
Graphenano
COMPOSITES
Composite
with graphene
technology

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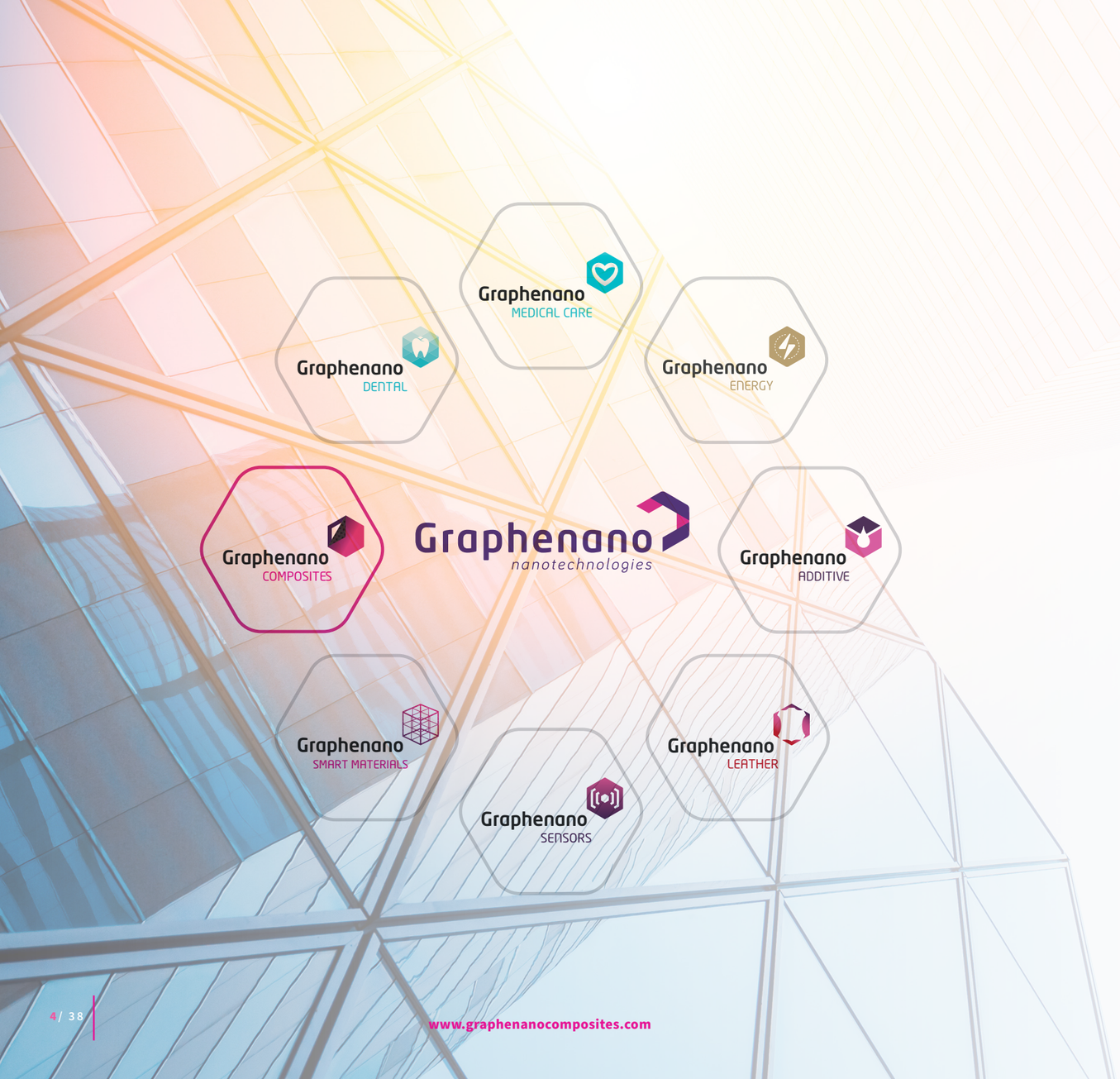
The increasingly sophisticated new technologies have led to a global change, where information multiplies geometrically and communications eliminate time and distance. **Graphenano Composites** is the link between the present and the future, renewing challenges and incorporating the advantages of graphene in composite materials. We improve the properties of strength, resistance, lightness, flexibility, conductivity, impermeability, insulation, and greater durability, we provide a range of applications and products to cover your needs..

A new generation of composites that opens the doors to an era of applications.



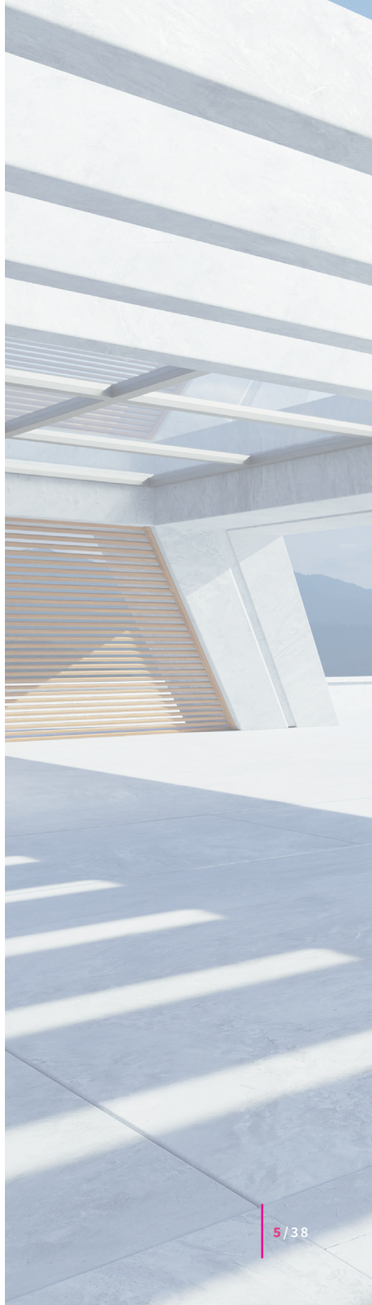
COMPANY / PROFILE

Graphenano Composites belongs to the **Graphenano group**, a world leader in graphene manufacturing and in developing and launching applications with nanomaterials. Focused on various sectors such as Dental, Medical, Cosmetic, Construction, and Composites. Our headquarters in Yecla (Spain) and subsidiaries in Germany and Brazil reaffirm our global commitment.

Since its foundation in 2012, **Graphenano** has firmly established itself as a leader in the field of advanced nanotechnology. With a focus on technological excellence, we excel in the development of pioneering technologies, in the rapidly evolving field of nanotechnology. Our collaboration with prestigious institutions and universities at the international level, as well as various Technological Institutes (ITC, ICMOL), underscores our commitment to the research and development of graphene and its revolutionary applications.

OUR FACILITIES

Graphenano Composites In constant development, with advancements in technologies and greater diversification of products. This facilitates the inclusion of new graphene manufacturing lines in our facilities, allowing for a quick and efficient adaptation to all production demands, while also meeting our clients' storage and distribution needs.



INNOVATION AND ENVIRONMENT

Ecological Commitment

At **Graphenano Composites**, sustainability is a daily practice. Through collaboration efforts with leading companies, we have implemented innovative green technologies that significantly **reduce CO2 emissions**, moving towards carbon neutrality. Our graphene products not only improve thermal and electrical conductivity and bactericidal properties as well as enhancement of strength, hardness, flexibility, and durability of materials.

This approach demonstrates our commitment to the environment and to global sustainability goals.

Graphenano
COMPOSITES

GRAPHENE MAIN PROPERTIES

Graphene is a carbon nanomaterial that possesses a unique combination of properties not found together in any other compound. Its variants are nanomaterials with unparalleled stiffness and strength, such us primarily due to the strength of the carbon-carbon (covalent) atomic bonds

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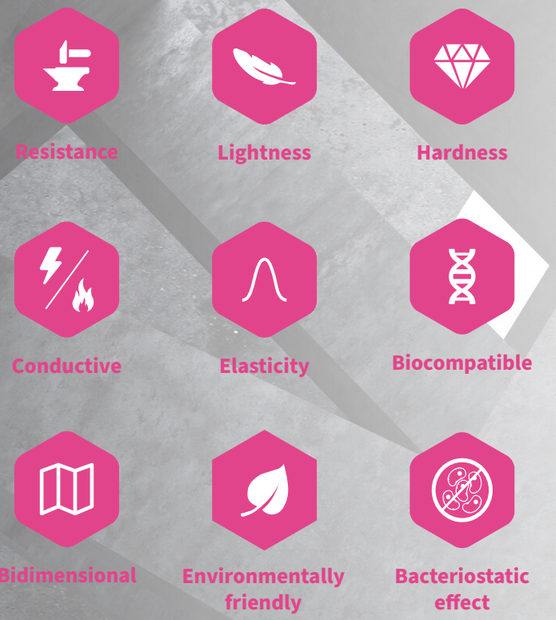
- Carbon atoms are held together on a flat surface, resembling a honeycomb. Elements based on carbon bonds; **graphene have the highest modulus of measurement and strength in a material to date**..
  Steel typically breaks at 500 MPa. while graphene which is **200 times stronger than steel ,exhibits significantly higher strength.**



¿WHAT IS GRAPHENE?

Is the strongest nanotechnological material known, with a strength 200 times superior to steel and a hardness greater than diamond, yet its thickness ranges between 1 and 10 carbon atoms. Being so thin, it is considered a two-dimensional material, the only one capable of remaining stable even at the thickness of a single atom.

It has incredible mechanical, electronic, chemical, magnetic, and optical properties. Moreover, being pure carbon, it is abundant in nature and eco-friendly. It is practically transparent, elastic, serving as an excellent thermal and electrical conductor, so dense that not even helium gas can pass through it. It exhibits many other qualities, such as high electron mobility or its bactericidal nature, the best-known electrical conductivity, the best heat transfer, the highest modulus and strength, and other "exotic" properties.

Improved properties in the composite

Thansfering exceptional graphene´s key charactheristics to the resins

Polyester, vinyl ester, epoxy, and new-generation pre-impregnated materials each with special properties due to the incorporation of graphene complete the most advanced product line on the market, achieved through their utilization. Products become lighter, more resistant, durable, cost-effective, and environmentally more sustainable.

POLIGRAPH RESINS

The **Poligraph Orthophthalic** **140 PLUS** and **LV90** resin triples the flexural modulus of current resins, with over than 10,000 MPa, and doubles the tensile modulus, with over than 6,000 MPa. It is designed for use with fiberglass, injection, or pultrusion processes.

The Poligraph Isophthalic **ISO 70 PLUS** resin doubles the flexural modulus of other resins, with over than 9,000 MPa, and more than doubles the tensile modulus, with over than 6,000 MPa. Similarly, it is designed for use with fiberglass and pultrusion processes..

		WITHOUT GRAPHENE		WITH GRAPHENE	
		Flexural Modulus (MPa)	Tensile Modulus (MPa)	Flexural Modulus (MPa)	Tensile Modulus (MPa)
RESIN	Isophthalic Poligraph	3.700	3.700	**9.000**	**6.500**
RESIN	Orthophthalic Poligraph	4.000	3.600	**10.000**	**6.500**
PULTRUSION	Isophtalic Pultrusion	32.000	13.000	**64.000**	**22.000**
PULTRUSION	Orthophtalic Pultrusion	24.000	11.000	**57.000**	**23.000**

TEST REPORT CERTIFICATE **TUV**

The Poligraph resin, utilized in pultrusion with fiberglass, distinguishes itself by yielding exceptionally strong and durable component achieving a **flexural modulus** of over than **64,120 MPa** and a tensile modulus of 22,200 MPa. By employing this resin, it becomes feasible to diminish the material required per piece, rendering it a more cost-effective and sustainable choice.

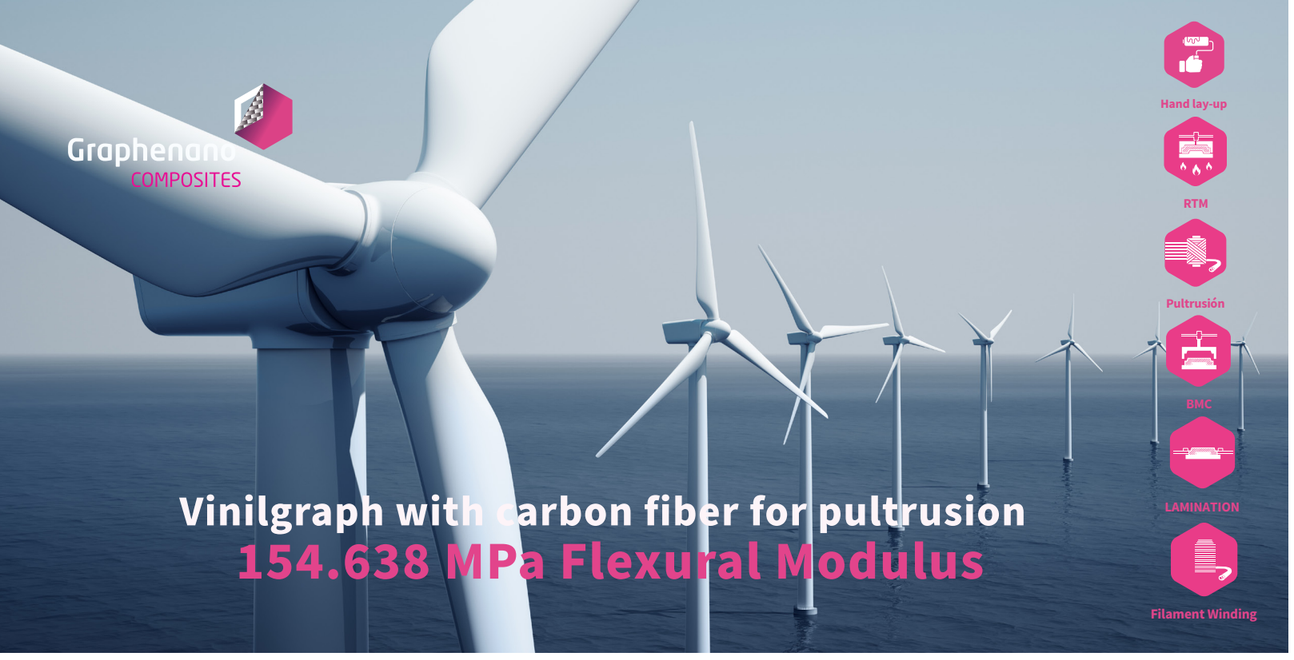
Hand lay-up · RTM · Pultrusion · BMC · Lamination · Filament winding

