

ELYCOLD[®]

DISCONTINUOUS LAMINATION GELCOAT ROLLS AND SHEETS

ELYPLAN[®]

CONTINUOUS LAMINATION GELCOAT ROLLS AND SHEETS



FIBERGLASS LAMINATES



► Brianza Plastica is a global leader in the manufacture of **FIBERGLASS LAMINATES IN SHEETS AND ROLLS**. Our experience spans more than 50 years and our products are utilized in a number of markets, including construction, agriculture, transportation and customized applications.

Prior to 2006, Brianza Plastica specialized in the production of discontinuous laminates by hot polymerization.

Our knowledge, gained through years of experience, coupled with increasing market demand for better products, led us to the development of superior insulating panels that are used for recreational and temperature controlled vehicles.

In 2006, Brianza Plastica opened a new state-of-the-art production facility in Rovigo, Italy. The Rovigo facility houses discontinuous process and cold lamination equipment that produces our flat laminate, **Elycold**.

In 2009, Brianza Plastica continued its growth and expanded its capabilities by acquiring a new production facility complex near Ostellato, Italy. The great success achieved with the acquisition has fueled our commitment and investment in a dedicated site for the production of temperature controlled transport laminates. This site in Carate Brianza, Italy, produces our superior quality hot lamination panel, **Elyplan**.

Due to its superior quality backed by an economical price point, Elyplan is the best alternative to cold lamination products.

Brianza USA Corporation was established in January 2014 in Elkhart, Indiana (USA). It is equipped with a warehouse and distribution centre to serve manufacturers of recreational vehicles (campers and caravans) and motor vehicles (trucks, buses) throughout the entire US.

Brianza Plastica supplies fiberglass laminates obtained from cold and hot lamination plants which are able to satisfy all market requirements.

Besides, with its three production sites dedicated to fiberglass, it presents itself as a point of reference in the sector for the next few years.

ELYCOLD®

GELCOAT ROLLS AND SHEETS PRODUCED
IN DISCONTINUOUS LAMINATION

ELYPLAN®

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IN CONTINUOUS LAMINATION



San Martino di Venezze (Rovigo) - Italy



Ostellato (Ferrara) - Italy



Elkhart (Indiana) - USA



Carate Brianza (Milan) - Italy



► Roll Dimensions

Sheets on demand

Thickness: from 0.039 to 0.16 in
(from 1 to 4 mm)

Dimensions: max width 11.15 ft
(3400 mm)
Length: 196.85 ft (60 m)

► Gelcoat rolls and sheets produced in discontinuous lamination

Elycold is produced from the combination of polyester resin (orthophthalic and isophthalic) and glass fiber and is known for providing manufacturers with **superior long-term durability and UV protection**. Because of the superior attributes of this composite, standard aluminum, used in the production of refrigeration panels for commercial vehicles, campers, caravans and motorhomes has been virtually replaced.

In addition, another attribute that makes fiberglass panels an exceptional product is, unlike aluminium panels, fiberglass panels can be repaired efficiently and quickly.

Elycold laminates are produced at an ambient temperature polymerization process thus are devoid of thermal shocks typical of the continuous product. This results in a **perfect flat panel** with an appealing aesthetic quality.

The **optimal dimensional stability** of the laminate is guaranteed by the use of a fiberglass **CHOPPED STRAND MAT** and when combined with **WOVEN ROVING** reinforcement, mechanical features of the laminate are further improved.

► Properties

Gelcoat resins low in styrene and with high resistance to ultraviolet rays ensure:

- **Perfect overlay of the underlying fiberglass**
- **Sustainable surface durability**
- **Impermeability and insulation protection inside the panel**
- **Low level of yellowing recorded by ageing tests performed with UV – CON**





