How Float Glass is Manufactured

Batching of raw materials

The main components of Soda Lime glass, Silica sand (73%), Calcium oxide (9%), Soda (13%) and Magnesium (4%), are weighed and mixed into batches to which recycled glass (cullet) is added. The use of ‘cullet’ reduces the consumption of natural gas. The materials are tested and stored for later mixing under computer control.

Melting of raw materials in the furnace

The batched raw materials pass from a mixing silo to a five-chambered furnace where they become molten at a temperature of approximately 1500°C. Every operation is carefully monitored.

Drawing the molten glass onto the tin bath

The molten glass is "floated" onto a bath of molten tin at a temperature of about 1000°C. It forms a ribbon with a working width of 3210mm which is normally between 3 and 25mm thick. The glass which is highly viscous and the tin which is very fluid do not mix and the contact surface between these two materials is perfectly flat.

Cooling the molten glass in the annealing lehr

On leaving the bath of molten tin, the glass - now at a temperature of 600°C - has cooled down sufficiently to pass to an annealing chamber called a lehr. The glass is now hard enough to pass over rollers and is annealed, which modifies the internal stresses enabling it to be cut and worked in a predictable way and ensuring flatness of the glass. As both surfaces are fire finished, they need no grinding or polishing.

Quality checks, automatic cutting, storage

After cooling, the glass undergoes rigorous quality checks and is washed. It is then cut into sheets up to 6000mm x 3210mm which are in turn stacked and stored ready for transport. An automatic stacker takes plates of glass directly from the end of the production line. This is approximately half a kilometre from the beginning of the float line. The entire production process from the batching of raw materials to cutting and stocking is fully automatic and computer-controlled.