TECHNICAL MATERIALS V. GLASS

Glass:

Glass is a hard, fragile, transparent and amorphous inorganic material usually produced by man. Artificial glass is used to make windows, lenses, bottles and a wide variety of products.

RAW MATERIALS: The glass is obtained at about 1,500 ° C from silica sand (SiO_2), sodium carbonate (Na
2
CO
3
) and limestone (CaCO
3
).

The term "crystal" is very often used as a synonym for glass, although it is incorrect in the scientific field because glass is an amorphous solid (its molecules are not arranged in a regular way) and not a crystalline solid. In daily life these two concepts are mixed because both elements are transparent.

Properties of glass: It is a HARD material (very resistant to scratching), FRAGILE (breaks easily), TRANSPARENT or almost, since if you do not add suitable components during cooking it is greenish (like cider bottles), it is INERT and It doesn’t contaminate the liquids that it contains and is very resistant to the attack of chemical products that would attack other types of containers like metal or plastic. It is a bad conductor of electricity and bad (but no so bad) of the heat.

Glass manufacturing: Glass is made from a mixture of silica, fluxes such as sodium carbonate and stabilizers, such as lime. This mixture can contain recycled crushed glass. These raw materials are loaded into the large furnace (continuous production) by means of a hopper. The oven is heated with gas or oil burners. The flame must reach a sufficient temperature, and for this the combustion air is preheated in stoves built with refractory bricks before it reaches the burners. The mixture melts (melting zone) to about 1,500 ° C and advances to the cooling zone. In this zone, the temperature of the oven reaches of 1200 to 800 ° C. The glass thus obtained is need a posterior process, (stretching, floating or blowing) depending on its final use.

