U.S. Department
of Transportation

**Pipeline and
Hazardous Materials Safety
Administration**

400 Seventh Street, S.W.
Washington, D.C. 20590

JUN 16 2006

Mr. Kurt Colborn
Director, Technical Services
Logistical Solutions
800 Cranberry Woods Drive, Suite 450
Cranberry Township, PA 16066

Ref. No. 06-0063

Dear Mr. Colborn:

This responds to your March 13, 2006 letter requesting clarification on §173.411(b)(6) to allow the use of freight containers as Industrial Packagings (IP) Type 2 or 3 containers under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180).

Section 173.411(b)(6) authorizes the use of freight containers as industrial packagings Types 2 or 3 (Type IP-2 or (Type IP-3) provided that:

(i) The radioactive contents are restricted to solid materials;

(ii) The freight containers satisfy the requirements for Type IP-1 as specified in §173.410; and

(iii) The freight containers conform to the standards prescribed in the International Organization for Standardization document ISO 1496-1: "Series 1 Freight Containers-Specifications and Testing-Part 1: General Cargo Containers; excluding dimensions and ratings. They must be designed so that if subjected to the tests prescribed in that document and the accelerations occurring during routine conditions of transport they would prevent loss or dispersal of the radioactive contents and loss of shielding integrity that would result in more than a 20% increase in the radiation level at any external surface of the freight containers.

Your questions are paraphrased and answered below:

Q1. May packages meeting the IP-1 freight container and ISO 1496 standards be used as IP-2 or IP-3 packages when used to consolidate small loads for shipment?

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173.411(b)(6)

A1. In accordance with § 173.411(b)(6), freight containers may be used as IP-2 or IP-3 packages, as long all of the following four conditions are met:

a) The freight container meets the requirements for an IP-1 package.

b) The freight container is designed to conform to the standards prescribed in: "Series 1 Freight Containers - Specifications and Testing - Part 1: General Cargo Containers for General Purposes; excluding dimensions and ratings. It should be noted that freight containers approved in accordance with the International Maritime Organization International Convention for Safe Containers are not necessarily equivalent to the testing prescribed by ISO 1496-1.

c) The freight container is designed such that if subjected to the tests prescribed in ISO 1496-1, as well as accelerations occurring during routine conditions of transport, there would be no loss or dispersal of the radioactive contents nor loss of shielding integrity which would result in more than a 20% increase in radiation levels on any external surface of the freight container. It should be noted that the test conditions of accelerations occurring during routine conditions of transport are in addition to the testing prescribed by ISO 1496-1 because the ISO Standard does not include dynamic tests.

d) The radioactive contents of the freight container are limited to solid materials. Additionally, radioactive contents that have not satisfied the requirements of § 173.411(b)(6) must not be transported in an IP-2 or IP-3 container.

Q2. What marking and labeling requirements apply to a freight container used as an IP-2 or IP-3 package? What marking and labeling requirements apply to internal containers?

A2. Freight containers used as an IP-2 or IP-3 package must be marked and labeled as such, in accordance with §§ 172.310 and 172.403. Inner containers are authorized provided they are specified in the IP-2 or IP-3 test and evaluation report. Inner containers must be marked in accordance with the specification specified in the test and evaluation report. For example, if the test and evaluation report specify the presence of inner IP-1 packages, the packages must be marked as such, in accordance with § 172.310. If the test report specifies inner containers (i.e. wooden boxes, bags, etc.) marking of the inner containers would not be required. Additionally, hazard communication markings and labels are not required for the inner containers.

Q3. May freight containers not meeting the IP-1 and ISO-1496-1 standards be used to transport loose bulk material if testing demonstrates the containers prevent the loss or dispersal of contents while subjected to the IS0-1496-1 test requirements?

A3. No. The freight container must meet all the requirements outlined in Answer 1.

Q4. Are the requirements in § 173.411(b)(6) intended to be used as an alternative means to certify packagings? If an IP-1 freight container is used an IP-2 or IP-3 package, how should the package be marked?

A4. The provisions of § 173.411(b)(6) are to be used as an alternative means of IP-2 and IP-3 packaging certification. Freight containers used as an IP-2 or IP-3 packaging must be marked accordingly.

I hope this answers your inquiry.

