



Standard Specification for Repositionable Pressure-Sensitive Flags¹

This standard is issued under the fixed designation D6788; 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 specification covers repositionable pressure-sensitive flags used to mark, flag, and index documents, books, periodicals, and so forth.

1.2 The values stated in either inch-pound or SI units are to be regarded separately as standard. The values stated in each system are not exact equivalents; therefore, each system must be used independently, without combining values in any way.

1.3 The following safety hazards caveat pertains only to the test methods portion, Section 14, of this specification. *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 requirements prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

- D996 Terminology of Packaging and Distribution Environments
- D3330/D3330M Test Method for Peel Adhesion of Pressure-Sensitive Tape
- D3652/D3652M Test Method for Thickness of Pressure-Sensitive Tapes
- D3715/D3715M Practice for Quality Assurance of Pressure-Sensitive Tapes
- D3811/D3811M Test Method for Unwind Force of Pressure-Sensitive Tapes
- D3951 Practice for Commercial Packaging
- D4332 Practice for Conditioning Containers, Packages, or Packaging Components for Testing

¹ This specification is under the jurisdiction of ASTM Committee D10 on Packaging and is the direct responsibility of Subcommittee D10.14 on Tape and Labels.

Current edition approved April 1, 2012. Published May 2012. Originally approved in 2002. Last previous edition approved in 2007 as D6788 – 02 (2007). DOI: 10.1520/D6788-02R12.

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.

2.2 Federal Specifications:

CID A-A-2826 Tabs, Signal (Repositionable), cancelled November, 19, 1999³

PPP-T-680 Federal Packaging Standard⁴

2.3 ISO Standard:

ISO 9002 Quality Systems Model for Quality Assurance in Production and Installation⁵

2.4 ANSI/ASQC Standard:

ANSI/ASQC Z 1.9 Sampling and Tables for Inspection by Variables for Percent Defective⁵

3. Terminology

3.1 *Definitions*—General terms in this specification are defined in Terminology D996.

3.2 *pad of flags*—a vertical stack of individual flags with one flag positioned on top of the other.

4. Significance and Use

4.1 The repositionable, pressure-sensitive flags covered by this specification are intended for marking, flagging, and indexing of documents, books, periodicals, and so forth. Flags consist of a single sheet of matte film partially covered by adhesive. There is a non-adhesive tab or section at one end of the flag for easy removal from surfaces. The flag is removable from most surfaces including paper. Flags may have a printed message on the top side of the flag.

4.2 This specification replaces U.S. Government CID A-A-2826.

5. Classification

5.1 Type 1 flags are 1 in. wide (25 mm) and have a colored tab at one end.

5.2 Type 2 flags are 1 in. wide (25 mm) and have a printed message on the top side of the flag.

³ Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, <http://www.access.gpo.gov>.

⁴ Available from www.dia.mil. For additional information or comments write to General Services Administration, Federal Supply Service, FSS Acquisition Management Center, Environmental Programs and Engineering Policy Division (FCOE), Washington, DC 20406.

⁵ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

5.3 Type 3 flags are 2 in. wide (50 mm) and have a white tab at one end to highlight writing.

5.4 Type 4 flags are ½ in. wide (12 mm) and have a colored tab at one end.

5.5 Type 5 flags are ½ in. wide (12 mm) and have an arrow or a message printed on the top side of the flag.

6. Ordering Information

6.1 The inquiry or order shall include the following:

- 6.1.1 ASTM designation and date of issue,
- 6.1.2 Type required (see Section 5),
- 6.1.3 Number of flags in each dispenser,
- 6.1.4 Color of tab on flag for unprinted flags,
- 6.1.5 Printed message, if any,
- 6.1.6 When testing and inspection certification is required (see Section 17), and
- 6.1.7 For government orders, conformance to federal packaging standards.

7. Materials and Manufacture

7.1 The materials used in construction of the flags shall conform to the requirements of this specification.

7.2 *Backing*—The film backing shall consist of polyester, polypropylene, or polyethylene film. The backing shall have sufficient strength to resist tearing by hand. The backing shall have a transparent matte surface on one side that is writable by pens and pencils.

7.2.1 Writing on the flags shall not exhibit feathering, spreading, skipping, beading, visible discontinuities or fading of ink when writing with any writing instrument including a metal roller pen, felt tip pen, permanent marker, ball point pen, or fountain pen.

7.2.2 Individual flags shall release easily from the pad without leaving any trace of adhesive on the underlying sheet.

7.3 *Adhesive*—The adhesive shall be pressure-sensitive, repositionable, and water-insoluble. Each flag in the pad shall have a coating of the adhesive on the back side of the flag.

