

Questions and Answers Regarding
Testing and Certification
September 25, 1998

These questions and answers were compiled from a series of questions posed to the Research and Special Programs Administration by the DOT-approved third party certification agencies.

[171.11]

1. Current ICAO regulations now require a UN package identification code as part of the infectious substance packaging marking. Does OHMS anticipate incorporating this requirement into domestic regulations? If so, would these packagings then fall subject to the periodic retest requirements?

ANSWER: OHMS plans to propose to adopt the package identification code for infectious substance packagings in a notice of proposed rulemaking in late 1998. If the provisions are adopted into the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180), infectious substance packagings would be subject to requirements in Subpart M of Part 178 for design qualification testing and periodic retesting, including test record retention.

[173.3]

2. UN standard drums certified for solids are not subject to a leakproofness test unless intended for use as a salvage drum. Who is responsible for leakproofness testing a salvage drum?

ANSWER: It is the responsibility of the person who marks the drum with the words "Salvage Drum" to insure it has been leakproofness tested.

[173.24a]

3. On a certified combination package, can the inner packagings be filled with a product having a higher specific gravity than what the package was certified for if the authorized gross mass of the package is not exceeded?

ANSWER: The answer is yes. The marking on a combination packaging indicates the mass of the inners that may be loaded into the outer packaging. The specific gravity of the liquids in the inner packagings are not addressed in the regulations. Section 178.503(a)(4)(ii) states "For packagings intended to contain solids or inner packagings, the designation shall be in the gross mass in kilograms." The reference to specific gravity is only for packagings without inner packagings intended to carry liquids as provided by § 178.503(a)(4)(i).

[173.24a]

4. May an open-head drum certified for liquids be used as an outer packaging for a

combination packaging with inner bottles, cans, etc., without being retested as a combination packaging?

ANSWER: An open head drum that is an authorized single packaging for a hazardous material may contain inner receptacles which are compatible with the lading as long as the inner receptacles would not adversely impact the level of performance of the packaging. The packaging would remain marked as a single packaging. To be certified as a combination packaging, retesting and remarking would be necessary.

[173.27]

5. Section 173.27(a) requires certain packagings transported by aircraft to be capable of withstanding certain pressure requirements. Who is responsible for determining this capability? In making this determination, should packagings be subjected to a leakproofness test with air or water?

ANSWER: It is the offeror's responsibility to determine that the packaging is capable of meeting the requirements of § 172.27 before offering it for air transportation. Either air or water may be used to determine if a package is capable of withstanding the pressure requirements.

[173.27]

6. For a combination packaging, if a primary packaging doesn't meet the pressure differential requirements for air transport, can a bag be used as a secondary packaging provided it meets the pressure requirements?

ANSWER: Yes. Bags or any other secondary packaging may be used to meet the pressure differential requirements of § 173.27(c)(3)(i) if the primary packaging is not capable of meeting the pressure requirements. (See RSPA letter of clarification dated October 13, 1995.)

[173.28]

7. Section 173.28(b)(3) states that packagings made of paper, plastic film, or textile are not authorized for reuse. Are UN4G boxes authorized for reuse?

ANSWER: The provision in 49 CFR 173.28(b)(3) stating that "... packagings made of paper ... are not authorized for reuse," is intended to preclude paper bags from being reused. Fiberboard boxes may be reused subject to the conditions and limitations of § 173.28.

[178.3]

8. Do UN markings placed on the bottom of a combination package conform to the requirements in 49 CFR 178.3(a)(3) with regard to being adequately accessible and readily apparent?

ANSWER: Yes. However, as provided by 49 CFR 178.3(a)(5), packages with a gross mass of more than 30 kg (66 pounds) must have the markings or a duplicate thereof on the top or on a side of the packaging.

[178.3]

9. Do UN markings handwritten with a permanent marking pen meet the regulations in 178.3(a)(3) which note “otherwise marked” and provide “. . . permanency, contrast . . . understood”?

ANSWER: Yes. However, handwritten markings may be questioned by carriers and enforcement personnel.

[178.601]

10. For the past 1 ½ years, OHMS’s enforcement group has been testing UN packagings for compliance to the marked standards through the Tobyhanna Army Depot. Based on the outcome of these audits, is there any information or observations the agency can share with third party laboratories.

