
**Coal — Determination of the thermal
stability and thermal fragmentation**





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Published in Switzerland

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Foreword

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This document was prepared by Technical Committee ISO/TC 27, *Coal and coke*, Subcommittee SC 5, *Methods of analysis*.

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Introduction

Coal gasification is an important technology for clean coal conversion, which involves many factors. The thermal stability of coal is one of the essential parameters for the gasification industry and its relevant coal trade.

The thermal stability of coal is a measure of how much a coal retains its original size under high-temperature reaction during the process of gasification or high-temperature combustion. The coal with a better thermal stability can be gasified or burnt in its original size without being broken, or while being only a little bit broken, during the process of gasification or combustion, while the coal with a poor thermal stability will be broken into smaller piece or into powder. When using a coal with poor thermal stability for the gasification or combustion, the materials being taken from the furnace will increase, causing the resistance to increase, which in turn, affects the gasification or combustion and decreases the efficiency of the gasification. So, the thermal stability of coal is a very important property highly concerned by the gasification or combustion industry of utilizing the sized coal for gasification or combustion.

The opposite property of thermal stability of coal is the thermal fragmentation. Thermal fragmentation has a highly significant negative linear correlation with thermal stability.

This document is based on GB/T1573 and on an alternative laboratory method to determine thermal fragmentation of coal sources during pyrolysis in the gasification process given in Reference [3] including two parameters of thermal stability (TS_{+6}) and thermal fragmentation (TF), both of which can be used for guiding the coal gasification of fixed bed.