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GB/T 2293-2019

Replacing GB/T 2293-2008

The method of quinoline-insoluble for pitch products of coal carbonization

焦化沥青类产品喹啉不溶物试验方法

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Table of Contents

Foreword

This Standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This Standard replaces GB/T 2293-2008 “Pitch products of coal carbonization - Determination of quinoline-insoluble”. Compared with GB/T 2293-2008, main technical changes are as follows:

- modified Scope (see Clause 1 of this Edition, Clause 1 of Edition 2008);
- modified technical requirements for weighing bottle (see 4.1.2 of this Edition, 4.1.2 of Edition 2008);
- added filter device; added suction-filtration of glass sand-core filter crucible as well as use and processing methods (see 4.1.7 of this Edition);
- improved technical requirements for reagents - quinoline, toluene (see 4.2.1, 4.2.2 of this Edition, 4.2.1, 4.2.2 of Edition 2008);
- added technical requirements for reagents - acetone, diatomaceous earth (see 4.2.3, 4.2.4 of this Edition);
- modified requirements for sample weighing (see 6.1 of this Edition, 6.2.1 of Edition 2008);
- added provisions on processing of glass rod for stirring use (see 6.3 of this Edition);
- added use and processing methods for filtering process filter aid (diatomaceous earth) (see 6.5 of this Edition);
- modified washing steps after sample is dissolved; respectively used hot quinoline, toluene, and acetone to wash successively (see 6.7, 6.8, 6.9 of this Edition, 6.2.5 of Edition 2008);
- modified dosage volume of washing solution - hot quinoline (see 6.7 of this Edition, 6.2.5 of Edition 2008);
- added washing steps for acetone after sample is dissolved (see 6.9 of this Edition);
- added provisions on processing method of used glass sand-core filter crucible (see 6.11 of this Edition);
- added precisions of coal tar and impregnated asphalt (see 8.3 of this Edition).

This Standard was proposed by China Iron and Steel Association.

The method of quinoline-insoluble for pitch products of coal carbonization

Warning -- Users of this Standard shall have practical experience in formal laboratory work. This Standard does not identify all possible security issues. Users of this Standard are responsible for taking appropriate safety and health measures and ensure conditions required by relevant national regulations. Test personnel shall wear respirators, safety glasses and protective gloves during test operation to complete testing in a mandatory fume hood.

1 Scope

This Standard specifies test principle, instruments and reagents, sampling and preparation of sample, test steps, test result calculation and allowable deviation for coal tar and quinoline-insoluble for pitch products of coal carbonization that uses coal tar to produce.

This Standard is applicable to determinations of contents of coal tar and quinoline-insoluble for pitch products of coal carbonization that uses coal tar to produce.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 1999, *Sampling of coking oil products*

GB/T 2000, *Coking solid products - Sampling*

GB/T 2291, *Method for preparation of coal tar pitch specimens*

GB/T 6005, *Test sieves - Metal wire cloth perforated metal plate and electroformed sheet - Nominal sizes of openings*

GB/T 8170, *Rules of rounding off for numerical values & expression and judgement of limiting values*

4.2.3 Acetone: analytical reagent.

4.2.4 Diatomite: analytical reagent, fineness is 40 meshes ~ 60 meshes. Place diatomite in G4 glass sand-core filter crucible. Use laboratory water to wash and filter. Place in drying oven. Dry to constant weight (2h~2.5h). Put it in dryer to cool to room temperature for use.

5 Sampling and preparation of sample

5.1 Sample's sampling is in accordance with GB/T 1999 and GB/T 2000.

5.2 Sample preparation is in accordance with GB/T 2291. After drying, use mortar to grind into granules that pass through SSω500/315μm sieve.

5.3 For soft pitch sample: Melt sample first. Stir well. Ensure melting temperature does not exceed 150°C. Melting time does not exceed 10min.

6 Test steps

6.1 Accurately weigh sample volume of which quinoline-insoluble content in sample meets 75mg~150mg (to the nearest of 0.0002g). Place coal tar and pitch samples in clean and dry 100mL beakers. Place modified pitch sample in centrifugal test tube. Add 25mL of quinoline. Use glass rod to stir well.

6.2 Soak above beaker or centrifugal test tube that contains sample together with hard glass washing bottle that contains quinoline into (75±5)°C constant temperature water bath. Stir sample from time to time. Take it out after 30min for suction-filtration.

6.3 Use hot quinoline to wash clean glass rod that is used to stir. Place washing solution into beaker or centrifugal test tube that contains sample.

6.4 Place centrifugal test tube that contains modified pitch sample in centrifuge. Perform centrifugation at a speed of 4000r/min for 20min. Take it out for suction-filtration.

6.5 Install filter device. Add 2g~3g of dry diatomite into clean filter that is dried to constant weight. Weigh all, to the nearest of 0.0001g.

6.6 Use a small amount of quinoline to wet diatomite in filter specified in 6.5. Slowly pour dissolved sample into filter. Perform suction-filtration at the same time.

6.7 Use 30mL of hot quinoline to wash beaker or centrifugal test tube in several times, so as to make all residues transfer into filter. Then use 50mL of hot

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