DOING BUSINESS WITH GLASS SECTOR IN EUROPE

LEVERAGE ON SKYMINDER SOLUTIONS

Glass Sector Overview

Glass is an amorphous (non-crystalline) solid. Because it is often transparent and chemically inert, glass has found widespread practical, technological, and decorative use in window panes, tableware, and optics.

Due to its ease of formability into any shape, glass has been traditionally used for vessels, such as bowls, vases, bottles, jars and drinking glasses.

Glass History

The first glass known to stone age people used for making weapons and decorative objects was obsidian, black volcanic glass. The earliest known man-made glass dates back to around 3500 BC, with finds in Egypt and Eastern Mesopotamia. The discovery of glassblowing around the 1st century BC was a major breakthrough in glass making. Glass was first made in the ancient world, but little is known about man's first efforts to make glass. Amulets and solid beads were made in Mesopotamia as far back as 2500 BC. Later, glass-making was further developed in Egypt around 1500 BC.

By the time of the Crusades, glass manufacturing was developed in Venice and it became the glassmaking center of the western world. In 1291 glassmaking equipment was transferred to the island of Murano. During the 15th-century Venetian glass blower, Angelo Barovier, crated cristallo, nearly colorless, transparent glass. By the late 1500's, many Venetians went to northern Europe seeking a better life where they established factories and brought the art of Venetian glassblowing.

By 1575, English glassmakers were making glass in Venetian fashion. In 1674, an English glassmaker George Ravenscroft invented lead glass.

The first glass factory in the United States was built in Jamestown, Virginia in 1608.

In the early 1800's, there was a great demand for window glass which was called crown glass. In the 1820s, the age of blowing individual bottles, glasses and flasks was ended by the invention of a hand-operated machine. In the 1870s, the first semi-automatic bottle machine was introduced.

After 1890, glass use, development and manufacture began to increase rapidly. Machinery has been developed for precise, continuous manufacture of a host of products. In 1902, Irving W. Colburn invented the sheet glass drawing machine which made possible the mass production of window glass. In 1904, the American engineer Michael Owens patented an automatic bottle-blowing machine.

In 1959 new revolutionary float glass production was introduced by Sir Alastair Pilkington by which 90% of flat glass is still manufactured today.

Products

·Glass in Buildings
Facades and windows are the most obvious and visible way of applying glass in buildings and houses. Light, comfort, well-being, style, safety and security, energy efficiency and respect for the environment thanks to a sustainable material are among the benefits of today's high-performing windows and glass building facades. The ability to control heat, light, and sound transmission to a high degree enables architects to design buildings that have a greatly reduced impact on the environment and dwellings that are quiet, comfortable and safe.

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·Glass in transport

Flat glass is an integral part of most automotive vehicles and is essential to Europe's transport industry. Windscreens, backlights and windows for cars and all types of vehicles provide safety, security, durability, and excellent visibility and allow modern design and greater comfort for passengers. As the future of transport requires advanced interconnected technologies, glass already allows the integration of sensors, cameras, antennas, GPS and several other functionalities in an invisible way. Glass delivers advanced solutions for automated driving and improved experience with augmented reality features on windshields.

·Glass in automotive

Glazing solutions for the automotive industry need to offer the highest possible performance in terms of safety, security and durability, as well as style and comfort for vehicle manufacturers and for their passengers. It is perhaps not generally known that innovative products make a significant contribution to reducing fuel consumption and CO_2 emissions thanks to lighter but stronger glass pieces, heat-reflective glass limiting the use of fuel-thirsty air-conditioning, solar PV panoramic glass roofs, etc.

·Glass in solar energy

Glass is an essential element of solar units converting solar energy into electricity. The glass protects the cells from the external elements and, depending on the type of glass, increases its energy generation capacity. For instance, extra-clear glass is used to maximize the transmission of sunlight to the photovoltaic cells.

·Glass in appliances and electronics

Flat glass is extensively used for household appliances, office equipment, and similar applications. It is an incredible material to build displays and to connect people in a user-friendly and safe way.

SOURCE: Glass for Europe

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Glass for Europe is the trade association for Europe's flat glass sector. Flat glass is the material that goes into a variety of end products, primarily in windows and facades for buildings, windscreens and windows for automotive and transport as well as solar energy equipment, electronics, furniture and appliances.

Glass for Europe brings together multinational firms that are the world leaders in flat glass manufacturing and over one thousand SMEs from all across Europe, to represent the whole flat glass value chain. It is composed of flat glass manufacturers and it works in association with Carlex, a leading automotive glass processor, and national partners gathering building glass processors and transformers from all over Europe.

Glass is a high-tech material vital to the safety, security, comfort and performance of buildings and cars. In all its numerous applications, glass enables further innovation and enhances people's life and the environment.