► Technical data

		ELYCOLD Only Mat				
Thickness (h) ⁽¹⁾	mm	1.15	1.50	2.00	2.50	3.00
Thickness (h) ⁽¹⁾	in	0.045	0.060	0.080	0.10	0.12
Glass reinforcement ⁽¹⁾	lb/ft ²	0.077	0.123	0.184	0.230	0.276
Density ⁽¹⁾	lb/ft ³	87.40	87.40	90.52	90.52	90.52
Weight ⁽¹⁾	lb/ft ²	0.338	0.461	0.614	0.748	0.881
Glass Content ⁽¹⁾	%	23	27	30	31	31
Hardness (UNI EN 59)	Barcol	40/45	40/45	40/45	40/45	40/45
Tensile Strength (UNI EN ISO 527 - 4/2/2)	Long. MPa	72	89	95	99	102
	Transv. MPa	65	80	86	89	92
Elastic Modulus (E) (UNI EN ISO 527 - 4/2/2)	Long. MPa	6900	7200	7500	7700	7800
	Transv. MPa	6100	6400	7100	7300	7400
Water Absorption ⁽¹⁾	%	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0
Styrene Content ⁽¹⁾	%	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0

⁽¹⁾ Company Method

		ELYCOLD Mat + Woven Roving		
Thickness (h) ⁽¹⁾	mm	1.50	2.00	2.70
Thickness (h) ⁽¹⁾	in	0.060	0.080	0.11
Glass reinforcement ⁽¹⁾	lb/ft ²	0.077/0.061	0.123/0.061	0.184/0.102
Density ⁽¹⁾	lb/ft ³	91.14	90.52	93.64
Weight ⁽¹⁾	lb/ft ²	0.451	0.573	0.819
Glass Content ⁽¹⁾	%	30	31	35
Hardness (UNI EN 59)	Barcol	40/45	40/45	40/45
Tensile Strength (UNI EN ISO 527 - 4/2/2)	Long. MPa	120	120	131
	Transv. MPa	111	111	121
Elastic Modulus (E) (UNI EN ISO 527 - 4/2/2)	Long. MPa	7900	8300	9600
	Transv. MPa	7500	7900	9200
Water Absorption ⁽¹⁾	%	≤ 1.0	≤ 1.0	≤ 1.0
Styrene Content ⁽¹⁾	%	≤ 1.0	≤ 1.0	≤ 1.0

⁽¹⁾ Company Method



▲ Outer side finishing

- **Gelcoat protected**
100% isophthalic resin and anti-UV; available in **glossy** or **satín** finish.
- **Film protected**
Designed to reduce damage during handling.
- **Colors**
Offered are a compendium of colors corresponding with standardized RAL/PANTONE codes and custom colors are available upon request.

▲ Inner side finishing

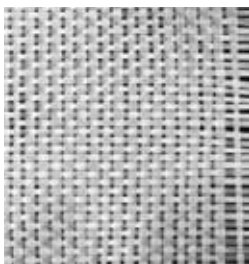
- **Film grooved**
A unique "sanded" surface diminishes dust adherence and improves bonding strength.
- **Mechanically grooved**
Mechanical sanding designed to enhance bonding strength.
- **Open fibers**
Glass fibers, visible on the surface, enable the use of resin in bonding.
- **Smooth**
No treatment, for those who require particular properties.

► ELYCOLD Glass Composition



Chopped strand mat

Specialized MAT composed of chopped fibers.
The MAT gives the laminate a better appearance by reducing the visibility of fibers on the surface. Varying MAT weights allow the opportunity to meet many different market needs and requirements.



Woven roving

Layers of orthogonally woven fiberglass increase the strength of the laminate.

Brianza Plastica offers 2 different types of woven roving:

- 300 gr/m²: suggested for applications requiring high strength properties.
- 500 gr/m²: suggested for applications requiring exceptional strength properties

► ELYCOLD ANTI-SLIP



Particularly suitable for the interior floors of vans; this laminate is composed of grey gelcoat and quartzite combination.

The rough surface of Elycold Anti-Slip laminate prevents slipping of vehicle loads and has greater impact resistance than standard laminates. Available in various thicknesses and in versions with MAT and MAT + WOVEN ROVING.

► Ultralight laminates with extraordinary features

► Microspheres

Inert Gas Microspheres in the resin are basis for a lighter laminate without compromise to the density of the material.



