



Designation: F2456 – 19

## Standard Specification for Youth-Resistant Firearms Containers (YRFCs)<sup>1</sup>

This standard is issued under the fixed designation F2456; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### INTRODUCTION

This specification is intended to establish means of determining whether Youth Resistant Firearms Containers (YRFCs) adequately serve the purpose of deterring the unauthorized access to and use of firearms by youths. Subcommittee F15.55 on Youth-Resistant Firearms Containers (YRFCs) first issued the standard in 2004 at the request of the U.S. Consumer Product Safety Commission (CPSC) and others that ASTM publish a standard for Youth-Resistant Firearms Containers (YRFCs).

The subcommittee defined the scope of their work to develop a standard for those products. A single, minimum performance standard for all devices, as opposed to defining several “grades” or performance levels. Finally, the subcommittee focused on test methods that were objective, realistic, reliable, and repeatable.

### 1. Scope

1.1 This specification covers youth-resistant firearms containers (YRFCs), which are lockable containers that completely contain firearm(s) to prevent unauthorized access to firearm(s). These containers can be mechanical, electromechanical, or combination thereof. This specification:

1.1.1 Establishes a moderate security level for firearms storage intended to prevent youths from gaining unauthorized access to firearm(s); and

1.1.2 Establishes a consistent standard for testing and compliance certification.

1.2 This specification contains functional, operational, safety, and performance requirements for YRFCs.

1.3 This specification does not apply to transport-type firearm carrying cases, full-sized light gun cabinets, gun safes, high security gun safes, or container for firearms that exceed a length of 508 mm (20 in.).

1.4 This specification is intended to prevent unauthorized access to children up to and including age eleven.

1.5 This specification is not intended to:

1.5.1 Ensure theft resistance of the YRFC or the contents of the YRFC; or

1.5.2 Ensure quick access to a firearm or assure long-term reliability of the YRFC operation to provide quick access to a firearm.

1.6 The values stated in SI units are to be regarded as the standard. The values in parentheses are for information only.

1.7 The following precautionary caveat pertains only to the test method portions 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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.8 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

### 2. Terminology

2.1 *Definitions:*

2.1.1 *action, n*—combination of the receiver or frame and breech bolt together with the parts of the mechanism by which a firearm is loaded, fired, and unloaded.

2.1.2 *barrel, n*—firearm component through which a projectile travels. May be rifled or bore.

2.1.3 *combination locking device, n*—mechanical locking device designed to provide controlled opening of an YRFC by entry of a combination known only by an authorized user(s).

2.1.4 *compromised, adj*—circumstance in which the opening element of the YRFC may not be disabled, yet allows

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee F15 on Consumer Products and is the direct responsibility of Subcommittee F15.55 on Firearm Security Containers.

Current edition approved Jan. 15, 2019. Published January 2019. Originally approved in 2004. Last previous edition approved in 2016 as F2456 – 04 (2016). DOI: 10.1520/F2456-19.

removal of the firearm block from the container by hand without the use of tools.

2.1.5 *digital locking device, n*—electromechanical lock that provides controlled opening of a YRFC by entry of a combination known only by an authorized user(s), or provides a means to read and validate a unique user attribute (as in biometric recognition devices), or both.

2.1.6 *disable, v*—defeating and opening the YRFC so as to allow removal of the firearm block.

2.1.7 *firearm, n*—a barrel and action from which a projectile is propelled through a deflagration (burning) of propellant.

2.1.8 *key, n*—an object intended by the manufacturer to be inserted into the keyway as a means to lock or unlock the locking device.

2.1.9 *key locking device, n*—mechanical or electromechanical locking device that requires a key or token to provide controlled opening of a YRFC.

2.1.10 *keyway, n*—opening in a key locking device that is shaped to accept a key.

2.1.11 *locking device, n*—a device that is integral to the YRFC that locks and unlocks the YRFC.

2.1.12 *manipulation, n*—process of code testing a combination in an attempt to cause the locking device to open.

2.1.12.1 *Discussion*—Manipulation can represent random or methodical code entry attempts or mechanical interpretation of lock reaction to code entry, or both, in which the lock may provide measurable or tactile feedback to code input.

2.1.13 *opening element, n*—component of the YRFC that is opened (door, lid, and so forth) to access and remove the firearm contained inside.

2.1.14 *token, n*—small portable key-like electronic device that provides a unique digital serial number or signature and acts as a suitable secure substitute for conventional mechanical keys.

2.1.14.1 *Discussion*—Tokens can transmit a signature by direct electrical connection or via wireless communications techniques (light transmission, radio frequency transmission, vibration, magnets, and so forth).

2.1.15 *youth, n*—child eleven years old or younger.

2.1.16 *youth-resistant firearms container (YRFC), n*—lockable security container designed to contain firearm(s) completely and to prevent youths from gaining access to firearm(s).

### 3. Calibration and Standardization

3.1 All tests shall be conducted within the following tolerances as applicable:

3.1.1 All tests shall be conducted at temperatures between 16 and 27°F (61 and 81°F).

3.1.2 All tests shall be conducted with relative humidity between 30 and 95 %.

3.2 Test specimens shall mechanically represent the exact product intended for sale to the public.

3.2.1 Cosmetic product modifications or changes are allowed, provided they do not alter the product's mechanical attributes.

3.3 One technician conducts testing for any single test.

3.4 The testing technician or laboratory staff, or both, shall not open the test specimens for inspection before any testing.

3.5 The testing technician shall not consult with other laboratory staff or observers as it relates to the techniques and methods used in the testing.

3.6 Test specimens shall not be anchored, clamped, or otherwise immobilized to conduct testing, except where specified.

3.7 A wooden firearm block shall be used to represent a firearm for placement inside the YRFC. The YRFC manufacturer shall produce and install these blocks in each specimen before submission for testing.

3.8 Test specimens shall be delivered to the testing laboratory in a locked condition with a firearm block inside each specimen.

3.9 Forces to cause the YRFC to be disabled or compromised shall be limited to not more than 220 N (50 lb).

3.10 If a test results in disabling or compromising a test specimen, the testing technician shall not inspect the failed specimen to gain knowledge for use in subsequent tests.

3.11 Retesting of a single failed test is allowed to complete a certification of compliance. Retesting does not require rerunning tests previously resulting in a passing result.

### 4. General Requirements

4.1 Removal of the contents of the YRFC shall be prevented, except by use of a key, combination, or other unique method, or a combination thereof, as defined by the instructions accompanying the YRFC.

4.2 Key locking devices shall be constructed to operate when the intended key(s) or token(s) are used and shall meet the following additional requirements:

4.2.1 Key locking devices that use a key shall have a minimum of 130 unique key configurations

4.2.2 Key locking devices that use a token shall provide a minimum of 10 000 possible serial numbers or signatures.

4.2.3 The operability of each YRFC shall be limited to only one key configuration or token.

4.2.4 Creating a key or token that unlocks all key locking devices is prohibited, as it provides more than one key or token to operate the key locking device.

4.3 A combination locking device or digital locking device shall meet the following additional requirements:

4.3.1 A combination lock dialing or input of a combination shall provide a minimum of 1000 possible combinations with at least three characters or input steps in a combination.

4.3.2 A digital locking device shall require the dialing or input of a combination providing a minimum of 1000 possible combinations with at least four characters or input steps in a combination.

4.3.2.1 Digital locking devices that support multiple users shall provide 1000 possible combinations per user.

4.3.2.2 Digital locking devices shall provide a penalty lockout feature to prevent rapid code testing. The minimum penalty lockout period is 2 minutes for every five incorrect entry attempts.

4.3.2.3 Biometric recognition locks shall provide ample identification data points or resolution to allow access to no more than 1 in 10 000 possible users.

4.3.2.4 Digital locks may provide a “back door” for service, but this combination shall provide a minimum of 1 in 100 000 possible combinations.

