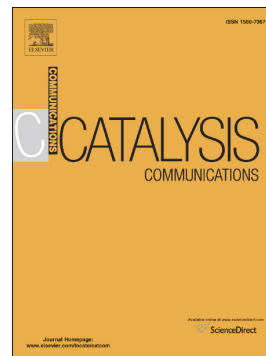


## Accepted Manuscript

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PII: S1566-7367(18)30492-8  
DOI: doi:[10.1016/j.catcom.2018.09.011](https://doi.org/10.1016/j.catcom.2018.09.011)  
Reference: CATCOM 5502  
To appear in: *Catalysis Communications*  
Received date: 3 June 2018  
Revised date: 10 September 2018  
Accepted date: 17 September 2018

Please cite this article as: M.V. Konishcheva, P.V. Snytnikov, V.N. Rogozhnikov, A.N. Salanov, D.I. Potemkin, V.A. Sobyenin, Structured Ni(Cl)/CeO<sub>2</sub>/η-Al<sub>2</sub>O<sub>3</sub>/FeCrAl wire mesh catalyst for selective CO methanation. *Catcom* (2018), doi:[10.1016/j.catcom.2018.09.011](https://doi.org/10.1016/j.catcom.2018.09.011)

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**Structured Ni(Cl)/CeO<sub>2</sub>/η-Al<sub>2</sub>O<sub>3</sub>/FeCrAl wire mesh catalyst  
for selective CO methanation**

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**ABSTRACT**

A structured Ni(Cl)/CeO<sub>2</sub>/η-Al<sub>2</sub>O<sub>3</sub>/FeCrAl catalyst was developed and tested for the reaction of selective methanation of CO in the presence of CO<sub>2</sub>. The use of a FeCrAlloy wire mesh with a η-Al<sub>2</sub>O<sub>3</sub> protective coating as a support of Ni(Cl)/CeO<sub>2</sub> enabled production of a catalyst with the ability of high rates of heat removal, that is similar in performance to the most efficient powder catalysts. In a hydrogen-rich gas mixture of composition (vol.%): 1.0 CO, 65 H<sub>2</sub>, 10 H<sub>2</sub>O, 20 CO<sub>2</sub>, He - balance, at WHSV of 29 L g<sup>-1</sup> h<sup>-1</sup>, the Ni(Cl)/CeO<sub>2</sub>/η-Al<sub>2</sub>O<sub>3</sub>/FeCrAl catalyst reduced the CO concentration to a level of <10 ppm in the temperature range of 230-270 °C with a selectivity larger than 70%.

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