Graphenano COMPOSITES

triples the flexural modulus with more than 10,000 MPa

APPLICATIONS

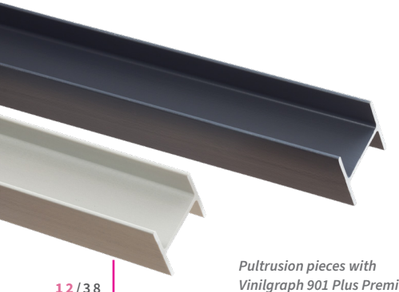
Railway · Marine · Automotion · Aviation · Signage · Sport Equipment · Moto · Bicycle · Cisterns · Storage · Pools



VINILGRAPH 901 PLUS PREMIUM RESIN

The **vinylester epoxy resin with graphene** from Graphenano Composites stands out as the most advanced innovation in the composite materials market. Thanks to its enhanced properties and efficiency in use, it positions itself as a competitive and sustainable option for various industrial sectors, including automotive, naval, aerospace, civil engineering, among others.

The **Vinilgraph 901 Plus Premium** resin offers excellent resistance to corrosion from various agents such as organic and inorganic acids, alkalis, oxidizing chemicals, saline solutions, etc. Aditionally, it significantly enhances mechanical strength, including tensile and fleruxal properties, when combined with reinforcements such as fibreglass or carbon fiber.



Pultrusion pieces with Vinilgraph 901 Plus Premium

	WITHOUT GRAPHENE		WITH GRAPHENE	
	Flexural Modulus (MPa)	Tensile Modulus (MPa)	Flexural Modulus (MPa)	Tensile Modulus (MPa)
Vinilgraph 901 Plus Premium	4.000	3.600	8.500	6.000
Vinilgraph + carbonfiber pultrusion *	118.000	18.200	155.000	26.000

Carbon fiber content 60%

TEST REPORT
CERTIFICATE TUV

Vinilgraph 901 Plus Premium is our spectacular vinyl ester resin, with a **flexural modulus of 8.500 MPa** and a **tensile modulus of 6.070 MPa**. It is a resin with a **higher calorific value (17.500 J/g)**, comparable to phenolic resins, and outstanding resistance to a wide range of chemicals, which, along with its long durability in wet or aquatic environments, it is ideally suited for the most extreme conditions.

When **vinyl ester is combined with carbon fiber in pultrusion**, incredible results are achieved: a **flexural modulus of 155.000 MPa** and a **tensile modulus of 26.000 MPa**, with just **60% carbon fiber content**. This significant enhancement in mechanical properties, achieved at an unprecedented cost, positions our product as the optimal solution for propelling the pultrusion sector into a new era, potentially replacing traditional materials like steel.

CHARACTERISTICS

High Flexural Modulus (Greater than 8,500 MPa)
Exceptional strength and stiffness, superior even to epoxy resins. High durability in wet or aquatic environments.

Superior Heating Value
Fire resistance comparable to phenolic resins.

High thermal conductivity
Efficient heat dissipation.

Low Exothermic Point
Safe and efficient curing.

Sustainability and Material Efficiency
Reduction in the amount of material required.

Excellent resistance to Hydrolysis
High durability in humid or aquatic environments

Properties of Bacteriostatic/Bactericidal Agents
Inhibits or kills bacteria.

High Chemical Resistance
Maximum resistance to a wide range of chemicals.

Doubling the Strength with Fiberglass in Pultrusion
Increases the elastic modulus to 66,874 MPa, double that of a common commercial resin of 30,000 MPa (approx.)

Comparative Cost-Efficiency
Although more expensive than polyester resins, it can halve the size of parts, competing with cheaper resins by offering far superior mechanical, chemical and thermal properties.

APPLICATIONS

Railway · Marine · Automotion · Aviation · Signage · Sport equipment · Moto · Bicycle · Cisterns · Storage · Pools

Superior Heating Value
High Chemical Resistance!

Graphenano
COMPOSITES

Hand lay-up

AIRLESS

25% MORE SURFACE HARDNESS

www.graphenanocomposites.com

GEL COAT RESINS

Graphene-enhanced high modulus **GELCOATS** offer superior mechanical performance, durability, and resistance to environmental factors. Designed for advanced composite applications, they provide exceptional protection, improved adhesion, and reduced weight, ensuring long-lasting and high-performance results.

CHARACTERISTICS

Enhanced Mechanical Strength – Increases hardness and impact resistance, reducing the risk of cracks and surface damage.

Lower Brittleness – Its high elastic modulus allows it to absorb stresses more effectively without breaking, preventing microcracks.

Improved Abrasion Resistance – Withstands wear caused by friction and continuous contact, increasing durability.

Superior Chemical Resistance – Enhances resistance to acids, solvents, and corrosive agents, making it ideal for harsh environments.

Reduced Permeability – Decreases moisture and external agent absorption, protecting the material's internal structure.

Better Thermal Stability – Resists temperature fluctuations without deformation or loss of properties.

Higher Adhesion – Integrates better with the composite substrate, preventing delamination and detachment.

Lower Weight – Maintains rigidity with lower density, contributing to overall weight reduction of the structure.

Increased UV Resistance – Protects against aging and yellowing due to sun exposure.

Reduced Shrinkage – Minimizes contraction during curing, improving the dimensional accuracy of parts.

Greater Durability – The combination of these properties ensures a longer service life with lower maintenance requirements.

APPLICATIONS

Railway · Marine · Automotion · Aviation · Signage · Sport equipment · Moto · Bicycle · Cisterns · Pools · Storage

	WITHOUT GRAPHENE		WITH GRAPHENE	
	Flexural Modulus (MPa)	Tensile Modulus (MPa)	Flexural Modulus (MPa)	Tensile Modulus (MPa)
GelGraph ISO NPG Airless	3.000	3.000	**6.200**	**4.500**
GelGraph ISO NPG Moulds	3.000	3.000	**7.500**	**6.000**

SPECIAL RESINS

REINFORGRAPH VINILGRAPH

Reinforgraph, our variant of vinilgraph is specially designed to **reinforce of ceramic pieces, natural and synthetic stone,** significantly enhancing their mechanical properties. The graphene epoxy vinyl ester resin is an innovative composite material that combines the unique properties of **epoxy vinyl ester resins** with the additional benefits of **graphene**. This resin offers medium viscosity and reactivity, making it suitable for a variety of industrial and engineering applications.

Thanks to the incorporation of graphene, this material demostrates **increased mechanical and chemical resistance**, making it an ideal choice for applications requiring durability and exceptional performance. Aditionally, it presents excellent adhesion to a wide variety of substrates, making it versatile for use in various industries

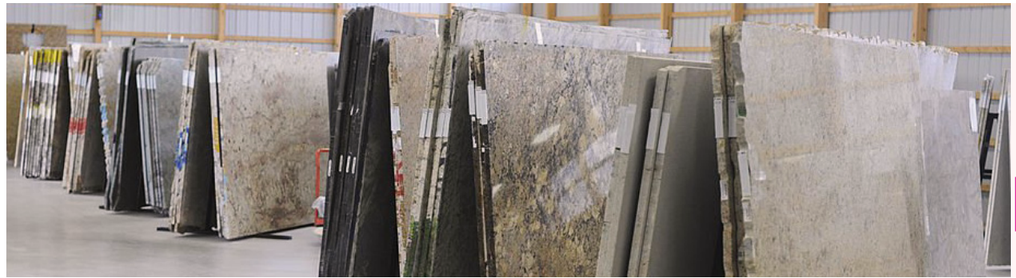
ECO VINILGRAPH RESIN

Vinilgraph ECO stands out as a recyclable alternative, offering remarkable mechanical properties and its ability to resist chemical agents. With a **flexural modulus of 9.700 MPa**, this resin provides a durable and environmentally friendly solution for waid range of applications

VINILGRAPH CONDUCTIVITY

Vinilgraph Conductivity, with high electrical conductivity, is ideal for finishes requiring enhanced conductivity to prevent the accumulation of static electricity. Moreover, it exhibits mechanical and chemical properties comparable to those of a vinyl ester resin.

Resistance **Lightness** **Hardness** **Conductive**



Graphenano
COMPOSITES

can be stored
between 0°C and 7°

PRE-IMPREGNATED with OUR RESINS

The Carbon and Glass Vinilgraph pre-impregnated materials represent the cutting edge in fiberglass and carbon fiber reinforcements, featuring with an innovative Vinilgraph epoxy resin impregnation technique.

They **can be stored at temperatures between 0 and 7 degrees Celsius**, something completely impossible with other pre-impregnated materials that have to be stored between -25 and -17 degrees Celsius. This allows us to achieve significant energy savings and a product that is much more environmentally friendly.

CarbonVinilgraph is much more economical than a carbon fiber epoxy pre-impregnated material, **has less water absorption**, and provides maximum resistance to external chemical agents. Our **CarbonVinilgraph reduces bubbles much better, so in most processes, the use of an autoclave is not necessary**, significantly reducing production costs. In composites of 10 layers of carbon fiber prepeg, **flexural modulus of 46.000 megapascals** are achieved, similar to prepeg with epoxy resin, highlighting a **30% improvement in the maximum strength the material can withstand in flexion**.

We also have fiberglass pre-impregnated materials that allow us to reach, in composites of 10 layers, **flexural modulus of 24.000 megapascals,** surpassing the values of epoxy resins used in standard prepeg.

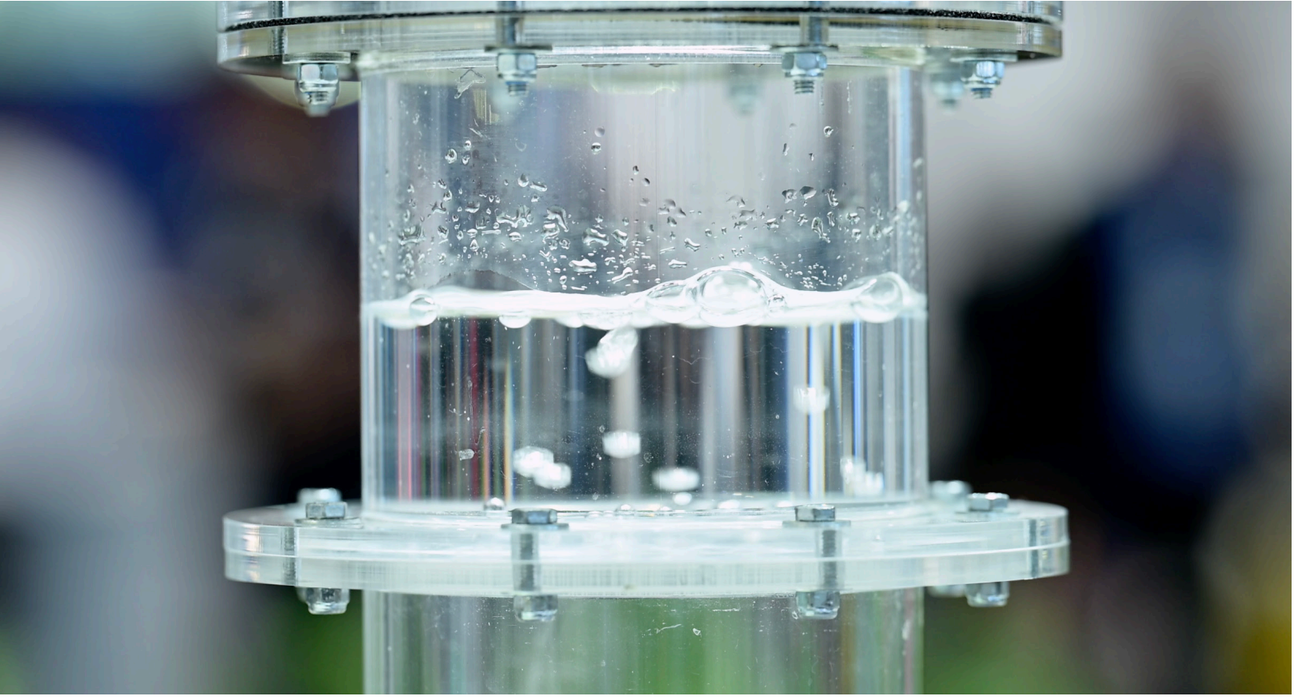
APPLICATIONS

Railway · Marine · Automotion · Aviation · Signage · Sport equipment · Bicycle · Cisterns

