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Review of Doctoral Thesis

Ing. Miroslav Mrlík wrote original doctoral thesis entitled “**Surface modifications of particles for preparation of ER and MR suspensions**” that is conceived as the resume of results, which were published in five original research papers. Ing. Mrlík is the first author of these articles. The fact that these papers were accepted for publication by reviewer of these journals indicates high quality and originality of presented results for itself. There is no doubt that the results are significant for the science of studied MR and ER fluids.

The weak point of this work is the summary of the papers. Although the doctoral thesis gives a detailed description of properties of ER and MR suspension, only 3 pages and one picture on page four are dedicated to important results of the work. According to my opinion larger space should be devoted to the generalization and description of the results.

As the reviewer of the work I have following questions:

- 1) What is the explanation for enhanced sedimentation stability of carbonyl iron with polypyrrole ribbon-like particles?
- 2) Is it possible to use nephelometric measurements to determine the sedimentation stability of suspension?
- 3) The particle size distribution makes the method applied for the investigation of sedimentation ratio disputable. What is the reason that some usual methods were not applied?
- 4) What is the role of solvent permitivity to the behavior of prepared suspensions?

It can be concluded that the doctoral thesis contains original results upon the synthesis of the core shell particles of different properties and a number of published papers prove that M. Mrlík significantly contributed to the field. The aims of the thesis were fulfilled, proper research techniques were used and adequate conclusion was deducted.

According to my opinion the work of M. Mrlík is well conceived and contains original results, therefore I recommend it to be defended and upon successful defense to be granted the doctoral degree.



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