

# Institute of Chemical Engineering

Adres artykułu: <https://iich.gliwice.pl/en/article/the-enrichment-of-low-concentrated-impurities-in-air-using-an-experimental-pressure-swing-adsorption-installation>

## The enrichment of low-concentrated impurities in air using an experimental pressure swing adsorption installation

<b>Publication date:</b>	30.12.2015
<b>Publication title:</b>	<a href="https://iich.gliwice.pl/en/article/the-enrichment-of-low-concentrated-impurities-in-air-using-an-experimental-pressure-swing-adsorption-installation">The enrichment of low-concentrated impurities in air using an experimental pressure swing adsorption installation</a>
<b>Authors:</b>	<a href="#">Marek Tańczyk</a> , <a href="#">Manfred Jaschik</a> , <a href="#">Krzysztof Warmuziński</a> , <a href="#">Aleksandra Janusz-Cygan</a> , <a href="#">Artur Wojdyła</a> , <a href="#">Elżbieta Sołtys</a> , <a href="#">Daniel Piech</a>
<b>Journal information:</b>	Prace Naukowe Instytutu Inżynierii Chemicznej Polskiej Akademii Nauk
<b>Tags:</b>	<a href="#">pressure swing adsorption</a> , <a href="#">air purification</a> , <a href="#">low-concentrated impurities</a> , <a href="#">enrichment</a>

**Abstract:** In the case of experimental investigations concerning methane enrichment in the air it is necessary to avoid a rise of CH<sub>4</sub> concentration above 5 vol.% i.e. its lower explosive limit. In order to determine experimentally safe ranges of pressure swing adsorption (PSA) parameters and the maximum level of the enrichment CO<sub>2</sub> was considered as a low-concentrated impurity in the air instead of methane because of higher adsorption capacity and selectivity towards nitrogen and oxygen in available adsorbents. Experimental results are therefore presented of the enrichment of CO<sub>2</sub> (0.24-0.69 vol.%) mixed with the air. It was found that the concentration of carbon dioxide in a CO<sub>2</sub>-enriched stream is up to seven times higher than that in the raw gas. It was also concluded that in all experimental cases CO<sub>2</sub> concentration in the CO<sub>2</sub>-enriched stream did not exceed 5 vol.%.

### Attachments:

[Zeszyt-19-2015](#) pdf, 5.37 MB

<b>Created at:</b>	04.08.2025
<b>Published by:</b>	Artur Wojdyła
<b>Published at:</b>	04.08.2025 13:29
<b>Number of downloads:</b>	165

Tagi: pressure swing adsorption, air purification, low-concentrated impurities, enrichment

## Metryczka

<b>Published by:</b>	Artur Wojdyła
<b>Published at:</b>	18.09.2025 13:35
<b>Number of views:</b>	172