

2022 MSc Thesis & Internship Proposal

Dear students,

3B – the fibreglass company is offering an internship and MSc thesis opportunity in its plant of Battice. Please find the proposed subject description below. In case of interest, send an e-mail with your resume and motivations to bertrand.dechesne@3b-fibreglass.com and g.louppe@uliege.be as soon as possible.

Subject: Survival analysis of glass fibre manufacturing

Addressing the climate change challenge while meeting the world's long-term energy needs is one of the biggest obstacles Mankind has ever had to overcome. By manufacturing reinforcement glass fibre for the wind and automotive industry, 3B plays a major role in order to address this challenge.

In the wind industry, glass fibre is a material of choice to build wind turbine blades with the best performance at the best cost. For automotive applications, glass fibre made composite is a material of choice to design cost-effective, lighter vehicles through metal substitution. It allows achieving energy and fuel consumption reduction, range extension and it contributes significantly to CO2 emissions reduction.

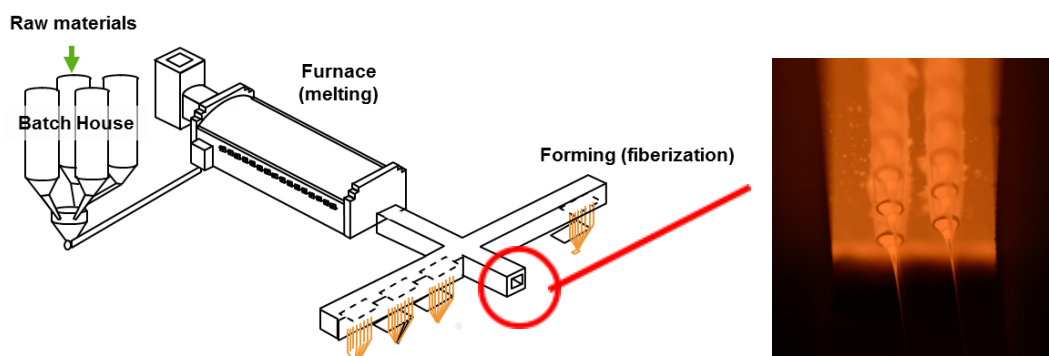


Fig. 1 Fiberization process

The entire process of glass fibre manufacturing goes from melting raw materials in a so-called melter, conveying the molten glass through channels to the forming area where the fiberization occurs by cooling and stretching the glass (see Fig. 1).

The project proposed with this MSc thesis focuses on analysing the reliability of the fiberization process by modelling and analysing its interruptions caused by glass filament breaks. The study will involve the probabilistic modelling of the process and an extensive survival analysis of its interruptions from historical data, taking into account all major confounding variables that may have caused them. The study will be complemented by a sensitivity analysis that will try to identify the most influencing parameters.

The student is expected to have a strong background in data science. Knowledge in statistical analysis and machine learning is required. During this internship, he/she will be supported in your work by the Process & Technology team at our Battice plant and supervised by Prof. Gilles Louppe.

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