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Iron ore fines — Method for presentation of the results of sintering tests

*Particules de minerais de fer — Méthode de présentation des résultats
d'essais de frittage*



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Foreword

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International Standard ISO 8263 was prepared by Technical Committee ISO/TC 102, *Iron ores*, Sub-Committee SC 3, *Physical testing*.

Annex A forms an integral part of this International Standard.

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Introduction

Sintering tests can be conducted for several different purposes, for example, the assessment of the sintering behaviour of a particular iron ore fines, for production and quality control purposes at a sinter plant, or for research purposes concerned with the sintering process or sintering technology.

From the results of these sintering tests, the sintering behaviour of an iron ore, or iron ore mix, is determined in terms of production rate, fuel consumption rate and sinter quality. The purpose of this International Standard is to establish the terminology and method for presentation of these results, for use when sintering test data is required to be exchanged between separate parties, such as will be the case where a particular iron ore fines has been assessed for commercial reasons, or where research or production results are to be published.

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Iron ore fines — Method for presentation of the results of sintering tests

1 Scope

This International Standard specifies a method for presentation of the results of sintering tests. It is applicable to all iron ore fines that are agglomerated by the sintering process.

2 Definitions

For the purposes of this International Standard, the following definitions apply.

- 2.1 ore mix:** The blend of iron ores, and other iron bearing raw materials, such as mill scale, basic oxygen steel making slag, dust, etc., used in the tests. It does not include return sintered fines, fluxes, coke or other solid fuel.
- 2.2 sinter mix:** The mix of materials charged to the sintering test apparatus, which includes the ore mix, fluxes, coke or other fuel, and return sintered fines.
- 2.3 mixing times:** The time, in minutes, taken for blending and granulating the various constituents of the sinter mix.
- 2.4 moisture content of sinter mix:** The moisture content, as a percentage by mass, determined by drying the granulated sinter mix, as charged to the sintering test apparatus, at $105\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$.
- 2.5 moisture content for maximum permeability:** The moisture content of the granulated sinter mix at which maximum permeability is obtained.
- 2.6 bulk density of sinter mix:** The mass per unit volume of the wet sinter mix as charged.
- 2.7 hearth layer:** A layer of previously made and sized sinter, or other iron ore material, which is placed on the grate before the sinter mix is charged.
- 2.8 grate area:** The area of the grate of the sintering test apparatus.
- 2.9 net bed height:** The height of the bed of sinter mix above the hearth layer, prior to the application of suction and ignition.
- 2.10 suction:** The air suction measured at the wind box or at the entrance of the main blower of the sintering test apparatus.
- 2.11 ignition intensity:** The heat supplied per unit of grate area per unit time of ignition.
- 2.12 ignition temperature:** The maximum temperature attained at or immediately above the surface of the sinter bed during the ignition process.
- 2.13 sintering time:** The time from the start of ignition until the exhaust gas temperature reaches a maximum.
- 2.14 sinter cake:** The total mass of sinter produced, including the hearth layer and the material collected from the bottom of the wind box.
- 2.15 sinter handling treatment:** The tumbling and/or shatter treatment given to the sinter cake, obtained in a sinter pot to simulate the effects of handling and transportation in a sinter plant.
- 2.16 return sintered fines:** The undersize fines separated from the sinter cake by sieving after the handling treatment.
- 2.17 sinter product:** The sinter acceptable size for charging to the blast furnace.
- 2.18 productivity:** The mass of sinter product, produced per unit grate area per unit of time (see 3.1.1).
- 2.19 fuel consumption:** The dry mass(es) of solid fuel(s) consumed per unit mass of sinter product after deducting the hearth layer (see 3.1.2).