Contribution ID: **54** Type: **Oral Presentation**

Refractory lining monitoring on different metallurgical vessels (EAF, LF, RH Degasser, Induction furnaces, plugs) with Saveway

Tuesday 12 May 2026 15:40 (20 minutes)

It's not a question anymore, it's already a fact that the transition towards CO2 reduced steelmaking will come along with a great number of changes in numerous areas of the production chain. Focusing on the melt section, one of the biggest challenges is the entry of new/different equipment to process from scrap to casting. To cope with these, it is mandatory to use state-of-the-art technology for controlling the process parameters alongside. One of these available technologies is focusing on the status of the refractory lining to determine how it can withstand the new process conditions. The monitoring can be performed in different metallurgical vessels, such as Electric Arc Furnaces, Ladle Furnaces, RH-Degassers, Coreless Induction Furnaces or considerably simple units like porous plugs. In certain applications it might be required to monitor some small weak spots only, provided You can tell where these are! Other applications obviously require a more comprehensive monitoring. Several areas of the refractory linings will be facing an aggressive impact of the process and thus are prone to experience a significantly quicker refractory deterioration than others do. For conducting an efficient and reliable production it is key to determine these areas quickly and take measures and action to eliminate these weak spots as they have a high potential to cause unexpected shutdowns of the equipment. Furthermore, there is a potential thread to the integrity of refractory linings which is more often neglected. This is the simple affect of moisture or water to their condition. Cooling water leaking into the refractory lining not only causes visible damages (e.g. Explosions). The invisible damage by compromising the mechanical and thermal properties of linings, means turning bricks into non- refractory powder, might even be the more sinister scenario.
This paper will provide insight in Saveway's solutions to address the problems mentioned above by using state-of-the-art but well-established technologies to monitor melting equipment for refractory hot spots, penetration and influences caused by dangerous cooling water leakages.

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Session Classification: Automation and Digitalization in Electric Steelmaking II

Track Classification: EEC 1 - Technological Advancements: EEC 1.E Automation and digitalization in electric steelmaking