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GlassFibreEurope

APFE - European Glass Fibre Producers Association

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Glass Fibre Industry

Production Process

Continuous Filament Glass Fibres contain silica sand, soda ash, limestone, kaolin and dolomite and are produced using the same basic production process. Small amounts of specialty chemicals may also be added.

Glass is blended and then melted in a furnace at approx. 1500° C to form molten glass with a uniform controlled viscosity. The molten glass is then drawn through a multi-hole heat resistant precious tray called a bushing, which has 500 or more precisely drilled openings through which the glass flows to form thin filaments. The filament's diameter range from 5 to 30 µm. They are treated by various chemical and physical processes called "sizing", which alter their properties and make them suitable for a wide range of specific reinforcement uses.

This sizing, for example, helps to protect the filament during weaving or braiding. It also determines the adherence of the glass fibre to different resins and therefore the quality and properties of the end-use application (e.g. if the end-use application is thermoplastics, the sizing makes it have an affinity for polymers), depending on their further processing (pultrusion, winding, moulding, weaving, etc.).

Applications

CFGF is, globally, the raw material most often used to reinforce thermoplastic and thermoset resins in the composites industry. These are commonly known as fibre-reinforced polymers (FRP) or glass-reinforced plastic (GRP). In tonnage terms, CFGF represents more than 80% of all reinforcement fibres used in composites worldwide.

CFGF reinforced thermoplastics and resins are used for a wide variety of applications including those markets where traditional materials such as metal, aluminium and wood appeared to rule the roost.

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