

ICS 87.040
CCS G 50



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 21782.5-2010

**Coating powders -- Part 5: Determination of flow properties of a
powder/air mixture**

粉末涂料 第5部分：粉末空气混合物流动性的测定

(English Translation)

Issued on: September 26, 2010

Implemented on: August 1, 2011

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine of the People's Republic of China**

Table of Contents

Foreword
1 Scope
2 Normative reference documents
3 Principle
4 Equipment

Foreword

GB/T 21782-2010 "powder coating" consists of 14 parts, the structure and its corresponding international standards are as follows.

Part 1. Determination of particle size distribution by sieving method (ISO 8130-1.:1992, IDT);

- Part 2. Determination of density by gas ratio gravimetric method (ISO 8130-2.:1992, IDT);

- Part 3. Determination of density by liquid displacement pycnometer method (ISO 8130-3.:1992, IDT);

- Part 4. Calculation of the lower limit of the explosion (ISO 8130-4.:1992, IDT);

- Part 5. Determination of fluidity of powder air mixtures (ISO 8130-5.:1992, IDT);

Part 6. Determination of the gelation time of thermosetting powder coatings at a given temperature (ISO 8130-6.:1992, IDT);

- Part 7. Determination of mass loss during baking (ISO 8130-7.:1992, IDT);

- Part 8. Evaluation of storage stability of thermosetting powders (ISO 8130-8.:1994, IDT);

- Part 9. Sampling (ISO 8130-9.:1992, IDT);

- Part 10. Determination of deposition efficiency (ISO 8130-10.:1998, IDT);

- Part 11. Determination of fluidity of tilting plates (ISO 8130-11.:1997, IDT);

- Part 12. Determination of compatibility (ISO 8130-12.:1998, IDT);

Part 13. Particle size analysis by laser diffraction (ISO 8130-13.:2001, IDT);

- Part 14. Terminology (ISO 8130-14.:2004, IDT).

This part is Part 5 of GB/T 21782-2010.

This part uses the translation method equivalent to ISO 8130-5.:1992 "Powder Coatings

Part 5 Powder Air Mixture Flowability Set "(English version).

For ease of use, this section has made the following editorial changes.

Remove Appendix B of the International Standard ISO 8130-5.

Appendix A to this section is an informative appendix.

This section is proposed by the China Petroleum and Chemical Industry Association.

This part is headed by the National Committee for Standardization of Coatings and Pigments (SAC/TC5).

This part of the drafting unit. Guangdong Entry-Exit Inspection and Quarantine Bureau, CNOOC Changzhou Paint Chemical Research Institute.

1 Scope

This part of GB/T 21782 specifies the determination of the flowability of the powder air mixture. This method reflects the powder coating industry practice.

The study concluded that the factors that affect the mobility of the powder coating composition, density, particle shape, particle size distribution, as well as the grain Sub-agglomeration and acceptance of triboelectric charge properties.

Note: It is well known that the transport and spray characteristics of the powder are largely dependent on the flow properties of the powder in the air and in the stacked state. Industry insiders recognize this method is more practical than the method of evaluating the flow of powder ontology. By flow angle method, when the powder flows through Vertical cone to the horizontal plane, you can measure the formation of the cone angle. The powder with good flowability is formed by the same mass of powder with poor mobility Taper angle is small. The use of flow angle method, it is difficult to obtain accurate measurement of the objective value, but only for the powder for a separate test, but in the actual construction when the powder and air are mixed.

2 Normative reference documents

The terms of the following documents are the terms of this part by reference to this part of GB/T 21782. Any reference to the date of the text , All subsequent amendments (excluding corrigenda) or revisions do not apply to this part, however, encouragement under this section the parties to the agreement study whether the latest version of these documents can be used. For undated references, the latest edition of this document applies section.

GB/T 21782.9-2010 Powder coatings - Part 9. Sampling (ISO 8130-9.:1992, IDT)

3 Principle

In the absence of air flow conditions, the provisions of the quality of the powder coating in the container. In the standard atmospheric pressure and temperature conditions, with clean the net dry air is fluidized to determine the rate of fluidization and after fluidization and the rate at which the fluidized powder flows through a particular orifice.

The fluidization factor ϕ and the powder flow rate (flow factor) R , the fluidization factor ϕ and the powder flow rate R are used to characterize the powder transport and the characteristics of spraying.

4 Equipment

4.1

Equipment for testing fluidity. consists of a fluidized container with a toroidal flow port on the wall and a height of the instrument in the test vessel. Simultaneously it also includes instruments that weigh the powder quality flowing through the flow port.

Note: Figure 1 is a suitable apparatus, which will be described below. You can also use devices that give similar results.

Typical equipment is composed of the individual units described in 4.1.1 to 4.1.3.

4.1.1

Fluidized powder container (container A). outer diameter of about 110mm, diameter of about 100mm, height of not less than 200mm, by the transparent of methyl methacrylate, the bottom by the uniform porous copper discs, the largest pore size of about 40 μ m.

Note: A 5 mm thick disk can have an air flow rate of about (200 ± 10) L/h at atmospheric pressure of 5 kPa or more and is suitable for use.

The annular flow mouth D with an outer diameter of 4 mm can be plugged with a plug E, which is suitable for the position on the container wall, generally on a cast copper disc Side 10mm Department.

4.1.2

Air conditioning unit B. Adjust the air flow with the flow meter F.

4.1.3

Container C. To have sufficient volume, install the powder at the time of the test powder flow rate (see Figure 1).

4.2

Dry air supply. Have enough air to supply the test.