

Accepted Manuscript

Thermodynamics of micropolar Bingham fluids

V.V. Shelukhin, V.V. Neverov

PII: S0377-0257(16)30151-3
DOI: [10.1016/j.jnnfm.2016.08.005](https://doi.org/10.1016/j.jnnfm.2016.08.005)
Reference: JNNFM 3826

To appear in: *Journal of Non-Newtonian Fluid Mechanics*

Received date: 9 February 2016
Revised date: 9 May 2016
Accepted date: 16 August 2016

Please cite this article as: V.V. Shelukhin, V.V. Neverov, Thermodynamics of micropolar Bingham fluids, *Journal of Non-Newtonian Fluid Mechanics* (2016), doi: [10.1016/j.jnnfm.2016.08.005](https://doi.org/10.1016/j.jnnfm.2016.08.005)



This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Highlights

- Equations of micropolar fluids are generalized to allow for yield stresses. There are two yield stresses related to the Cauchy stress tensor and to the couple stress tensor; the first is not symmetric one.
- The equations derived take into account variable concentration of polar particles.
- Conservation laws and constitutive equations agree with basic thermodynamic principles.
- Among the constitutive equations is the generalized Fick law stating that the concentration flux can depend on micro-rotation.
- Starting from the steady flow equations, we confirm the Segre-Silberberg effect.

Download English Version:

<https://daneshyari.com/en/article/4995651>

Download Persian Version:

<https://daneshyari.com/article/4995651>

[Daneshyari.com](https://daneshyari.com)