Thermal Measurements on Glass Melting Furnaces Contribute to Energy Savings

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Ageing of a glass melting unit accounts for lower energetic efficiency, lower furnace output, worse glass quality and worse environment parameters. It is feasible to monitor and solve this spontaneous process consecutively. In this case, a planned process is discussed which may save operation costs considerably and prolonge the campaign of a glass melting furnace.

Such glass melting furnace is controlled from its putting into operation by means of regular yearly measurements and calculation of thermal balance consecutively. Determination of essential changes in thermal efficiency of glass melting furnace and possibility of their operative solution are results of the analysis.

Regular yearly measurements are given and coefficients are compared on an exemplary regenerative side-port glass melting furnace: operation time, fuel consumption, flue-gas temperature, temperature of preheated air, melting output, thermal efficiency, specific fuel consumption, specific melting output, excess air.

Factual values are compared with a proposal of limits of energy consumption according to the standards of VDI 2578 and IPPC.

A factual example of a glass melting furnace shows, that considerable amount of fuel may be saved and emissions may be decreased when keeping technological parameters and evaluating thermal operation of this furnace during campaign regularly.