

I. IDENTIFICATION DATA

Thesis title:	The experimental study of the CO₂ hydrates formation
Author's name:	Mikołajczyk Michał
Type of thesis :	bachelor
Faculty/Institute:	Faculty of Mechanical Engineering (FME)
Department:	Energy engineering
Thesis Supervisor:	Ing. Ondřej Bartoš, PhD.
Supervisors's department:	Energy engineering

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	challenging
<i>How demanding was the assigned project?</i>	
The presented work is challenging from the two reasons. The gas hydrates are not well generally known substance and the number of references is limited. Student had to gather a lot of new information beside of the standard study program on Energy department. The second reason is that the objective of the work was to observe the hydrates formation by the simple camera in the reactor where is the high pressure.	

Fulfilment of assignment	fulfilled
<i>How well does the thesis fulfil the assigned task? Have the primary goals been achieved? Which assigned tasks have been incompletely covered, and which parts of the thesis are overextended? Justify your answer.</i>	
All the tasks were satisfied. The student answers all the questions, of course in the view of the requirements of the Bachelor's thesis.	

Activity and independence when creating final thesis	B - very good.
<i>Assess whether the student had a positive approach, whether the time limits were met, whether the conception was regularly consulted and whether the student was well prepared for the consultations. Assess the student's ability to work independently.</i>	
Student has worked independently, he's studied alone the theory. Student prepared the good research in the literature. The work on the experiment, preparation and the measurement were done well. Despite of this the entire activity and enthusiasm should be higher.	

Technical level	A - excellent.
<i>Is the thesis technically sound? How well did the student employ expertise in his/her field of study? Does the student explain clearly what he/she has done?</i>	
The technical level of the work is good and fully satisfied the needs of the Bachelor thesis. The topic is difficult because the student had to introduce himself with the topic which is not standard part of the study program. Nevertheless, student was able to apply the knowledges from his study to suggest the whole solution of the optical observation of the formation hydrates in the reactor and later performed the experiment.	

Formal level and language level, scope of thesis	A - excellent.
<i>Are formalisms and notations used properly? Is the thesis organized in a logical way? Is the thesis sufficiently extensive? Is the thesis well-presented? Is the language clear and understandable? Is the English satisfactory?</i>	
The work is written in English. The language level is good.	

Selection of sources, citation correctness	A - excellent.
<i>Does the thesis make adequate reference to earlier work on the topic? Was the selection of sources adequate? Is the student's original work clearly distinguished from earlier work in the field? Do the bibliographic citations meet the standards?</i>	

In the work 33 references are used. The references are used in the text of the thesis. The most of the references are well used but some of them are not used properly (web pages).

Additional commentary and evaluation (optional)

Comment on the overall quality of the thesis, its novelty and its impact on the field, its strengths and weaknesses, the utility of the solution that is presented, the theoretical/formal level, the student's skillfulness, etc.

Please insert your comments here.

III. OVERALL EVALUATION, QUESTIONS FOR THE PRESENTATION AND DEFENSE OF THE THESIS, SUGGESTED GRADE

The student's bachelor's thesis is of a good standard. The topic of the work is difficult and the student had to learn a lot of new knowledge about experimental work, construction, thermodynamics and fluid properties. He worked independently, but regularly consulted on the progress of the work. Mr. Mikołajczyk developed a method of optical observation of the formation of CO₂ hydrates in a reactor at the Department of Energy Engineering. The entire work contributes to research into the use of gas hydrates in the energy industry for possible energy accumulation or CO₂ storage. Further study is necessary to improve the quality of the image, but the presented work helps a lot. After assessing all the circumstances, I graded the work with an A grade.

The grade that I award for the thesis is **A - excellent**.

Date: **25.1.2024**

Signature: