



CSC Design Number: T-068-2025

Date Certified: 10/4/2025

Valid Until: 10/4/2026

## **Cleveland Steel Container Corporation Performance Oriented Package Testing Certification**

**Test Report for Non-Bulk Steel Packaging in accordance with the UN Recommendations on the Transport of Dangerous Goods, IMDG Code, ICAO Technical Instructions, IATA Dangerous Goods Regulations and the U.S. Code of Federal Regulations (CFR) Title 49, Part 178.**

**Test Facility:** Cleveland Steel Container Corporation  
412 Mason Street  
Niles, Ohio 44446  
330-544-2271

### **Periodic Retest**

#### **5.0 Gallon Closed-head Straight-sided (Tighthead) Steel Drum**

Packagings which differ from the above described design type only in their lesser design height are covered under this testing certification, in accordance with 49 Code of Federal Regulations, Part 178, Subpart M, Section 178.601(c)(4)(v).

Therefore, the tested 5.0 Gallon design referenced above covers designs of lesser height and rated capacity.

**Ⓢ1A1/Y1.8/100/25/USA/M\*\*\*\***

**The samples subjected to the performance testing in this report were closed in accordance with the UN Closing Instruction Manual available online at [www.cscpails.com](http://www.cscpails.com) using the following document(s):**

**QA-FM-L252**

**The following Cleveland Steel Container Manufacturing Locations are registered with the United States Department of Transportation, and are eligible to appear in the above UN marking sequence in place of M\*\*\*\***

**M4369 - Cleveland Steel Container Corporation, Peotone, Illinois**

**M4460 - Cleveland Steel Container Corporation, Niles, Ohio**

**M4461 - Cleveland Steel Container Corporation, Quakertown, Pennsylvania**

**M5845 - Cleveland Steel Container Corporation, Kilgore, Texas**

Testing Representative's Signature



Date

**10/4/2025**

Testing Representative's Title

**U.N. Technician**



**Container (Drum) Description:**

**Manufactured by:** Cleveland Steel Container Corporation, Niles, Ohio

**Manufacturing Method:** Triple Seam (3 folds on bottom circumferential seam or chime). Electric lap-welded side seam.

**Drum Type:** Closed-head Straight-sided (Tighthead) Steel Drum

**Bead:** No beads

**Height of Pail:** 13.437 Inches

**Package Tare Weight:** 4.50 lbs.

**Maximum Capacity:** 5.25 gal.

**Gauge (Body):** 24

**Gauge (Bottom):** 24

**Minimum Wall Thickness:** 0.019 inches

**Minimum Bottom Thickness:** 0.019 inches

**Inside Diameter at Top:** 10.5 inches

**Inside Diameter at Bottom:** 11.25 inches

**Top End Description:**

**Manufactured by:** Cleveland Steel Container Corporation, Streetsboro, Ohio

**Material:** Steel

**Gauge (Top/Cover):** 24

**Minimum Thickness:** 0.019 inches

**Gasket Material:** Water-based sealant

**Fitting Description**

**Fitting Manufacturer:** Ball Corporation

**Fitting Type:** 2-1/8" ScrewCap(Cvr) w/ tamper-evident innerseal

**Fitting Material:** Tin-plated Steel

**Fitting Weight:** 0.10 lbs.

**DROP TEST SPECIFICATIONS AND RESULTS (49 CFR - §178.603)**

**Sample Size:** 3 Samples/Orientation ( 6 Samples Total)      **Filling Substance:** Water filled to 98% maximum capacity  
**Packing Group:** Y      **Specific Gravity:** 1.8      **Drop Height:** 71 Inches      **Drop Weight:** 47.4 lbs.

\*\*\* See Appendix A - Test Calculations for Weight of Test Package and Drop Test Height

Center of Gravity on Top Chime (Circumferential Seam) w/ fitting directly over impact at 6 o'clock		
Sample #	Result	Comment
1	Pass	No Leak
2	Pass	No Leak
3	Pass	No Leak

Center of Gravity on Bottom Chime (Circumferential Seam) at Side Seam		
Sample #	Result	Comment
4	Pass	No Leak
5	Pass	No Leak
6	Pass	No Leak

**Criteria for Passing the Test:**

A container is considered to successfully pass the drop test if for each sample tested, the container does not leak when equilibrium has been reached between internal and external pressures.