LIST OF PRODUCTS

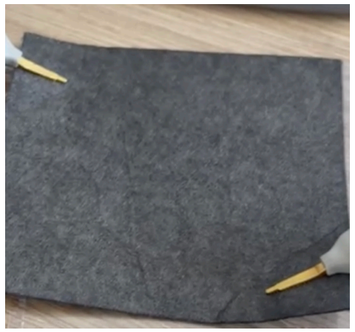
		RESIN CHARACTERISTICS	MANUFACTURING SYSTEM							
			Hand Lay-up	Pultrusion	Lamination	RTM	Filament Winding	Infusion	BMC/SMC	Airless
POLYESTER	Poligraph 140 Plus Premium	Medium-low viscosity orthophthalic polyester resin with graphene	●	●					●	
	Poligraph 140 LV Plus Premium	Low viscosity orthophthalic Polyester resin with graphene	◎	●	●	●	●	◎	◎	◎
	Poligraph 140 TA	Orthophthalic polyester resin with graphene			●	●	●			
	Poligraph 90 LV	Polyester resin Low viscosity with graphene				●	●	●		◎
	Poligraph 70 Plus Premium	Low viscosity orthophthalic polyester resin with graphene	●	●					●	
	Poligraph 70 LV Plus Premium	Very-low viscosity isophthalic polyester resin with graphene	◎	●	●	●	●	◎	◎	
VINYLESTER	Vinilgraph 901 Plus Premium	Medium viscosity Epoxy Vinyl ester resin with graphen	●	●					●	
	Vinilgraph 901 LV Plus Premium	Low viscosity epoxy Vinylester resin with graphene	◎	●	●	●	●	◎	◎	
	Vinilgraph 901 Rebars	Vinylester resin with graphene for rebars production		◎		●	●	●		
GELCOAT	Gelgraph Airless	Gel-coat isophthalic NPG polyester with graphene	●		●					●
	Gelgraph Moulds	Gel-coat isophthalic NPG polyester with graphene	●		◎					
CONDUCTIVE	Conductivity 83	Vinylester conductive resine with graphene	●		◎					
	Conductivity 82	Vinylester conductive resine with graphene	●		●					

Recomended ● / Possible use ◎



GRAPHENE MEMBRANE HYDROGEN GENERATION

The **metal-free graphene membrane** revolutionizes efficiency in hydrogen generation. Thanks to its innovative design, these membranes significantly reduce the manufacturing and maintenance costs of electrolyzers. The key lies in the exceptional durability and conductivity of graphene, which extends the lifespan of the membranes beyond traditional ones, thereby **decreasing the frequency of replacements and repairs.** This advancement not only offers an economical solution but also contributes to sustainability by eliminating the need for costly and difficult-to-extract metals. By adopting graphene membranes, we move towards a future of cleaner, more efficient, and accessible hydrogen production.



CELL COMPOSITE BATTERY

We introduce the revolutionary **World's First Metal-Free Battery**, a pioneering innovation in the field of sustainable energy. This unique battery stands out for its exclusive **use of recycled composite materials**, marking a milestone in green technology. With the capability to surpass ***10.000 charge cycles***, it sets a new standard for durability and performance. Its ***impressive charge time of 7C, equivalent to just eight minutes***, redefines efficiency expectations, offering a quick and convenient solution for contemporary energy needs.

Similarly, its composition from eco-friendly composite materials not only minimizes environmental impact but also promotes the circular economy, reaffirming our commitment to the planet. This battery is not just a technological advancement; it is a step towards a more sustainable and responsible future.

WEIGHT REDUCTION POUCH = INCREASE DENSITY 30%

COST REDUCTION

MORE INCREASE ECO-FREINDLY AND SAFE

LESS COMPLEX PRODUCTS

- Fewer material, less weight, more density = direct product cost reduction due to the materials employed.
- The elimination of the collectors for the cathode and anode reduces weight considerably, increasing the density proportionally.
- NO FIRE
- NO EXPLOSION
- By renouncing the commonly used metals such as copper and aluminium, it is much more eco-friendly.
- It improves thermal conductivity which helps to be safer and more efficient.
- It simplifies and increases the productive capacity of the electrodes, making it possible to use higher depositing speeds.
- Anode and cathode drying energy reduction.
- Simplified anode and cathode manufacturing machinery and processes.

Graphenano COMPOSITES

Technical Data Sheet

POLIGRAPH 140 PLUS PREMIUM

Medium-low viscosity, fully polymerisable, highly reactive and thixotropic orthophthalic polyester resin.

PROPERTIES

- **Fast curing cycle.**
- **Compatible with pigments.**
- **High mechanical properties.**
- **Improved thermal conductivity.**

APPLICATIONS

- Specially designed as a base resin for working with fibreglass.
- Excellent intercoat adhesion and very low linear and volumetric shrinkage.
- Inert mineral fillers such as calcium carbonates, aluminium trihydrate, dolomite, and silica can be added. The percentage of MEK peroxide to be added is between 0.75% and 1%, although it can be increased up to 2% to reduce the gel time.
- The application can be manual or by machine.
- May be used in pultrusion processes, manual application, BMC and SMC.

STORAGE AND PACKAGING

- The product should be **stored in a dry place** at a temperature not exceeding **25 °C.**
- The expiry date is **6 months** under these conditions.
- Generally, the products will be supplied in **drum** format.
- For other quantities and/or packaging: **contact us**.

TECHNICAL CHARACTERISTICS

Appearance	Dark liquid
Exothermic peak temperature (in 45 min)	53 °C
Density	1.66 g/cm^3
Gel time (25 °C) (1)	10 - 15 min
Brookfield viscosity (H2V30, 25 °C)	600 – 1 200 cPs

(1) 100/0.3 Co/1.5 PMEK

MECHANICAL CHARACTERISTICS

Flexural modulus	10 100 - 11 900 MPa
Flexural strength	35 - 55 MPa
Maximum deflection (dL)	0.35 - 0.55 mm
Tensile modulus	6 500 - 7 500 MPa
Tensile strength	25 - 45 MPa
Elongation at break	0.25 - 0.45 %

Mechanical properties of the catalysed resin

Flexural modulus	~ 57 000 MPa
Flexural strength	~ 1 200 MPa
Maximum deflection (dL)	~ 5.60 mm
Tensile modulus	~ 22 700 MPa
Tensile strength	~ 700 MPa
Elongation at break	~ 5.6 %

Mechanical properties of glass fibre reinforced resin (75%)

POLIGRAPH 140 LV PLUS PREMIUM

Low viscosity, fully polymerisable, highly reactive, thixotropic, low viscosity orthophthalic polyester resin.

PROPERTIES

- **Fast curing cycle.**
- **Fully compatible with pigments.**
- **High mechanical properties.**
- **Improved thermal conductivity.**

APPLICATIONS

- Specially designed as a base resin for fibreglass or injection resin works.
- Excellent intercoat adhesion and very low linear and volumetric shrinkage.
- Inert mineral fillers can be added, such as calcium carbonate, alumina trihydrate, silica, etc. The percentage of mek peroxide to be added is between 0.75% and 1%, although it can be increased to 2% to reduce the gel time.
- The application can be manual or by machine.
- May be used in pultrusion, lamination, RTM and Filament Winding processes.

