AS 5213:2019

Australian STANDARD

Density tracer testing for measuring performance of coal density separators

STANDARDS Australia

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The following are represented on Committee MN-001:

Australian Coal Preparation Society
Australian Energy Council
Coalfield Geology Council of NSW
CSIRO
Minerals Council of Australia
National Association of Testing Authorities Australia
University of Queensland
University of Newcastle

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Preface

This Standard was prepared by the Standards Australia Committee, MN-001, Coal and Coke.

The objective of this Standard is to provide the coal preparation industry with an accurate, safe, rapid and site-based method for determining the density partitioning performances of density separators.

The term “informative” is used in Standards to define the application of the appendix to which it applies. An “informative” appendix is only for information and guidance.

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1 Scope

This Standard specifies the requirements for testing the performance of coal density separators using density tracers, and provides a method for the presentation of test results.

This Standard is applicable to dense medium cyclones (DMCs) and dense medium baths, as follows:

(a) For a single separator.

(b) For a group of separators where the feed is distributed between them at a point downstream of density tracer insertion.

(c) For density tracers of any size, but rarely used for particles with maximum dimension less than 2 mm.

This Standard also provides guidance for testing the performance of other types of density separators with density tracers.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document.

NOTE Documents for informative purposes are listed in the Bibliography.

AS 2418, *Coal and coke — Glossary of terms*

3 Terms and definitions

For the purposes of this document, the definitions given in AS 2418 and those below apply.

3.1
cutoff time
time which follows the time of last density tracer insertion by 5 minutes plus the greater of floats transit time or sinks transit time

3.2
density separator
device for the cleaning of coal, in which particles are separated into two or more streams according to their densities

3.3
density tracer
non-porous particle of defined shape and density that is not easily broken or abraded

Note 1 to entry: Types include radio frequency identified (RFID) density tracers and non-RFID manually recovered density tracers.

3.4
$\boldsymbol{E_{p75/25}}$
one half of the difference between the densities corresponding to the 75 % and 25 % partition coefficients as obtained from the partition curve