Stock Code:1802



Spokesperson: Lin, C M GM, Finance Dept.

Provide satisfactory products to our customers through advanced technology and Total Quality Management (TQM).





- This brief and the related information issued meanwhile were obtained from internal and external data of the Company and the operation perspectives, it reflected the viewpoints to the future. If there is any change or adjustment in the hereafter, the Company has no responsibility to remind or update.
- ➤ The Company did not issue financial forecasts. The financial, business or Q&A explanations may differ from actual result in the future. The reasons of differences may include the changed market demand, unsettled factory and material price, industrial competition, international economic situation, exchange rate fluctuation, suppliers and retailers supply chain, and etc. which can not be controlled by the Company.





- > Introduction of Taiwan Glass Group
- > Production Facilities
- > Product Introduction
- ➤ General Operation Situation of 2020
- > Situation and Development of the Market
- ➤ Q&A



Founded in	1964
Capital	NTD\$29.08 billion
Chairman	Mr. Lin, Por Fong
Number of Employee	13,325 (until 2020.9.30)
Date of Listing	Listed in 1973
Main Products	Flat Glass
	Fiberglass
	Glassware

Introduction of Taiwan Glass Group



TGI 19th Directors / 2nd Audit Committee (2018-2021)



(Number from left side to right side)

Lin, PF	Front Row 5	Lin, PS	Front Row 6	Lin, P C	Front Row 7		
Lin, F C	Front Row 4	Chen, C C	Front Row 3	Hwang, T Y	Front Row 2	Peng, C H	Front Row 9
Lim, H T	Front Row 1	Hsu, L L	Front Row 8	Lin, C H	Back Row 4	Su, Y T	Back Row 3
Lin, C Y	Back Row 5	Lin, C M	Back Row 6	Chen, C C	Back Row 2	Tsai, T M	Back Row 1

Production Facilities - Flat Glass













Taiwan Taichung Factory (TF)

Taiwan Lukang Flat Glass Factory (TF-4)

260,343 M²

TG Qingdao Glass Co., Ltd. (QFG) Qingdao Rolled Glass Co., Ltd. (QRG)

TG Changjiang Glass Co., Ltd. (CFG)

TG Chengdu Glass Co., Ltd. (CDG)

250,068 M²

1 Furnace 1 Furnace 140,000 mt/y 200,000 mt/y

429,126 M²

1 Furnace 150,000 mt/y 404,770 M²

2 Furnaces 383,250 mt/y

452,027 M²

2 Furnaces 473,550 mt/y











TG Huanan Glass Co., Ltd. (HNG)

364,907 M²

1 Furnace 292,000 mt/y



398,096 M²

2 Furnaces 400,000 mt/y



 $300,448 \text{ M}^2$

1 Furnace 180,000 mt/y

TG Xianyang Glass Co., Ltd. (TXY)

 $452,703 \text{ M}^2$

1 Furnace 438,000 mt/y

TG Anhui Glass Co., Ltd. (TAH)

572,643 M²

1 Furnace 438,000 mt/y



Production Facilities - Low-E Glass





Taiwan Changpin Factory (TC)

272,480 M²

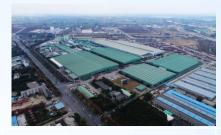
1 Line 4,000,000 m²/y



TG Changjiang Glass Co., Ltd. (CFG)

404,770 M²

1 Line 4,000,000 m²/y



TG Chengdu Glass Co., Ltd (CDG)

452,027 M²

2 Lines 8,000,000 m²/y



TG Huanan Glass Co., Ltd. (HNG)

364,907 M²

1 Line 4,000,000 m²/y



TG Tianjin Glass Co., Ltd. (TJG)

 $300,448 \text{ M}^2$

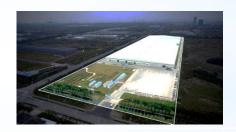
1 Line 4,000,000 m²/y



TG Xianyang Glass Co., Ltd. (TXY)

452,703 M²

1 Line 6,000,000 m²/y



TG Taichang Architectural Glass Co., LTd. (TTAR)

199,525 M²

1 Line 4,000,000 m²/y



TG Wuhan Architectural Glass Co., Ltd. (TWAR)

