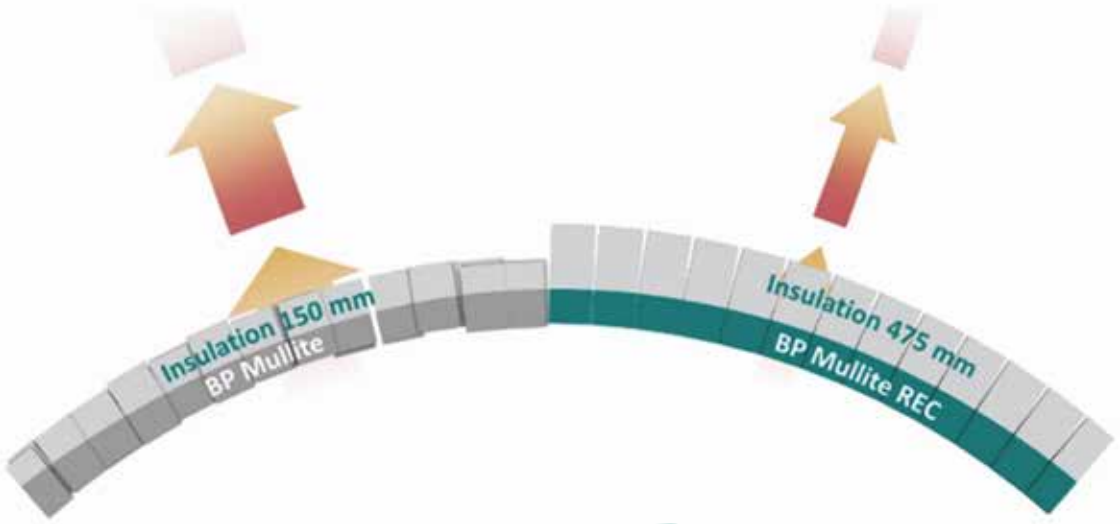
Super-efficient glass melting thanks to SEFPRO's BP Mullite REC

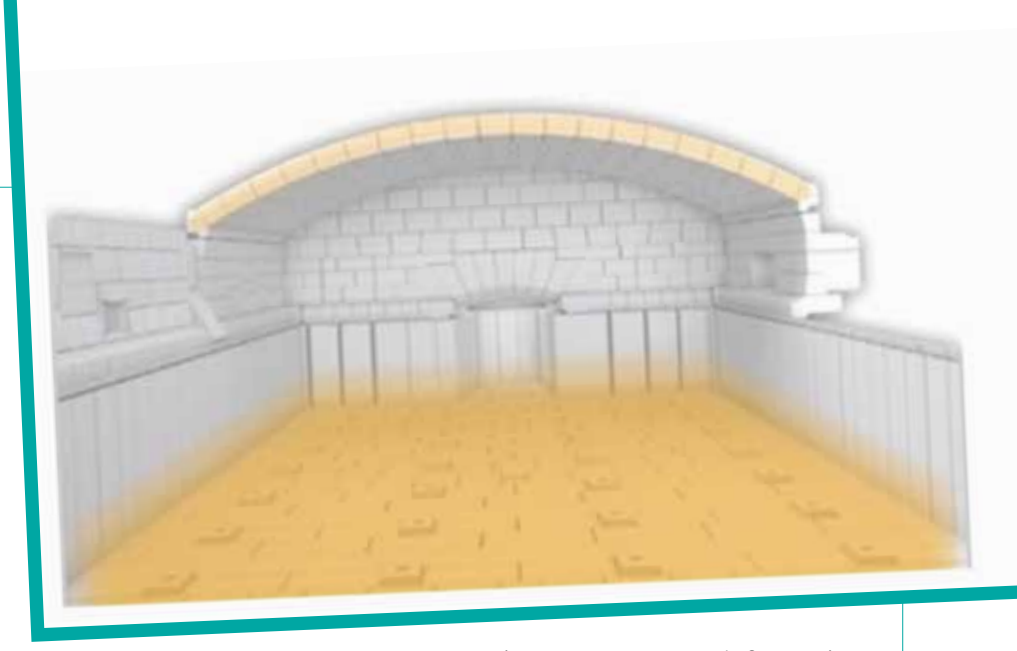


Enabling glass furnaces to operate safely at higher temperatures with up to six times greater creep resistance, SEFPRO's BP Mullite REC crown solution supports thicker insulation – cutting superstructure heat losses by over 60 percent while improving pull rates, performance and long-term stability.

