

ADDITIVES FOR **PVC**



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ABOUT GREENCHEMICALS

- Founded in 2010 by Micaela Lorenzi
- Based in Desio - ITALY
- Specialized in flame retardant formulations, it represents a worldwide reliable partner for plastic additives

GC-VISION

DEVELOPING AND PROMOTING PERFORMING SOLUTIONS:

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

GC - PHYSICAL FORMS

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

Greenchemicals's products comply with REACH, CLP, SVHC, Food Contact, RoHS requirements, if applicable.

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. In order to allow a better Family management, GreenChemicals, since the beginning, supports smart working, part time and flexible working time.

MEMBERSHIP

pinfa

Phosphorus, Inorganic & Nitrogen Flame Retardants Association



MAIN FIELDS OF APPLICATION:

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

OTHER PRODUCTS:

- Antioxidants
- Uv
- Processing aids
- Color masterbatches

PALMAROLE

ABOUT PALMAROLE AG

- Founded in 1982 by Gerard Palmarole
- Based in Basel, Switzerland
- Specialized Polymer Additives
- Service provider in the plastic additive's industry

PARTNERS

- TRAMACO - Japan
- AUROS ADDITIVES - USA
- UNILAT - Colombia

PALMAROLE'S VISION

To be the premier service provider in the plastics industry through:

- our global network
- connecting additives manufacturers and users
- creating multifaceted and innovative product solutions



A NEW PARTNERSHIP

In 2022 GreenChemicals acquires Palmarole AG's majority of shares.

The partnership combines GreenChemicals's specialization in fire retardant additives for plastics and Palmarole's experience in UV stabilizers, antioxidants and clarifying agents. In this way, is it now possible to expand the market offer, maximizing customer support skills.



ADDITIVES
FOR PVC

THE RANGE




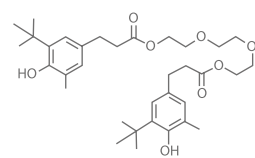

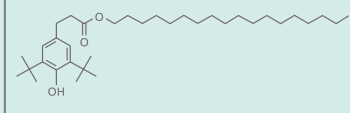

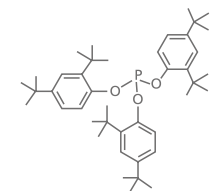

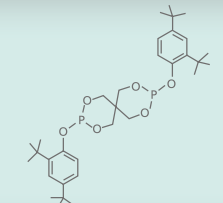

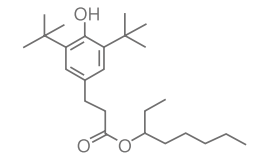

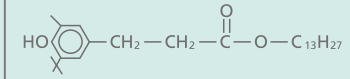
GREENCHEMICALS'
PRODUCT



PALMAROLE'S
PRODUCT





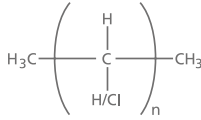

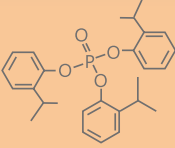



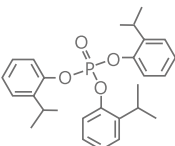

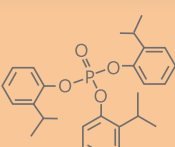

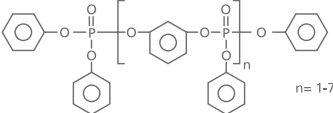





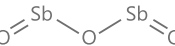

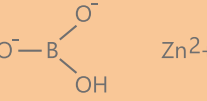
PRODUCT AVAILABLE
FOR BOTH BRANDS

PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS	M.P./S.R. viscosity - TGA -
AOX 245 Triethyleneglycol-bis[3-(3-t-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.	76-80°C ----- TGA: 5% @ 297°C 10% @ 312°C 25% @ 332°C
AOX 1076 Octadecyl-3-(3',5'-di-tertbutyl-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.	50-55°C ----- TGA: 5% @ 260°C 10% @ 278°C 25% @ 302°C
AOX P 168 Tris(2,4-di-tert-butylphenyl) phosphite  CAS n. 31570-04-4 PHYSICAL FORM: GR, PW		PVC - Polyolefins - Engineering Thermoplastics. Organophosphite antioxidant suitable for use in a lot of polymers such as polyolefins, polycarbonate, ABS and polyesters.	183-187°C ----- TGA: 5% @ 239°C 10% @ 250°C 25% @ 272°C
AOX P 626 Bis (2,4-Di-T-Butylphenyl) Pentaerythritol Diphosphite  CAS n. 26741-53-7 PHYSICAL FORM: GR, PW		PVC - Polyolefins - Engineering Thermoplastics. Phosphite ester antioxidant suitable for PE, PP, PS, PA, PC and ABS.	160-180°C ----- TGA: 5% @ 159°C 10% @ 215°C 25% @ 267°C
AOX 1135 Reaction mass of isomers of: C7-9-alkyl 3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate  CAS n. 144429-84-5 PHYSICAL FORM: LIQ		PVC - Polyurethanes. PUR, Polyol.	TGA: 1% @ 160°C 10% @ 200°C
AOX 1315 Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, C13,15-branched and linear alkyl esters  CAS n. 171090-93-0 PHYSICAL FORM: LIQUID		PVC - PU foam.	-56°C