 $222,000 \text{ M}^2$

1 Line 4,000,000 m²/y



Production Facilities — Fiberglass Reinforced / Fiberglass Fabric





Taiwan Taoyuan Factory (TT)

181,181 M²

2 FRP Fiberglass Fabric 95,000mt/y



370,668M²

1 Electronic Grade FRP Fiberglass Fabric 35,000 mt/y



Taiwan Lukang Factory (TL)

260,343 M²

2 Electronic Grade FRP Fiberglass Fabric 20,000 mt/y



Taichia Glass Fiber Co., Ltd. (TGF)

323,539 M²

3 Electronic Grade FRP Fiberglass Fabric 30,000 mt/y



Taichia Chengdu Glass Fiber Co., Ltd. (TCD)

362,668 M²

1 Electronic Grade FRP Fiberglass Fabric 30,000 mt/y

Production Facilities — Container & Tableware / Ultra-Thin Glass / Photovoltaic Glass / Automotive Glass



Container & Tableware



Ultra-Thin Glass



Photovoltaic Glass



Taiwan Hsinchu Factory (TS)

Taiwan Taichung Factory (TF-5)

TG Fujian Photovoltaic Glass Co., Ltd. (FPG)

129,090 M²

6 Container : 169,000 mt/y 1 Tableware & Kitchenware : 3,000 mt/y $250,068 \text{ M}^2$

1 Ultra-Thin Glass 29,280 mt/y 388,822 M²

1 Photovoltaic Glass 50,000 mt/y

Automotive Glass



Taiwan Autoglass Ind. Corp. (TAGC)

250,068 M²

1 Automotive Glass 250,000 units



TG Yueda Autoglass Co., Ltd. (TYAU)

132,755 M²

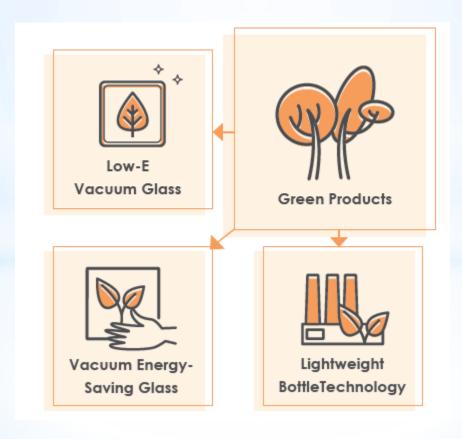
5 Automotive Glass 2,000,000 units

* Main Business and Products



Division	Product Category
Flat Glass Division	 Clear Float Glass Tinted Float Glass Ceramic Silkscreen/Spandrel Glass Rolled Glass Heat Strengthened Glass Low-E Glass Low-E Vacuum Glass Bent Glass/Bent Tempered Glass Reflective Glass Mirror Glass
Fiber Glass Business	 Fiberglass Yarn ● Glass Yarn ● Fiberglass Fabric
Container, Tableware & Kitchenware	 ● Glass Container ● Tableware ● Kitchenware ● Tableware/Kitchenware Glass Processing ● Private Label Products
New Material Business	Ultra-Thin Glass
Solar Business	 ■ Super Clear Glass ■ Low Iron Photovoltaic Cover Glass
Automotive Glass Business	Auto Glass

TGI Group draws on world-class technology and equipment suppliers and accumulates own R&D experience to make efforts in technology improvement and new product research and development. In addition to obtaining a number of quality and environmental certificates, in response to global green energy issues, TGI reduces pollution from the production process to mitigate environmental impact and devotes to develop environmental and energy-saving related products.





Flat Glass

TGI's flat glass has 100% passed the EU CE, US ANSI, Taiwan CNS and other relevant standards. In the production of the flat silver mirror TGI uses advanced lead-free copper process, to avoid heavy metal pollution. TGI also actively promotes the hot-dip process to strengthen glass, even if broken it will become small pieces to reduce harm. Laminated Glass has the PVB interlayer withstands penetration from impact. Even if the glass cracks, splinters will adhere to the interlayer and not scatter. In comparison with other kinds of glass, laminated glass has much higher strength to resist shock, burglary, burst and bullets. Cladding, coating, vacuum and other energy-saving glass has more excellent thermal insulation so it can reduce the heat exchange of indoor and outdoor to save air conditioning usage, and indirectly reduce greenhouse gas emissions.

