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**Non- Bulk Packaging 101**

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When was **HM-181** Published in the Federal Register?

**Performance-Oriented Packaging Standards;  
Changes to Classification, Hazard Communication,  
Packaging and Handling Requirements Based on UN  
Standards and Agency Initiatives; Final Rule**

- December 21, 1989
- December 21, 1990
- December 21, 1991

December 21, 1990

24 years, 8 months, 19 days ago

Effective October 1, 1994

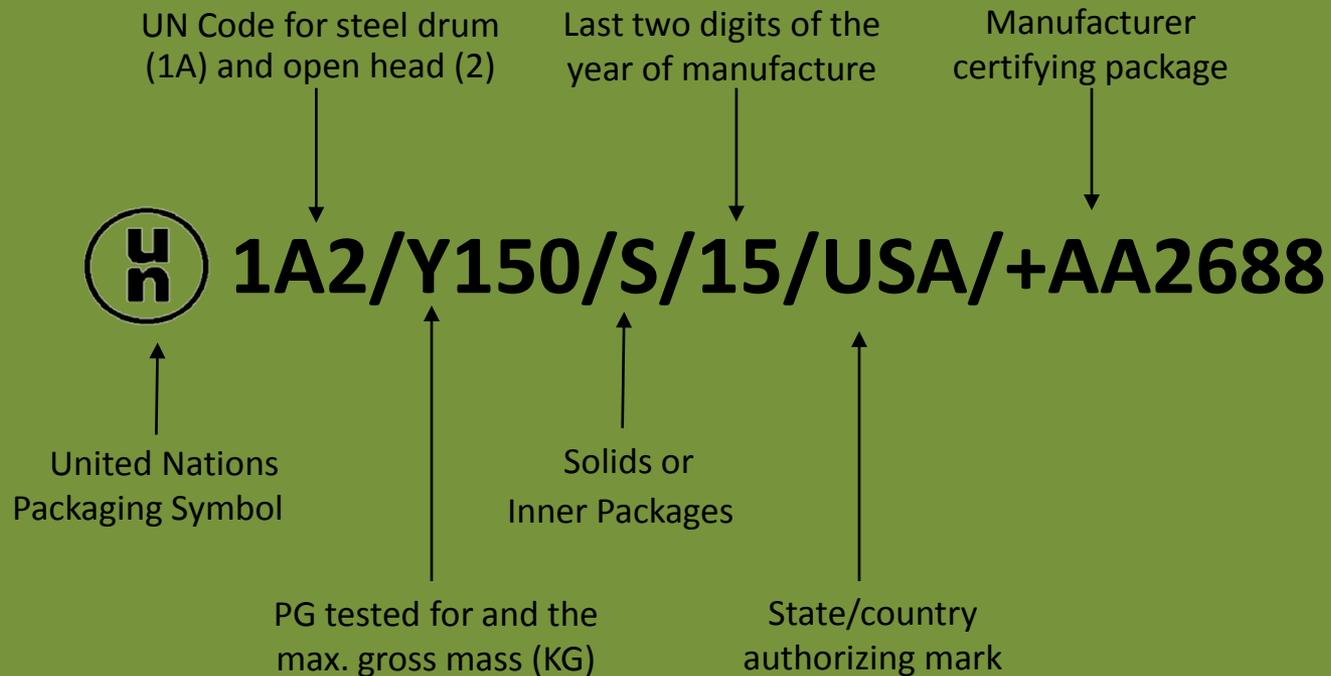
Non-bulk packages are required to be manufactured in compliance with UN performance standards

# What do these 3 proposals have in common according to the FAA?

- **FAA Proposes \$227,500 Civil Penalty Against Shanghai Yancui Import and Export Co. for Alleged Hazardous Materials Violations**
- **FAA Proposes \$70,000 Civil Penalty Against Home Depot for Alleged Hazardous Materials Violations**
- **FAA Proposes \$63,000 against the Sherwin-Williams for Alleged Hazardous Materials Violations**