► Elycold Xlite / Lite

Represents the ideal solution for those who need an aesthetically **appealing extra thick laminate that is durable yet light weight**. Our resins and along with other components allows the increase thickness without adding weight. This is accomplished without decreasing the density of the laminate and while still securing a stronger rigidity that leads to uncompromised panel and underlying structure flatness.

Elycold Xlite/Lite is particularly suitable for the production of ultra-light vans, large recreational vehicles and prestigious specialized paddock vehicles.

Uncompromised performance of Brianza Plastica's laminates:

- Gelcoat resistant to UV and to chemical agents
- Availability in a vast selection of colors
- Mechanical performance according to different needs

Elycold Xlite laminates are available in rolls of 196.85 ft (60 m) lengths and variable thickness from 0.06 to 0.12 in (from 1.5 to 2.9 mm).

Elycold Lite laminates are available in rolls of 196.85 ft (60 m) lengths and variable thickness from 0.12 to 0.16 in (from 3 to 4 mm).

► Technical data

		ELYCOLD Only Mat					ELYCOLD Mat + Woven Roving		
		Xlite			Lite		Xlite		Lite
Thickness (h) ⁽¹⁾	mm	1.50	2.00	2.50	3.00	4.00	2.00	2.50	3.20
Thickness (h) ⁽¹⁾	in	0.060	0.080	0.10	0.12	0.16	0.080	0.10	0.13
Glass reinforcement ⁽¹⁾	lb/ft ²	0.092	0.138	0.184	0.230	0.276	0.102/0.061	0.138/0.061	0.184/0.102
Density ⁽¹⁾	lb/ft ³	78.03	78.66	78.66	79.07	74.91	81.16	77.41	80.96
Weight ⁽¹⁾	lb/ft ²	0.410	0.522	0.645	0.778	0.983	0.533	0.635	0.850
Glass Content ⁽¹⁾	%	23	26	29	30	28	31	31	35
Hardness (UNI EN 59)	Barcol	35/40	35/40	35/40	35/40	35/40	35/40	35/40	35/40
Tensile Strength (UNI EN ISO 527 - 4/2/2)	Long. MPa	67	79	86	89	84	100	100	111
	Transv. MPa	62	73	79	82	78	93	92	102
Elastic Modulus (E) (UNI EN ISO 527 - 4/2/2)	Long. MPa	4650	5400	5900	6100	5800	6900	7000	8100
	Transv. MPa	4400	5200	5600	5800	5500	6550	6600	7800
Water Absorption ⁽¹⁾	%	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0
Styrene Content ⁽¹⁾	%	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0

⁽¹⁾ Company Method



► Roll Dimensions

Sheets on demand

Thickness: from 0.039 to 0.99 in
(from 1 to 2.5 mm)

Dimensions: max width 10.5 ft
(3200 mm)
Length on request



► Continuous lamination with isophthalic gelcoat

Brianza Plastica is the only Company in the sector that can boast both a discontinuous and continuous production line.

With the aim of expanding its range of products and of better meeting the growing needs of the Market, the Company has recently invested in an innovative continuous production line, created specifically to meet the various qualitative and quantitative requirements.

The main advantage of continuous production is the achievement of the highest possible composite material polymerisation by leveraging technology that is designed for this specific attribute.

This technology not only supports the production of a perfectly flat product with tight dimensional tolerances but supports the production in a cost effective manner.

