

# Institute of Chemical Engineering

Adres artykułu: <https://iich.gliwice.pl/en/article/determination-of-the-applicability-range-of-the-isotropic-turbulence-theory-in-a-bubble-column>

## Determination of the applicability range of the isotropic turbulence theory in a bubble column

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<b>Authors:</b>	<a href="#">Stoyan Nedeltchev</a>
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**Abstract:** A new parameter called novel hybrid index (NHI) has been used in order to identify the  $U_g$  and Reynolds ranges of applicability of the concept for the stable equilibrium bubble diameter in a bubble column (BC). Both parameters were correlated. The stable equilibrium bubble diameter was defined on the basis of the local isotropic turbulence theory. In the case of BC operation with two aqueous solutions of 2-pentanol (0.5 and 1.0 vol. %) was found that this theory is applicable in the  $U_g$  range from 0.060 to 0.07 m/s. These conditions belong to the heterogeneous flow regime of the BC operation.

## Attachments:

[Zeszyt 27 \(2023\)](#) pdf, 3.31 MB

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Tagi: new hybrid index, gauge pressure fluctuations, isotropic turbulence theory, stable equilibrium bubble diameter, bubble column

## Metryczka

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