Designation: ~~D2281 – 10~~ D2281 – 10 (Reapproved 2016)

Standard Test Method for Evaluation of Wetting Agents by the Skein Test[1]

This standard is issued under the fixed designation D2281; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method[2,3] covers the determination of the efficiency of ordinary commercial wetting agents as defined in Terminology D459. This test method is applicable under limited and controlled conditions, but does not necessarily yield information correlating with specific end uses.

1.2 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*[4]

D459 Terminology Relating to Soaps and Other Detergents

3. Summary of Test Method

3.1 A weighted cotton test skein is dropped into a tall cylinder containing a wetting agent of known concentration dissolved in water. The time required for the cotton skein to wet through and sink, relaxing the string stirrup to which it is attached will be recorded as the sinking time. This time relates to the speed at which the wetting agent works and can be used to compare agents.

4. Apparatus

4.1 *Hook and Anchor:*

4.1.1 The hook of a standard weight and the attached anchor shall be prepared as follows: Bend a piece of No. 10 B&S gage copper wire about 2 9⁄16 in. (14.1 mm) long into the form of a hook as illustrated by *A* in Fig. 1 and then adjust the weight of the bent hook to exactly 3.0 g. Nickel, silver, and stainless steel wire are even more suitable than copper for this purpose because they are more corrosion resistant. The anchor, *C*, shall be a flat, cylindrical, lead slug with a minimum weight of 40 g and shall have a diameter of 1 in. (25 mm) and a thickness of about 3⁄16 in. (4.7 mm). In the center of the anchor solder a loop of wire to serve as a small ring, or eye, for attaching the anchor to the hook with a fine linen thread, *B*, at a distance apart of 3⁄4 in. (19 mm). If many products are to be tested, prepare at least two hooks and anchors.

4.1.2 In the comparison of wetting agents a trial must be run to determine the surfactant concentration to give a meaningful result for sinking times between 1 min or less.

[1] This test method is under the jurisdiction of ASTM Committee D12 on Soaps and Other Detergents and is the direct responsibility of Subcommittee D12.15 on Physical Testing.

Current edition approved ~~Sept. 1, 2010~~July 1, 2016. Published ~~September 2010~~August 2016. Originally approved in 1964. Last previous edition approved in ~~2005~~2010 as ~~D2281 – 68 (2005).~~D2281 – 10. DOI: ~~10.1520/D2281-10.~~10.1520/D2281-10R16.

[2] This test method is based on the American Association of Textile Chemists and Colorists Technical Manual, Test Methods—Physical Properties, Wetting Agents, Evaluation of, Standard Test Method 17 – 1952, Vol XXXIX, 1963, pp. B-133-B-135, which is also American National Standard L 14.11 – 1956 of the American National Standards Institute.

[3] Draves, C. Z., and Clarkson, R. G., "A New Method for the Evaluation of Wetting Agents," *American Dyestuff Reporter*, Vol 20, 1931, pp. 201–208.

[4] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.