

ANALYSIS OF OXYGEN CARRIER PARAMETERS DESIGNED FOR CHEMICAL LOOPING COMBUSTION OF COAL

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The chemical looping technology enables flameless fuel combustion without contact with atmospheric air, which is particularly valuable for the combustion of fuels from non-renewable sources like hard coals. Since fumes aren't diluted with atmospheric nitrogen, it significantly simplifies further carbon dioxide sequestration from the stream of fumes, making the combustion process more environmentally friendly.

OC can release oxygen in two ways: by a direct reaction between oxygen carrier and fuel particle or due to the release of gaseous O₂, in a process called Chemical Looping with Oxygen Uncoupling. This process occurs in a reaction to changes in temperature and/or oxygen partial pressure in a reaction environment. The second method is particularly valuable for the combustion of solid fuels.

In presented research the optimal working parameters for ferrite spinel-based oxides were determined using cycling measurements resembling actual operation conditions.

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