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## A Holistic Approach to Sustainable Steelmaking: Innovative Methods for Achieving Ultra-Low Carbon, Low Nitrogen, and Low Sulfur with Modern Secondary Metallurgy

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The transition to green steel production presents significant challenges, particularly in the context of low nitrogen, low sulfur and ultra-low carbon (ULC) steelmaking. This paper explores the role of RH degassers in addressing these challenges, with a focus on reducing nitrogen and sulfur levels. The use of raw materials already present in the Electric Arc Furnace (EAF) and alternative approaches in secondary metallurgy are examined to achieve the goals of low nitrogen, sulfur, and carbon content in steel.

Recent experiences from the startup of a modern 200 t RH degasser are highlighted, showcasing the benefits of full process automation and advanced metallurgical models. These innovations have demonstrated high performance in achieving low nitrogen and carbon levels, essential for producing high-quality ULC steel. The findings underscore the importance of integrating advanced technologies and process optimizations in the pursuit of sustainable steel production.

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