



TU BERGAKADEMIE FREIBERG

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Fakultät für Werkstoffwissenschaft und Werkstofftechnologie

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Diploma thesis: Contribution to the development of a process chain without microcrack formation for the music instrument industry

Content: The aim of the work is to develop a process chain of forming processes without microcrack formation for the music instrument industry. The focus is on the determination of the optimum degree of forming of different semi-finished products (Tube pulling and bending) for the production of the necessary geometries without the formation of microcracks or high stresses in the material. Different heat treatments between and after the forming processes are investigated. Similarly, the forming properties with different active media are analyzed. The aim is to identify different process chains that enable the desired semi-finished product geometries to be produced without microcracks. For the validation of the simulations, different forming processes are used to verify the optimum degree of forming of the semi-finished products for each production step. For this purpose, the previously determined heat treatments and active media are used. In addition, the specimens are examined by SEM and LiMi for microcracks due to the forming process. Furthermore, avoidance possibilities are determined and suggested in order to identify a process chain in which a microcrack-free production of semi-finished products for the metal wind instrument industry is possible.

Focus:

- Literature research
- Calculations using SimuFact of optimum forming degrees by means of heat treatments and various active media
- Validation of the results in forming tests
- Presentation of a process chain for the microcrack-free production of semi-finished products for music instrument industry.

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Start: Possible from now on

Duration 6 months