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

FLAME RETARDANTS

FLAME RETARDANTS

PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS	M.P./S.R. viscosity - TGA -	PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS	M.P./S.R. viscosity - TGA -
PALMAROLE HT 320 (idrotalcite extrafine) Synthetic hydrotalcite  PHYSICAL FORM: PW		Mg-Al base synthetic hydrotalcite specially designed for PVC. It is ecofriendly high-performance scavenger in heavy metal-free stabilizer system for PVC. It has excellent performance in dispersion and long-term thermal stability. Widely used in flexible and rigid PVC.		GC CP 70 Paraffin waxes and Hydrocarbon waxes, chloro  CAS n. 63449-39-8 PHYSICAL FORM: PW		Rubber, PVC and Plastic Products, Paints, Coatings, Adhesives, Polyolefins, Textiles & Fabrics. It can be used as flame retardant additive for ink, as modifier for paper industry, as plasticizer or as surface treatment agent and lubricant.	90-115°C
GC FOS 65 Isopropylated Triaryl phosphate  CAS n. 68937-41-7 PHYSICAL FORM: LIQ		PVC - Polyolefins - Engineering Thermoplastics. PVC, Phenolic, PU, Epoxy resins.	64-76 cps	GC CP XL 42 Paraffin waxes and Hydrocarbon waxes, chloro  CAS n. 63449-39-8 PHYSICAL FORM: LIQ		Rubber, PVC and Plastic Products, Paints, Coatings, Adhesives, Polyolefins, Textiles & Fabrics. it can be used as flame retardant additive for ink, as modifier for paper industry, as plasticizer or as surface treatment agent and lubricant.	1300-3800 cSt
GC FOS 35 Isopropylated Triaryl phosphate  CAS n. 68937-41-7 PHYSICAL FORM: LIQ		PVC - Polyurethanes - PVC - Epoxy resins - Vinyl Polymers.	42-50 cps				
GC FOS 95 Isopropylated Triaryl phosphate  CAS n. 68937-41-7 PHYSICAL FORM: LIQ		PVC - Polyurethanes - PVC - Epoxy Resins - Vinyl Polymers.	95-114 cps				
GC RDP 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		PVC - Polyurethanes - Engineering Thermoplastics. PC/ABS, PPO/HIPS, TPU, PU.	500-800 cps a 80°C ----- TGA: 2% @ 290°C 5% @ 325°C 10% @ 360°C	PALMAROLE AC 320 		PVC. Synthetic Hydrotalcite Mg-Al based.	
GC TRIOSSIDO DI ANTIMONIO Antimony Trioxide  CAS n. 1309-64-4 PHYSICAL FORM: PW		PVC - Polyolefins - Polyurethanes - Engineering Thermoplastics. Synergist for brominated flame retardant suitable for plastics and textiles.	656°C	PALMAROLE AZ 128  PHYSICAL FORM: PW		PVC. Synthetic Hydrotalcite Mg-Al-Zn based.	
GC TRIOSSIDO DI ANTIMONIO XF (Extra fine) Antimony Trioxide  CAS n. 1309-64-4 PHYSICAL FORM: PW		PVC - Polyolefins - Polyurethanes Engineering Thermoplastics. Synergist for brominated flame retardant suitable for plastics and textiles.	656°C				
GC ZINCO BORATO Zinc Borate  CAS n. 138265-88-0 PHYSICAL FORM: PW, GR		PVC - Polyolefins - Polyurethanes- Engineering Thermoplastics. Synergist suitable for PVC, Polyolefins, PA, Rubber. Specially suitable for Film.	890°C ----- TGA: 1% @ 282°C 5% @ 388°C 10% @ 425°C				

