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# Commercial coal quality -- Coal for entrained-flow gasification

商品煤质量 气流床气化用煤

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# **Table of Contents**

Foreword		3
1	Scope	4
2	Normative references	4
3	Terms and Definitions	5
4	Product quality grade and technical requirements	5
5	Test methods	8
6	Inspection rules	9
7	Identification, transportation, and storage	. 10
Αp	pendix A (Informative) Product catalog	. 12

# Commercial coal quality -- Coal for entrained-flow gasification

## 1 Scope

This document specifies the quality grades, technical requirements, test methods, inspection rules, identification, transportation, and storage of coal for entrained-flow gasification.

This document is applicable to raw coal for entrained-flow gasification in production, processing, storage and transportation, sales, use, and so on.

#### 2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) is applicable to this standard.

GB/T 211 Determination of total moisture in coal

GB/T 212 Proximate analysis of coal

GB/T 213 Determination of calorific value of coal

GB/T 214 Determination of total sulfur in coal

GB/T 216 Determination of phosphorus in coal

GB/T 219 Determination of fusibility of coal ash

GB/T 474 Method for preparation of coal sample

GB/T 475 Method for manual sampling of commercial coal

GB/T 2565 Determination of grindability index of coal—Hardgrove method

GB/T 3058 Determination of arsenic in coal

GB/T 3558 Determination of chlorine in coal

GB/T 5751-2009 Chinese classification of coals

GB/T 16659 Determination of mercury in coal

GB/T 18856 (all parts) Test methods for coal water mixture

GB/T 19494.1 Mechanical sampling of coal -- Part 1: Method for sampling

GB/T 19494.2 Mechanical sampling of coal -- Part 2: Method for sample preparation

GB/T 25209 Commercial coal marking

GB/T 25214 Determination of total sulfur in coal by IR spectrometry

GB/T 25215 Guide for testing methods of coal water mixture

GB/T 25960 Rules for steam coal blending

GB/T 30732 Proximate analysis of coal -- Instrumental method

GB/T 31087 General technical requirements for impurities control of commercial coal

GB/T 31424 Determination of coal ash viscosity

SN/T 3511 Determination of mercury in minerals. General rules of direct mercury determining with solid injection method

#### 3 Terms and Definitions

There are no terms and definitions that need to be defined in this document.

# 4 Product quality grade and technical requirements

#### 4.1 General

Coal for entrained-flow gasification is classified into categories by volatile, classified into grades by ash and total sulfur, and expressed in the form of "category + ash grade + total sulfur grade". At the same time, the technical requirements for the slurry ability of water-coal slurry are proposed for coal used in water-coal slurry gasification.

#### 4.2 Product category

Coal for entrained-flow gasification is divided into 4 categories according to coal type, namely anthracite for entrained-flow gasification, low volatile bituminous coal for entrained-flow gasification, medium-high volatile bituminous coal for entrained-flow gasification, and lignite for entrained-flow gasification; the abbreviated codes are QLQH-WY, QLQH-LVYM, QLQH-MHVYM, QLQH-HM, respectively. The

#### 5 Test methods

#### 5.1 Total moisture

The determination of the total moisture of coal shall be carried out in accordance with GB/T 211.

#### 5.2 Ash and volatile

The determination of ash and volatile of coal shall be carried out in accordance with GB/T 212 or GB/T 30732. The arbitration of the ash of coal shall be performed in accordance with the slow ashing method in GB/T 212.

#### 5.3 Calorific value

The calorific value of coal shall be measured according to GB/T 213.

#### 5.4 Total sulfur

The determination of total sulfur of coal shall be carried out in accordance with GB/T 214 or GB/T 25214 and shall be carried out in accordance with the Eschka method in GB/T 214 during the arbitration.

#### 5.5 Phosphorus content

The determination of phosphorus content in coal shall be carried out in accordance with GB/T 216.

#### 5.6 Chlorine content

The determination of chlorine content in coal shall be carried out in accordance with GB/T 3558.

#### 5.7 Arsenic content

The determination of arsenic content in coal shall be carried out in accordance with GB/T 3058.

#### 5.8 Mercury content

The determination of mercury content in coal shall be carried out in accordance with GB/T 16659 or SN/T 3511.

#### 5.9 Grindability index

The grindability index of coal (Hardgrove method) shall be determined in accordance with GB/T 2565.

#### 6.4 Type inspection

- **6.4.1** Type inspection shall be carried out in the following cases:
  - a) Appraisal of new product design profile and appraisal of trial-batch production definition;
  - b) Raw materials, processes, and equipment change during formal production;
  - c) During formal production, an inspection shall be carried out every half a year or every batch of raw materials changed;
  - d) Production is resumed after batch production had been interrupted and stopped;
  - e) The national or local quality supervision and management department proposes type inspection requirements.
- **6.4.2** Type inspection items shall meet the requirements of Table 4.

#### 6.5 Judgment rules

The quality of coal used for entrained-flow gasification shall be judged according to the provisions in Tables 1~Table 3. When the results of the factory inspection and type inspection meet the requirements, the batch of products shall be judged as qualified.

## 7 Identification, transportation, and storage

#### 7.1 Identification

- **7.1.1** The commercial coal produced and sold shall be marked according to the provisions of GB/T 25209.
- **7.1.2** The accompanying documents for the circulation of coal marked as commercial shall include but not be limited to the following:
  - --- Product name;
  - --- Quantity;
  - --- Place of origin;

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