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# INFLUENCE OF RAIL GRINDING PROCESS PARAMETERS ON RAIL SURFACE ROUGHNESS AND SURFACE LAYER HARDNESS

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## ABSTRACT

An important part of rail maintenance is rail grinding. To ensure an economically reasonable rail life cycle and to extend the time period between repair tasks, grinding processes should not induce damage in rails, such as cracks or an increase in hardness. On the other side, high productivity of rail grinding, which tends to induce damage, is crucial to reduce repair disruptions and delays.

Research work presented in this paper aims at reducing the lack of knowledge concerning interactions between the rail grinding parameters, grinding tool specifications and the topology of the rail surface as well as damage of the rail surface layer. Industrial rail grinding processes were tested under laboratory conditions with a variation of wheel peripheral speed and depth of cut. They were evaluated with regard to the achieved surface roughness as well as micro-hardening. As a result, the main influencing factors on surface quality and surface layer transformation in rail grinding were identified and recommendations on eligible rail grinding strategies are proposed that can lead to highly productive yet low-damage rail repair.

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