

Improvement of the mechanical reliability of monolithic refractory linings for coal gasification process vessels

Dept. of Energy - WO2010075536A1



Description: -

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Refractory materials -- Design and constructionImprovement of the mechanical reliability of monolithic refractory linings for coal gasification process vessels

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Research needs for coal gasification and coal liquefaction

Without wishing to be bound by any particular theory, it is believed that such a deflector will reduce the need for a deflector which erodes quickly enough to reduce the system's reliability, or using a deeper char bed to prevent elutriation. The poor service life has been a major factor contributing to poor online gasifier availability and reliability. .

Research and Development Opportunities

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DigitalRefining

The volatiles may then be released by the heat, and flow out of the top of the draft tube 150 along with the circulating char and newly-devolatilized coal. The introduction of new crudes brings new challenges, like higher concentrations of metals such as nickel Ni, vanadium V, and iron Fe. .

Design of refractory linings using computer

To the extent that more reaction time is needed, pyrolysis may be further accomplished or completed in the upper region of the char bed.

Refractory Lining

No commercial production facilities are currently planned for these two processes. The plant of any of the preceding claims, further comprising a char deflector above the outlet of a draft tube of the carbonizer, wherein the char deflector includes a pocket which buffers a surface of said deflector with material that becomes partially entrained on the surface, thereby minimizing the erosion of the deflector by char. Advances in the fundamental understanding of the behavior of continuous-casting fluxes will aid in improved design and more reliable performance of these important materials.

How

The zone tapers outwardly in the region of oxygen blowing in to maintain the desired regular rate of flicker to promote oxygen dispersion. Most modern electric furnaces also use a combination of oxy-fuel burners, pulverized coal injection, and oxygen injection to supplement electrical energy input.

Article Links

For parts of the industry, such as refractories, abrasives and technical ceramics, the main minerals have to be imported, mostly from Asia. A higher pressure ratio not only increases more the heat transfer coefficient but the cooling air temperature.

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