrate (RH) for peroxy radicals, thereby interfering with the chain propagation step.



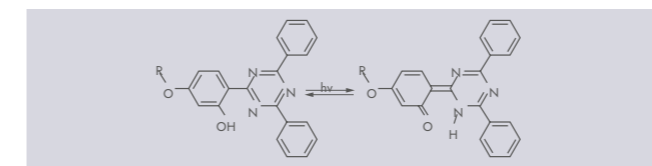
SECONDARY

Secondary antioxidants based on phosphites (A) or sulphides like dialkyldithiocarbamates, dialkyldithiophosphates and thiobisphenolates (B) prevent peroxide radicals formation as they decompose hydroperoxides.



UV ABSORBERS

UV absorbers act by absorbing the UV radiation and dissipating the resulting energy in a non-photosensitizing way, such as heat, by intramolecular proton transfer.

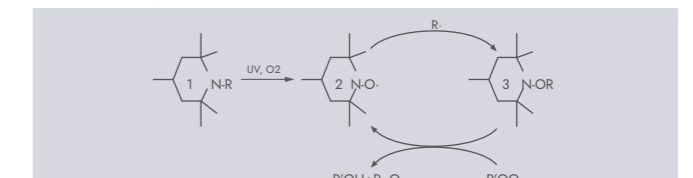


QUENCHERS

They are energy transfer agents, they deactivate excited states of chromophoric groups in polymers before bond scission can occur, by energy transfer process or chemical and/or physical deactivation.

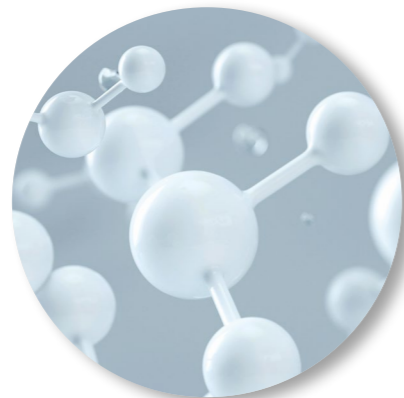
HINDERED AMINES

They are derivatives of 2,2,6,6-tetramethylpiperidine and they slow down the photochemically initiated degradation reaction through a cyclic process. They scavenge radicals by the formation of nitroxyl radicals (R-O·) that combine with free radicals in polymers generating aminoether molecules. These will then react with peroxides regenerating the nitroxyl radicals.



Plastic Additives

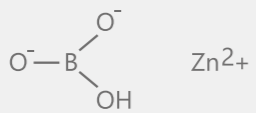
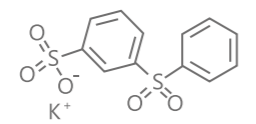
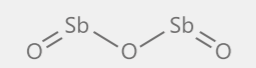
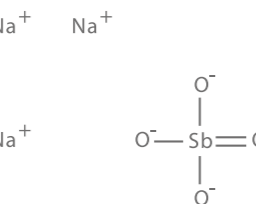
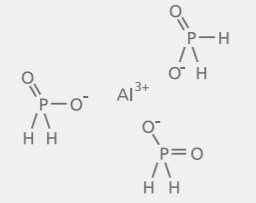
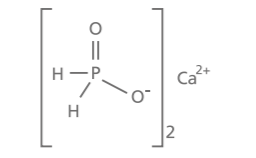
THE RANGE



PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS	M.P./S.R Viscosity ----- TGA
GC MELAMMINA Melamine CAS n. 108-78-1 PHYSICAL FORM: GR, PW		Polyolefins - Polyurethanes. PP, PE, PU, Textile, Coatings.	M.P./S.R Viscosity 354°C
GC MC series & GC MCA granular Melamine Cyanurate CAS n. 37640-57-6 PHYSICAL FORM: GR, PW		Engineering Thermoplastics. PA, Polyesters.	M.P./S.R Viscosity Decomposition T. > 350°C ----- TGA: 1% @ 305°C 2% @ 320°C 5% @ 340°C
GC APP II Ammonium Polyphosphate CAS n. 68333-79-9 PHYSICAL FORM: GR, PW		Polyolefins- Polyurethanes - Engineering Thermoplastics. PA, PP, PU, Polyesters.	M.P./S.R Viscosity Decomposition T. > 275°C
GC MPP Melamine Polyphosphate CAS n. 218768-84-4 PHYSICAL FORM: GR,PW		Polyurethanes - Engineering Thermoplastics. PA, Epoxy, PU, Polyesters.	M.P./S.R Viscosity Decomposition T. > 300°C ----- TGA: 1% @ 355°C 2% @ 370°C 5% @ 385°C
GC MP Melamine Phosphate CAS n. 41583-09-9 PHYSICAL FORM: GR, PW		Polyolefins- Polyurethanes - Engineering Thermoplastics. PA, Epoxy, PU, PP, Polyesters.	M.P./S.R Viscosity Decomposition T. > 300°C ----- TGA: 1% @ 215°C 2% @ 235°C 5% @ 260°C
GC MPF Melamine Pyrophosphate CAS n. 15541-60-3 PHYSICAL FORM: GR, PW		Polyolefins- Polyurethanes - Engineering Thermoplastics. PA, Epoxy Resins, PU, Polyesters, PP.	M.P./S.R Viscosity Decomposition T. > 300°C ----- TGA: 0,5% @ 300°C 5% @ 350°C
GC TPP Triphenyl Phosphate CAS n. 115-86-6 PHYSICAL FORM: FLAKES, PW		Engineering Thermoplastics. PC/ABS, PPO/HIPS, PVC, RUBBER, Epoxy Resin, Phenolic Resin, Acetalic Resin.	M.P./S.R Viscosity 47,5-49,5°C ----- TGA: 1% @ 198°C 5% @ 231°C 10% @ 247°C
GC BDP Bisphenol A bis(diphenylphosphate) CAS n. 5945-33-5 PHYSICAL FORM: LIQ		Polyurethanes - Engineering Thermoplastics. PC, PC/ABS, ABS, SAN, Polyesters, PPO, PU.	M.P./S.R Viscosity 120 cps a 80°C ----- TGA: 1% @ 255°C 5% @ 372°C 10% @ 398°C

PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS	M.P./S.R Viscosity ----- TGA
GC RDP GC RDP-L Reaction mass of 3-((diphenoxyphosphoryl)oxy)phenyl triphenyl 1,3-phenylene bis(phosphate) and tetraphenyl 1,3-phenylene bis(phosphate) EC n. 701-337-2 PHYSICAL FORM: LIQ		Polyurethanes - Engineering Thermoplastics. PC/ABS, PPO/HIPS, TPU, PU.	M.P./S.R Viscosity 500-800 cps a 80°C ----- TGA: 2% @ 290°C 5% @ 325°C 10% @ 360°C
GC TEP Triethyl Phosphate CAS n. 78-40-0 PHYSICAL FORM: LIQ		Polyurethanes. PU.	M.P./S.R Viscosity < 100 cps
GC HYPER TEP NEW PHYSICAL FORM: LIQ	Mixture	Polyurethanes.	M.P./S.R Viscosity <500 cps (@25°C)
GC FOS 65 Isopropylated Triaryl phosphate CAS n. 68937-41-7 PHYSICAL FORM: LIQ		Polyolefins - Engineering Thermoplastics. PVC, Phenolic, PU, Epoxy resins.	M.P./S.R Viscosity 64-76 cps ----- TGA: 1% @ 197°C 5% @ 217°C 10% @ 235°C
GC FOS 35 Isopropylated Triaryl phosphate CAS n. 68937-41-7 PHYSICAL FORM: LIQ		Polyurethanes - PVC - Epoxy resins - Vinyl polymers.	M.P./S.R Viscosity 42-50 cps
GC FOS 95 Isopropylated Triaryl phosphate CAS n. 68937-41-7 PHYSICAL FORM: LIQ		Polyurethanes - PVC - Epoxy resins - Vinyl polymers.	M.P./S.R Viscosity 95-114 cps
GC FOS 95 PLUS Isodecyl Diphenyl Phosphate NEW PHYSICAL FORM: LIQ		PC, PVC, PVA, CA, CAB, CN, EC, epoxy, phenolic resins, acrylic resins.	M.P./S.R Viscosity 20 - 30 cps
GC TCP Tricresyl Phosphate CAS n. 1330-78-5 PHYSICAL FORM: LIQ		Polyolefins. PE, PVC, Rubber, Wire&cables.	M.P./S.R Viscosity 55-70 cps

PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS	M.P./S.R Viscosity ----- TGA
GC DICUMENE 90 Dicumene CAS n. 1889-67-4 PHYSICAL FORM: PW		Polyolefins - Engineering Thermoplastics. FR synergist.	M.P./S.R Viscosity 100-110°C
NOFIA HM1100, HM9000, HM7000 & HM5000 Polyphosphonate CAS n. 68664-06-02 PHYSICAL FORM: GR, PW		PET - PTT - PBT - PLA - PC - TPU - TPEE.	M.P./S.R Viscosity Decomposition T. > 350°C
NOFIA CO6000 Polyphosphonate-co-carbonate CAS n. 77226-90-5 PHYSICAL FORM: GR		PC - PC blends.	
NOFIA OL1000 Phosphonate Oligomer CAS n. 68664-06-02 PHYSICAL FORM: GR		UP - Epoxy - Polyurethane and Polyurea.	
GC DOPO 9,10-Dihydro-9-oxa-10-phosphaphenanthrene 10-oxide CAS n. 35948-25-5 PHYSICAL FORM: PW, FLAKES		Engineering Thermoplastics. Epoxy, PU, PA, Polyesters. Reactive Flame Retardant.	M.P./S.R Viscosity 117-120°C
GC P LINK 3-(hydroxyphenylphosphinyl)propanoic acid CAS n. 14657-64-8 PHYSICAL FORM: PW		PE - PA. Reactive phosphorous flame retardants for PE, PA and Polyesters polymerization.	M.P./S.R Viscosity 158-162°C
GC HFR 693 Hexaphenoxycyclotriphosphazene CAS n. 1184-10-7 PHYSICAL FORM: PW		PC - PC/ABS - Polyesters. HF polymeric system for PC, PC/ABS and Polyesters.	M.P./S.R Viscosity 110-117°C
GC MAGNESIO IDROSSIDO Magnesium Hydroxide CAS n. 1309-42-8 PHYSICAL FORM: GR, PW, MB		PP - PE - PS - PA - PET.	M.P./S.R Viscosity 350°C ----- TGA: 1% @ 362°C 5% @ 388°C 10% @ 404°C

PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS	M.P./S.R Viscosity ----- TGA
GC ZnBO3 - 4 GC ZnBO3 - 8 Zinc Borate CAS n. 138265-88-0 PHYSICAL FORM: PW, COMPACTED		Polyolefins - Polyurethanes- Engineering Thermoplastics. Synergist suitable for PVC, Polyolefins, PA, Rubber. GC ZnBO3 - 8: especially suitable for films.	M.P./S.R Viscosity ----- 890°C ----- TGA: 1% @ 282°C 5% @ 388°C 10% @ 425°C
GC KSS Reaction mass of dipotassium 3,3'-sulphonylbis(benzenesulphonate) and potassium 3-(phenylsulphonyl) benzene sulphonate EC n. 915-932-1 PHYSICAL FORM: PW		Engineering Thermoplastics. Flame retardant suitable for transparent PC at very low dosage.	TGA: 1% @ 425°C 5% @ 452°C 10% @ 468°C
GC TRIOSSIDO DI ANTIMONIO Antimony Trioxide CAS n. 1309-64-4 PHYSICAL FORM: PW		Polyolefins - Polyurethanes - Engineering Thermoplastics. Synergist for brominated flame retardant suitable for plastics and textiles.	M.P./S.R Viscosity ----- 656°C
GC NATO Sodium Antimonate CAS n. 15432-85-6 PHYSICAL FORM: PW		Synergist for brominated flame retardant, low acidity, indicated for PC and Polyesters.	M.P./S.R Viscosity ----- Melting point: 600°C
GC FOS AL Aluminium phosphinate CAS n. 7784-22-7 PHYSICAL FORM: PW		Engineering polymers - TPU - PU - PBT - PET - TPE - PA + GF - Polyolefins. Non-halogenated flame retardant based on inorganic hypophosphite.	
GC FOSCA Calcium phosphinate CAS n. 7789-79-9 PHYSICAL FORM: PW		Polyolefins - Engineering polymers. Active phosphorous flame retardants.	

Please feel free to contact us for any other substance not mentioned in this list.

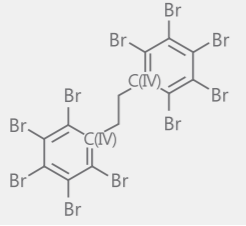
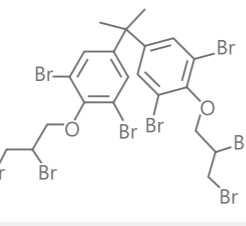
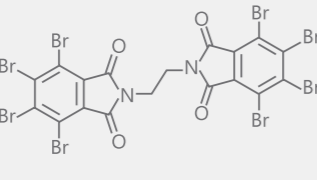
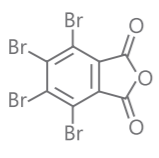
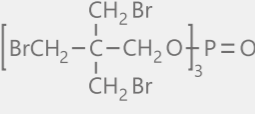
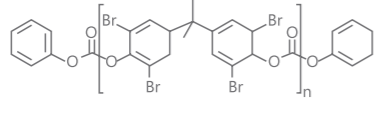
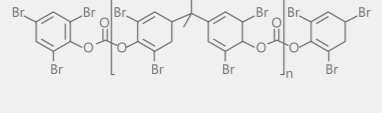
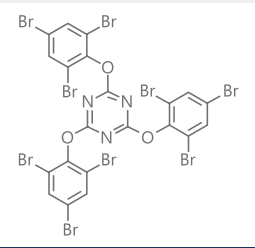
PRODUCT NAME	DESCRIPTION	M.P.
GC AT ZERO PA NEW PHYSICAL FORM: PW	GC AT ZERO PA is a mixture of phosphorus, nitrogen and Zn/Al components, developed to replace Antimony Trioxide in PA UL94 V0 compounds.	Melting point Min. 158°C
GC AT ZERO PVC NEW PHYSICAL FORM: PW	GC AT ZERO PVC is a mixture of phosphorus, nitrogen and Zn/Al components, developed to replace antimony trioxide in PVC compound and spreads.	Melting point Min. 158°C
GC PP FLAM V0 MP NEW PHYSICAL FORM: PW	GC PP FLAM V0 MP is a cost effective halogen free intumescent flame retardant blend. It is suitable for PP homopolymer and copolymer PP, also modified with elastomers, PE, EVA, elastomers and thermoplastic elastomers and olefins and PUR. This formulation is free of corrosion problems, because of the absence of halogenated components.	Melting point > 250°C
GC PP FLAME V0 + NEW PHYSICAL FORM: PW	It is a cost effective halogen free intumescent flame retardant blend, based on ammonium polyphosphate. The formulation is a combination of N/P molecules, well balanced, in order to obtain a perfect intumescent mechanism. GC PP FLAM V0 + has been formulated with synergist to reduce the final loading level.	Melting point > 250°C
GC HFFR 11G NEW PHYSICAL FORM: GR / MB	This additive offers excellent compatibility with the polymer matrix, strong resistance to extraction, and contributes to improved light and thermal stability.	Melting point 108 - 123°C

Please feel free to contact us for any other substance not mentioned in this list.

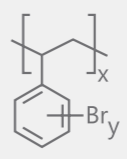
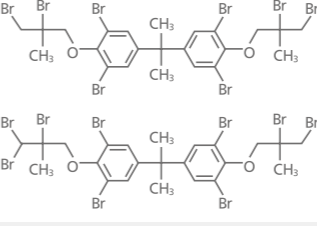
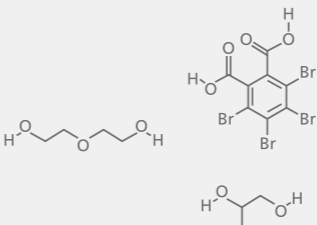
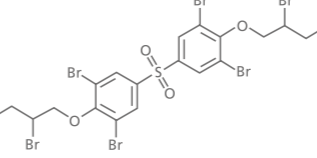
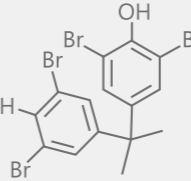
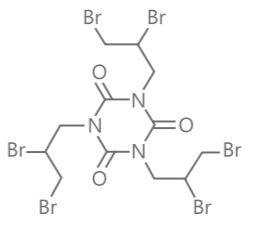
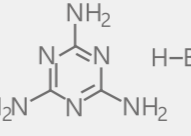
PRODUCT NAME	APPLICATIONS	DESCRIPTION
GC DRIPP HF 70 Low Halogen Content PHYSICAL FORM: PW	PP V2.	GC DRIPP HF 70 is very low halogen formulation for PP V2. Very low dosage, Br content in the compound can respect 900ppm limit.
ISODRIPP PP HF 70 <i>Masterbatch versions:</i> ISODRIPP PE HF 70 ISODRIPP UN HF 70-50 PHYSICAL FORM: MB	PP - PE.	Masterbatch version of GC DRIPP HF 70. Advantages: high thermal stability, low alteration of physical-chemical properties of the compound and excellent processability. The working mechanism is dripping with low smoke emission.
GC PP HF 200 Intumescent System HALOGEN FREE PHYSICAL FORM: PW, MB	PP VO - PE - TPR - TPU. 	Efficient halogen free intumescent blend. Reduced loading level, good dispersion.
GC PP HF 1000 Intumescent System HALOGEN FREE PHYSICAL FORM: PW	PP VO - PE - TRP - TPU. 	Efficient intumescent blend based on phosphorus and nitrogen.
GC PW VO PAP 12 PHYSICAL FORM: PW, COMPACTED	PA 6, PA 66. 	GC PW VO PAP12 is a halogen free flame retardant formulation based on light phosphorous working with different fire extinguishing mechanisms together, in order to provide the best performance/loading level results. GC PW VO PAP 12 does not affect colorability and has excellent temperature resistance. It is suitable for PA 6 and PA 66. Recommended dosage is 15-20%.
GC PW VO PAP 14 PHYSICAL FORM: PW, COMPACTED	PA 6, PA 66. 	GC PW VO PAP14 is a halogen free flame retardant formulation based on light phosphorous working with different fire extinguishing mechanisms together, in order to provide the best performance /loading level results. GC PW VO PAP 14 does not affect colorability and has excellent temperature resistance. It is suitable for PA 6 and PA 66. Recommended dosage is 15-20%.
GC PW VO PAP 40 ST PHYSICAL FORM: PW	PA 6, PA 66. 	GC PW VO PAP40 ST is a halogen free flame retardant formulation based on light phosphorous, working with different fire extinguishing mechanisms together, in order to provide the best performance/loading level results. GC PW VO PAP 40 ST does not affect colorability and has excellent temperature resistance. GC PW VO PAP 40 ST is suitable for PA 6 and PA 6.6. GC PW VO PAP 40 ST is the formulation that allows to have the best performance of all PAP solutions.
ISODRIPP PA MC25 45 HALOGEN FREE PHYSICAL FORM: GR, PW, MB, COMPACTED	PA. 	Concentrated masterbatch of melamine cyanurate on PA base.