TECHNICAL CHARACTERISTICS

Appearance	Dark liquid
Exothermic peak temperature (in 45 min)	95 °C
Density	1.25 g/ml
Gel time (25 °C) (1)	10 - 15 min
Brookfield viscosity (H2V50, 25 °C)	400 – 800 cps

(1) 100/0.3 Co/1.5 PMEK

MECHANICAL CHARACTERISTICS

Flexural modulus	8 300 - 10 200 MPa
Flexural strength	40 - 60 MPa
Maximum deflection (dL)	0.4 - 0.6 mm
Tensile modulus	5 000 - 6 000 MPa
Tensile strength	25 - 40 MPa
Elongation at break	0.5 - 0.7 %

Mechanical properties of the catalysed resin

STORAGE AND PACKAGING

- The product should be **stored in a dry place** at a temperature not exceeding **25 °C.**
- The expiry date is **6 months** under these conditions.
- Generally, the products will be supplied in **drum** format.
- For other quantities and/or packaging: **contact us**.

POLIGRAPH 140 TA

POLIGRAPH 140-TA is an orthophthalic unsaturated polyester resin of last generation modified with Graphene nanotechnology, for use in the manufacture of nano-hybrid Composites that considerably increases the mechanical, physical and biological properties.
The resin is semi flexible type and of medium reactivity.
POLIGRAPH 140-TA is pre-accelerated with cobalt salts and contains a thixotropic agent.

PROPERTIES

POLIGRAPH 140-TA is characterized by the excellent mechanical characteristics of the laminates manufactured with it, clearly superior to those obtained with other resins of general use. Also, its chemical resistance against diluted acids and alkalis is good. In general, its use is recommended in those cases in which good mechanical and/or chemical properties are required.

APPLICATIONS

POLIGRAPH 140-TA can be applied both in Wet lay-up and Spray lay-up, presenting a minimum drop out on the vertical surfaces due to its thixotropy. Its field of application is wide, being able to be used for the manufacture of boats, tanks, bodies, silos, etc.

STORAGE AND PACKAGING

- The product should be **stored in a dry place** at a temperature not exceeding **25 °C.**
- The expiry date is **6 months** under these conditions.
- Generally, the products will be supplied in **drum and IBCs**
- For other quantities and/or packaging: **contact us**.

TECHNICAL CHARACTERISTICS

Appearance	Dark liquid
Exothermic peak temperature (in 45 min)	95 °C
Density	1.05 g/ml
Gel time (25 °C) (1)	25 - 30 min
Brookfield viscosity (H2V30, 25 °C)	300 – 450 cPs

(1) 100/1.5 PMEK

MECHANICAL CHARACTERISTICS

Flexural modulus	3 000 - 4 000 MPa
Flexural strength	75 - 95 MPa
Maximum deflection (dL)	2.5 - 3.5 mm
Tensile modulus	2 000 - 3 000 MPa
Tensile strength	60 - 80 MPa
Elongation at break	3 - 4 %

Mechanical properties of the catalysed resin

POLIGRAPH 90 LV

Very low viscosity orthophthalic polyester resin, fully polymerisable, with medium reactivity and low linear and volumetric shrinkage.

PROPERTIES

- **Fast curing cycle.**
- **High mechanical properties.**
- **Easily impregnates mineral fillers.**

APPLICATIONS

- Specially designed as a casting resin.
- Excellent intercoat adhesion and very low linear and volumetric shrinkage.
- Inert mineral fillers such as calcium carbonates, calcium sulphates, dolomite or silica can be added.
  The percentage of mek peroxide to be added is between 1.5% and 2%.
- The application can be manual or by machine.
- Suitable for use in infusion, filament winding or spray processes.

TECHNICAL CHARACTERISTICS

Appearance	Dark liquid
Exothermic peak temperature	120 - 175 ºC
Gel time (25 ºC) (1)	4 - 15 min
Brookfield viscosity (H2V100, 25 ºC)	80 – 200 cps

(1) 100g resin + 0,25g Co(6%) + 2% MEK

MECHANICAL CHARACTERISTICS

Flexural modulus	3 000 - 4 000 MPa
Flexural strength	65 - 85 MPa
Maximum deflection (dL)	2 - 3 mm
Tensile modulus	2 000 - 3 000 MPa
Tensile strength	40 - 60 MPa
Elongation at break	2 - 3 mm

Mechanical properties of the catalysed resin

STORAGE AND PACKAGING

- The product should be **stored in a dry place** at a temperature not exceeding **25 ºC.**
- The expiry date is **6 months** under these conditions.
- Generally, the products will be supplied in **drum and IBC** format.
- For other quantities and/or packaging: **contact us**.

POLIGRAPH 70 PLUS PREMIUM

Medium-low viscosity, thixotropic NPG isophthalic polyester resin.

PROPERTIES

- **Fast curing cycle.**
- **Excellent impregnation into the glass fibre.**
- **Fully compatible with pigments.**
- **High mechanical properties.**
- **High resistance to water and temperature.**
- **Improved thermal conductivity.**

APPLICATIONS

- Designed as a base resin for fibreglass work.
- Excellent intercoat adhesion and very low linear and volumetric shrinkage.
- The percentage of mek peroxide should be between 0.75 % and 1.5 %, but can be increased to 2 % to reduce gel time.
- The application can be manual or by machine.
- Suitable for use in pultrusion, BMC, and SMC processes.

STORAGE AND PACKAGING

- The product should be **stored in a dry place** at a temperature not exceeding **25 ºC.**
- The expiry date is **6 months** under these conditions.
- Generally, the products will be supplied in **drum** format.
- For other quantities and/or packaging: **contact us**.

TECHNICAL CHARACTERISTICS

Appearance	Dark liquid
Exothermic peak temperature (in 45 min)	69,5 ºC
Density	1.65 g/cm^3
Gel time (25 ºC) (1)	7 - 10 min
Brookfield viscosity (H2V30, 25 ºC)	1 000 – 1 500 cPs

(1) 100/0.2 CO/ 1.5 PMEK

MECHANICAL CHARACTERISTICS

Flexural modulus	8 500 - 9 500 MPa
Flexural strength	55 - 65 MPa
Maximum deflection (dL)	0.4 - 0.5 mm
Tensile modulus	6 500 - 7 500 MPa
Tensile strength	30 - 40 MPa
Elongation at break	0.4 - 0.6 %

Mechanical properties of the catalysed resin

Flexural modulus	~ 64 000 MPa
Flexural strength	~ 1 100 MPa
Maximum deflection (dL)	~ 5.2 mm
Tensile modulus	22 200 MPa
Tensile strength	750 MPa
Elongation at break	6.5 %

Mechanical properties of glass fibre reinfor-

POLIGRAPH 70 LV PLUS PREMIUM

Low viscosity, thixotropic NPG isophthalic polyester resin.