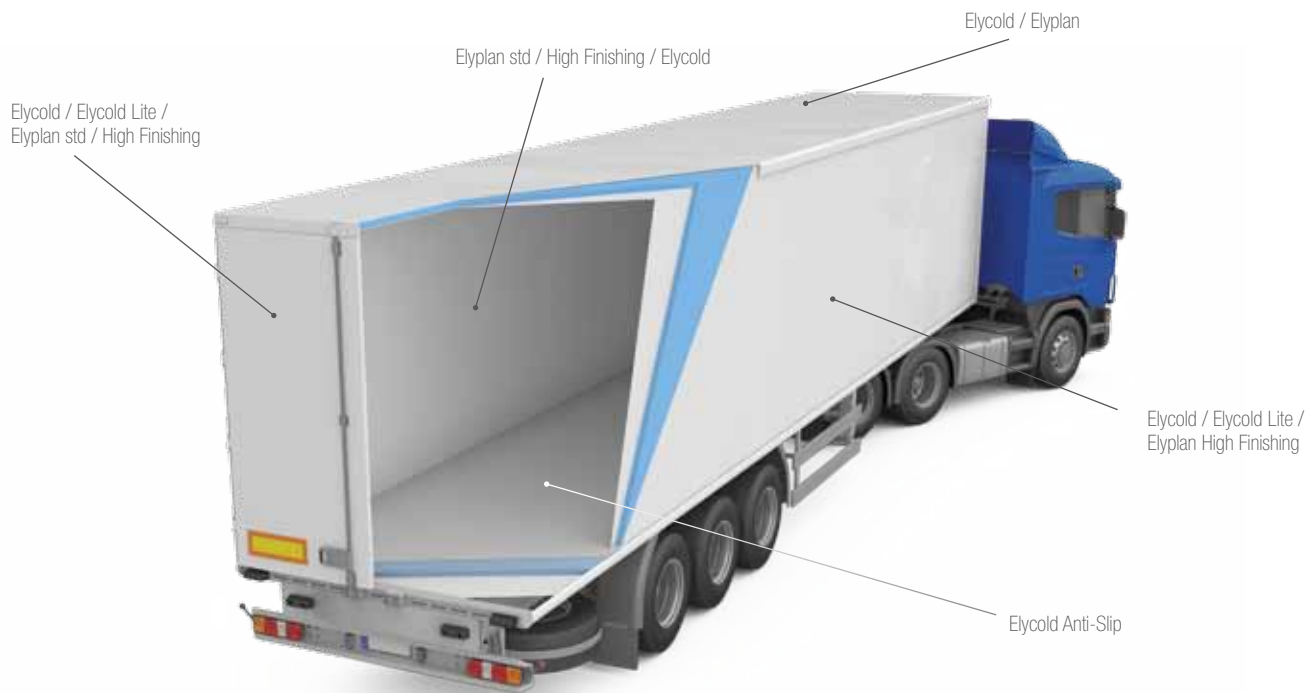
Elyplan is manufactured in our next-generation plant, crowning Brianza Plastica's over fifty years experience in the flat laminates sector.

The plant's flexibility supports the selection of the most suitable laminate according to the different production criteria of various uses: temperature controlled transport industry, vans, refurbishment of walls, cold storage rooms and translucent roofs for sheeted articulated lorries; wherever **smooth and cleanable surfaces with high resistance to corrosive elements** are required.

► Properties

The exceptional quality of Elyplan is guaranteed by the use of **high grade raw materials** and by the **gelcoat** obtained from high elastic isophthalic resins that are resistant to yellowing and impermeability to water vapor and condensation.

Elyplan provides complete panel protection from humidity to the panel's sensitive elements, be they expanded insulations or wood stratifications. Insulation features are unaltered, granting that ATP certifications are kept on a long term basis or a better performance of refrigeration machines.



► Technical data

		ELYPLAN NO GEL Only Roving				ELYPLAN GEL Only Roving			
Thickness (h) ⁽¹⁾	mm	0.80	1.00	1.50	2.00	1.00	1.50	2.00	2.50
Thickness (h) ⁽¹⁾	in	0.032	0.039	0.060	0.080	0.039	0.060	0.080	0.10
Density ⁽¹⁾	lb/ft ³	86.25	87.50	87.50	87.50	50.52	50.88	50.52	50.52
Weight ⁽¹⁾	lb/ft ²	0.225	0.287	0.430	0.573	0.287	0.430	0.573	0.717
Glass Content ⁽¹⁾	%	27	27	27	27	23	25	26	27
Hardness (UNI EN 59)	Barcol	40/45	40/45	40/45	40/45	40/45	40/45	40/45	40/45
Tensile Strength (UNI EN ISO 527 - 4/2/2)	Long. MPa	72	80	95	100	63	81	89	94
	Transv. MPa	66	70	88	90	55	75	80	85
Elastic Modulus (E) (UNI EN ISO 527 - 4/2/2)	Long. MPa	6770	7240	7560	7870	6210	6480	6750	7060
	Transv. MPa	5940	6400	6720	7450	5490	5760	6390	6750
Water Absorption ⁽¹⁾	%	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0
Styrene Content ⁽¹⁾	%	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0

⁽¹⁾ Company Method

		ELYPLAN NO GEL Woven Roving			ELYPLAN GEL Woven Roving			
Thickness (h) ⁽¹⁾	mm	1.50	2.00	2.50	1.30	1.50	2.00	2.50
Thickness (h) ⁽¹⁾	in	0.060	0.080	0.10	0.051	0.060	0.080	0.10
Density ⁽¹⁾	lb/ft ³	93.75	93.75	93.75	93.75	54.13	54.13	54.13
Weight ⁽¹⁾	lb/ft ²	0.461	0.614	0.758	0.389	0.461	0.614	0.758
Glass Content ⁽¹⁾	%	36	33	32	33	33	32	31
Hardness (UNI EN 59)	Barcol	40/45	40/45	40/45	40/45	40/45	40/45	40/45
Tensile Strength (UNI EN ISO 527 - 4/2/2)	Long. MPa	130	128	125	110	113	114	114
	Transv. MPa	129	126	123	109	112	113	113
Elastic Modulus (E) (UNI EN ISO 527 - 4/2/2)	Long. MPa	8800	8800	8900	7300	7500	7950	8125
	Transv. MPa	8400	8700	8900	7100	7150	7550	7800
Water Absorption ⁽¹⁾	%	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0
Styrene Content ⁽¹⁾	%	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0

⁽¹⁾ Company Method



► Outer side



► Inner side

► Outer side finishing

- Gelcoat protected

100% isophthalic resin and anti-UV; available in **glossy** or **satín** finish.

- Film protected

Designed to reduce damage during handling.

- Colors

Offered are a compendium of colors corresponding with standardized RAL/PANTONE codes and custom colors are available upon request.

► Inner side finishing

- Corona treatment

A high voltage, high frequency but low current wave treatment designed to increase the surface energy and wetting out of the laminate. The result is a smooth surface perfect for bonding with polyurethane mono/bi-component glues.

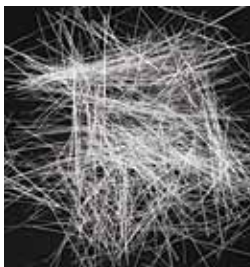
- Mechanically grooved

Mechanical sanding allowing excellent bonding.

- Smooth

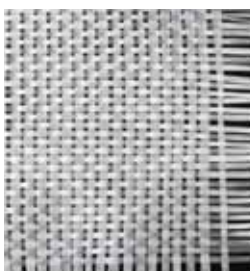
No treatment option is available for application not requiring a Corona or mechanically grooved treatment.

► ELYPLAN Glass Composition



Roving

Fiberglass cut to a length of 0.19 in (5 cm) evenly distributed on the laminate.



Woven roving

Layers of orthogonally woven fiberglass designed to increase the laminate strength.



Mat

Available in the version Elyplan HF.



► SPECIAL PRODUCTS

► ELYPLAN EXTRA GLASS

Rolls and sheets with and without gelcoat produced in a continuous process

This type of laminate has been designed specifically to meet the needs of customers who want more technically efficient materials.

Available with or without gelcoat, Elyplan Extra Glass contains a high percentage of glass that offers **high rigidity** combined with **low specific weight**.

Suitable for special applications such as roofs for buses and the inner and outer walls of temperature-controlled vehicles.



► ELYPLAN EMBOSSED

Rolls and sheets produced in a continuous process with embossed finish

This **particular finish**, widely used for the bodies of campervans and caravans, is now used with considerable success in various design applications, such as finishes for interior doors or partitions. Elyplan Embossed is supplied **without gelcoat** and has the same technical characteristics of standard Elyplan. Available in rolls or sheets up to 9 ft (3 metres) in width.