PRODUCT NAME	APPLICATIONS	DESCRIPTION
MB PA P RED 50 Red phosphorous masterbatch PHYSICAL FORM: MB	Engineering Thermoplastics. PA, Polyesters. Red phosphorous masterbatch for PA.	CHEMICAL FORMULA: 
MB PP P RED 60 Red phosphorous masterbatch PHYSICAL FORM: MB	Polyolefins. PP, PE. Red phosphorous masterbatch for PP.	CHEMICAL FORMULA: 
MB PE P RED 70 Red phosphorous masterbatch PHYSICAL FORM: MB	Polyolefins. PP, PE. Red phosphorous masterbatch for PE.	CHEMICAL FORMULA: 
GC HFT PC 90 HALOGEN FREE PHYSICAL FORM: PW	PC VO Transparent. 	Halogen free blend based on new P3 products for low thickness PC, keeping transparency below in 1,6 mm.
MB PE TRIX 80 / 90 PHYSICAL FORM: MB	Polyolefins.	Masterbatch containing antimony trioxide, also on EVA base (MB EVA TRIX 80) .
GC PAPA LINK NEW PHYSICAL FORM: PW	Unfilled polyamide.	Reactive halogen free flame retardant for unfilled polyamide. Its formulation is perfectly balanced to reach UL 94 V0 at all thickness. It is recommended to replace melamine-based flame retardant.
GC PAP LINK 12 GC PAP LINK 14 GC PAP LINK 40 PHYSICAL FORM: PW, GR and NDB	30% glass fiber reinforced polyamide.	Reactive halogen free flame retardant for reinforced polyamide. Its formulation is perfectly balanced to reach UL 94 V0 at all thickness.
GC TIME PLUS 1 NEW PHYSICAL FORM: PW	PS - HIPS.	Fully halogen free solution for PS foam and HIPS. Suitable for fire tests like: UL94 V2, GW 960°C, Class E, M1.

Brominated Flame Retardants

PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS	M.P./S.R Viscosity ----- TGA
GC DPE 81 Decabromodiphenyl ethane1 CAS n. 84852-53-9 PHYSICAL FORM: GR, PW		Polyolefins - Engineering Thermoplastics. High efficiency, dioxine free, multi-function for PE, PP, HIPS, PA, PBT, EPOXY, PHE.	M.P./S.R Viscosity 350°C ----- TGA: 1% @ 332°C 5% @ 365°C 10% @ 378°C
GC BDDP 68 Tetrabromobisphenol A bis (2,3-dibromopropyl ether) CAS n. 21850-44-2 PHYSICAL FORM: GR, PW		Polyolefins - Engineering Thermoplastics. Good thermal stability, high efficiency PP, HIPS, ABS.	M.P./S.R Viscosity 113-117°C ----- TGA: 1% @ 299°C 5% @ 312°C 10% @ 321°C
GC BT 67 Ethylenbistetra bromo Phthalimide CAS n. 32588-76-4 PHYSICAL FORM: GR, PW		Polyolefins - Engineering Thermoplastics. HIPS, PBT, PET, TPR, good thermal stability, UV stability, no blooming, excellent wet electrical properties.	M.P./S.R Viscosity 460°C ----- TGA: 1% @ 336 °C 5% @ 417°C 10% @ 430°C
GC PHT Tetrabromophthalic Anhydride CAS n. 632-79-1 PHYSICAL FORM: PW		Polyurethanes - Engineering Thermoplastics. Rigid PU, Epoxy, PS, PHE, high fr efficiency.	M.P./S.R Viscosity 280°C ----- TGA: 1% @ 202 °C 5% @ 228°C 10% @ 240°C
GC FR TRI 70 Tris(tribromoneopentyl)phosphate CAS n. 19186-97-1 PHYSICAL FORM: GR, PW		Polyolefins - Engineering Thermoplastics. PP, HIPS, ABS, XPS, alloy, UV and light stability, non blooming.	M.P./S.R Viscosity 181°C ----- TGA: 1% @ 332°C 5% @ 365°C 10% @ 378°C
GC B 52 Phenoxy-terminated carbonate oligomer of tetrabromophenol A CAS n. 94334-64-2 PHYSICAL FORM: PW		Engineering Thermoplastics. PET, PBT, PC, ABS, PC / ABS, thermal and UV stability, excellent electrical properties.	M.P./S.R Viscosity 190-210°C ----- TGA: 1% @ 376°C 5% @ 412°C 10% @ 426°C
GC B 58 Tribromylphenyl terminated carbonate oligomer of tetrabromobisphenol A CAS n. 71342-77-3 PHYSICAL FORM: PW		Engineering Thermoplastics. PET, PBT, PC, ABS, PC / ABS, thermal and UV stability, excellent electrical properties.	M.P./S.R Viscosity 210-230°C ----- TGA: 1% @ 356°C 5% @ 407°C 10% @ 425°C
GC FR245 66 2,4,6-tris(2,4,6-tribromophenoxy)-1,3,5-triazine CAS n. 25713-60-4 PHYSICAL FORM: GR, PW		Engineering Thermoplastics. HIPS, ABS, good flow, good impact, good UV and thermal stability, non-blooming.	M.P./S.R Viscosity 230°C ----- TGA: 1% @ 351°C 5% @ 385°C 10% @ 400°C

Brominated Flame Retardants

PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS	M.P./S.R Viscosity ----- TGA
GC BPS 67, GC BPS 310 Brominated polystyrene CAS n. 88497-56-7 PHYSICAL FORM: GR		Engineering Thermoplastics. PA, PBT, PET, good CTI, good thermal stability, non-blooming.	M.P./S.R Viscosity 265-320°C ----- TGA: 2% @ 340°C 5% @ 375°C 10% @ 384°C
GC BDMP 66 SF Reaction mass of 1,1'-(isopropylidene)bis[3,5-dibromo-4-(2,3-dibromo-2-methylpropoxy)benzene] and 1,3-dibromo-2-(2,3-dibromo-2-methylpropoxy)-5-[2-[3,5-dibromo-4-(2,3,3-tribromo-2-methylpropoxy)phenyl]propan-2-yl]benzene EC n. 944-461-4 PHYSICAL FORM: PW		EPS - XPS. Good FR efficiency.	M.P./S.R Viscosity 113°C
GC PHT DILO Reaction products of tetrabromophthalic anhydride with 2,2'-oxydiethanol and methyloxirane CAS n. 77098-07-8 PHYSICAL FORM: LIQ		Rigid Polyurethane Foam, Urethane Elastomers and Coatings with high bromine content.	M.P./S.R Viscosity Viscosity @25°C, CP DILO HV: 70000-120000 DILO MV: 30000-70000 DILO LV: 15000 – 30000
GC BDDP 65 S Bis[3,5-dibromo-4-(2,3-dibromopropoxy)phenyl] sulphone CAS n. 42757-55-1 PHYSICAL FORM: PW		PP - PE - PS - ABS - Rubber. Flame retardant with white color, outstanding thermal and UV stability, non blooming, excellent wet electrical properties.	M.P./S.R Viscosity 110°C ----- TGA: 2% @ 262°C 5% @ 295°C 10% @ 306°C
GC TBBPA 59 Tetrabromobisphenol A CAS n. 79-94-7 PHYSICAL FORM: PW		Engineering Thermoplastics. Epoxy resin, good flow and compatibility, no blooming.	M.P./S.R Viscosity 180°C ----- TGA: 1% @ 227°C 5% @ 254°C 10% @ 270°C
GC D3BO 65 Tris (2,3-dibromopropyl) isocyanurate CAS n. 52434-90-9 PHYSICAL FORM: PW		Polyolefins - Engineering Thermoplastics. PP, HIPS, ABS. Good thermal stability, high efficiency.	M.P./S.R Viscosity 105-115°C ----- TGA: 1% @ 110°C 5% @ 172°C 10% @ 208°C
GC MHBR Melamine Hydrobromide CAS n. 29305-12-2 PHYSICAL FORM: PW		Effective flame retardant for PP V2 with low halogen content requirements.	
GC LH TIME PLUS * Low halogen content PHYSICAL FORM: PW - Also available: compacted	Mixture.	GC LH TIME PLUS is a flame retardant formulation, with low content of bromine, developed for polystyrene foams application. Recommended dosage for GC LH TIME PLUS is 1-5%. These dosages allow to obtain a compound with bromine content lower than 0,2%.	