**LEAKPROOFNESS TEST SPECIFICATIONS AND RESULTS (49 CFR - §178.604)**

**Sample Size:** 3 Samples      **Filling Substance:** Air      **Test Pressure:** 20 kPa      **Test Duration:** 5 Minutes

Sample #	Result	Comment
7	Pass	No Leak
8	Pass	No Leak
9	Pass	No Leak

**Criteria for Passing the Test:**

A container successfully passes the Leakproofness test if for each sample tested, there is no leakage of air from the container.

**HYDROSTATIC PRESSURE TEST SPECIFICATIONS AND RESULTS (49 CFR - §178.605)**

**Sample Size:** 3 Samples      **Filling Substance:** Water      **Test Pressure:** 100 kPa      **Test Duration:** 5 Minutes

Sample #	Result	Comment
10	Pass	No Leak
11	Pass	No Leak
12	Pass	No Leak

**Criteria for Passing the Test:**

A container successfully passes the Hydrostatic Pressure test if for each sample tested, there is no leakage of liquid from the container.

**STACK TEST SPECIFICATIONS AND RESULTS (49 CFR - §178.606)****\*\*\* See Appendix A - Test Calculations for Stack Test Weight****SAMPLE SIZE:** 3 Samples**TEST METHOD:** Dynamic Compression**FILLING SUBSTANCE:** None (Empty)

$$\text{Load (A)} = (n - 1) * [w + (s * v * 8.34 * 0.98)] * 1.5$$

**Where:**

A = applied load in pounds.

n = minimum number of containers required to reach 3 meters (118.11 inches).

s = specific gravity of lading.

w = maximum weight of one empty container in pounds.

v = actual capacity of container (rated capacity + outage) in gallons.

**And:**

8.34 corresponds to the weight in pounds of 1.0 gallons of water.

0.98 corresponds to the maximum filling percentage of the maximum capacity for liquids.

1.5 is a compensation factor that converts the static load of the stacking test into a load suitable for dynamic compression.

Height of Container = 13.43 Inches

Number of containers(n), reaching 118.11 inches in height = 118.11 Inches / 13.437 Inches = 9 containers

Calculated Gross Weight of Each Test Package 42.9 lbs. X 1.8 + 4.50 lbs. = 81.72 lbs.

$$\text{Load (A)} = (9 - 1) * [4.50 + (1.8 * 5.25 * 8.34 * 0.98)] = 653.76 \text{ lbs.} \times 1.5 = 981 \text{ lbs.}$$

Sample #	Result	Comment
13	Pass	No Deformation
14	Pass	No Deformation
15	Pass	No Deformation

**Criteria for Passing the Test:**

A container successfully passes the Stacking test if for each sample tested, there is no deformation and there is no deterioration that could adversely affect transport safety or any distortion liable to reduce its strength or cause instability in stacks of packages.



## Appendix A - Test Calculations

### Weight of Test Package

Tare Weight of Empty Drum and Cover w/ closures (w):	4.50 lbs.
Maximum or Actual Capacity of Container (rated capacity + outage) (v):	5.25 Gallons
Maximum Liquid Fill Weight:	43.8 lbs.
98% of Maximum Liquid Fill Weight:	$0.98 \times 43.8 \text{ lbs.} = 42.9 \text{ lbs.}$
Weight of filled Test Package:	$4.50 \text{ lbs.} + 42.9 \text{ lbs.} = 47.4 \text{ lbs.}$

### Drop Test Height

Specific Gravity of Certification: 1.8

Packing Group of Certification: Y

For Packing Group Y  $[(\text{Specific Gravity}) 1.8 \times 39.37 \text{ Inches}] = 71 \text{ Inches}$

### Stack Test Weight

$$\text{Load (A)} = (n - 1) * [w + (s * v * 8.34 * 0.98)] * 1.5$$

Where:

A = applied load in pounds.

n = minimum number of containers required to reach 3 meters (118.11 inches).

s = specific gravity of lading.

w = maximum weight of one empty container in pounds.

v = actual capacity of container (rated capacity + outage) in gallons.

And:

8.34 corresponds to the weight in pounds of 1.0 gallons of water.

0.98 corresponds to the maximum filling percentage of the maximum capacity for liquids.

1.5 is a compensation factor that converts the static load of the stacking test into a load suitable for dynamic compression testing.

#### Stack Test Calculation for Dynamic Compression Testing Method:

Height of Container = 13.437 Inches

Number of containers(n), reaching 118.11 inches in height =  $118.11 \text{ Inches} / 13.437 \text{ Inches} = 9 \text{ containers}$

Load (A) =  $(9 - 1) * [4.50 + (1.8 * 5.25 * 8.34 * 0.98)] = 653.76 \text{ lbs.} \times 1.5 = 981 \text{ lbs.}$