## 5. Performance Requirements

### 5.1 Cycle Requirements:

5.1.1 The YRFC shall be subjected to the cycle testing in 6.1.

5.1.2 Failure occurs if the YRFC does not open or lock according to the manufacturer’s intended means of operation.

### 5.2 Picking Requirements:

5.2.1 The YRFC shall be subjected to the picking testing in 6.2.

5.2.2 Failure occurs if the locking device is disabled, causing the YRFC to open and allowing removal of the firearm block.

5.2.3 This test does not apply if the YRFC does not have a keyway or access point(s) that provide tool insertion.

### 5.3 Torque Test for Keyway YRFC:

5.3.1 The YRFC shall be subjected to the torque testing in 6.3.

5.3.2 Failure occurs if the locking device is disabled, causing the YRFC to open and allowing removal of the firearm block.

5.3.3 This test does not apply if the YRFC does not have a keyway or access point(s) that provide tool insertion.

### 5.4 Manipulation Requirement for Combination or Digital YRFC:

5.4.1 The YRFC shall be subjected to the manipulation testing in 6.4.

5.4.2 Failure occurs if the combination locking device is disabled during the 2 minutes of manipulation, causing the YRFC to open and allowing removal of the firearm block.

5.4.3 This test does not apply if the YRFC does not have a combination or digital locking device.

### 5.5 Handle Torque Requirements:

5.5.1 The YRFC shall be subjected to the manipulation testing in 6.5.

5.5.2 Failure occurs if the locking device is disabled, causing the YRFC to open and allowing removal of the firearm block.

5.5.3 This test does not apply if the YRFC does not have a handle.

### 5.6 Impact Requirements:

5.6.1 The YRFC shall be subjected to the drop testing in 6.6.

5.6.2 Products that weigh more than 25 kg (55 lb) shall not be subject to drop testing.

5.6.3 Failure occurs if the YRFC is disabled or compromised, or can be opened or compromised without tools (by hand) within 1 minute after the test is completed and the drop fixture is removed.

### 5.7 Tensile Requirements:

5.7.1 The YRFC shall be subjected to a tensile strength test in 6.7.

5.7.2 The YRFC is exempt from tensile strength testing if the opening entity has no points of attachment or exposed lips to pull upon.

5.7.3 Failure occurs if the YRFC is disabled or compromised, or can be opened or compromised without tools (by hand) within 1 minute after the test is completed and the attachment device is removed.

### 5.8 Shock Requirements:

5.8.1 The YRFC shall be subjected to a shock test in 6.8.

5.8.2 Failure occurs if the YRFC is disabled or compromised or can be opened or compromised without tools (by hand) within 1 minute after the test is completed.

### 5.9 Saw Requirements:

5.9.1 The YRFC shall be subjected to a saw cutting attack test in 6.9.

5.9.2 Failure occurs if the YRFC is disabled or compromised, or can be opened or compromised without tools (by hand) within 15 s after the test is completed.

### 5.10 Prying Requirements:

5.10.1 The YRFC shall be subjected to a pry attack test in 6.10.

5.10.2 Failure occurs if the YRFC is disabled or compromised.

### 5.11 Hinge Requirements:

5.11.1 The YRFC will be subjected to a hinge attack test in 6.11.

5.11.2 This test does not apply if the YRFC does not have an exposed hinge or hinge components.

5.11.3 This test does not apply if the YRFC does not have an exposed hinge or hinge components.

### 5.12 Flammability Requirements:

5.12.1 The YRFC shall be subjected to a flammability test in 6.12.

5.12.2 Failure occurs if the YRFC is disabled or compromised, or can be opened or compromised without tools (by hand) within 1 minute after the test is completed.

## 6. Test Methods

### 6.1 Cycle Test:

6.1.1 The test specimen shall be provided with the key, token, digital code, or combination for cycle testing.

6.1.2 The container shall be opened and closed fully 100 times.

### 6.2 Picking Test:

6.2.1 Attempt to pick and open the locking device with the use of paper clips (jumbo size) for a total of 2 minutes. Time shall be counted only while tools are in contact with the lock.