

I. IDENTIFICATION DATA

Thesis title:	Production of ceramic aggregates in rotary furnace
Author's name:	Alessandro SECHI
Type of thesis :	<input type="text"/>
Faculty/Institute:	<input type="text"/>
Department:	Process Engineering
Thesis reviewer:	doc. Ing. Karel PETERA, Ph.D.
Reviewer's department:	Process Engineering

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	<input type="text"/>
<i>How demanding was the assigned project?</i>	
<input type="text"/>	

Fulfilment of assignment	<input type="text"/>
<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>	
<input type="text"/>	

Methodology	<input type="text"/>
<i>Comment on the correctness of the approach and/or the solution methods.</i>	
<ul style="list-style-type: none"> - I do not think that DPM method is the right one to be used in such case, that simulation of particles with high volumetric concentrations and their interactions. - On page 40, it is stated that Standard k-epsilon model was used. It is know that this variant has some flaws which are resolved by Realizable variant of k-epsilon model. Therefore, a comparison of these turbulence models might be helpful to confirm the choice of the turbulence model, or at least more thorough explanation why the Standard variant was chosen should be added. - It is not clear how the residence time was evaluated. 	

Technical level	<input type="text"/>
<i>Is the thesis technically sound? How well did the student employ expertise in the field of his/her field of study? Does the student explain clearly what he/she has done?</i>	
<input type="text"/>	

Formal and language level, scope of thesis	<input type="text"/>
<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>	
Formal and language level is not very good. List of symbols is not complete and unsorted alphabetically.	
On page 53, equations 36 and 37 are referred but I do not see a connection here.	

Selection of sources, citation correctness	<input type="text"/>
<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>	
<input type="text"/>	

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.

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

Summarize your opinion on the thesis and explain your final grading. Pose questions that should be answered during the presentation and defense of the student's work.

The topic of the thesis is quite challenging, I think that it is quite difficult to make realistic simulations of such systems. But the proper models must be used and I think that the DPM method is really not the right one to make these simulations, it is intended for relatively small volume fractions of the particulate phase and this assumption is definitely not valid when the particles accumulate in some parts of the kiln (where we get close to the so called packing limit).

Questions:

- On page 50, reflection coefficients 0.75 and 0.8 are presented. It is not clear what these values represent. Can you explain it?
- On page 50, it is mentioned that the "time step size equal to 0,2 was chosen according to pre-analysis and optimization in fluent simulation". Can you present some reasons why this value was chosen and that it is the correct value?
- How was the residence time evaluated? Did the evaluation included only particles which left the simulated zone or all particles injected?

I evaluate the thesis by grade

Date: 11.6.2021

Signature: