Designation: F852 – 08

Standard Specification for Portable Gasoline Containers for Consumer Use[1]

This standard is issued under the fixed designation F852; 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 establishes nationally recognized performance requirements for portable gasoline containers intended for reuse by the consumer. This specification also covers reusable containers for gas/oil mixtures commonly used for two-cycle engines and reusable dual-compartment containers for separate gas and oil storage. This specification does not cover single-trip prepackaged containers.

1.2 This specification is not a fire hazard standard, but a specification for portable gasoline containers for consumer use.

1.3 The following precautionary caveat applies only to the test method portion, Section 8, 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 limitations prior to use.* See Section 7 for additional precautionary information.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

B117 Practice for Operating Salt Spray (Fog) Apparatus

D471 Test Method for Rubber Property—Effect of Liquids

D572 Test Method for Rubber—Deterioration by Heat and Oxygen

D638 Test Method for Tensile Properties of Plastics

D794 Practice for Determining Permanent Effect of Heat on Plastics (Withdrawn 1998)[3]

D999 Test Methods for Vibration Testing of Shipping Containers

D2561 Test Method for Environmental Stress-Crack Resistance of Blow-Molded Polyethylene Containers

D2565 Practice for Xenon-Arc Exposure of Plastics Intended for Outdoor Applications

F839 Specification for Cautionary Labeling of Portable Gasoline Containers for Consumer Use

F2234 Specification for Spill Resistant Fueling Systems for Portable Fuel Containers for Consumer Use

G23 Practice for Operating Light-Exposure Apparatus (Carbon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials (Withdrawn 2000)[3]

2.2 *ANSI Standard:*[4]

B71.1b1977 Supplement to Safety Specifications for Power Lawn Mowers, Lawn and Garden Tractors, and Lawn Tractors

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *portable gasoline container, n*—single- or multi-compartment vessel designed to be carried by hand and to be used to transport gasoline or gas/oil mixtures, or separate compartments of gas and oil, from distribution point to use point.

3.1.2 *pouring vent, n*—part of the container enabling free entry of air to replace the liquid being poured out.

3.1.3 *rated capacity, n*—volume indicated on the container, may also be termed nominal capacity or maximum filling level.

3.1.4 *spout, n*—component through which the contents of the container can be dispensed.

3.1.5 *total volume, n*—rated capacity plus any remaining space within the container.

4. Requirements

4.1 The container shall show evidence of good workmanship and meet the following requirements:

4.1.1 All container tests shall be conducted after closures are secured with torque values specified in Specification F2234 (see Table 1).

4.2 *Color*—The container shall be predominately red in color. Pigments, coatings, or other means used to impart color shall not be affected by gasoline.

[1] This specification is under the jurisdiction of ASTM Committee F15 on Consumer Products and is the direct responsibility of Subcommittee F15.10 on Standards for Flammable Liquid Containers.

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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] The last approved version of this historical standard is referenced on www.astm.org.

[4] Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036.

TABLE 1 Torque Requirements

Outer Diameter of Closure	Closing Torque, Nm (lbf·in.)
Less than 51 mm (2 in.)	2.8 (25)
51 mm (2 in.) and greater	5.6 (50)

4.3 *Capacity*—The maximum rated capacity shall be 25 L (6.6 gal).

4.3.1 The total volume of a container shall exceed its rated capacity by at least 5 %.

4.3.2 Capacity shall be determined with the container and its contents at 23 ± 2°C (75 ± 3.6°F).

4.4 *Stability*—Each container shall not upset when tested in accordance with 8.1.

4.5 *Handle*—Each container shall be provided with a handle. The container shall not leak or evidence any handle detachment when tested in accordance with 8.2.

4.6 *Drop Strength*—Containers shall show no evidence of rupture, cracks, or leakage when tested in accordance with 8.3.

4.7 *Internal Pressure*—Containers shall show no evidence of leakage when tested in accordance with 8.4.

