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Dusting Propensity of Powder Dyes: Evaluation of

Developed in 1987 by Committee RA87; editorially revised and reaffirmed 1988, 1989 (title change), 1996; editorially revised 1992, 2004, 2008; reaffirmed 2001, 2006, 2011, 2016, 2017.

1. Purpose and Scope

1.1 This test method provides a standard method for the evaluation of dusting properties of powder dyes.

1.2 The method of assessment permits the assignment of a numerical rating describing the degree of dusting; or, conversely, the degree of non-dusting of powder dyes.

1.3 This test method is not intended for a quantitative determination of dusting. Water soluble dyes may give an inferior rating than an equal amount of dusting caused by disperse dyes. Further studies indicated that not all factors; i.e., humidity, are fully controlled. Also the method does not distinguish between slow and fast settling dust.

2. Principle

2.1 Three, approximately equal, weighed portions of a 10 g powder dye sample are dropped consecutively and rapidly into a funnel which has a wet filter paper collar on the stem and is fitted into a cylinder. Any dust which forms rises and settles on the pre-wet filter paper collar.

2.2 The resulting coloration on the filter paper is then compared to a series of five standards and a numerical rating is assigned.

3. Terminology

3.1 **dusting,** n.—the tendency of particles of sufficiently low mass to become airborne when a powder material is handled or agitated.

3.2 **dye,** n.—a colorant applied to or formed in a substrate, via the moleculary dispersed state, which exhibits some degree of permanence.

4. Safety Precautions

NOTE: These safety precautions are for information purposes only. The precautions are ancillary to the testing procedures and are not intended to be all inclusive. It is the user's responsibility to use safe and proper techniques in handling materials in this test method. Manufacturers MUST be consulted for specific details such as material safety data sheets and other manufacturer's recommendations. All OSHA standards and rules must also be consulted and followed.

4.1 Good laboratory practices should be followed. Wear safety glasses in all laboratory areas and a single-use dust respirator while handling powder dyes.

5. Apparatus and Materials

5.1 Funnel, 1.5 mm thick stainless steel, 110 mm diameter, 230 mm stem length with 15 mm stem diameter (see Fig. 1).

5.2 Cylinder, stainless steel, 50 mm diameter, 355 mm tall (approx. capacity 500 mL) with capability of grounding to prevent interference from static electricity (see 11.1).

5.3 Filter paper, Whatman No. 2, 39 mm diameter circle with 16 mm diameter center hole (see 11.1 and 11.2).

5.4 Pipettes, Pasteur.

5.5 Beakers, Griffin, 50 mL.

5.6 Photographic Scale for Rating (see 11.3, Fig. 2).

6. Preparation and Assembly

6.1 Slip a filter paper collar on the funnel stem and position it 100 mm from the bottom of the stem.

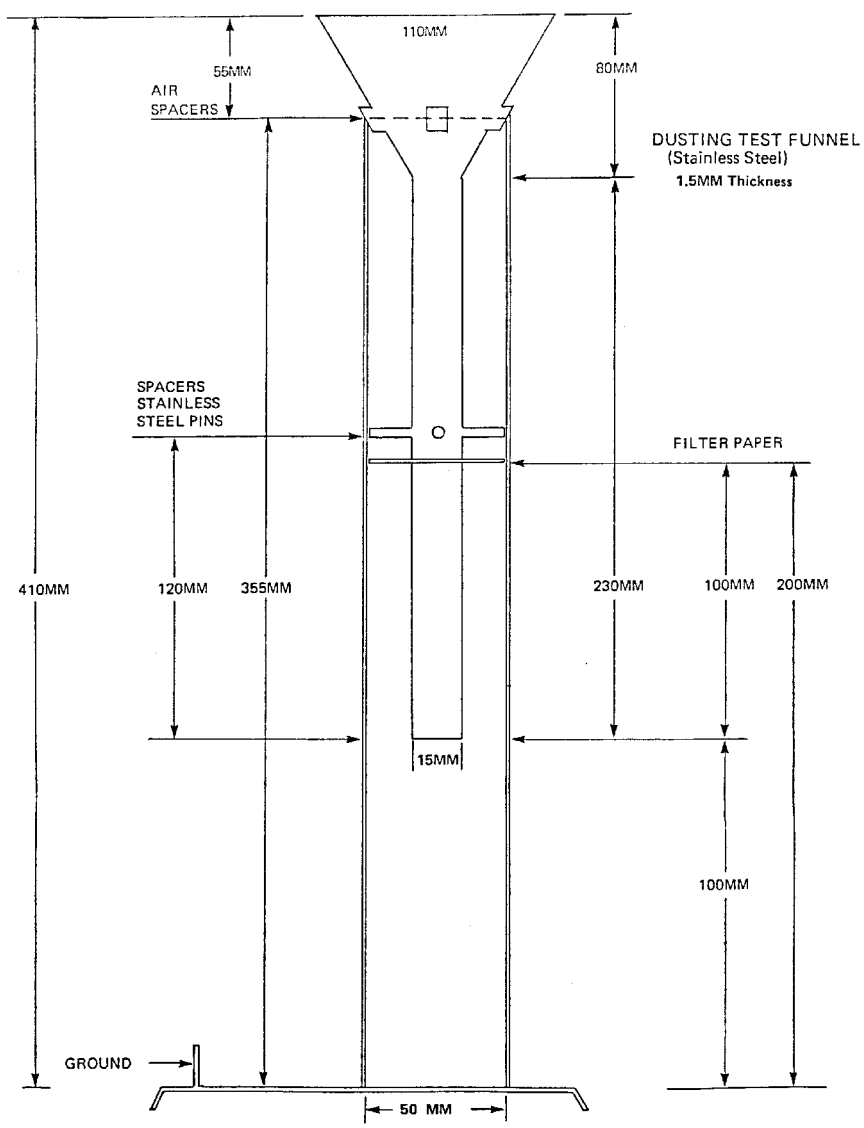

Fig. 1—Dusting test funnel.

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