Review of Diploma Thesis

Student : **BSc. Nirav Ganeshbhai Sailor**
Topic : Computer modelling verification of micro cellular injection moulding process using physical blowing agents

The aim of the work was to verify the quality of the results from simulation by comparing with real process with Mucell technology. The simulation was done by using software Cadmould 3D F with add on "foam" which is useful for physical foaming simulation. Diploma thesis has 75 pages incl. charts and pictures. Selected topic is very actual as the physical foaming simulation software is still not well used in real production and there are many doubts regarding accuracy of such a simulation.

The work is divided into five main chapters inclusive introduction and conclusion. In theoretical part of the work are well described theoretical fundamentals of physical foaming process with examples of existing systems on the market. Certain part of this chapter is also focused on different materials and its suitability for foaming. There are also shortly mentioned software capabilities for physical foaming simulation. Experimental part of the work describes the methods and conditions used in experiment directly with logically sorted results of experiments. Overall evaluation is then done in chapter "discussion". Although the work follows its aim I have several objections and questions:

- Pictures 1-4 are own drawings? The source is not mentioned.
- On page 41, Tab 8, you have mentioned different holding pressure for simulation of PP samples than their production (page 38, tab 5). Is it mistyped or can you explain?
- In "microscopy" part of the experiment you have evaluated the size of the cells on the parts. In my opinion accuracy of this method is limited especially when compared with simulation. Do you have any other idea how to compare simulated cell size with the real one?
- On page 66 below is written "Moreover, with longer holding pressure time achieved higher reduction of mass". This is against a graph above this text, where longer h.p. time shows lower mass saving against the variant with shorter h.p. time. Would you mind explaining it?
- Which alternative methods can be used for measuring of density? Is there a risk that fluid used for measuring would penetrate "open cells"?

Reviewed work fulfills the assignment and author proved that is able to process the work on acceptable level. The aim was fulfilled and I evaluate conclusions except above mentioned objectives as correct. I hereby declare that the work is sufficient for obtaining "master degree" and I recommend the work for defense.

I propose to evaluate work with following grade:

„very good"

In Liberec 8.6.2017

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