Flat Glass Related Certification ISO 9001 ISO 9001 ISO 9001 ISO 14001/SGS PASMARK IGCC



Green Product - Flat Glass

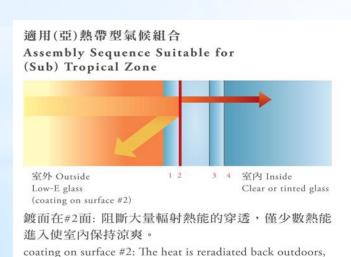
The new generation of energy-saving glass products, Low-E glass, can effectively block thermal radiation from the sun while maintaining good light transmittance, which provides good lighting and heat insulation and saves a great deal of energy consumption in air conditioning. Taiwan Glass Low-E glass products have met the CNS12681 standard and obtained ISO 9001 international quality assurance certification and the IGCC quality certification. Low-E glass has been widely used in buildings.

Taiwan Glass adopts the most advanced coating technology to develop silver-free Low-E (JN88). Compared with the general Low-E coating, the JN88 film structure no longer contains the typical material of the general Low-E coating—silver. JN88 uses hard semi-conductor nanofilm, which still maintains a very low surface emissivity, having excellent heat preservation. The film's high hardness, abrasion resistance, and oxidation resistance allow JN88 to be free from oxidation and film deterioration when exposed to air. The invention of JN88 has added to the variation of applications of offline Low-E glass.

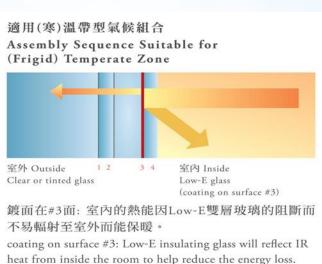
The use of JN88 indoors can not only ensure the stability of the product but also significantly reduce the thermal conductivity of laminated glass and monolithic glass, reducing energy consumption effectively to enhance the energy-saving and value of buildings. After adopting double Low-E cladding, the U value of single-cavity cladding glass is close to that of double-cavity cladding glass, which directly reduces the cost of the curtain wall and the load of curtain wall on the building. This greatly reduces energy consumption and the investment cost of buildings.



Low-E (Low-Emissivity) glass is the best building material to reduce heat from sunlight as it can deflect most ultraviolet and infrared radiation, preventing the indoor temperature from rising, conserving energy, and reducing carbon emission. Thermal radiation from the sun mainly contains ultraviolet, visible light, and infrared radiation. Emissivity (ϵ value, the lower the value, the higher the effectiveness for heat insulation is) glass' ability to emit heat radiation from the sun. Low-E glass utilizes its coating to block the heat radiation from the sun. According to China's GB standards, only coated glass with emissivity (ϵ value) lower than 0.25 can be labeled as Low-E glass.



reducing the heat gain potential into the building interior.



Fiberglass

Compared with metal support materials, fiberglass has excellent corrosion resistance and weather resistance, and at the same time has the advantages of low cost, high strength/weight ratio, and longer service life. According to the different weaving structure and characteristics of fiberglass fabric, it has a wide variation and vastly used for heat preservation, heat insulation, fire prevention, and material reinforcement. TGI's fiberglass products all meet RoHS and REACH requirements. For food contact products, 4 products meet US FDA standards; 8 products meet EU 10/2011 regulation and have Germany's BfR approval; 2 products meet France's requirements for drinking water (CAS). The quality of our products meets CNS (National Standards of the Republic of China). We print the CNS logos on labels according to different customer needs. The packaging labels of fiberglass fabric and fiberglass yarn are marked with RoHS compliant logos.

With the advent of the 5G era in 2020, global information transmission has entered an era of high frequency and high speed. Printed circuit boards (PCB) for Netcom equipment must use Low DK materials to meet the 5G high-frequency and high-speed performance requirements. Following the United States and Japan, TGI became the third manufacturer to successfully develop Low DK fiberglass fabric for high-end PCBs and has been certified by domestic and foreign terminal manufacturers to be used in 5G equipment.