▲ ELYPLAN HIGH FINISHING

Rolls and sheets with mat produced in a continuous process

As part of the Company's continual improvement process, Brianza Plastica recently expanded its range in order to offer customers a greater selection of products designed for any type of need.

Introduced in 2013, the new Elyplan High Finishing laminate uses **“chopped strand mat”** which gives the laminate a better appearance by reducing the visibility of fibres on the surface. Particularly suitable for large industrial vehicles, it combines the advantages of continuous production in terms of material quality to the economic advantages coming from the type of production.

► ELYPLAN DESIGN

Rolls and sheets produced in a continuous process with printed-paper finish

Available in standard thicknesses, the Elyplan Design is ideal for customers who want a non-standard finish.

All the basic characteristics of the laminate remain unchanged; the paper finish is available up to a maximum width 7 ft (2.2 m).

Particularly suitable for the inside of campers, caravans and motor homes, it combines the properties of lightness and water-resistance of polyester laminate with the **aesthetic beauty of paper finishes**.

The wood effect, for example, also comes in a 3D version to recreate the enveloping sensation of warmth generated by wood.



Example of 3D wood finish



ECO-FRIENDLY PRODUCTION



► Brianza Plastica has always stood out for its business model that focuses on safety, the environment and people.

It operates in full compliance with the laws on environmental hygiene and for this purpose has equipped its fiberglass laminates production facilities with powerful suction systems that purify the internal production areas by carrying the solvents generated during the production process to modern **abatement plants**.

In the three fiberglass laminates factories located in Carate Brianza, S. Martino di Venezze and Ostellato, Italy, Brianza Plastica has installed three state-of-the-art abatement plants with innovative solvent concentration and destruction process.

The abatement plant **automatically feeds itself** by **recovering the heat** generated by the combustion of the solvent. The heat recovered from the combustion is reused in part to feed the plant itself and in part to generate hot water for heating.



MAIN USES



- ▶ - Thermo- insulating panels for temperature controlled refrigerated trucks
- Campers and caravans
- Covering of cold storage rooms
- Ambient reclamation with high hygienic needs
- Covering of insulated tankers and containers
- Covering of road signs
- Street vendor vehicles
- Door panels



► GENERAL CHARACTERISTICS

► Resins

Brianza Plastica guarantees the use of the best available resins on the Market. The use of pure orthophthalic stratification and isophthalic gelcoat resins helps the laminate to be more flexible and resistant.

► Styrene

Optimizing the amount of styrene contained in the laminate ensures optimum efficiency during bonding; Brianza Plastica laminates have a styrene content $\leq 1\%$. Thanks to this property it is perfectly suited for bonding with polyester resins and mono/bi-component polyurethane glues.

► Internal surfaces

Brianza Plastica offers 5 solutions according to the different kind of bonding:

INTERNAL SURFACE	TYPE OF LAMINATE	BONDING WITH RESINS	BONDING WITH GLUE
SMOOTH	Elyplan - Elycold	NO	YES
ROUGH	Elycold	YES	NO
CORONA TREATMENT	Elyplan	NO	YES
MECHANICALLY GROOVED	Elyplan - Elycold	YES	YES
FILM GROOVED	Elycold	NO	YES

The above combinations are suggestions, we recommend product trial before the final use.

► Packing

Elycold rolls are suitably lodged in steel cradles or in polystyrene and wood.

Elyplan rolls, besides on pallets, can be loaded and transported freely on wooden supports within the transport vehicle.

Elyplan and Elycold sheets are loaded and transported on pallets.

► Identification and Tracking

To assist in accurate identification and tracking of product, each roll is assigned a serialized identification tag.

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ROLLS AND SHEETS

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Brianza Plastica SpA

Via Rivera, 50 - 20841 Carate Brianza - Italy

Tel. +39 0362 91601

Fax +39 0362 990457

flatlaminates@brianzaplastica.it

www.flatlaminates.com

www.brianzaplastica.it



Brianza USA Corporation

21099 Protecta Drive

Elkhart, IN 46516 - USA

Fax/Phone 1-574-295-9253

mobile 1-574-855-9520

www.brianzausacorp.com

info@brianzausacorp.com