PROPERTIES

- **Fast curing cycle.**
- **Excellent impregnation in the glass fibre.**
- **Fully compatible with pigments.**
- **High mechanical properties.**
- **High resistance to water and temperature.**

APPLICATIONS

- Specially designed as a base resin for fibreglass or injection resin works.
- Excellent intercoat adhesion and very low linear and volumetric shrinkage.
- Inert mineral fillers can be added, such as calcium carbonate, alumina trihydrate, silica, etc. The percentage of mek peroxide to be added is between 0.75% and 1%, although it can be increased to 2% to reduce the gel time.
- The application can be manual or by machine.
- May be used in pultrusion, lamination, RTM and Filament Winding processes.

TECHNICAL CHARACTERISTICS

Appearance	Dark liquid
Exothermic peak temperature	69.5 ºC
Density	1.45 g/ml
Gel time (25 ºC) (1)	7 - 10 min
Brookfield viscosity (H2V100, 25 ºC)	600 – 800 cPs

(1) 100/0.3 CO/1.5 PMEK

MECHANICAL CHARACTERISTICS

Flexural modulus	7 500 - 8 250 MPa
Flexural strength	60 - 70 MPa
Maximum deflection (dL)	0.65 - 0.85 mm
Tensile modulus	5 000 - 5 700 MPa
Tensile strength	30 - 45 MPa
Elongation at break	0.70 - 0.90%

Mechanical properties of the catalysed resin

STORAGE AND PACKAGING

- The product should be **stored in a dry place** at a temperature not exceeding **25 ºC.**
- The expiry date is **6 months** under these conditions.
- Generally, the products will be supplied in **drum** format.
- For other quantities and/or packaging: **contact us**.

VINILGRAPH 901 PLUS PREMIUM

Bisphenol A type epoxy vinyl ester resin with graphene, of medium viscosity and reactivity. It provides excellent corrosion resistance to a broad range of organic and inorganic acids, alkalis, oxidizing chemicals and salt solutions etc. It also provides very good mechanical strength such as tensile and flexural while incorporated with reinforcement such as glass fibre, carbon fibre, etc.

PROPERTIES

- **High mechanical properties.**
- **High chemical resistance.**
- **Excellent corrosion resistance.**
- **Improved thermal conductivity.**

APPLICATIONS

- Specially designed as a base resin reinforcement, such as glass fibre, carbon fibre, etc.
- Excellent intercoat adhesion and very low linear and volumetric shrinkage.
- The percentage of MEK peroxide to be added is between 0.6 % and 1 %, although it can be increased to 2 % to reduce the gel time.
- The application can be manual or by machine.
- May be used in pultrusion, hand lay-up, BMC and SMC processes.

TECHNICAL CHARACTERISTICS

Appearance	Dark liquid
Specific Gravity	1.4 - 1.5
Gel time (25 ºC) (1)	18-20 min
Viscosity brookfield (SPL2V25, 25 ºC)	1 500 - 2 500 cPs

(1) 100/0.3 C0/0.6 PMEK Temperature: 25 ºC

STORAGE AND PACKAGING

- The product should be **stored in a dry place** at a temperature not exceeding **25 ºC.**
- The expiry date is **6 months** under these conditions.
- Generally, the products will be supplied in **drum** format.
- For other quantities and/or packaging: **contact us**.

MECHANICAL CHARACTERISTICS

	Mechanical properties of the catalysed resin	*Mechanical properties of carbon fibre reinforced resin (60%)*	*Mechanical properties of glass fibre reinforced resin (72%)*
Flexural modulus	8 000 - 9 500 MPa	~ 155 000 MPa	~ 67 000 MPa
Flexural strength	45 - 65 MPa	~ 882 MPa	~ 1 200 MPa
Maximum deflection (dL)	0.55 - 0.75 mm	~ 3.10 mm	~ 10 mm
Tensile modulus	5 500 - 6 500 MPa	~ 26 000 MPa	~ 22 000 MPa
Tensile strength	30 - 50 MPa	~ 1 000 MPa	~ 800 MPa
Elongation at break	0.5 - 0.7 %	~ 5 %	~ 6 %

VINILGRAPH 901 LV PLUS PREMIUM

Bisphenol A type epoxy vinyl ester resin with graphene, of medium-low viscosity and reactivity.
It provides excellent corrosion resistance to a broad range of organic and inorganic acids, alkalis, oxidising chemicals, and salt solutions, etc. It also provides very good mechanical strength such as tensile and flexural strength when incorporated with reinforcements such as glass fibre, carbon fibre, etc.linear and volumetric shrinkage.

PROPERTIES

- **High mechanical properties.**
- **High chemical resistance.**
- **Excellent corrosion resistance.**
- **Improvement of thermal conductivities.**

APPLICATIONS

- Specially designed as a base resin reinforcement such as glass fibre, carbon fibre etc.
- Excellent intercoat adhesion and very low linear and volumetric shrinkage.
- The percentage of mek peroxide to be added is between 0.6% and 1 %, although it can be increased to 2% to reduce the gel time.
- The application can be manual or by machine.
- May be used in pultrusion, lamination, RTM or filament winding processes.

TECHNICAL CHARACTERISTICS

Appearance	Dark liquid
Specific Gravity	1.3 - 1.4
Gel time (25 °C) (1)	18-20 min
Viscosity brookfield (SPL2V25, 25 °C)	800 - 1 200 cPs

(1) 100/0.3 C0/0.6 PMEK Temperature: 25°C

MECHANICAL CHARACTERISTICS

Flexural modulus	7 000 - 8 000 MPa
Flexural strength	50 - 60 MPa
Maximum deflection (dL)	0.7 - 0.9 mm
Tensile modulus	5 000 - 5 500 MPa
Tensile strength	35 - 45 MPa
Elongation at break	0.5 - 0.7 %

Mechanical properties of the catalysed resin

STORAGE AND PACKAGING

- The product should be **stored in a dry place** at a temperature not exceeding **25 °C.**
- The expiry date is **6 months** under these conditions.
- Generally, the products will be supplied in **drum** format.
- For other quantities and/or packaging: **contact us**.

GELGRAPH GEL COAT ISO AIRLESS

Gelgraph Gel Coat ISO Airless is a gel coat based on isophthalic unsaturated polyester NPG with graphene, designed for industrial and high performance applications. Its advanced formulation provides high mechanical, chemical and weather resistance, excelling in applications where durability and protection are required.

PROPERTIES

- **Excellent chemical resistance:** withstands exposure to aggressive environments.
- **Excellent mechanical resistance:** provides a hard and tough coating.
- **Adapted viscosity:** allows application by brush, roller or spray (airless).
- **Thermal resistance:** good stability at high temperatures.
- **High resistance to UV, hydrolysis and ageing.**
- **Excellent adhesion and flexibility.**
- **Low loss of mechanical properties at high temperatures.**

APPLICATIONS

- Marine industry: coatings for boats and marine structures.
- Automotive industry: durable and impact resistant finishes.
- Industrial coatings: surface protection in aggressive environments.
- Glass fibre reinforced polyester moulds and parts.
- Use for finishing shower trays.