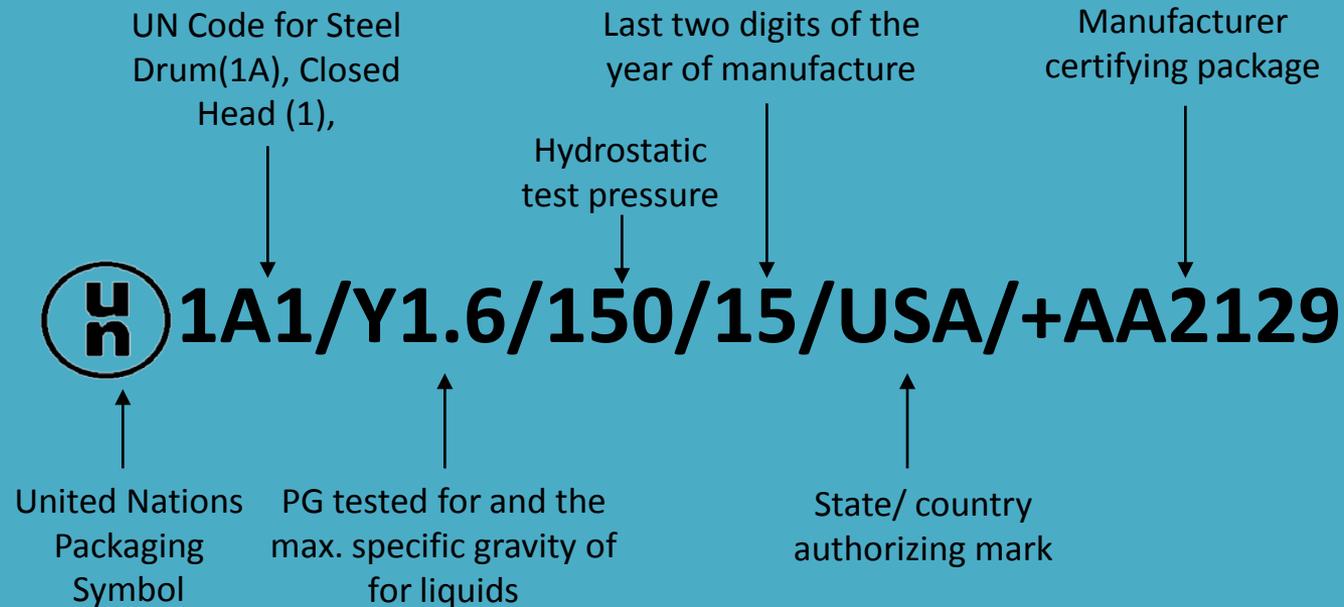
# Packaging Code

## Specification Package Marking for Solids and Combination Packaging



# Packaging Code

## Specification Package Marking for Liquids



# Closure Instructions

- In accordance with § 178.2(c)(1)(i)(B) closure instructions must provide a consistent and repeatable means of closure necessary to ensure the packaging is closed in the same manner as it was tested.
- The requirements for retaining closure instructions for hazardous materials (hazmat) packagings became effective on October 1, 2010, in two final rules issued under Docket No. PHMSA-06-25736 (HM-231) (2/2/10, 75 FR 5376; 9/30/10, 75 FR 60333).

# Selective Testing Variation 1

*Selective testing of combination packagings. Variation 1.* Variations are permitted in inner packagings of a tested combination package, without further testing of the package, provided an equivalent level of performance is maintained and, when a package is altered under Variation 1 after October 1, 2010, the methodology used to determine that the inner packaging, including closure, maintains an equivalent level of performance is documented in writing by the person certifying compliance with this paragraph and retained in accordance with paragraph (l) of this section. Permitted variations are as follows:

(i) Inner packagings of equivalent or smaller size may be used provided—

(A) The inner packagings are of similar design to the tested inner packagings (i.e. shape—round, rectangular, etc.);

(B) The material of construction of the inner packagings (glass, plastic, metal, etc.) offers resistance to impact and stacking forces equal to or greater than that of the originally tested inner packaging;

(C) The inner packagings have the same or smaller openings and the closure is of similar design (e.g., screw cap, friction lid, etc.);

(D) Sufficient additional cushioning material is used to take up void spaces and to prevent significant moving of the inner packagings;

(E) Inner packagings are oriented within the outer packaging in the same manner as in the tested package; and,

(F) The gross mass of the package does not exceed that originally tested.

(ii) A lesser number of the tested inner packagings, or of the alternative types of inner packagings identified in paragraph (g)(1)(i) of this section, may be used provided sufficient cushioning is added to fill void space(s) and to prevent significant moving of the inner packagings.

# Selective Testing Variation 2

*Selective testing of combination packagings. Variation 2.* Articles or inner packagings of any type, for solids or liquids, may be assembled and transported without testing in an outer packaging under the following conditions:

(i) The outer packaging must have been successfully tested in accordance with §178.603 with fragile (e.g. glass) inner packagings containing liquids at the Packing Group I drop height;

(ii) The total combined gross mass of inner packagings may not exceed one-half the gross mass of inner packagings used for the drop test;

(iii) The thickness of cushioning material between inner packagings and between inner packagings and the outside of the packaging may not be reduced below the corresponding thickness in the originally tested packaging; and when a single inner packaging was used in the original test, the thickness of cushioning between inner packagings may not be less than the thickness of cushioning between the outside of the packaging and the inner packaging in the original test. When either fewer or smaller inner packagings are used (as compared to the inner packagings used in the drop test), sufficient additional cushioning material must be used to take up void spaces.