Glass container, tableware, and kitchenware

Glass containers, with excellent transparency, showcase the real color of anything inside containers. Advantages such as easy sealing, long-time storage and suitableness for microwave heating make these containers a necessity for modern people. The manufacturing facility of the container, tableware, and kitchenware has received ISO9001 and FSSC 22000 certification. All products meet Taiwan's Sanitation Standard for Food Utensils, Containers and Packages. TGI can also provide products that meet RoHS and REACH standards based on clients' needs. For our heat-resistant products, all of our baby feeding bottles meet EU's latest EN 14350 standard. Coffee pots come with heat-resistant labeling upon clients' requests.

In 2019, we made every effort to develop the high-price special-shaped bottles. Heat-resistant containers will continue to consolidate the glass bottle market and expand new customer base. TGI also established a recycled glass processing center to clean and reuse recycled glass, and regularly send samples of SGS to test the lead content. In addition, we scrapped the waste glass in the factory and also recycled it through metal detector inspection. Regarding the output and recycling part of customers' waste glass after sales, they will cooperate with Spring Pool Glass to recycle and sell the waste glass to the middle and downstream glass factories, clean and inspect with a metal detector to remove most of the metal contaminants like stainless steel, aluminum, copper, tin, etc. to improve quality of production. In 2019, the average recycling rate reached 56.4% and we obtained the Renewable Green Product Certification from the Bureau of Industry.



TGI's technique to produce glass container and tableware has been able to compete with international recognized brands. Therefore,

we established our private brand, TG. TG targeted the new audiences who pay attention to lifestyle. Besides, in order to create the brand

image and build the products style, we invited Fukasawa Naoto, who is a Japanese artist of industrial design, to plan and design with the

observation of Taiwanese culture. He merged the feelings such as "kindness", "mild" and "nature" into the design. TG has published 85 kinds

of products. The varieties of products reach to 200. It has sold products includes water containers, coffee pots and drinking vessel since 2019

and is also injecting new ideas into Taiwan's life aesthetics. TGI hope the new brand could extend into global markets with its base in Taiwan.



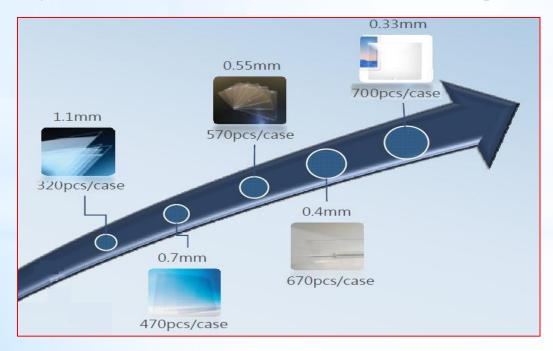






Ultra-Thin Glass

The TF5 furnace in Taichung Factory is a newly established production line for Ultra-thin touch glass. Introducing the installations of Computerized Automated Production Management System, cleanroom and mechanical arms for collecting glass panes, this line started production in November 2014 with mass production for 0.33~1.1mm glass. The 0.55~0.11 glass could be used for ITO touch panels and the 0.33~0.4mm glass could be used as screen protector for 3C products. All of the products undergo strict inspections before shipment. The high-quality product is able to provide for major electronic manufacturers at home and abroad to produce consumer electronic goods.



* General Operation Situation of 2020



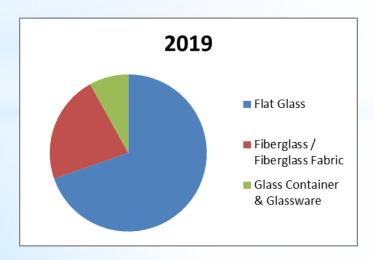
Consolidated Statements of Income	e NTD: thousand dollars (Except EPS)							
Items	2019	Q1 of 2020	Q2 of 2020	Q3 of 2020	Q1~Q3 of 2020			
Operating Revenues	41,775,507	7,038,612	9,416,535	12,095,504	28,550,651			
Gross Profit	3,424,989	411,041	896,924	2,470,461	3,778,426			
Gross profit margin	8%	6%	10%	20%	13%			
Operating Income (Loss)	(1,169,121)	(602,059)	(82,133)	1,359,007	674,815			
Operating Profit Margin	-3%	-9%	-1%	11%	2%			
Non-operating Income and Expenses	(131,302)	(234,885)	(126,262)	319,849	(41,298)			
Income (Loss) from Continuing Operations	(1,606,778)	(888,412)	(285,909)	1,469,885	295,564			
Income (Loss) from Discontinued Operations	0	(27,123)	(103,311)	(4,977)	(135,411)			
Net Income (Loss)	(1,606,778)	(915,535)	(389,220)	1,464,908	160,153			
Profit margin	-4%	-13%	-4%	12%	1%			
Income (Loss) After Tax Attributable to Stockholders of the Parent	(1,448,450)	(840,358)	(313,252)	1,393,255	239,645			
EPS (NTD)	(0.50)	(0.29)	(0.11)	0.48	0.08			