TECHNICAL CHARACTERISTICS

Appearance	White
Exothermic peak temperature	120 - 175 °C
Gel time (25 °C) (1)	4 - 15 min
Shore hardness	95 - 105

(1) 100 Gel Coat + 0,225 g Co(6 %) + 1,2 % MEK

MECHANICAL CHARACTERISTICS

Flexural modulus	6 200 - 7 200 MPa
Flexural strength	45 - 60 MPa
Maximum deflection (dL)	0,65 - 0,85 mm
Tensile modulus	4 500 - 5 000 MPa
Tensile strength	25 - 35 MPa
Elongation at break	0,55 - 0,75 mm

Mechanical properties of the catalysed Gel

STORAGE AND PACKAGING

- The product should be **stored in a dry place** at a temperature not exceeding **25 °C.**
- The expiry date is **6 months** under these conditions.
- In general, the products will be supplied in **cans and drums.**
- For other quantities and/or packaging: **contact us**.

GELGRAPH GEL COAT ISO MOULDS

Gelgraph Gel Coat ISO Moulds is a gel coat based on isophthalic unsaturated polyester NPG with graphene, designed for industrial and high performance applications. Its advanced formulation provides high mechanical, chemical and weather resistance, excelling in applications where durability and protection are required.

PROPERTIES

- **Excellent chemical resistance:** withstands exposure to aggressive environments.
- **Excellent mechanical resistance:** provides a hard and tough coating.
- **Adapted viscosity:** allows application by brush, roller or spray (airless).
- **Thermal resistance:** good stability at high temperatures.
- **High resistance to UV, hydrolysis and ageing.**
- **Excellent adhesion and flexibility.**
- **Low loss of mechanical properties at high temperatures.**

APPLICATIONS

- Marine industry: coatings for boats and marine structures.
- Automotive industry: durable and impact resistant finishes.
- Industrial coatings: surface protection in aggressive environments.
- Glass fibre reinforced polyester moulds and parts.
- Use for finishing shower trays.

TECHNICAL CHARACTERISTICS

Appearance	White
Exothermic peak temperature	120 - 175 ºC
Gel time (25 ºC) (1)	4 - 15 min
Shore hardness	95 - 105

(1) 100 Gel Coat + 0,225 g Co(6 %) + 1,2 % MEK

MECHANICAL CHARACTERISTICS

Flexural modulus	7000 - 8000 MPa
Flexural strength	50 - 65 MPa
Maximum deflection (dL)	0,7 - 1,0 mm

STORAGE AND PACKAGING

- The product should be **stored in a dry place** at a temperature not exceeding **25 ºC.**
- The expiry date is **6 months** under these conditions.
- In general, the products will be supplied in **cans and drums.**
- For other quantities and/or packaging: **contact us**.

VINILGRAPH CONDUCTIVITY 83

Bisphenol A type epoxy-based vinylester resin with graphene materials. It is a premium resin with improved reactivity and purity. It provides excellent corrosion resistance to a wide range of organic and inorganic acids, alkalis, oxidizing agents, and salts in solution, etc. It has very good mechanical properties in both tensile and bending, and can be used with glass and carbon fiber. It has high electrical conductivity since its resistivity is 20 Ω*m.

PROPERTIES

- **Very low material resistivity, approximately 20 Ω·m as a semiconductor.**
- **Excellent performance against resistance to chemical agents.**
- **Fully compatible with carbon and glass fibre.**
- **High mechanical properties.**

APPLICATIONS

- In applications where the material is required to have electrical conductivity.
- Good intercoat adhesion and very low linear and volumetric shrinkage.
- The percentage of MEK peroxide should be between 1% and 1.5%, although it can be increased up to 2% to reduce the gel time.
- The application can be manual or by machine.
- May be used in laminating processes.

STORAGE AND PACKAGING

- The product should be **stored in a dry place** at a temperature not exceeding **25 ºC.**
- The expiry date is **6 months** under these conditions.
- In general, the products will be supplied in **IBCs and barrel.**
- For other quantities and/or packaging: **contact us**.

TECHNICAL CHARACTERISTICS

Appearance	Dark liquid
Density	1.1 g/cm^3
Gel time (25°C)(1)	14-16 min
Viscosity Brookfield (H3V80, 25°C)	7,700 - 7,900 cPs
Resistivity	20 Ω·m

(1) 100 Gel Coat + 0,225 g Co(6 %) + 1,2 % MEK

MECHANICAL CHARACTERISTICS

Flexural modulus	3,968 MPaa
Flexural strength	43.1 MPa
Maximum deflection (dL)	1.1 mm
Tensile modulus	3,130 MPa
Tensile strength	24.9 MPa
Elongation at break	0.80%

VINILGRAPH CONDUCTIVITY 82

Bisphenol A type epoxy-based vinylester resin with graphene materials. It is a premium resin with improved reactivity and purity. It provides excellent corrosion resistance to a wide range of organic and inorganic acids, alkalis, oxidizing agents, and salts in solution, etc. It has very good mechanical properties in both tensile and bending, and can be used with glass and carbon fiber. It has high electrical conductivity since its resistivity is 100 Ω*m.

PROPERTIES

- **Very low material resistivity, approximately 100 Ω·m as a semiconductor.**
- **Excellent performance against resistance to chemical agents.**
- **Fully compatible with carbon and glass fiber.**
- **High mechanical properties.**

APPLICATIONS

- In applications where the material is required to have electrical conductivity.
- Good intercoat adhesion and very low linear and volumetric shrinkage.
- The percentage of MEK peroxide should be between 1% and 1.5%, although it can be increased up to 2% to reduce the gel time.
- The application can be manual or by machine.
- May be used in laminating processes.

STORAGE AND PACKAGING

- The product should be **stored in a dry place** at a temperature not exceeding **25 °C.**
- The expiry date is **6 months** under these conditions.
- Existing containers are **IBCs and barrels.**
- For other quantities and/or packaging: **contact us**.

TECHNICAL CHARACTERISTICS

Appearance	Dark liquid
Density	1.1 g/cm^3
Gel time (25°C)(1)	8-10 min
Viscosity Brookfield (H3V80, 25°C)	1,200 - 1,400 cPs
Resistivity	100 Ω*m

(1) 100/6% CoOct. 0,3%/1,2% PMEK

MECHANICAL CHARACTERISTICS

Flexural modulus	3,912 MPa
Flexural strength	30.63 MPa
Maximum deflection (dL)	0.77 mm
Tensile modulus	3,010 MPa
Tensile strength	25.7 MPa
Elongation at break	0.86%

Graphenano
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GRAPHENE INSIDE

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