ANSWER: In May 1995, RSPA signed an interagency agreement with the Army’s package testing facility in Tobyhanna, Pennsylvania, to conduct testing for RSPA. The testing began in the fall of 1996. As reported by the Office of Hazardous Materials Enforcement (OHME) in the November 19, 1997 Third-Party Meeting, 30 package designs selected by RSPA have been tested at Tobyhanna. Of these 30 packaging designs, only 8 (27%) passed all required tests. A packaging that failed at least one required test is considered to have failed. However, OHME pointed out that RSPA is not purchasing “standard” packaging for testing. They are buying packagings that they believe might fail, based on their package certifications. For example, they are looking for packagings certified at the X (Packing Group 1) level or marked for high specific gravity materials or high pressure test levels like 250-300 kPa. All tests performed at Tobyhanna are videotaped and all packagings tested have a test report from someplace indicating they have previously passed the required tests (except for reconditioned drums). Test failures at Tobyhanna do not necessarily result in enforcement action against the person who certified the packaging. Frequently, the packaging manufacturer will take a failed sample and have it analyzed to determine why it failed. If, however, a significant number of failures occurred during testing of a particular packaging design, RSPA will take enforcement action. (For more information please refer to Minutes of November 19, 1997 Meeting - Testing at Tobyhanna, available from the Approvals Office, OHMS, 202-366-4512.

[178.601]

11. When there is a change in closure for a combination packaging consisting of an outer fiberboard box that was originally tested and certified with wide crown staples, is it possible to note this change of closure in the test report and give it the same certification number (the four digit code after the lab's code letters)? Would it be permissible to give it

the same certification number if it was tested with wide crown staples and also with the new closure (pressure sensitive tape, for example)?

ANSWER: Yes. It is permissible to use the same certification number as long as all of the different scenarios are tested and referenced.

[178.601]

12. Fiberboard box and interior corrugated components are manufactured and supplied by a fiberboard box maker to a shipper who completes the manufacture of the 4G combination package by assembling them and inserting inner packagings and closing the packages. The packaging has been certified by a third party lab, with the shipper identified as the "manufacturer" through the third party UN marking on the packaging. If the shipper changes fiberboard box makers, may the shipper continue to have the packagings marked with the same third party lab marking without additional design qualification testing?

ANSWER: Generally, no; if the fiberboard box or components differ in any way from the packaging which was originally design certified, the packaging is a "different packaging" as defined in 178.601(c)(4) and must be retested. An exception would be where the manufacturer can establish that the fiberboard is virtually identical (e.g., same burst strength, edge crush resistance, water absorption rate, board weights, manner of construction, etc.), the test documentation from the third party lab does not identify the fiberboard in terms of a specific fiberboard box maker, and the agreement between manufacturer and the third party lab does not preclude substitution of components without recertification.

[178.601]

13. Has there been any further developments/progress regarding the issue of equivalency of fiberboard boxes?

ANSWER: No, however we are reviewing an initial request from the Fibre Box Association to define limits for fiberboard that may be considered identical to tested fiberboard. If adopted, we will most likely issue an approval and at a future date propose to incorporate the provisions in the regulations.

[178.601]

14. It appears CEN activity related to procedures for conducting UN packaging testing will soon be adopted as a full ISO standard and ultimately, adopted into the UN Recommendations on the Transport of Dangerous Goods. If this happens, will OHMS require third party laboratories to meet these requirements?

Answer: At the UN Third-Party Certification Agency meeting RSPA reported that any ISO or CEN standard covering procedures for conducting UN packaging testing would not be automatically adopted in the HMR and that if such a standard were adopted at the UN level RSPA would propose that it only be adopted as a guideline or alternative for testing as opposed to being implemented as a mandatory means of compliance. Adoption of such a standard would of course be subject to the public review process.

[178.603]

15. For combination packagings, may inner receptacles (plastic, metal, or glass) and cushioning, absorbent, corrugated pads, cell dividers, etc. be reused in successive drop tests as long as the outer package (corrugated box, wooden box, etc.) is new for each drop orientation?

ANSWER: The answer is yes. There is no prohibition in the HMR against reusing the same inner receptacle(s) when performing the drop test.

