



Standard Test Methods for Sorbent Performance of Absorbents¹

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1. Scope

1.1 These test methods cover the development of laboratory test data which describe the performance of absorbent materials used to remove oils and other compatible fluids from water.

1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.3 *This standard should be used to measure and describe the properties of materials, products, or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazard or fire risk of materials, products, or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment which takes into account all of the factors which are pertinent to an assessment of the fire hazard of a particular end use. (For a specific warning statement see 10.4.)*

2. Referenced Documents

2.1 *ASTM Standards:*²

F726 Test Method for Sorbent Performance of Adsorbents

2.2 *Federal Standard:*

Fed. Std. No. 141a Paint, Varnish, Lacquer and Related Materials. Methods of Inspection, Sampling and Testing³

2.3 *Military Specification:*

MIL-I-631D Insulation, Electric, Synthetic Resin Composition, Nonrigid³

3. Terminology

3.1 *General Terminology:*

¹ These test methods are under the jurisdiction of ASTM Committee F20 on Hazardous Substances and Oil Spill Response and are the direct responsibility of Subcommittee F20.22 on Mitigation Actions.

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² 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.

³ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098, Attn: NPODS.

3.1.1 *gellant*—a material such as a colloidal network or other aggregate network that pervades and holds a liquid in a highly viscous fragile structure. Many gels may rapidly liquefy with added heat or ionic/polar addition. These materials are soluble/flowable in excess liquid.

3.1.2 *sorbent*—an insoluble material or mixture of materials used to recover liquids through the mechanisms of absorption or adsorption, or both.

3.1.3 *thickener*—a material (usually of higher molecular weight) that is soluble in excess liquid. These materials go from dry to gummy (viscoelastic) to flowable and then soluble. The final viscosity depends only on the liquid to solid ratio.

3.1.4 *universal sorbent*—an insoluble material or mixture of materials that will sorb both hydrophobic and hydrophilic liquid spills.

3.2 *Definitions:*

3.2.1 *absorbent*—a material that picks up and retains a liquid distributed throughout its molecular structure causing the solid to swell (50 % or more). The absorbent is at least 70 % insoluble in excess liquid.

3.2.2 *adsorbent*—an insoluble material that is coated by a liquid on its surface including pores and capillaries without the solid swelling more than 50 % in excess liquid.

3.3 *Definitions of Terms Specific to This Standard:*

3.3.1 *oil*—a substantially water immiscible organic liquid that will float on water (density less than 1 g/cm³), typically with surface tension less than 40 x 10⁻³.

3.3.2 *Type I absorbent (roll, film, sheet, pad, blanket, web)*—a material with length and width much greater than thickness and which has both linear form and strength sufficient to be handled either saturated or unsaturated.

3.3.3 *Type II absorbent (loose)*—an unconsolidated, particulate material without sufficient form and strength to be handled except with scoops and similar equipment.

4. Summary of Method

4.1 The absorbent material is tested using established standard methods, where applicable, and specially developed tests for performance factors.