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Monolithic. Steel Ladles - Advanced and Sustainable Refractory Solution as part of the Green Steel Transformation

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Monolithic linings for steel ladles have emerged as a economically and ecologically sustainable alternative to traditional bricked based linings.
This lining method offer several advantages, including enhanced durability, reduced material waste, improved thermal insulation, and reduced maintenance costs as well as an essential impact on heat management and CO2 greenhouse emission in the respective scopes.
Additionally, casting a ladle brings significant improvements regarding health and safety on the shopfloor, as transport of pallets in confined spaces, lifting and laying bricks as well as cutting them can be avoided.
The absence of joints in monolithic linings minimizes the risk of cracks and weak points, leading to a longer service life and better performance under high thermal and mechanical stresses. Additionally, monolithic linings contribute to higher steel cleanliness by reducing contamination risks. Innovative installation techniques, such as the use of pre-formed spinel castables, further enhance the efficiency and effectiveness of these linings. This paper reviews the sustainable benefits of monolithic linings, compares them with conventional brick linings, and discusses recent developments in installation methods.

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