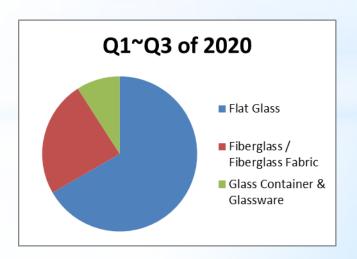


General Operation Situation of 2020



The proportion of major product revenue										
Itama	2019		Q1 of 2020		Q2 of 2020		Q3 of 2020		Q1~Q3 of 2020	
Items	NTD000	%	NTD000	%	NTD000	%	NTD000	%	NTD000	%
Flat Glass	28,760,531	69	3,574,419	51	6,516,377	69	8,751,705	72	18,842,501	66
Fiberglass / Fiberglass Fabric	9,362,244	22	2,525,604	36	1,937,702	21	2,374,634	20	6,837,940	24
Glass Container & Glassware	3,451,644	8	858,916	12	909,407	10	929,242	8	2,697,565	9
Others	201,088	1	79,673	1	53,049	-	39,923	-	172,645	1
Total	41,775,507	100	7,038,612	100	9,416,535	100	12,095,504	100	28,550,651	100





* General Operation Situation of 2020



Consolidated Balance Sheet								
Items	2019.12.31		2020.03.31		2020.06.30		2020.09.30	
Items	NTD000	%	NTD000	%	NTD000	%	NTD000	%
Current Assets	31,320,135	36	29,069,574	35	29,506,347	36	33,171,575	38
Noncurrent Assets	56,004,312	64	54,767,727	65	53,239,122	64	53,227,370	62
Total Assets	87,324,447	100	83,837,301	100	82,745,469	100	86,398,945	100
Current Liabilities	29,945,131	34	29,331,685	35	29,089,002	35	28,950,260	33
Noncurrent Liabilities	14,018,105	16	12,471,852	15	12,874,054	16	14,212,327	17
Total Liabilities	43,963,236	50	41,803,537	50	41,963,056	51	43,162,587	50
Capital	29,080,608	33	29,080,608	35	29,080,608	35	29,080,608	34
Additional Paid-in Capital	1,925,218	2	1,925,218	2	1,925,218	2	1,925,218	2
Retained Earnings	13,534,915	16	12,694,558	15	12,381,306	15	13,774,560	16
Other Components of Equity	(4,376,660)	(5)	(4,775,338)	(6)	(5,456,197)	(6)	(4,537,835)	(5)
Non-controlling Interests	3,197,130	4	3,108,718	4	2,851,478	3	2,993,807	3
Total Equity	43,361,211	50	42,033,764	50	40,782,413	49	43,236,358	50

Flat Glass

China

In order to maintain the stable development of the overall glass industry, the Chinese government continues to promote supply-side structural reforms, prohibit new production capacity, implement equal or reduced production capacity replacement, and use legal measures to remove environmentally-unfriendly production capacity from the market in accordance with laws and regulations, so as to stabilize the glass market and maintain a supply-demand balance.

In the second half of 2019, driven by new real estate projects and energy-saving renovation of existing buildings, the amount of processed glass used in construction maintained a steady growth. This situation continued until the beginning of 2020. The sales volume of flat glass factories in the first quarter was affected by COVID-19; however, the factories have caught up with orders that were delayed in the first quarter since their resuming production in mid-March. Also, the sales volume has grown to similar level when compared with that of the past. Besides, the floods in southern China in mid-2020 caused the government to encourage companies to resume work for maintaining economic growth throughout the year, which made the glass sales and prices in the third quarter significantly improved when compared with the first half.