Among the strategies available to reduce the overall energy consumption of glass melting furnaces, enhancing insulation in furnace superstructures remains the most straightforward and effective measure. Increasing insulation thickness significantly lowers heat losses, yet it also raises the temperature within the refractory. Glassmakers transitioning to oxy-fuel combustion encounter similar challenges, where insulation choices directly influence furnace reliability.

REDUCING HEAT LOSSES IN REINFORCEMENT GLASS FURNACES

When applied to a furnace melter crown, heavier insulation



translates into greater mechanical load and higher stresses on each block of the crown. As the maximum acceptable load decreases with rising temperature, the crown material faces the danger of exceeding its mechanical threshold as defined by the nil creeping curve. This exposes the structure to potential sagging and the long-term resistance to creep becomes a major concern.

HIGH CREEP RESISTANCE CROWN MATERIAL USING BP MULLITE REC

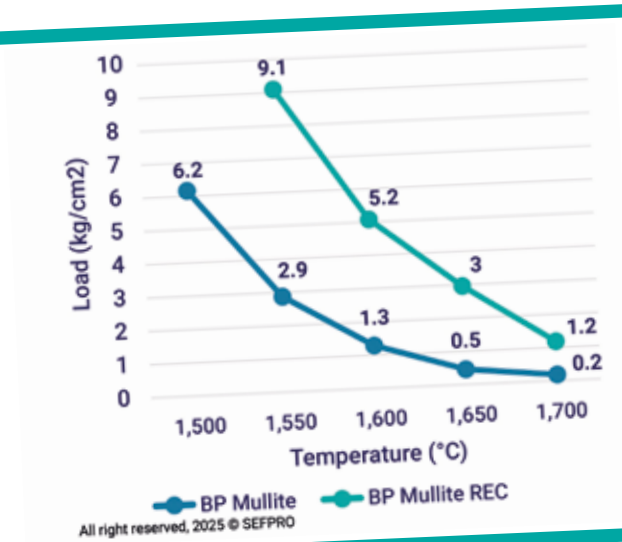
The introduction of BP Mullite REC superstructure technology by SEFPRO marks a decisive advance. This solution opens new possibilities for reinforcement fiber glass, textile fiber glass, vitroceramic and borosilicate glass furnaces. It enables furnaces to increase crown temperature by more than 100 degrees Celsius, all while maintaining safe operation. The key advantage lies in its creep resistance - up to six times higher at 1,700 degrees Celsius compared with conventional materials. A crown material capable of supporting greater loads at elevated temperatures permits the use of thicker insulating packages, thereby cutting superstructure energy losses. At the same time, its higher refractoriness under load allows the melting temperature to rise, enabling higher pull rates above 1,550 degrees Celsius. This improvement enhances manufacturing performance and contributes directly to furnace efficiency. Integrity and stability of refractories over the full campaign life are vital for high-performance melting processes, particularly in the demanding environment of the crown. BP Mullite REC crowns for reinforcement and textile fiber glass furnaces demonstrate particular suitability for oxy-fuel firing, where flame temperatures are especially high.

THERMAL LOSSES REDUCTION IN REINFORCEMENT GLASS FURNACES

One practical example illustrates the impact: the BP Mullite REC solution can achieve up to 60 percent reduction in thermal losses, while simultaneously protecting the crown from sagging. With this material, safer operation is assured, as the high refractoriness prevents deformation even under continuous exposure to extreme heat. The ability to accommodate much thicker insulation without structural compromise is a defining advantage. Furthermore, BP Mullite REC can be implemented across all applications currently using BP Mullite, without restrictions. This flexibility ensures it can serve as a direct replacement where higher performance is required.

HOW TO UNDERSTAND IF BP MULLITE REC IS REQUIRED?

To assist furnace designers, SEFPRO complements this solution with advanced numerical simulation services. By performing crown stress calculations tailored to each design, the company can determine whether operating conditions demand the use of BP Mullite REC. These simulations also define the optimal insulation package, ensuring maximum reduction in heat losses and long-term operational security.



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