Institute of Chemical Engineering

Investigations of a three channel autogenous reactor for lean methane combustion

Publication date:	01.07.2020
Publication title:	Investigations of a three channel autogenous reactor for lean methane combustion
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Journal information:	Chemical Engineering and Processing - Process Intensification

A novel design for a three-channel internal-recirculation type reactor is described. The reactor has an extremely compact design that consists of inlet and outlet channels filled with an inert structured packing on either side of a reactor channel containing a catalytic washcoated monolith. The reactor stream flows in counter current flow with the flow in the inlet and the outlet channels. The reaction studied is the catalytic combustion of lean dry methane at low feed temperature. Autogenous operation can be obtained over a reasonable set of operating conditions, which makes the unit potential suitable for the destruction of fugitive emissions from an underground coal mine and other spatially restricted environments.

Metryczka

Published by:	Marek Tańczyk
Published at:	11.05.2026 10:56
Number of views:	3