Brominated Flame Retardants

PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS	M.P./S.R Viscosity ----- TGA
MB PS LH TIME PLUS 30 MB HIPS LH TIME PLUS 30 * Low halogen content PHYSICAL FORM: MB	Mixture.	These additives are flame-retardant masterbatch, with a very low halogen content, which allows to overcome fire test with <900 ppm of bromine. They have been developed for polystyrene foams and HIPS applications.	

Halogenated Flame Retardant Formulations

PRODUCT NAME	APPLICATIONS	DESCRIPTION
MB SAN / EVA DETO 41 PHYSICAL FORM: MB	SAN - ABS - PC/ABS V0.	MB SAN DETO 41 is a masterbatch in a matrix of SAN or EVA that is heat-stable and synergized with a high content of bromine, making it the perfect candidate for processing at high temperature and stress conditions.
MB PE DPE 90 PHYSICAL FORM: MB	Polyolefins.	MB PE DPE 90 is an extremely thermal stable, halogenated and synergized masterbatch, with high bromine content, which makes it the perfect candidate for high temperature and stressful processes.
MB PE BATO 21 PHYSICAL FORM: GR	PE.	It has a high resistance to UV radiation and excellent thermal stability. MB PE BATO 21 is mainly used in polyolefins, high-impact polystyrene (HIPS), thermoplastic polyesters (PBT, PET), polycarbonate and elastomers.

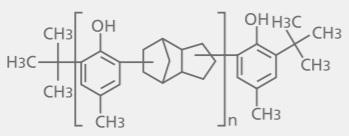
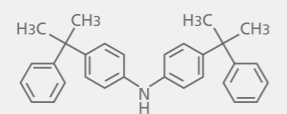
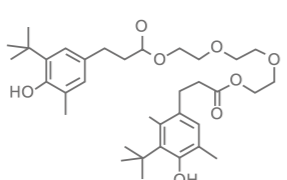
Please feel free to contact us for any other substance not mentioned in this list.

Antioxidants

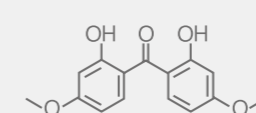
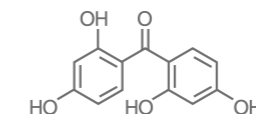
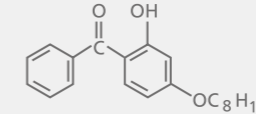
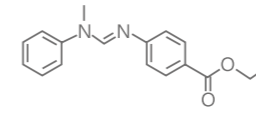
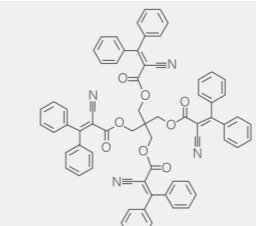
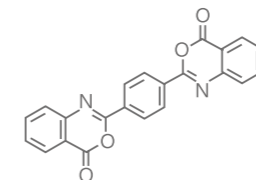
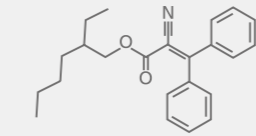
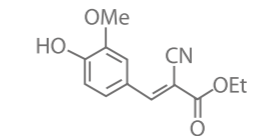
PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS	M.P./S.R Viscosity ----- TGA
GC AOX 1010 Tetrakis(methylen(3,5-di-tert-butyl-4-hydroxycinnamyl) methane) CAS n. 6683-19-8 PHYSICAL FORM: GR, PW		Polyolefins - Engineering Thermoplastics. Phenolic antioxidant, suitable for PA, PO and ABS.	M.P./S.R Viscosity 110-125°C ----- TGA: 5% @ 350°C 10% @ 365°C 25% @ 387°C
GC AOX 1024 1,2-bis (3,5-di-tert-butyl-4-hydroxyhydrocinnamoyl) hydrazine CAS n. 32687-78-8 PHYSICAL FORM: GR, PW		Polyolefins - Engineering Thermoplastics. Phenolic chelating antioxidant and metal deactivator, suitable for PO, PA, Elastomers.	M.P./S.R Viscosity 221-232°C ----- TGA: 5% @ 284°C 10% @ 295°C 50% @ 330°C
GC AOX 1076 Octadecyl 3-(3',5'-di-tert-butyl-4'-hydroxyphenyl)propionate CAS n. 2082-79-3 PHYSICAL FORM: GR, PW		PVC - Engineering Thermoplastics. Excellent stabilizer for polyolefins, impact modified styrenics, block co-polymers, elastomers, adhesives, PVC and polyurethanes.	M.P./S.R Viscosity 50-55°C ----- TGA: 5% @ 260°C 10% @ 278°C 25% @ 302°C
GC AOX 3114 1,3,5-tris(3,5-di-tert-butyl-4-hydroxybenzyl)-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione CAS n. 27676-62-6 PHYSICAL FORM: GR, PW		Styrenics and Polyolefins (Fibers). Phenolic antioxidant with low extraction properties. Suitable for fibers and PO.	M.P./S.R Viscosity 218-223°C ----- TGA: 5% @ 305°C 10% @ 319°C 25% @ 337°C
GC AOX 330 1,3,5-Trimethyl-2,4,6-tris-(3,5-di-tert-butyl-4-hydroxybenzyl)benzene CAS n. 1709-70-2 PHYSICAL FORM: PW, FLAKES		Adhesives - Elastomers - PA - Polyolefins - Polyesters - PS - PUR. Phenolic antioxidant with low extraction properties.	M.P./S.R Viscosity 240-250°C ----- TGA: 5% @ 316°C 10% @ 350°C 25% @ 385°C
GC AOX 245 Triethyleneglycol-bis[3-(3-tert-butyl-4-hydroxy-5-methylphenyl)propionate] CAS n. 36443-68-2 PHYSICAL FORM: PW		PVC - Polyurethanes - Engineering Thermoplastics. Effective in styrene polymers, particularly impact-modified polystyrenes, ABS, MBS, SB as well as in POM homo- and co-polymers. It is also very useful for the stabilization of polyurethanes, polyamides, thermoplastic polyesters, PVC and other polymers.	M.P./S.R Viscosity 76-80°C ----- TGA: 5% @ 297°C 10% @ 312°C 25% @ 332°C
GC AOX 1098 N,N'-hexamethylenebis[3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionamide] CAS n. 23128-74-7 PHYSICAL FORM: GR, PW		PA - PU - Elastomers. Excellent antioxidant for polyamide fibers, molded articles and films. It can be added prior to polymerization, to protect polymer color properties during manufacturing, shipping or thermal fixation.	M.P./S.R Viscosity 156-162°C ----- TGA: 5% @ 330°C 10% @ 342°C 25% @ 375°C
GC AOX 1790 1,3,5-tris(4-tert-butyl-3-hydroxy-2,6-dimethylbenzyl)-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione CAS n. 40601-76-1 PHYSICAL FORM: PW		Polyurethanes- Polyolefins - Engineering Thermoplastics. PU, PA, PET, ABS, Polyolefins.	M.P./S.R Viscosity 159-163°C ----- TGA: 1% @ 202°C 5% @ 333°C 10% @ 349°C

PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS	M.P./S.R Viscosity ----- TGA
GC AOX 1315 Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, C13,15-branched and linear alkyl esters		PU foam.	M.P. 56°C
CAS n. 171090-93-0 PHYSICAL FORM: LIQ			
GC AOX 1135 Reaction mass of isomers of: C7-9-alkyl 3-(3,5-di-tert-butyl-4-hydroxyphenyl) propionate		Polyurethanes. PUR, Polyol.	TGA: 1% @ 160°C 10% @ 200°C
CAS n. 144429-84-5 PHYSICAL FORM: LIQ			
GC AOX 697 2,2'-Oxalyldiamidobis[ethyl-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate]		Polyurethanes - Polyolefins- Engineering Thermoplastics. Phenolic chelating antioxidant, suitable for PO, PU, PA, ABS.	M.P. 174-180°C ----- TGA: 10% @ 326°C 20% @ 338°C 30% @ 345°C
CAS n. 70331-94-1 PHYSICAL FORM: GR, PW			
GC AOX 5057 Benzenamine, N-phenyl-, reaction products with 2, 4, 4-trimethylpentene		Polyolefins - Polyurethanes. EVA, PUR, Polyol.	Viscosity 190-500 (@40 °C)
CAS n. 68411-46-1 PHYSICAL FORM: LIQ			
GC AOX 1726 4,6-Bis(Dodecylthiomethyl)-o-cresol		Polyolefins - Polyurethanes. SBS, SIS, PUR.	M.P. 28°C
CAS n. 110675-26-8 PHYSICAL FORM: SOL - LIQ			
GC AOX 1520 4,6-Bis[(Octylthio)methyl]-o-cresol		Elastomers - Silant Adhesives - Lubricants - Polyolefins -Polyurethanes. BR, NBR, SBR, SBS.	M.P. About 14°C
CAS n. 110553-27-0 PHYSICAL FORM: LIQ			
GC AOX 565 2,6-Di-tert-butyl-4-(4,6-bis(octylthio)-1,3,5-triazin-2-ylamino)phenol		Adhesives and Elastomers. Elastomers and styrenic block co-polymers such as SBS and SIS. It also used in adhesives, EPDM, ABS, HIPS, PA and Polyolefins.	M.P. 91-96°C ----- TGA: 1% @ 268°C 10% @ 28°C
CAS n. 991-84-4 PHYSICAL FORM: GR, PW			
GC AOX DSTP Dioctadecyl 3-3'-thiodipropionate		Polyolefins - Engineering Thermoplastics. Thiosynergist antioxidant, suitable for PA, PO, PET and ABS.	M.P. 63-68°C
CAS n. 693-36-7 PHYSICAL FORM: GR, PW			

PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS	M.P./S.R Viscosity ----- TGA
GC AOX DLTP Di-lauryl-3,3'-thiodipropionate		Polyolefins - Engineering Thermoplastics. Thiosynergist antioxidant, suitable for PA, PO, Polyester and ABS.	M.P. 39-41°C
CAS n. 123-28-4 PHYSICAL FORM: GR, PW			
GC AOX DTDTP Esterification products of 3,3'-thiodipropionic acid and C13-(branched) alcohols		ABS PP PE and PVC, excellent compatibility with resin. Liquid secondary stabilizer and antioxidant. GC AOX DTDTP is very efficient used in combination with phenolic antioxidant. GC AOX DTDTP is soluble in most common aprotic organic solvents but it is insoluble in water.	M.P. -24°C
EC n. 955-320-1 PHYSICAL FORM: LIQ	R=C ₁₂ H ₂₅ = Branched aliphatic chain		
GC AOX 412S Pentaerythrityl tetrakis (3-laurylthiopropionate)		Polyolefins - Engineering Thermoplastics. Thiosynergist antioxidant suitable for ABS, BR, PC, PE, PP, PS.	M.P. 46-52°C
CAS n. 29598-76-3 PHYSICAL FORM: GR, PW			
GC AOX 168 Tris(2,4-di-tert-butylphenyl)phosphite		PVC - Polyolefins - Engineering Thermoplastics. Organophosphite antioxidant suitable for use in numerous polymers such as polyolefins, polycarbonate, ABS and polyesters.	M.P. 183-187°C ----- TGA: 5% @ 239°C 10% @ 250°C 25% @ 272°C
CAS n. 31570-04-4 PHYSICAL FORM: GR, PW			
GC AOX 626 Bis (2,4-Di-T-Butylphenyl) Pentaerythritol Diphosphite		PVC - Polyolefins - Engineering Thermoplastics. Phosphite ester antioxidant suitable for PE, PP, PS, PA, PC and ABS.	M.P. 170-180°C
CAS n. 26741-53-7 PHYSICAL FORM: GR, PW			
GC AOX P PEP-36 Bis(2,6-di-ter-butyl-4-methylphenyl)-pentaerythritol diphosphite		ABS - Engeneering plastics Polyolefins - PS. Organophosphite antioxidant with excellent process stability and colour protection at high temperatures.	M.P. 235-240°C
CAS n. 80693-00-1 PHYSICAL FORM: PW			
GC AOX 3301 Reaction mass : Phosphorous trichloride, reaction products with 1,1'-biphenyl and 2,4-bis(1,1-dimethylethyl)phenol		Polyolefins - styrenic polymers (ABS / HIPS) - engineering plastics (PBT, PC, PET, ABS; PA).	M.P. 85-110°C
CAS n. 119345-01-6 PHYSICAL FORM: PW			
GC AOX 300		PE - PP - ABS - PVC - EPDM - Rubbers.	M.P. 160-164°C
CAS n. 96-69-5 PHYSICAL FORM: PW			

PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS	M.P./S.R Viscosity ----- TGA
GC AOX L CAS n. 68610-51-5 PHYSICAL FORM: PW		Natural rubber and latex - SBR lattices - ABS - NBR - BR - SBS - SIS.	M.P. 115°C
GX AOX BLW 70 CAS n. 68412-48-6 PHYSICAL FORM: PW	Mixture.	Natural rubber - Synthetic rubber.	
GC AOX 445 CAS n. 10081-67-1 PHYSICAL FORM: WHITE CRYSTAL		Polyolefins - Styrenics - Polyols - Hot melt adhesives - Lubricants - Polyamides.	M.P. 95-100°C
GC AOX 245 CAS n. 36443-68-2 PHYSICAL FORM: PW		Styrenic, particularly impact-modified polystyrenes, ABS, MBS, SB as well as POM homo- and co-polymers.	M.P. 76-81°C

Please feel free to contact us for any other substance not mentioned in this list.

PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS	M.P./S.R Viscosity ----- TGA
GC UV-3049 2,2-Dihydroxy-4,4-dimethoxy benzophenone CAS n. 131-54-4 PHYSICAL FORM: PW		Engineering Thermoplastics - Coatings. Efficient UV absorber for polyester film, which it protects from premature damage, particularly under severe exposure conditions.	M.P. 134°C
GC UV-3050 2,2',4,4'-Tetrahydroxybenzophenone CAS n. 131-55-5 PHYSICAL FORM: PW		Polyurethanes - Engineering Thermoplastics. UV absorber very suitable for applications in which an optimum filter effect up to the boundary with visible light is desired. It is used in linear polyesters or optical articles, PU systems and Alkyd resins.	M.P. 195-203°C
GC CHIM 81 Octabenzene CAS n. 1843-05-6 PHYSICAL FORM: PW, FLAKES		Polyolefines – PVC - Styrenics. Benzophenone based UVA, suitable for PO, PS, PVC, elastomers. Particularly efficient in combination with HALS.	M.P. 47-50°C ----- TGA: 5% @ 220°C 10% @ 233°C 25% @ 255°C
GC UV-1 Ethyl 4-[[[(methylphenylamino)methylene] amino]benzoate CAS n. 57834-33-0 PHYSICAL FORM: LIQ		Polyurethanes. UV absorber especially applicable in PU system such as microcellular and integral skin foam, rigid, semirigid and flexible PU foam. Also applicable in some adhesives, elastomers and sealants.	M.P. 2000 – 3000 cps
GC UV-3030 2-Propenoic acid, 2-cyano-3,3-diphenyl-, 2,2-bis(2-cyano-1-oxo-3,3-diphenyl-2-propenyl)oxymethyl-1,3-propanediyl ester CAS n. 178671-58-4 PHYSICAL FORM: PW, FLAKES		Engineering Thermoplastics. UV absorber provides completely transparent polycarbonate parts with excellent protection from yellowing, while maintaining the clarity and natural colour of PC, ABS, ASA.	M.P. 175-178°C ----- TGA: 1% @ 250°C 2% @ 350°C
GC UV-3638 2,2-(1,4-phenylene)bis((4H-3,1-benzoxazine-4-one) CAS n. 18600-59-4 PHYSICAL FORM: PW		Engineering Thermoplastics. UV absorber for engineering plastics, especially for PET, PBT.	M.P. 310°C
GC UV-3039 2-Ethylhexyl 2-cyano-3,3-diphenylpropenoate CAS n. 6197-30-4 PHYSICAL FORM: LIQ		Engineering Thermoplastics. Liquid cyanoacrylate UV absorber particularly suitable for the stabilization of PVC-p and PVC plastisols. It can also be used in PUR, polyesters and PMMA.	M.P. -8°C
GC UV-80 Ethyl 2-cyano-3-(4-hydroxy-3-methoxyphenyl)prop-2-enoate CAS n. 13373-29-0 PHYSICAL FORM: GR, PW		Polyolefins - Coatings - Engineering thermoplastics. UV absorber with UV absorption at 380-400nm, especially used in sunglasses lenses resins of TAC, PC, PMMA, also used in adhesives, paint and solvent-based systems.	M.P. 110-113°C