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

FLAME RETARDANTS

FLAME RETARDANTS


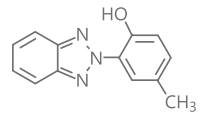

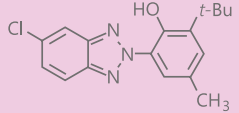

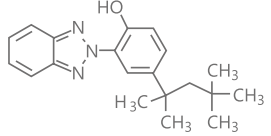

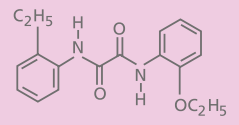

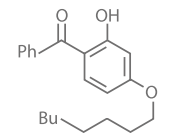


ACID SCAVENGERS

ACID SCAVENGERS


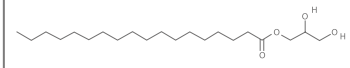

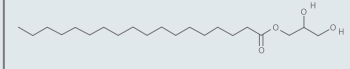

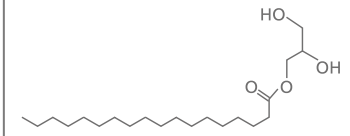

UV ABSORBERS / LIGHT STABILIZERS

PROCESSING AIDS / STABILIZERS

UV ABSORBERS / LIGHT STABILIZERS


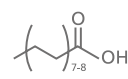

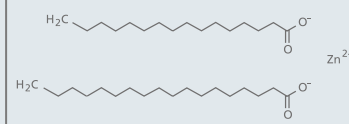

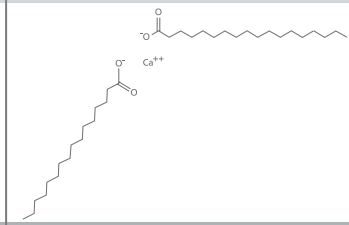

PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS	M.P./S.R. viscosity - TGA -
UV BT P 2-(2H-benzotriazol-2-yl)-p-cresol  CAS n. 2440-22-4 PHYSICAL FORM: PW		UV absorber of the benzotriazole class suitable for styrene homopolymers and copolymers, engineering plastics such as polyesters and acrylic resins, polyvinyl chloride and other polymers containing halogens and copolymers (such as vinylidene), acetals and cellulose esters.	128-133°C ----- TGA: 5% @ 163°C 10% @ 178°C 50% @ 197°C
UV 326 2-(5-Chloro-2H-benzotriazol-2-yl)-6-(1,1-dimethylethyl)-4-methylphenol  CAS n. 05-11-3896 PHYSICAL FORM: GR, PW		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.	137-141°C ----- TGA: 5% @ 202°C 10% @ 205°C 25% @ 236°C
UV 329 2-(2H-benzotriazole-2-yl)-4-(1,1,3,3-tetramethylbutyl)phenol  CAS n. 3147-75-9 PHYSICAL FORM: GR, PW		UV absorber belonging to the benzotriazole class suitable for a variety of plastics and other organic substrates.	102-108°C
UV 312 N-(2-ethoxyphenyl)-N'-(2-ethylphenyl)oxamide  CAS n. 23949-66-8 PHYSICAL FORM: GR, PW		Oxanilide UV absorber with highly effective light stabilizer for a variety of plastics and other organic substrates including unsaturated polyesters, PVC and PVC plastisol.	124-127°C
GC CHIM 81 PALMAROLE LS BN 531 Octabenzene  CAS n. 1843-05-6 PHYSICAL FORM: GR, PW, FLAKES		Polyolefins - Polyurethanes - Engineering Thermoplastics. UV absorber containing benzotriazole, suitable for PS, PUR, elastomers, PVC.	47-50°C ----- TGA: 5% @ 220°C 10% @ 233°C 25% @ 255°C
HALS 770 Bis(2,2,6,6-tetramethyl-4-piperidyl)sebacate  CAS n. 52829-07-9 PHYSICAL FORM: GR, PW		PVC - Polyolefins - Engineering Thermoplastics. UV absorber suitable for ABS, ASA, EPDM, IPS, PP, SAN, TPO.	81-85°C ----- TGA: 1% @ 203°C 5% @ 221°C 10% @ 242°C