7.3.1 The adhesive coating shall be applied flush to one horizontal edge of the flag and shall extend the entire width of the flag. The adhesive shall cover at least 60 % of the surface area of the flag to ensure secure holding of the flag to a surface.

7.3.2 The adhesive shall leave no visible residue on the surface to which it is applied and removed. Removal of the flag from paper shall not rip or damage the paper.

7.4 *Pad and Dispenser*—Single flags shall be stacked in a pad. The pad of flags shall be contained in a dispenser package that allows single flag dispensing through a slot in the dispenser. The dispenser shall be designed so that when a flag is removed for use, the next flag in the pad shall protrude from the slot for the next application. This shall continue until the pad is consumed. The dispenser shall be of sufficient strength to last the life of the pad. One flag dispenser may contain a single pad or several pads of flags.

8. Conditioning

8.1 Condition all samples in the standard conditioning atmosphere as described in Practice D4332 for a period of not less than 24 h before testing.

8.2 Conduct tests in an atmosphere of 50 ± 2 % relative humidity and 23.0 ± 2.0°C as described in Practice D4332.

9. Physical Properties

9.1 The flags shall comply with the physical test requirements listed in Table 1.

10. Dimensions, Mass, and Permissible Variations

10.1 The dimensions of the flags shall be as specified in Table 2.

10.2 *Color Tab Width*—Type 1, 3, and 4 flags have a color tab at the non-adhesive end of the flag. The length of the color tab shall be ⅝ in. (16 mm). The tolerance on color tab length shall be ± 1/16 in. (± 1.5 mm). The colored tab shall extend the full width of the flag.

11. Workmanship

11.1 The flags and the dispenser shall be clean and free from dirt, foreign matter, holes, tears, wrinkles, and other defects that might affect appearance or serviceability. Flags shall be uniform in color and formation. The finished product shall conform to the levels of quality established herein.

12. Sampling

12.1 *End Item Examination*—The lot size for visual inspection shall be as specified in the end item inspection of 5.3 of Practice D3715/D3715M. The sample unit shall be one pad of flags. The AQL shall be 2.5 %.

12.2 *End Item Testing*—Lot size and sampling for end item testing shall be as specified in end item testing of 5.4 of Practice D3715/D3715M. The sample unit shall be one pad of flags. The AQL shall be 4.0 %.

12.2.1 Adhesion has a double specification limit (there is an upper and lower limit to the specification). For adhesion, use Table C-3 and Example C-3 of ANSI/ASQC Z 1.9.

13. Specimen Preparation and Number of Tests

13.1 Specimen preparation shall be as specified in Section 14.

13.2 Number of tests per unit of product shall be four. The sample unit shall be one pad of flags.

14. Test Methods

14.1 *Responsibility for Inspection*—Unless otherwise specified in the contract or order, the manufacturer is responsible for the performance of all inspection requirements as specified herein.

TABLE 1 Properties

Property	Unit, Limit	Value
Adhesion, min	Oz/in.	1.7
	N/100 mm	1.9
Adhesion, max	Oz/in.	4.3
	N/100 mm	4.8
Dispensing Force	Oz/in., max	12.0
	N/100 mm, max	13.3
Thickness	in., min	0.002
	mm, min	0.05

TABLE 2 Dimensions

Type	Description	Width	Length	Tolerance
1	1 in. unprinted	1 in. (25 mm)	1.72 in. (44 mm)	±1/16 in. (±1.5 mm)
2	1 in. printed	1 in. (25 mm)	1.72 in. (44 mm)	±1/16 in. (±1.5 mm)
3	2 in. index	2 in. (50 mm)	1.72 in. (44 mm)	±1/16 in. (±1.5 mm)
4	½ in. unprinted	0.47 in. (12 mm)	1.72 in. (44 mm)	±1/16 in. (±1.5 mm)
5	½ in. printed	0.47 in. (12 mm)	1.72 in. (44 mm)	±1/16 in. (±1.5 mm)

14.2 *Responsibility for Compliance*—All items must meet all requirements of Sections 7-16. The inspections set forth in this specification shall become part of the manufacturer's overall inspection system or quality program for the contract or order. The absence of any inspection requirements in the specification shall not relieve the manufacturer of the responsibility of ensuring that all products or supplies submitted for acceptance comply with all the requirements of the contract or order. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the buyer to acceptance of defective material.

14.3 *Classification of Inspections:*

14.3.1 *First Article of Manufacture*—When a product is first manufactured in a plant, it shall be tested and inspected to determine compliance with all examinations and tests of this specification. First article of manufacture examinations need only be repeated when there is a change in materials, processes, or plant of manufacture. Specimens shall consist of at least five pads of flags representing a standard production lot.