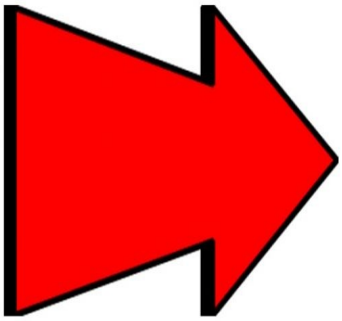
Raw materials

Furnace 1500º

Process

Product

SiO_2



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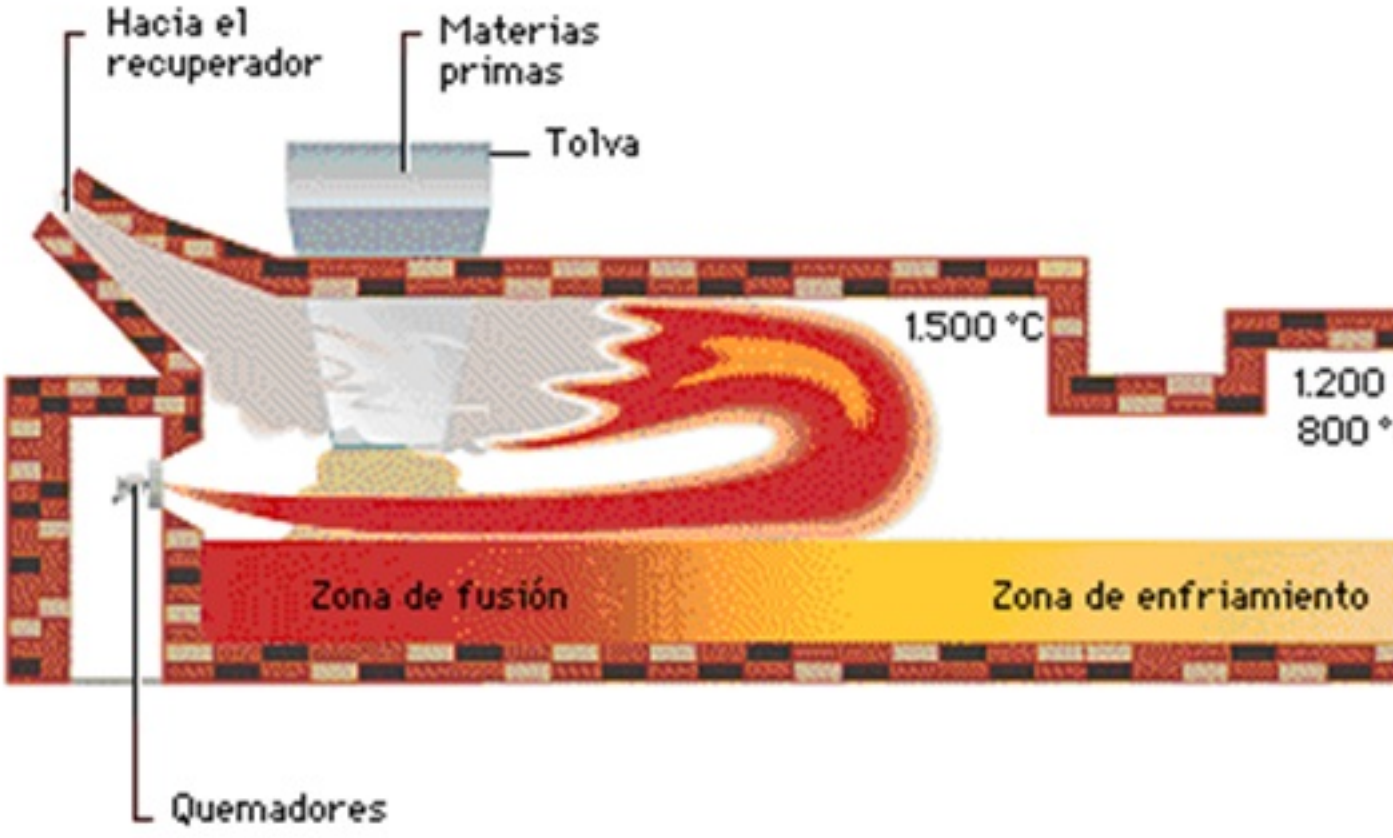
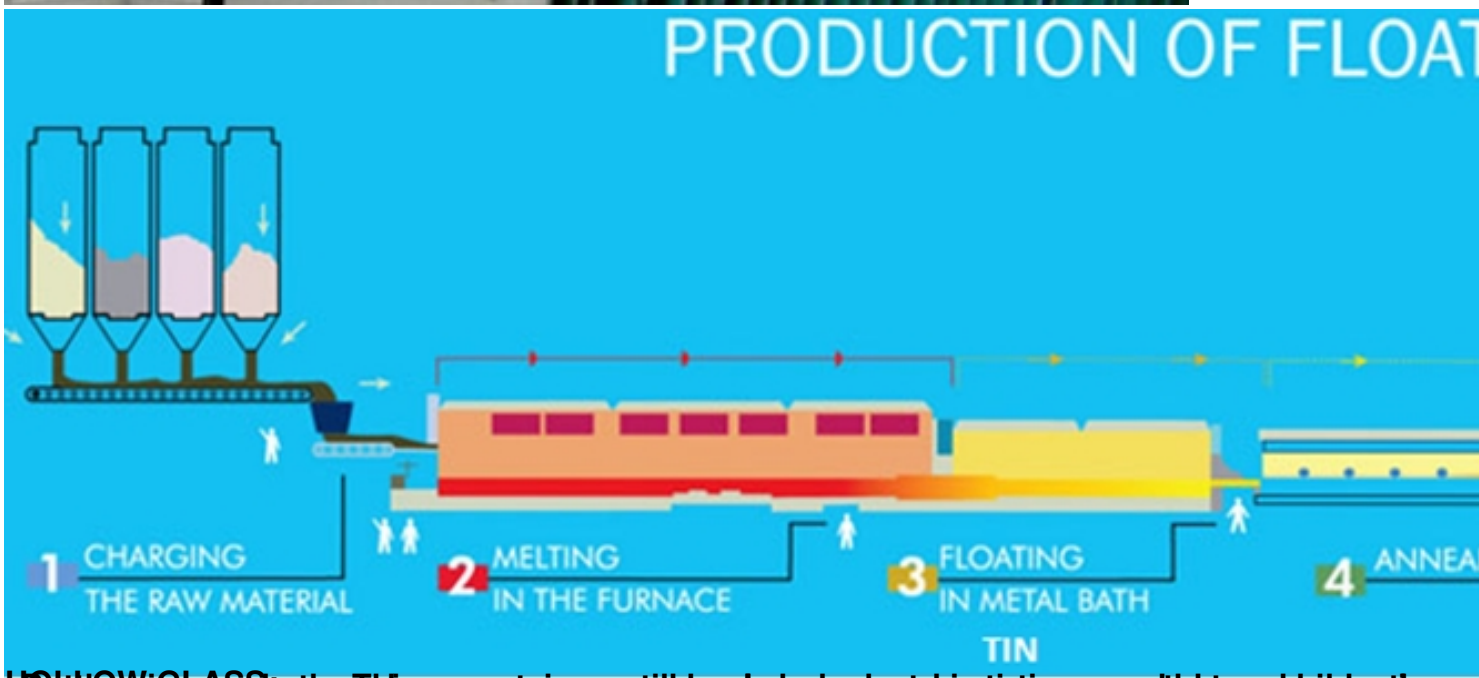
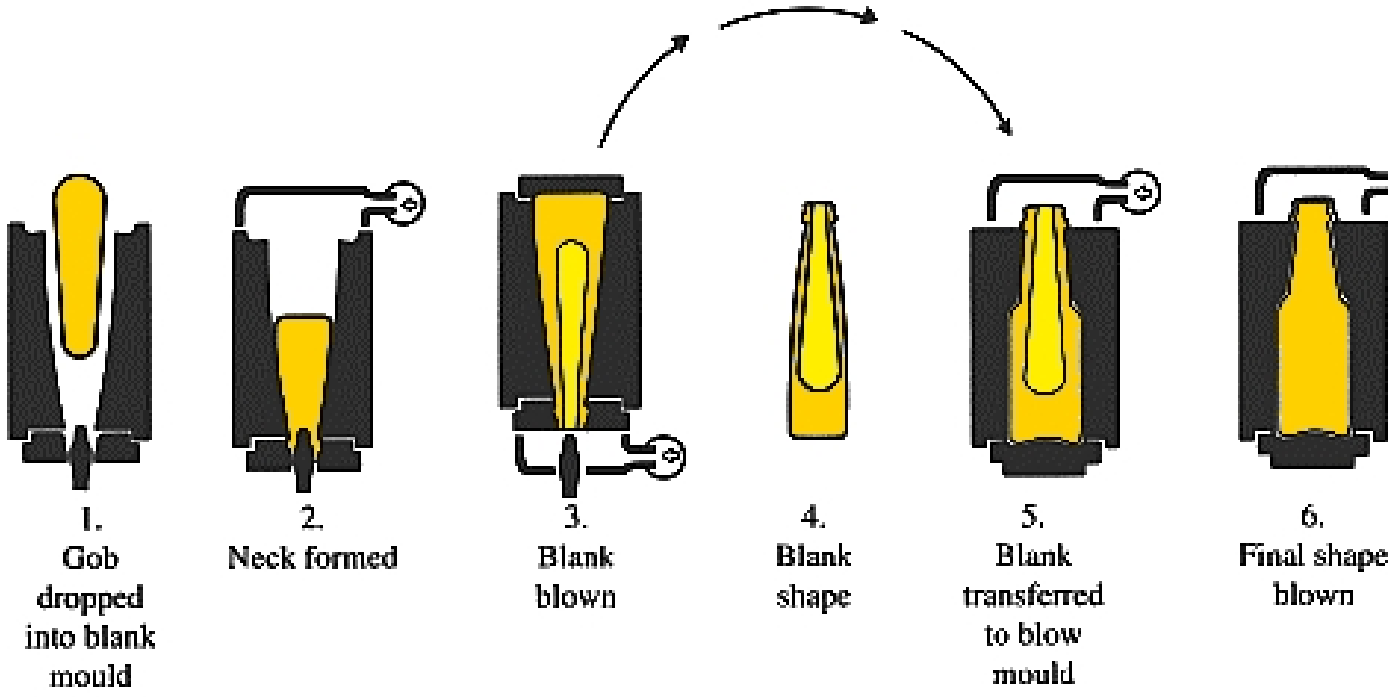


FLAT GLASS: Today, almost all window glass is mechanically manufactured from a pool of molten glass by floating tec



HOLLOW GLASS: Bottles, jars and other containers are made by an automatic process that blows the g

Making glass bottles:



GLASS FIBER: **It is possible to produce**

OPTICAL FIBER: **It is a medium of transmission usually used in data networks; A very**