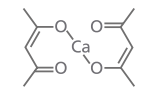

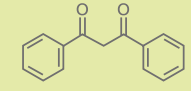

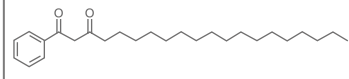

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PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS	M.P./S.R. viscosity - TGA -
GC GMS 40 Stearic acid, monoester with glycerol (Conc. ≥40%) 		Plasticizer.	60°C
GC GMS 90 Stearic acid, monoester with glycerol (Conc. ≥90%)  CAS n. 123-94-4		Plasticizer.	66,7°C
GC DGM 95 Dystilled Glycerol Monostearate  CAS n. 123-94-4 PHYSICAL FORM: PASTILLES		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.	
GC NA ABS (Sodio Alcan solfonato) Sulfonic acids, C14-17-sec-alkane, sodium salts  CAS n. 97489-15-1 PHYSICAL FORM: GR	$\text{H}_3\text{C}-(\text{CH}_2)_m-\underset{\text{SO}_3\text{Na}}{\text{CH}}-(\text{CH}_2)_n-\text{CH}_3$ $m + n = 11 - 4$ Average chain length: C15,2	Anionic surfactants for the detergent, chemical-technical and cosmetic industry with excellent wetting behavior.	> 350°C

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PROCESSING AIDS / STABILIZERS

PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS	M.P./S.R. viscosity - TGA -
GC STEARATO DI BARIO Fatty acids, C16-18, barium salts  CAS n. 91002-07-2		Drying lubricants and dusting agents for Rubbers. 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.	
GC STEARATO DI ZINCO Fatty acids, C16-18, zinc salts  CAS n. 91051-01-3 PHYSICAL FORM: PW		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.	120°C
GC STEARATO DI CALCIO Fatty acids, C16-18, calcium salts  CAS n. 85251-71-4 PHYSICAL FORM: PW		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.	140-160°C
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.	130-150°C

PRODUCT NAME	CHEMICAL FORMULA	APPLICATIONS	M.P./S.R. viscosity - TGA -
PALMAROLE S.77 Calcium acetylacetonate heat stabilizer  CAS n. 19372-44-2		PO. Thermal stabilizer for PVC and polymers with halogen free flame retardants.	
PALMAROLE S.83 1,3-Diphenyl-1,3-propanedione  CAS n. 120-46-7 PHYSICAL FORM: PW		β-diketone-type heat co-stabilizer for PVC or other vinyl polymers and copolymers. It shows particular synergy with calcium/zinc and barium/zinc stabilizers. If necessary, it may be used in combination with phosphites.	76.0 – 81.5°C
PALMAROLE S.50 Stearoyl benzoyl methane  CAS n. 58446-52-9 PHYSICAL FORM: PW		β-diketone-type heat co-stabilizer in the processing of PVC or other vinyl polymers. It shows particular synergy with calcium/zinc and barium/zinc stabilizers allowing the use of a high level of calcium. It is particularly recommended for use in bottles, rigid sheet and films and plasticized films for use in food containers and medical/pharmaceutical articles.	56°C
PALMAROLE S.55 			

PROCESSING AIDS / STABILIZERS

Beta-Diketone



WE HAVE STUDIED A SYSTEM TO RECYCLE PET FLAKES IN AN INNOVATIVE AND LOW-COST WAY:

Olpet is the registered trademark of a series of polyester polyols obtained from the depolymerization process of pet flakes.

OLPET® CAN BE UP TO 100% RECYCLED MATERIAL



GC OLPET	Polymeric plasticizer for recycle.
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Please feel free to contact us for any other substance not mentioned in this list.