(iv) The outer packaging must have successfully passed the stacking test set forth in §178.606 of this subpart when empty, i.e., without either inner packagings or cushioning materials. The total mass of identical packages must be based on the combined mass of inner packagings used for the drop test;

(v) Inner packagings containing liquids must be completely surrounded with a sufficient quantity of absorbent material to absorb the entire liquid contents of the inner packagings;

(vi) When the outer packaging is intended to contain inner packagings for liquids and is not leakproof, or is intended to contain inner packagings for solids and is not siftproof, a means of containing any liquid or solid contents in the event of leakage must be provided in the form of a leakproof liner, plastic bag, or other equally efficient means of containment. For packagings containing liquids, the absorbent material required in paragraph (g)(2)(v) of this section must be placed inside the means of containing liquid contents; and

(vii) Packagings must be marked in accordance with §178.503 of this part as having been tested to Packing Group I performance for combination packagings. The marked maximum gross mass may not exceed the sum of the mass of the outer packaging plus one half the mass of the filled inner packagings of the tested combination packaging. In addition, the marking required by §178.503(a)(2) of this part must include the letter "V".

# *Selective Testing Variation 4*

*Variation 4.* Variations are permitted in outer packagings of a tested design-type combination packaging, without further testing, provided an equivalent level of performance is maintained, as follows:

- (i) Each external dimension (length, width and height) is less than or equal to the corresponding dimension of the tested design-type;
- (ii) The structural design of the tested outer packaging (i.e. methods of construction, materials of construction, strength characteristics of materials of construction, method of closure and material thicknesses) is maintained;
- (iii) The inner packagings are identical to the inner packagings used in the tested design type except that their size and mass may be less; and they are oriented within the outer packaging in the same manner as in the tested packaging;
- (iv) The same type or design of absorbent materials, cushioning materials and any other components necessary to contain and protect inner packagings, as used in the tested design type, are maintained. The thickness of cushioning material between inner packagings and between inner packagings and the outside of the packaging may not be less than the thicknesses in the tested design type packaging; and
- (v) Sufficient additional cushioning material is used to take up void spaces and to prevent significant moving of the inner packagings.

An outer packaging qualifying for use in transport in accordance with all of the above conditions may also be used without testing to transport inner packagings substituted for the originally tested inner packagings in accordance with the conditions set out in Variation 1 in paragraph (g)(1) of this section.

# Package Q&A from Duane Pfund in Interpretation 15-004

Q1. Must we always send the shipper the complete set of components used in the laboratory test? Or is it the responsibility of the shipper to request the components they want?

A1. Individual components of a packaging may be sold separately. Ultimately the responsibility for ensuring that the proper components are utilized rests with the shipper.

Q2. If requested by a customer, can the manufacturer send less than the entire amount of components required for a packaging? An example is provided where the shipper has the primary container or any of the other components to a package and they do not need to order more.

A2. Ultimately the responsibility for ensuring that the proper components are utilized rests with the shipper. In accordance with § 178.2(c)(1) the manufacturer or other person certifying compliance with the requirements of part 178 and each subsequent distributor of that packaging is responsible for notifying each person to whom the packaging is transferred with the closure instructions found in § 178.2(c)(1)(i)(B).

Q3. Is the manufacturer required to send the complete set of components even if the shipper does not need them?

A3. Nothing in the HMR prohibits the sale of individual components of an approved packaging.

Q6. Some of your packagings are tested with different components for different shipping methods (e.g can clips for ground transportation and locking rings for air transportation). Are we required to send the complete components for all shipping methods even though the customer won't use them and doesn't want them?

A6. No. You may supply the packaging in any configuration necessary.

Q7. The outer cartons of our packagings are printed with the complete assembly and closure instructions. This allows the shipper to perform a repeatable closure from the laboratory test. Do these instructions qualify as proper notification to the shipper of their responsibility to use the complete components for that packaging?

A7. Yes, provided the printed instructions contain all the information required by § 178.2(c)(1)(i)(B).

# OVERPACK

An enclosure is used by a single consignor to provide protection for convenience and handling a single package or to consolidate two or more packages. Examples of overpacks are one or more packages placed or stacked onto a load board such as a pallet and secured by strapping, shrink wrapping, stretch wrapping, or other suitable means; or placed in a protective outer packaging such as a box or crate.



**OVERPACK**