* Situation and Development of the Market TAIWANGLASS

Taiwan

Taiwan is a WTO member. The cost of local glass production is high so it is hard to compete with low-priced imported glass from Southeast Asia and China. In addition, the Lukang Flat Glass Plant was shut down for cold repair in January 2020, which affected Taiwan's flat glass sales in the first half of 2020. The company actively reviews the production process to improve production costs. For example, Taichung Plant is working at full capacity, reducing unit production costs, reviewing human resources, adjusting organizational structure, strictly controlling various costs, reducing factory cost and fuel costs, etc., to greatly reduce the production costs in 2020.

It is assessed that the sales in Taiwan market is expected to rebound in 2021 after the Lukang Flat Glass Plant put mainstream 144" into production in subsequence to its cold repair. We will also reduce production costs to increase market competitiveness, import other kinds of glass that TGI does not produce for sale, reduce importers' operations, and take advantage of our strength and convenience in local production to achieve quick delivery of samples, products, patch replacements along with other engineering needs. We will dedicate ourselves to improve our product quality to make our product competitive when compared with foreign products so that clients have confidence and affirmation of our products.

All in all, looking forward to 2020 4Q and 2021, there are still lots of market uncertainties, such as the US-China trade war & tech war as well as the ongoing COVID-19 pandemic, etc. However, now China continues to promote safer, more ecofriendly use of architectural glass, which is expected to increase total amount of glass used.

* Situation and Development of the Market

TAIWANGLASS

Fiberglass Fabric

As for electronic grade fiberglass fabric, despite the impact of the pandemic and the recession in electronics industry in 2020, Taiwan Glass has continued to develop and improve product performance and mass-produce thinner fabric such as #1010 to meet the performance requirements of future high-end products and next-generation mobile devices. In addition, TGI's low-dielectric fiberglass fabric matches with well-known copper clad laminate (CCL) factories at home and abroad in 2020, and has been recognized among major international terminal manufacturers for use in 5G equipment, high-end servers, automotive devices, high-end graphics cards, etc. As demand will continue to grow, we will strive to achieve the goal of doubling production capacity in 2021.

For FRP, TGI Taoyuan Plant and Owens Corning of the United States restarted the technical cooperation agreement to obtain the world's most advanced fiberglass formulation and production technology. The Plant has put into production in 2019 4Q, in line with energy conservation and environmental protection trends. However, in the first half of 2020, large-scale city lockdowns around the world, stagnation of production activities, and sharp decline of export orders resulted from the COVID-19 pandemic have caused production capacity to be not fully utilized and unit production costs to rise. Demand will gradually recover in the second half of 2020, and it is expected that capacity will be gradually increased from next year, which will effectively reduce production costs.

Glass Container

Due to the transfer of orders resulting from the US-China trade war, the demand for general containers in the US market continued to increase. Export orders in the first three quarters increased when compared to the same period last year, while domestic orders did not decline despite the pandemic. When compared with the same period last year, domestic and foreign sales in the first three quarters increased by 8.7% and profit increased by 53%. Although the fourth quarter is a low season in the U.S. market, the current situation shows that this season is not a typical low season, and the production capacity is tight. It is estimated that the U.S. market demand in 2021 will be equivalent to 2020.

On the other hand, with main markets in China, Japan and Europe, heat-resistant containers (like baby-feeding bottles and laboratory glassware) are in contrast greatly affected by the pandemic, resulting in low capacity utilization. We have planned to merge the kitchenware production line into one kiln with two lines in 2021 3Q to reduce costs, balance production and sales, and destock by rotating production lines.

The production capacity of kitchenware focuses on heat-resistant glass for use in coffee pots and electric pots. Affected by the pandemic, orders in the first half of 2020 reduced greatly. In the third quarter, due to the control of the pandemic in China, the order amount is acceptable. However, there are currently nine competitors for this product in China. In addition, due to the impact of the pandemic in the first half of 2020, prices have fallen sharply, resulting in losses. We have planned to put heat-resistant production lines under cold repair and merge the production lines into one kiln with two lines to rotate in 2021 3Q. We will focus on manufacturing high value added products instead of products with lower prices in order to pull us out of the red.

The new brand flagship store selling products of our own private brand, TG, is scheduled to open in December 2020 on the 1F of the Taiwan Glass Building.



Q&A

Thanks for your attention. Have a great day.