OLPET

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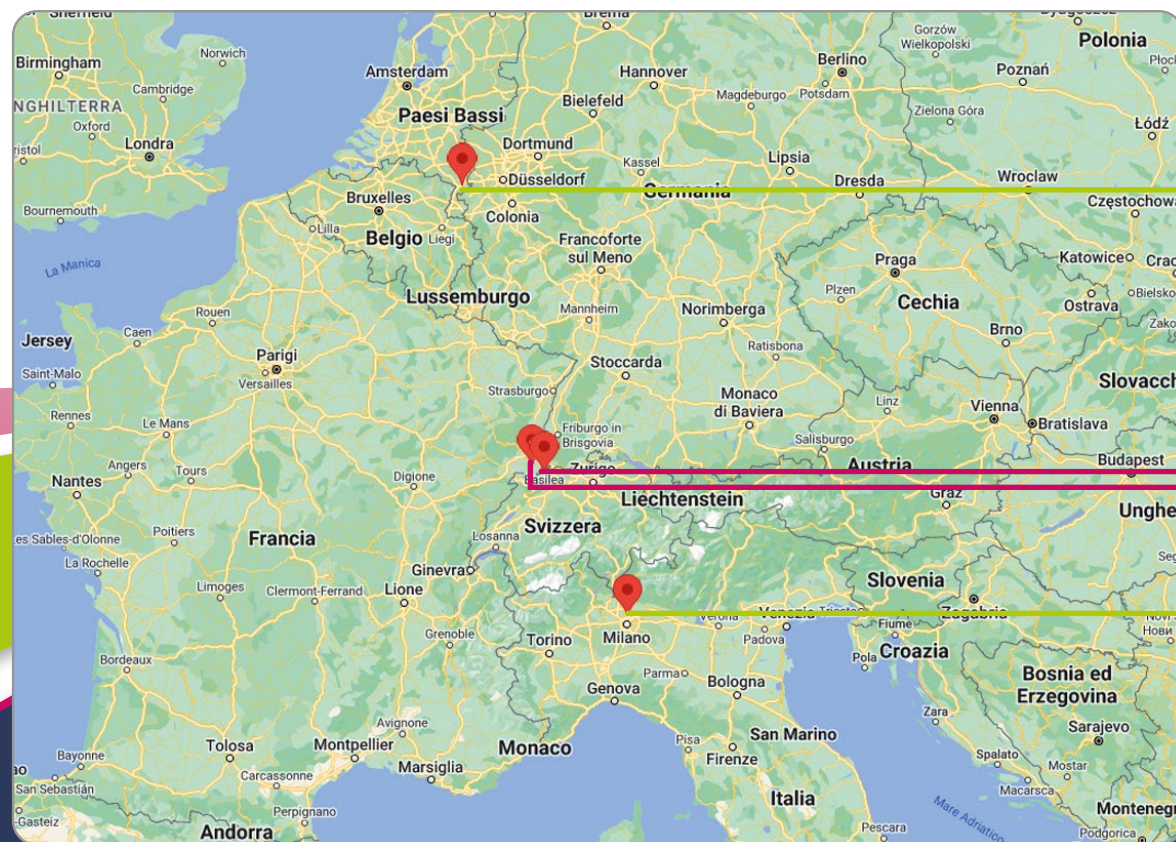


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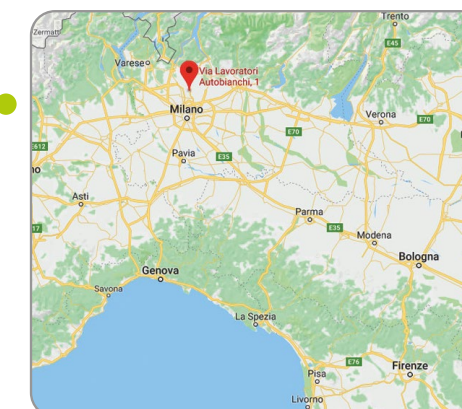
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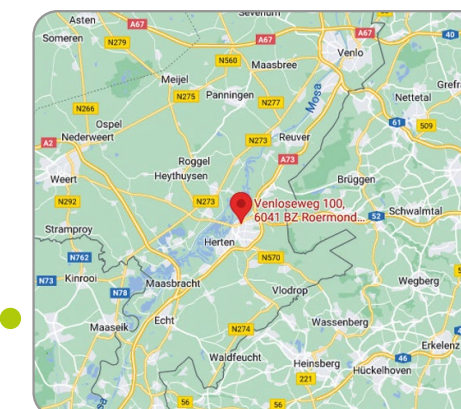
GREENCHEMICALS Srl HEADQUARTER

Via Lavoratori Autobianchi, 1 - 20832 Desio (MB) - IT



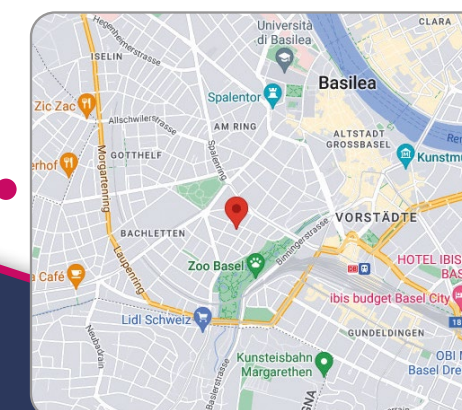
GREENCHEMICALS BV

Venloseweg 100 6041BZ Roermond, NL



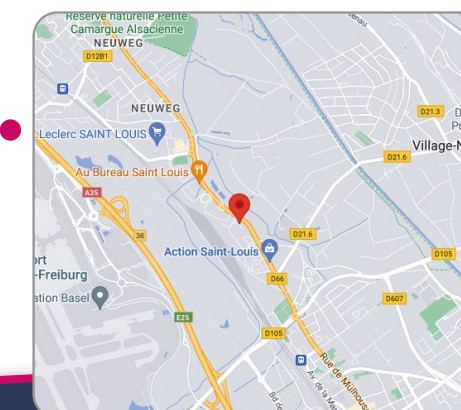
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