4.8 *Durability:*

4.8.1 *Aging*—This requirement applies only to nonmetallic containers. The material for the container shall retain at least 70 % of its original tensile strength when tested in accordance with 8.5 and 8.5.1.

4.8.2 *Permeability*—This requirement applies only to nonmetallic containers. The filled container shall not have a weight loss greater than 1 % when tested in accordance with 8.6.

4.8.3 *Gasoline Resistance*—This requirement applies only to nonmetallic containers. The container material shall show no pitting, crazing, softening, bubbling, cracking, tackiness, or decomposition when tested in accordance with 8.7.1. The material shall retain at least 60 % of its tensile yield strength when tested in accordance with 8.7.2.

4.8.4 *Stress Cracking*—This requirement applies only to containers molded of polyethylene. The container shall not crack in 120 h when tested in accordance with 8.8.

4.8.5 *Corrosion Resistance*—This requirement applies only to metal containers or metal components of containers. No leakage shall be evident when tested in accordance with 8.9.

4.8.6 *Heat Resistance*—The container shall not leak when tested in accordance with 8.10. Any burning that occurs during the test specified in 8.10.1 shall not continue for more than 5 s after the heat source is removed.

4.9 *Openings*—Openings in containers shall be provided with a means of closure.

4.9.1 *Pouring*—The opening intended for pouring shall have an integral pouring spout or it shall accept a pouring spout supplied with the container. The pouring spout shall be designed to permit gasoline to be poured without leakage. The closures on the containers shall not leak when tested in accordance with 8.12.

4.9.2 *Pouring Vent*—The container shall be provided with a vented pouring spout or other means for venting the container during pouring.

4.9.3 *Filling*—The opening intended for filling the container shall have a minimum inside diameter of 31.7 mm (1.25 in.).

4.9.4 *Gasoline Resistance*—This requirement applies only to nonmetallic components. Closures, pouring spout, venting devices, and gaskets shall be resistant to aging and the action of gasoline when tested in accordance with 8.11.

5. Marking

5.1 The container shall be labeled in accordance with Specification F839.

5.2 The container shall be clearly marked with at least one of the following:

5.2.1 The manufacturer's name,

5.2.2 The private labeler's name, and

5.2.3 An identifying symbol.

5.3 The container shall be marked with its rated capacity in litres and in gallons.

5.4 Marking durability shall comply with the applicable requirements of ANSI B71.1b1977.

6. Retest and Rejection

6.1 If any failure occurs, an additional container may be tested if the failure is judged to be nonrepresentative of production.

7. Precautions

7.1 Gasoline is used in some of the following tests. Cautionary standards for handling and disposal of hazardous materials should be observed. Containers containing gasoline should not be opened in the presence of open flame or other sources of ignition.

8. Test Methods

8.1 *Stability Test*—Fill a sample container with water at 23 ± 2°C (75 ± 3.6°F) to its rated capacity by volume. Secure the closures as in transportation and storage. Place the container with its base on an inclined plane forming an angle of 0.35 rad (20°) with the horizontal. During the test, rotate the container about its vertical axis so that stability can be checked with the sample facing any direction.

8.2 *Handle Strength*—Fill a sample container with an equivalent weight of water at 23 ± 2°C (75 ± 3.6°F) to its rated gasoline capacity. Secure the closures as in transportation and storage. One end of a 9.5 mm (0.375 in) diameter manila rope about 2 m (6.5 ft) long shall be secured to a rigid point of suspension and the other end attached so as to distribute the load across the container handle. Suspend the container from the rope for 1 min then raise it 305 mm (12 in.) from the suspended position and allow it to fall freely.

8.3 *Drop Strength Test*—Fill the container to its nominal capacity with water at 23 ± 2 °C (75 ± 5 °F) and secure the closures. Drop it, free fall, onto a flat, solid surface. Make drops in the following sequence: one drop on the bottom, one drop on a bottom corner, and one drop on a side. The distance of fall shall be 1.8 m (6 ft). Make the same tests with another container filled with a blend of 50 % glycol and 50 % water