UV Absorbers / Light Stabilizers

PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS	M.P./S.R Viscosity ----- TGA
GC UV-1164 2-[4,6-Bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)phenol		Polyolefins Engineering Thermoplastics. Triazine based UVA particularly suitable for olefin polymers in thin and thick applications. Applicable in PA, PET, PBT, ABS, PMMA and other engineering thermoplastics.	M.P. 88-92°C
CAS n. 2725-22-6 PHYSICAL FORM: GR, PW			
GC UV-1577 2-[4,6-Diphenyl-1,3,5-triazin-2-yl]-5-[(hexyl)oxy]-phenol		Engineering Thermoplastics. Triazine based UVA particularly suitable for PC and PET. Applicable in polyalkene terephthalates and naphthalates, linear and branched PC, modified polyphenylene ether compounds, and various high performance plastics. Can also be used in polymer blends & alloys, such as PC/ABS, PC/PBT, PPE/IPS, PPE/PA.	M.P. 147-151°C
CAS n. 147315-50-2 PHYSICAL FORM: GR, PW			
GC UV-1579 2-(2-Hydroxy-4-methoxyphenyl)-4,6-diphenyl-1,3,5-triazine		Engineering Thermoplastics. UV absorber mainly used in PET fiber (Terylene). It can both protect PET fiber itself and dyestuff. It is recommended to be used in dip-dyeing of PET fiber, especially in processing of heat treating.	M.P. 206-210°C
CAS n. 106556-36-9 PHYSICAL FORM: GR, PW			
GC NIQ 84 A 2,2'-Thiobis(4-tert-octylphenolato)-n-butylamine nickel(II)		Polyolefins. Nickel Quencher, UV stabilizer developed for outdoor applications in polyolefins.	M.P. 245-280°C
CAS n. 14516-71-3 PHYSICAL FORM: PW			
GC UV-312 N-(2-ethoxyphenyl)-N'-(2-ethylphenyl)oxamide		Polyamides - PVC - PU. Oxanilide UV absorber. Particularly resistant to discoloration induced by metal ions, e.g. from polymerisation catalyst residues, fillers and other ingredients in plastics. Highly effective light stabilizer for a variety of plastics and other organic substrates including Polyamides, PVC and PVC plastisol, unsaturated polyesters.	M.P. 125-130°C
CAS n. 23949-66-8 PHYSICAL FORM: GR, PW			
GC UV-360 2,2'-Methylenebis(6-(2H-benzotriazol-2-yl)-4-(1,1,3,3-tetramethylbutyl)phenol)		Polyolefins - Polyurethanes - Engineering Thermoplastics. UV absorber containing benzotriazole, suitable for POM, PMMA, PC, PA, PBT, PET, Elastomers.	M.P. 195°C ----- TGA: 1% @ 333°C 2% @ 350°C
CAS n. 103597-45-1 PHYSICAL FORM: PW			
GC UV-329 2-(2H-benzotriazole-2-yl)-4-(1,1,3,3-tetramethylbutyl)phenol		Engineering Thermoplastics. UV absorber belonging to the benzotriazole class suitable for a variety of plastics and other organic substrates.	M.P. 102-108°C
CAS n. 3147-75-9 PHYSICAL FORM: GR, PW			
GC UV-234 2-[2-hydroxy-3,5-di(1,1-dimethylbenzyl)phenyl]-2H-benzotriazole		Polyolefins - Engineering Thermoplastics. UV absorber containing benzotriazole, suitable for PS, PET, TPE, PA, POM, PC.	M.P. 137-141°C ----- TGA: 1% @ 264°C 2% @ 280°C 5% @ 302°C
CAS n. 70321-86-7 PHYSICAL FORM: PW			

UV Absorbers / Light Stabilizers

PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS	M.P./S.R Viscosity ----- TGA
GC UV-P 2-(2H-benzotriazol-2-yl)-p-cresol		UV absorber of the benzotriazole class suitable for styrene homopolymers and copolymers, engineering plastics such as polyesters and acrylic resins, polyvinyl chloride and other polymers containing halogens and copolymers (such as vinylidene), acetals and cellulose esters.	M.P. 128-132°C ----- TGA: 5% @ 163°C 10% @ 178°C 50% @ 197°C
CAS n. 2440-22-4 PHYSICAL FORM: PW			
GC UV-1130 A mixture of: α-3-(3-(2H-benzotriazol-2-yl)-5-tert-butyl-4-hydroxyphenyl)propionyl-ω-hydroxypoly(oxyethylene); α-3-(3-(2H-benzotriazol-2-yl)-5-tert-butyl-4-hydroxyphenyl)propionyl-ω-3-(3-(2H-benzotriazol-2-yl)-5-tert-butyl-4-hydroxyphenyl)propionylpoly(oxyethylene)		Coatings. A liquid benzotriazole-based UV absorber for coatings, printing and packaging, adhesives and sealants. It is universally applicable in solvent and water-based coatings including UV-curable systems.	Viscosity 7250-7550 cps
CAS n. 3896-11-5 PHYSICAL FORM: GR, PW			
GC UV-326 2-(5-Chloro-2H-benzotriazol-2-yl)-6-(1,1-dimethylethyl)-4-methylphenol		Suitable for polymers processed at high temperatures such as polycarbonates, polyalkylene terephthalates, polyacetals, polyamides, polyphenylene sulfide, polyphenylene oxide, aromatic copolymers, thermoplastic polyurethane and polyurethane fibers, as well as for polyvinylchloride, styrene homo- and copolymers.	M.P./S.R Viscosity 137-142°C ----- TGA: 5% @ 202°C 10% @ 205°C 25% @ 236°C
CAS n. 3896-11-5 PHYSICAL FORM: GR, PW			
GC UV 571 A mixture of: isomers of 2-(2H-benzotriazol-2-yl)-4-methyl-(n)-dodecylphenol; isomers of 2-(2H-benzotriazol-2-yl)-4-methyl-(n)-tetracosylphenol; isomers of 2-(2H-benzotriazol-2-yl)-4-methyl-5,6-didodecylphenol. n=5 or 6		General purpose, liquid additive. It preserves the original appearance and physical integrity of molded articles, films, sheets and fibers during outdoor weathering.	M.P. -56°C
CAS n. 3896-11-5 PHYSICAL FORM: LIQ			

Please feel free to contact us for any other substance not mentioned in this list.

PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS	M.P./S.R Viscosity ----- TGA
GC UV LS 622 Butanedioic acid, dimethyl ester, polymer with 4-hydroxy-2,2,6,6-tetramethyl-1-piperidine ethanol		Polyolefins - Engineering Thermoplastics. Polymeric hindered amine light stabilizer. Suitable for Polyolefins, unsaturated Polyesters, Acrylics, Styrene, vinyl Polymers and Polyurethanes, including Plastisol, Elastomers, Adhesives and Sealants.	M.P. 50-70°C ----- TGA: 0,1% @ 200°C 0,4% @ 250°C 1,1% @ 275°C
CAS n. 65447-77-0 PHYSICAL FORM: GR, PW			
GC UV LS 944 Poly [[6-[(1,1,3,3-tetramethylbutyl)amino]-s-triazine-2,4-diy]]-[[2,2,6,6-tetramethyl-4-piperidyl]imino]-hexamethylene-[[2,2,6,6-tetramethyl-4-piperidyl]imino]]		Polyolefins - Polyurethanes - Engineering Thermoplastics. Oligomeric, sterically hindered amine light stabilizer, particularly suitable for the protection of polyolefins, including co-polymers and blends of polypropylene with elastomers. Excellent performance in the stabilization of thin articles such as fibers, tapes and films. Suitable for EVA, POM, PU, PVC, XPE.	M.P. 100-135°C ----- TGA: 0,2% @ 275°C 1,0% @ 300°C 3,7% @ 325°C
CAS n. 71878-19-8 PHYSICAL FORM: GR, PW			
GC UV HALS 9449 Poly[[6-[(1,1,3,3-tetramethylbutyl)amino]-1,3,5-triazine-2,4-diy]]-[[2,2,6,6-tetramethyl-4-piperidyl]imino]-1,6-hexandiy]]-[[2,2,6,6-tetramethyl-4-piperidyl]imino]]		Polyolefins. Oligomeric, sterically hindered amine light stabilizer particularly suitable for the protection of polyolefins. It withstand well manufacturing processes at high temperatures.	M.P. 275-300°C
CAS n. 86168-95-8 PHYSICAL FORM: PW			
GC UV LS 3346 1,6-Hexanediamine, N,N'-bis(2,2,6,6-tetramethyl-4-piperidinyl)-, polymer with 2,4-dichloro-6-(4-morpholinyl)-1,3,5-triazine		Polyolefins - Polyurethanes - Engineering Thermoplastics. Hindered amine light stabilizer with broad compatibility. With both HALS and triazine function group, especially applicable in PE and PP agricultural film, PP fiber, molded polyolefin application. It can be also used in PE/PP film and tape, injection & rotational molding, POM, PA, ASA, PBT, ABS, HIPS, PMMA and PU.	M.P./S.R Viscosity 100-125°C ----- TGA: 10% @ 340°C
CAS n. 82451-48-7 PHYSICAL FORM: GR			
GC UV LS 119 HALS 119-88% CAS n. 106990-43-6 HALS 622-12% CAS n. 65447-77-0		PP - PE - blends with EVA - PE - EEA - Polyolefins - Elastomers.	M.P. 115-150°C
PHYSICAL FORM: GR			
GC UV LS 119 P 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		Elastomers - Polyolefins. Oligomeric sterically hindered amine light stabilizer. It can be used in all Polyolefins. particularly effective in Polypropylene, Polyethylene, -olefin copolymers, and blends with EPR, ERR, PE, EVA, EAA, EVOH and filled PP.	M.P. 115-150°C
CAS n. 106990-43-6 PHYSICAL FORM: GR			
GC UV LS 3529 1,6-Hexanediamine, N,N'-bis(2,2,6,6-tetramethyl-4-piperidinyl)-, polymers with morpholine-2,4,6-trichloro-1,3,5-triazine reaction products, methylated		Polyolefins - Engineering Thermoplastics. HALS used in PE and PP agricultural films, artificial turf, injection&rotational molding. PP fiber, POM, PA, PBT, ASA, ABS, HIPS, Rigid & flexible PVC, PMMA and PUR.	M.P. 95-120°C ----- TGA: 10% @ 350°C
CAS n. 193098-40-7 PHYSICAL FORM: GR			
GC UV LS 2020 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		Polyolefins - cross-linked Polyethylene Olefin copolymers such EVA. Oligomeric sterically hindered amine light stabilizer. Highly effective light stabilizer for Polyolefins, olefin copolymers such as EVA as well as blends of Polypropylene with elastomers. Suitable for in Polyacetals, Polyamides, flexible and rigid PVC, PVC blends, Polyurethanes.	M.P. 120-150°C
CAS n. 192268-64-7 PHYSICAL FORM: GR			

PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS	M.P./S.R Viscosity ----- TGA
GC UV LS 770 Bis(2,2,6,6-tetramethyl-4-piperidyl) sebacate		Polyolefins - Engineering Thermoplastics. Low Molecular weight hindered amine light stabilizer. Suitable for Polyolefins, Polystyrene and styrenic based copolymers, PVC, Polyurethane but also engineering Plastics.	M.P. 81-85°C ----- TGA: 1% @ 203°C 5% @ 221°C 10% @ 242°C
CAS n. 52829-07-9 PHYSICAL FORM: GR, PW			
GC UV-4050H N,N'-Bis(2,2,6,6-tetramethyl-4-piperidyl)-N,N'-diformylhexamethylenediamine		Polyolefins - Engineering Thermoplastics. Light stabilizer used in polyolefins, ABS and nylons. It is highly compatible with pigments.	M.P. 155-158°C
CAS n. 124172-53-8 PHYSICAL FORM: GR			
GC UV LS 292 Reaction mass of bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate and methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate		Elastomers - Sealant/Adhesives - Coatings. Low Molecular weight hindered amine light stabilizer. Applicable in wide range of polymers and applications : Polyurethanes, Sealants, Adhesives, Elastomers, unsaturated Polyesters, Acrylics, vinyl polymers (PVB,PVC), Styrene homo and copolymers, liquid color concentrates, and other organic substrates.	Viscosity <500 cps
CAS n. 1065336-91-5 PHYSICAL FORM: LIQ			
GC UV LS 123 Bis-(1-octyloxy-2,2,6,6-tetramethyl-4-piperidinyl) sebacate		Coatings. HALS, especially used in automotive, industrial coatings/decorative paints and wood stains or varnishes.	M.P. <30°C
CAS n. 129757-67-1 PHYSICAL FORM: LIQ			

Please feel free to contact us for any other substance not mentioned in this list.

PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS	M.P./S.R Viscosity ----- TGA
GC STEARATO DI BARIO Fatty acids, C16-18, barium salts		Drying lubricants and dusting agents for Rubbers.	M.P. >200°C
CAS n. 91002-07-2 PHYSICAL FORM: PW, FLAKES			
GC STEARATO DI ZINCO Fatty acids, C16-18, zinc salts		Stabilization and lubricant of PVC compounds, it is used in combination with calcium or other metal stearates to form primary stabilizers. Employed also as an acid acceptor and release and anti-blocking agent.	M.P. 120°C
CAS n. 91051-01-3 PHYSICAL FORM: PW			
GC STEARATO DI CALCIO Fatty acids, C16-18, calcium salts		It is an acid scavenger, release agent and lubricant in plastics industry, water repellent and anti-compacting agent. Compared to waxes, it has a relatively high softening point, and, consequently, do not become greasy at higher temperatures. Stabilization and lubricant of PVC compounds, it is used in combination with other metal stearates to form primary stabilizers. Employed also as an acid acceptor and release and anti-blocking agent.	M.P. 140-160°C
CAS n. 85251-71-4 PHYSICAL FORM: PW			
GC STEARATO DI MAGNESIO Stearic acid, magnesium salts		Very good water repellent properties. The product is characterized by a very high fineness, therefore a lower dosage can be used, and very good free-flowing properties. Stabilization and lubricant of PVC compounds, it is used in combination with other metal stearates to form primary stabilizers. Employed also as an acid acceptor and release and anti-blocking agent.	M.P. 130-150°C
PHYSICAL FORM: PW			
GC GMS 40 Stearic acid, monoester with glycerol (Conc. ≥40%)		Plasticizer.	M.P. 60°C
PHYSICAL FORM: PEARLS, FLAKES			
GC GMS 90 Stearic acid, monoester with glycerol (Conc. ≥90%)		Plasticizer.	M.P. 60-70°C
CAS n. 123-94-4 PHYSICAL FORM: MICROGRANULES			
GC DGM 95 Distilled Glycerol Monostearate		It can be used in plastic sector as anti-static, anti-fog or lubricant. It is a good emulsifier, dispersant, stabilizer and anti-aging starch.	M.P. 60-70°C
CAS n. 123-94-4 PHYSICAL FORM: PASTILLES			
GC NA ABS (Sodio Alcan solfonato) Sulfonic acids, C14-17-sec-alkane, sodium salts	$\text{H}_3\text{C}-(\text{CH}_2)_m-\underset{\text{SO}_3\text{Na}}{\text{CH}}-(\text{CH}_2)_n-\text{CH}_3$ $m + n = 11 - 4$ Average chain length: C15,2	Anionic surfactants for the detergent, chemical-technical and cosmetic industry with excellent wetting behavior.	M.P. > 350°C
CAS n. 97489-15-1 PHYSICAL FORM: GR			

PRODUCT NAME	APPLICATIONS	DESCRIPTION
GC ULTRASTAB	PO - PE - PP.	GC ULTRASTAB is a masterbatch containing a very strong stabilization package, especially studied for use during recycling of post-consume polymers. It can inactivate the decomposition products such as radicals derived for example from flame retardants. It also contains an additive that helps to reduce frictions.
PHYSICAL FORM: MB		
GC ULTRASTAB ETP	PBT - PET - PC - Engineering Polymers.	GC ULTRASTAB ETP is a masterbatch containing a very strong stabilization package, especially studied for use during recycling of post-consume polymers. It can inactivate the decomposition products such as radicals derived for example from flame retardants. It also contains an additive that helps to reduce frictions.
PHYSICAL FORM: MB		
GC STANNATO DI ZINCO ZnSnO3	The product is used in a number of plastic, rubber and paint applications.	It can completely replace Antimony Trioxide in formulations. It is also capable of improving smoke performance in both halogen and halogen free systems.
PHYSICAL FORM: PW, MB, COMPACTED		
MB PS POX 6	PS.	MB PS POX 6 is a thermal stabilizer masterbatch supported by a polystyrene matrix.
PHYSICAL FORM: GR		
MB PE POX 20	PE.	MB PE POX 20 provides a high thermal stability during processing, and it is used to prevent the degradation of the polymer, during the recycling process. It is recommended to use in combination with MB PE RUST AWAY.
PHYSICAL FORM: GR		
MB PE RUST AWAY	PE.	MB PE RUST AWAY is a PE masterbatch, specifically designed to reduce acidity problems in polymer processing. It contains special additives, that works as acid scavengers against the acidity that comes from the degradation of brominated flame retardants.
PHYSICAL FORM: GR		
MB PO POX 20-4	Polyolefins.	MB PO POX-20-4 is a masterbatch in which an anti-acid and antioxidants are combined in order to give protection of the extruder during recycling.
PHYSICAL FORM: GR		
GC POX ABS 1 A C	ABS, Polyolefins.	GC POX ABS 1 A C is a compacted blend in which antioxidants and anti-acid are combined in order to improve the mechanical characteristics of the compound during recycling and give protection to the extruder.
PHYSICAL FORM: GR		

PRODUCT NAME	APPLICATIONS	DESCRIPTION
MB THANOX POX 20-4 PHYSICAL FORM: GR	Polyolefins.	MB THANOX POX-20-4 is a masterbatch in which an anti-acid and antioxidants are combined in order to give protection of the extruder during recycling.
GC HYDRO NUC 35TC PHYSICAL FORM: GR	PS - Thermoplastics olefin elastomer - PE - PP - PET - PA.	This is a non-hazardous and environmentally friendly endothermic foaming agent in compacted form. It can be used also as nucleating agent during direct expansion process in order to obtain small and uniform cell structure.

PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS	M.P./S.R Viscosity ----- TGA
GC BIPB 40 Peroxide formulation based on Bis(t-butylperoxy isopropyl)benzene PHYSICAL FORM: Solid		Thermoplastic Polyolefins - natural and synthetic Rubber.	
GC BIP 96 Peroxide formulation based on Bis(t-butylperoxy isopropyl)benzene CAS n. 25155-25-3 PHYSICAL FORM: Solid		Thermoplastic polyolefins - Synthetic and natural rubber. It acts as crosslinking agent and works very efficiently even at low dosage.	M.P. 40-55°C
GC PE NDB BIPB 20 *Available at different concentration PHYSICAL FORM: GR		Thermoplastic polyolefins - Synthetic and natural rubber. It acts as a crosslinking agent. Its physical form makes the product easier to dose than the powder version, it allows to have a better dispersion in the polymer and to work more safely.	
GC DICUMYL PEROXIDE Dicumyl Peroxide CAS n. 80-43-3 PHYSICAL FORM: Solid		Polyolefins - Elastomers (tubes, wires, tires, rubber seals).	S.R Viscosity >39°C
GC C DC 40 PHYSICAL FORM: GR		Thermoplastic polyolefins - Synthetic and natural rubber. It's a compacted blend containing Dicumyl Peroxide and acts as a crosslink agent.	
GC BEO 25 W Dibenzoyl Peroxide (CAS n. 94-36-0) 75% with water		PVC - Styrenics.	M.P. 103-108 °C

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One Shot Formulations

PRODUCT NAME	APPLICATIONS	DESCRIPTION
CG AOX 1098 50% PHYSICAL FORM: LIQ	Polyolefins - Polyurethanes - Engineering Thermoplastics.	Liquid dispersion 50 % of phenolic antioxidant, suitable for PU, PA and elastomers.
CG AOX 1171 PHYSICAL FORM: PW	Engineering Thermoplastics.	Mixture of phenolic antioxidant and phosphite suitable for PA.
GC B215, B220, B225, B561 PHYSICAL FORM: PW	Polyolefins - Engineering Thermoplastics.	Mixture of antioxidant 1010/168, suitable for PC, ABS, Polyester and PO.
GC B900, B921 PHYSICAL FORM: PW	Polyolefins - Engineering Thermoplastics.	Mixture of antioxidant 1076/168, suitable for PC, ABS, Polyester and PO.
GC UV LS 783 PHYSICAL FORM: GR	Polyolefins - Polyurethanes - Engineering Thermoplastics.	Mixture of 622/944 for several polymers.
GC UV LS 791 PHYSICAL FORM: PW	Polyolefins - Polyurethanes - Engineering Thermoplastics.	Mixture of 770/944 for several polymers.

Please feel free to contact us for any other substance not mentioned in this list.

Optical Brighteners

PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS	M.P./S.R Viscosity ----- TGA
GC OB 2,5-thiophenediylbis (5-tert-butyl-1,3-benzoxazole) CAS n. 7128-64-5 PHYSICAL FORM: PW		Polyesters - Polycarbonate - Polyamides Acrylics - Thermoplastic Polyurethanes - Polyvinylchloride - Styrene homo and copolymers - Polyolefins - Adhesives, and other organic substrates.	M.P./S.R Viscosity 201-205°C
GC OB-1 2,2'-(1,2-Ethenediyl-di-4,1-phenylene)bisbenzoxazole CAS n. 1533-45-5 PHYSICAL FORM: PW		Polypropylene plastic - hard PVC - ABS EVA - Polystyrene - Polycarbonate.	M.P./S.R Viscosity 355-360°C

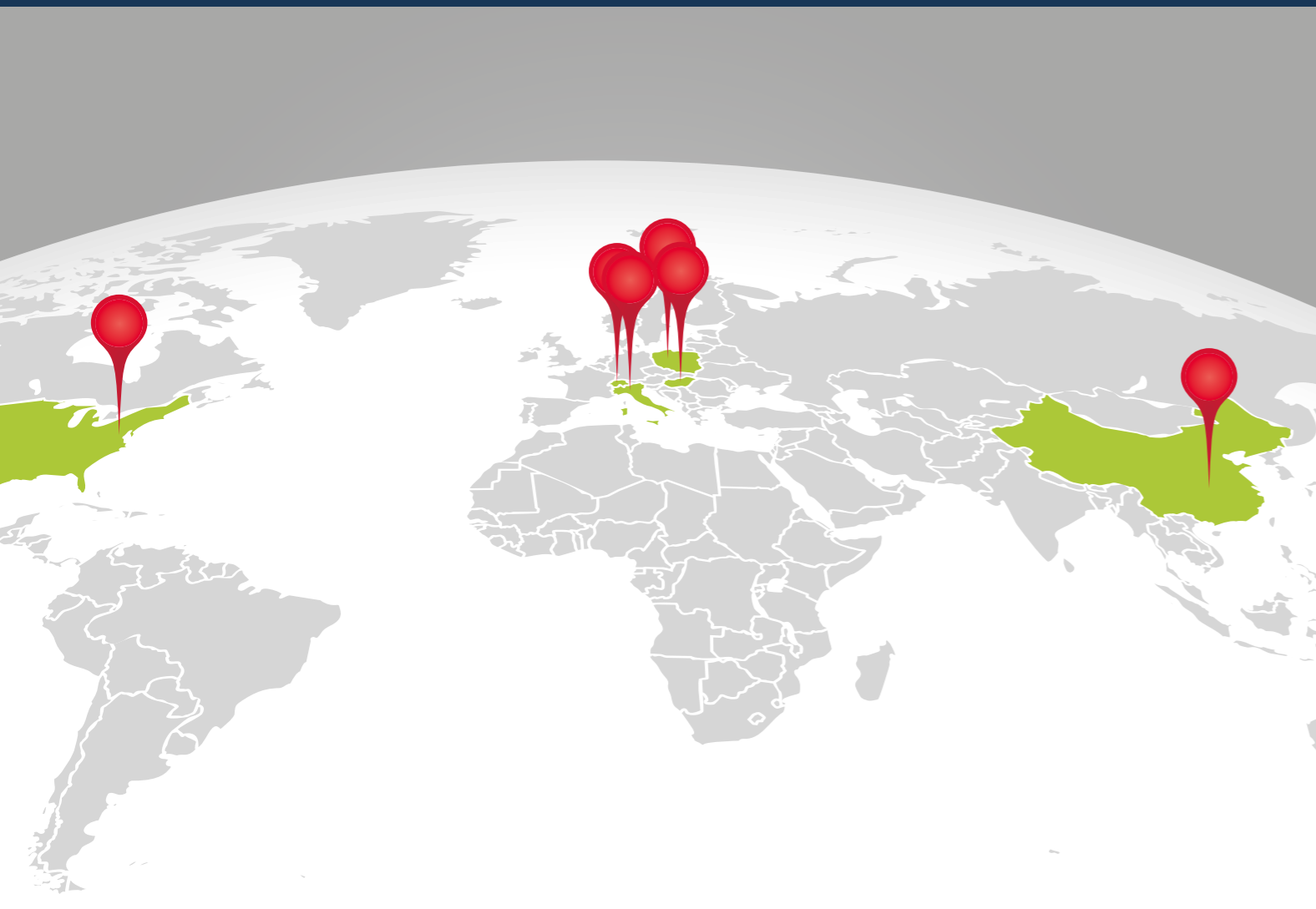
SMA

PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS
GC SMA 700 Random Copolymer PHYSICAL FORM: GR		It can be used as modifier of the heat resistance of ABS, PS, AS and ASA improving thermal performance. GC SMA 700 can be used as compatibilizer in PC and PET or as coupling agent for styrene resins and glass fiber.
GC SMA 725 Random Copolymer PHYSICAL FORM: GR		It contains maleic anhydride and styrene. It can be used as modifier of the heat resistance of ABS, PS, AS and ASA improving thermal performance. It can be used as compatibilizer in PC and PET or as coupling agent for styrene resins and glass fiber.
GC SMA 800 Random Copolymer PHYSICAL FORM: GR		Because of the hyper reactivity of SAN chain and maleic anhydride, it is particularly suitable as compatibilizer for resin alloy like PA/ABS, PC/ABS, PC/ASA, PA/ASA, ABS/PET, etc.

Please feel free to contact us for any other substance not mentioned in this list.

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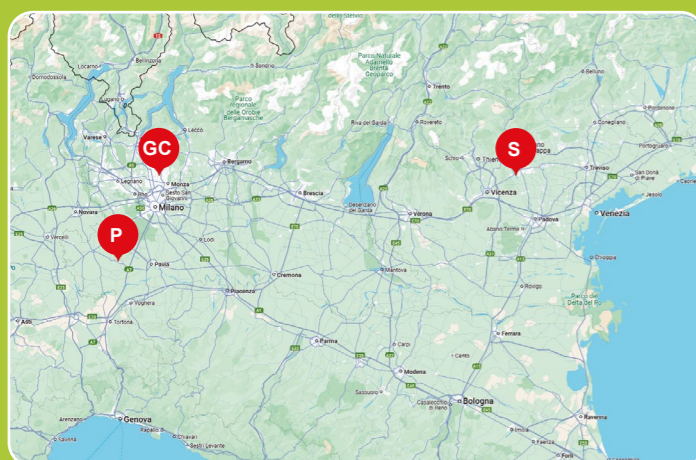
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PLASTIC ADDITIVES

FR

UV

AOX