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Pneumatic injection of carbon neutral sources in the EAF melting process: a comprehensive overview of the use of new materials

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The green steel revolution in the electric arc furnace route requires a reduction in the use of fossil coal and an increase in the use of carbon-neutral sources such as biochar, polymers, and rubber. The use of these new types of alternative materials, have highlighted several aspects that must be considered to obtain a reliable and effective use for the generation of foamy slag during the melting process.

The paper discusses advantages, disadvantages, limits, potentials and technical aspects to be considered for the effective and safe pneumatic injection of the new materials, such as physical characteristics, storage system, injection rate, injectors design and positioning. This work provides also examples of carbon neutral sources injection systems in some EAF plants around the world.

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