[178.603]

16. Some test facilities test a combination package on a corner drop orientation which may not be the corner “most likely to result in failure of the packaging”. In some cases the drop corner is not even identified in the report. This becomes a problem for another test lab when a retest results in failure on a corner drop and the customer notes that “an identical packaging was passed by the last test lab.” Do the regulations in 49 CFR 178.603 require a correct determination of the corner drop by doing more than one drop (top and bottom corners)? Are there any other references in 49 CFR to this matter?

ANSWER: It is the responsibility of the tester to determine the corner that will most likely fail. There is no requirement in 49 CFR to perform a drop test on each corner to make this determination. If it were determined that the packaging failed in a drop on any corner, the packaging does not meet the performance standard. It is recommended that the corner that was dropped be identified on the report but it is not required. It is also recommended that if any doubt exists as to the weakest corner, testing should be done to determine that all corners pass.

[178.606]

17. A combination packaging consisting of a 2.5 liter glass bottle filled with liquid is placed inside a polyethylene bag, and then placed into a 3 gallon open head steel can and surrounded by vermiculite. The can is covered and placed into a 6 gallon open head plastic drum surrounded with vermiculite, and a rubber gasket lid placed on top. Do I perform

the stack test for 28 days or a normal 24-hour stack test?

ANSWER: This is a combination packaging; therefore, it is subject to the 24 hour stacking test. Section 178.606 requires that plastic drums, jerricans, and composite packagings intended for liquids be subjected to the stacking test for a period of 28 days at a temperature of not less than 40° C (104° F).

[178.609]

18. The infectious substance packaging requirements of 173.196 agree with those of ICAO packing instruction 602. However, the 178.609 test requirements differ in two notable ways: (1) there is an additional design feature under 178.609(c) that says “inner packagings may be of plastics, other than expanded plastics or film”; (2) 178.609(e) calls for fully immersing in water for a period of at least 5 minutes. ICAO requires subjecting samples to a water spray simulating rainfall at a rate of approximately 50 mm/hr for one hour. Regarding (1), there are a number of new innovative inner receptacles for infectious substances that are of flexible plastic that can easily pass the pressure differential requirement unrestrained. The same is true for secondary containment. Can they be certified? Can they be certified ICAO only? How should they be marked? Regarding (2), the test methods are not equivalent, particularly for large packages, and water immersion may result in water entering the package where water spray does not. Can packagings be certified to ICAO only?

ANSWER: RSPA is developing a Notice of Proposed Rulemaking which should help to eliminate any differences between the HMR and ICAO TI with respect to infectious substance packagings. In the interim, infectious substance packagings may be certified and marked in accordance with the ICAO TI.

[178.801]

19. A recent article of “Hazmat Packager and Shipper,” discussed “big” combination packagings, i.e., a bulk box containing gallon F-Style metal cans of a solid material. At the time of the article there were no regulations governing such packs but it was mentioned that perhaps such packs would be subjected to the test sequence for IBCs. Have there been any further developments since the article was written? Would OHMS accept the IBC testing sequence for such a packaging?

ANSWER: This topic has been addressed in UN meetings and we are still working on the subject. Until there is a change in the regulations, the only authorized way to use such packagings would be under the terms of an exemption or approval.

[178.815]

20. Is OHMS considering a procedure for dynamic compression testing as an alternative to the 28-day stack test for periodic retesting of plastic IBCs?

ANSWER: No, it is not currently being considered by OHMS. Under §178.606 dynamic compression is authorized for use in periodic retesting of non-bulk packages. OHMS has not been asked to extend the use of this test for periodic retesting of IBCs but could consider this in the future.

[178.819]

21. During the vibration test of an Intermediate Bulk Container (IBC), when the frequency of cycles reaches a value that causes the IBC to leave the floor of the vibration table enough so that a feeler gauge 1.6mm of thickness can be passed under the surface, does the feeler gauge have to pass under all surfaces in contact with the vibration table?

ANSWER: Yes, §178.819(b)(3) states “. . . such as steel strapping can be passed between the bottom of the intermediate bulk container and the platform.” If the entire IBC does not leave the table it would be impossible for the feeler gauge to pass between the bottom of the IBC and the table.