

## **Evaluation of different blast furnace sinters using standard and novel experimental techniques**

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Sinter is one of the most important iron carrying raw materials in the blast furnace process. The properties of sinter such as strength, reducibility and the reduction degradation index (RDI) affect the efficiency of the ironmaking process directly. However, sinter is an agglomerate with complex mineralogical features and a high degree of inhomogeneity, which makes it difficult to characterize. Changes in production parameters such as composition and cooling conditions affect the sinter quality. The present work delivers an overview of the joint research activities on sinter conducted at the Montanuniversitaet Leoben in partnership with voestalpine Stahl Donawitz GmbH during the last few years. Different sinters have been characterized using BET specific surface area measurement techniques. An innovative technique like computed tomography (CT) has been used to determine the porosity of the sinter structure. The results have been correlated to operational properties like reducibility and corresponding RDI. Effect of various cooling conditions on sinter structure and properties has also been investigated. This work will provide a deeper insight into the structural aspects of sinter and their behavior under different process conditions.