14.3.2 *Quality Conformance Inspections*—Quality conformance inspections shall consist of the following: adhesion, dispensing force, and thickness.

TABLE 3 Test Methods

Test	Method	Reference
Adhesion	D3330/D3330M, Test Method F	14.4
Dispensing Force	D3811/D3811M	14.5
Thickness	D3652/D3652M	14.6

14.4 *Adhesion*—The adhesion of the flag shall be measured to a standard stainless steel surface as described in Test Methods D3330/D3330M, Test Method F, 90° angle peel from a stainless steel panel.

14.4.1 Clean the stainless steel panel according to Test Methods D3330/D3330M Section 11.1.

14.4.2 Remove and discard the first flag in the pad.

14.4.3 Remove the next flag and place the flag on the center of the stainless steel panel adhesive side down.

14.4.4 Roll by hand with the 4.5 lb roller once in each lengthwise direction, causing the roller to apply the flag to the panel. If the flag is bent or creased during rolldown, discard the specimen.

14.4.5 Install a fixture to hold a 2 × 5 in. metal panel at 90° to the line of travel of the lower jaw of the adhesion tester. The 5-in. dimension shall be parallel to the jaw faces. Adhere a strip of double-coated pressure sensitive tape to the fixture. Attach the panel to the double-coated tape on the fixture.

14.4.6 Attach a strip of pressure-sensitive tape to be used as a leader to the non-adhesive coated portion of the flag. Double over the other end of the piece of tape adhesive to adhesive and attach the leader to the upper jaw of the adhesion tester.

14.4.7 Peel at 12 in./min (300 mm/min) and measure the average peel force.

14.5 *Dispensing Force*—The dispensing force shall be measured according to the method for tape unwind, Test Method D3811/D3811M, with the following changes.

14.5.1 Remove and discard the first flag in the pad.

14.5.2 Install a fixture to hold a 2 × 5 in. metal panel at 90° to the line of travel of the lower jaw of the adhesion tester. The 5-in. dimension shall be parallel to the jaw faces. Adhere a strip of double-coated pressure sensitive tape to the under side of the flag dispenser.

14.5.3 Apply the assembly to the double-coated tape so that the opening of the dispenser is centered on the upper jaw, in order to maintain a 90° angle on removal.

14.5.4 Attach a strip of tape to the loose end of the protruding flag. The protruding end of the flag should be centered under the upper jaw of the adhesion tester. Clamp the free end of the tape strip into the upper jaw of the adhesion tester.

14.5.5 Start the upper jaw in motion at 12 in./min (300 mm/min).

14.5.6 After the upper jaw is started in motion, record the maximum force obtained during the removal of the flag from the dispenser.

14.6 *Thickness*—Measure the thickness of the total construction of an individual flag including the adhesive according to Test Method D3652/D3652M.

15. Rejection and Rehearing

15.1 Materials that fail to conform to the requirements of this specification may be rejected. Rejected material should be reported to the producer or supplier promptly and in writing. The producer or supplier may make claim for rehearing in cases of dissatisfaction with the results of any of the tests.

16. Environmental Considerations

16.1 *Recovered Materials*—The manufacturer is encouraged to use recovered materials to the maximum extent practicable.

16.2 *Toxic Materials*—The use of potentially toxic materials in the manufacture of flags covered by this specification are of concern because they could be present in emissions when incinerated or leachate when landfilled. Materials used in the manufacture of flags covered by this specification shall not have any lead, cadmium, mercury, or hexavalent chromium intentionally introduced as a component during manufacture as opposed to the incidental presence of any of these elements.

17. Certification

17.1 When specified (see 6.1.6) in the purchase order or contract, the manufacturer shall certify that the backing of the flags is as specified (see 7.2).

17.2 When specified (see 6.1.6) in the purchase order or contract, the purchaser shall be furnished a certification stating

that the sample flags representing each lot of flags have been tested and inspected as directed in this specification, the requirements have been met, and the flags have been produced in a manufacturing facility certified under ISO 9002.

18. Preparation for Delivery

18.1 Unless otherwise specified in the purchase order or contract, pads of flags shall be packaged and packed in accordance with Practice **D3951**.

18.2 When specified (see **6.1.7**), shipments to the U.S. Government shall be packaged and packed in accordance with PPP-T-680 at the levels specified in the purchase order or contract.

19. Keywords

19.1 flags; index; pressure-sensitive adhesive; repositionable

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