Sincerely,

John A. Gale
Chief, Standards Development
Office of Hazardous Materials Standards

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§ 173.411(b)(6)
Packages
06-0063

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Mr. Edward Mazzullo
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Office of Hazardous Materials Safety
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March 13, 2006

SUBJECT: Clarification of the use of Freight Containers as IP-2 and IP-3 Packages

Dear Mr. Mazzullo,

This letter is to request confirmation of our interpretation of the limits of the provision in 49 CFR 173.411(b)(6) to allow the use of IP-1 containers as IP-2 or IP-3 containers.

INTRODUCTION

We note that 49 CFR 173.411(b)(6) states:

Freight containers may be used as Industrial packages Types 2 or 3 (Type IP-2) or (Type IP-3) provided that:

(i) The radioactive contents are restricted to solid materials;
(ii) They satisfy the requirements for Type IP-1 specified in paragraph (b)(1); and
(iii) They are designed to conform to the standards prescribed in the International Organization for Standardization document ISO 1496-1: ``Series 1 Freight Containers--Specifications and Testing--Part 1: General Cargo Containers; excluding dimensions and ratings (IBR, see Sec. 171.7 of this subchapter). They shall be designed such that <u>if subjected to the tests prescribed in that document...they would prevent ...loss or dispersal of the radioactive contents...</u>

DISCUSSION

The tests prescribed in ISO 1496 include transverse and longitudinal load testing for which the pass criterion is no permanent deformation. Temporary deflection of container walls of up to 60 mm (sufficient to temporarily unseat doors, lids, or other sealing surfaces) is entirely acceptable during the load test.

Since deflection can temporarily compromise container integrity, freight containers meeting ISO-1496 design and test requirements *will not necessarily prevent loss or dispersal of radioactive contents if used to ship loose bulk materials when subjected to the tests of that standard.* Therefore, it is not sufficient for a container to meet IP-1 and ISO-1496 requirements for it to be used as an IP-2 or IP-3 package. Such use [in accordance with 173.411(b)(6)] requires that the container *perform* as an IP-1, preventing loss or dispersal of its contents *while subjected* to the test conditions of ISO-1496.

The regulation itself provides for the use of an IP-1 package when a higher-rated package would otherwise be required. We understand the regulation as a shipping provision, not as an alternative means of package certification. Manufacturer certification of a packaging to meet IP-2, for example, still requires evaluation and testing in accordance with 173.411, 173.461, and 173.465. A shipper using the provision of 173.411(b)(6) should maintain the IP-1 marking on the freight container, and note the use of the shipping provision [i.e. "IP-1 used as an IP-2 in accordance with 173.411(b)(6)"] on the shipping documents.

INTERPRETATION REQUEST

We understand the shipping provision of 173.411(b)(6) to allow transport of multiple small containers of radioactive materials in freight containers when the activity of the internal containers would otherwise require a higher rated package. Freight containers carrying smaller containers of materials can meet the requirement to perform as an IP-1 *while subjected to* the transverse and longitudinal load tests of ISO-1496 (provided the internal containers prevent loss and dispersal during any temporary deflection of the freight container).

Please confirm that our interpretation of this regulation is correct, as follows:

1. Containers meeting IP-1 and ISO-1496 can be used as IP-2 or IP-3 packages when used to consolidate smaller containers for shipment.
2. The freight container can be marked and labeled as the package for shipment, but the internal containers form a necessary part of the package to prevent loss or dispersal of the radioactive contents (as during expected deflection).
3. Containers meeting IP-1 and ISO-1496 do not necessarily meet the requirements of 173.411(b)(6). Shipping loose bulk material in freight containers is not authorized in the absence of testing to demonstrate that the containers prevent the loss or dispersal of contents *while subjected to* the tests of the ISO-1496 standard.
4. 173.411(b)(6) is intended as a shipping provision, and must not be used as an alternative means of packaging certification by the manufacturer. IP-1 packagings used as IP-2 or IP-3 should be marked IP-1. IP-2 and IP-3 package markings are reserved for containers that actually meet the standards for those higher rated packagings.

Please feel free to call me at 724-772-9800, ext 5560 if you have any questions regarding this inquiry.

Respectfully submitted,

MHF Logistical Solutions

Kurt Colborn
Director of Technical Services