Glass for Europe supports and enables a dynamic, influential and valued flat glass industry in the European Union, by way of advocacy and targeted communication activities meant:

- to disseminate the vision of the flat glass industry to opinion leaders, the specialized press and policymakers in Brussels and across Europe.
- to explain and promote the values and contributions of the industry and its products to Europe's society, economy and the environment.
- to represent the interests of our members in the EU policy-making process, including when relevant, to relay messages towards national decision-makers, in cooperation with local partners.
- to contribute to the development of EU and international product standards adapted to market needs and legal obligations.

SOURCE: Glass for Europe

Facts and Figures: Europe

The EU is the world's biggest producer of glass with a market share of around one-third of total world production. The industry is known for the quality of its products, its capacity for technological innovation, and its skilled labor force.

The glass sector covers:

- container glass (60% of output in tonnage terms but about 54% in terms of value)
- flat glass (about 30% in both tonnage and value)
- domestic glass, special glass, and reinforcement glass fibers

CHALLENGES FACED BY THE GLASS INDUSTRY

- Crisis - glass production in the EU was severely impacted by the economic crisis. Germany is the EU's biggest producer (one-fifth of the volume produced), followed by France, Spain and Italy.
- Trade - the main challenges include competition, downstream bargaining power, energy prices and a lack of security of supply, substitution by other products, non-EU country trade barriers, and the counterfeiting of European designs.

FOCUS ON FLAT GLASS MARKET
Main areas

- 80% Buildings. The largest flat glass market is the building industry, which accounts for more or less 80% of the output.
- 15% Transport. About 15% is processed into glazing for the automotive and transport industry.
- 5% Other. The 5% remaining is shared between glass for many different applications such as solar applications, appliances (for example fridges or ovens), electronics, furniture, etc.

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Flat glass value chain in the EU

- 10 million tonnes of flat glass every year
- OVER 1000 companies transforming flat glass
- 15 billion of turnover
- 100 K workers in EU
- 44 Float glass manufacturing sites 12 Countries

Flat glass production in the EU

- Germany: 23%
- Poland: 14%
- France: 12%
- Italy: 12%
- Belgium: 8%
- Spain: 8%
- UK: 6%
- Other: 17%

SOURCE: Glass for Europe – European Commission

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Competitiveness, Innovation and Sustainability of the EU Glass Industry

- **Competitiveness** – the EU glass industry is represented by large EU-based companies. The production process is energy intensive and the manufacturers have to face high start-up costs and tied distribution channels. Production facilities are also capital intensive and require long investment cycles.
- **Innovation** – process research and development has resulted in improvements to energy savings and environmental protection, a switch from fossil to non-fossil energy, and glass fibre substituting metals and wood through composites.
- **Export and import** - about 80% of the glass produced is traded within the EU.
- **Trade barriers** – non-EU countries with strong glass production have been introducing non-tariff trade barriers such as compulsory testing and certification schemes. The Commission pushes for the elimination of peak tariffs in non-EU countries important for EU glass manufacturers.
- **Sustainability**
  - Energy efficiency - glass production processes are energy intensive and the industry aims to decrease its energy consumption
  - Waste - process waste is usually recycled back to the furnace, but for quality reasons, there is a limit on the amount that can be recycled in sectors such as flat glass and glass fibre
  - Recycling - one of the principal issues for the container glass industry is recycling. Glass packaging is infinitely recyclable and this can positively affect its popularity
  - Emissions - are covered by the Industrial Emissions Directive (IED
  - Legislation - the industry falls under the Directives on emissions trading, IED, REACH , packaging and packaging waste, end-of-life vehicles, and restrictions on hazardous substances

SOURCE: European Commission

SKYMINDER AT A GLANCE FOR GLASS SECTOR

Solutions available for more than 240 countries and jurisdictions

Best in class information thanks to more than 40 providers, both local and global

13 available products and solutions

Web and API integration

SKYMINDER SOLUTIONS

SkyMinder is the worldwide CRIF platform helping you to take decisions based on high-quality information. If you are required to evaluate a business partner in the Glass Sector, a customer or a supplier, in a risk evaluation process or for compliance requirements or a cyber risk assessment, SkyMinder is the right solution.

Requirement	SkyMinder Solution	Description
Know business partners and risk level - have on board new suppliers - understand in depth customers creditworthiness	Full Report, Slim Report, Quick Report	Information, with different level of details, related to all companies in the world, including firmographics, credit limit, risk indicator, management, shareholders, negative events etc.
Receive immediate notification with related details if a change affects a company	Full Monitoring	Detailed information about changes affecting a company as soon as happened. Combined possibility to request for free updated report.
Be alerted if there is change in company's information	Alert	Information related to the area involved by a change as soon as an event happened.
Periodically checks if there are changes involving companies	Planned Revision	Scheduled revision with updated report including company's changes if applicable
Obtain documents from Official Registry and LEI repository	Official Registry and LEI	Product range including documents coming from public sources or from LEI Registry
Company ownership overview	Verification Report	List of shareholders to understand company's structure
Compliance requirements and fraud checks	Compliance Report and Extended Check Report	Anti-Bribery and Money Laundering lists checks related to financial crimes.
Risk of Cyber attack	Cyber Risk Report	Assess the level of risk related to a business partner in being involved in a cyber attack

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