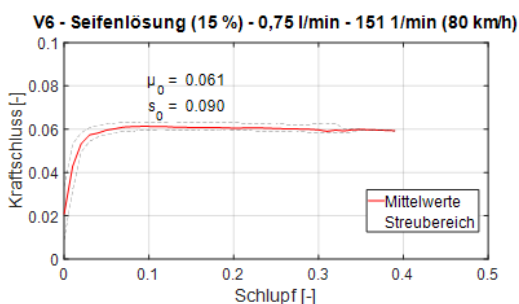




Contact situation on the
1:10 roller rig



Syringe driver to insert of
viscous interfacial media



Measured friction-creep-curve



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Motivation

Despite a deep research on the friction phenomenon between wheel and rail, the main dependencies of cause and effect aren't completely understood yet. In this project, the impact of different interfacial media on the coefficient of friction between wheel and rail is analysed

Background

The wheel-rail-contact is one of the most important elements in railway traffic for transferring traction and braking forces and leading the vehicle on the rails. As an open system, atmospheric influences and interfacial media may lead to an reduced coefficient of friction. This could have negative impacts on the transferred forces in the wheel-rail-contact which could lead to operational problems like delays or accidents in the last resort.

Seeked research results

- Definition of relevant influencing factors of different liquid interfacial media on the coefficient of friction in the wheel-rail-contact
- Conclusion to necessary amount of liquid interfacial media in the contact patch
- Influences of scaling effects on a 1:10 roller rig
- Findings of the usability of a scaled roller rig to reproduce friction measurements from a 1:1 roller rig
- Method for transferring of friction measurements from a scaled roller rig to a 1:1 roller rig

Approach

- Analysing the contact mechanicals of the wheel-rail-contact on different scaled roller rigs
- Definition and variation of the relevant parameters on the 1:10 roller rig
- Experiments on the roller rig with systematical variation and adaption of parameters
- Analysis of correlations and differences between experimental results and simulation