



U.S. Department  
of Transportation  
**Research and  
Special Programs  
Administration**

AUG 27 2003

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

Mr. Earl Thomas  
Lab Pack Operations Team Leader  
Lawrence Livermore National Laboratory  
University of California  
P. O. Box 808, L-668  
Livermore, CA 94550

Reference No.: 03-0170

Dear Mr. Thomas:

This responds to your letter requesting clarification on authorized packaging for poison inhalation hazard (PIH) materials under § 173.226(c)(2) of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). Your questions are paraphrased and answered as follows:

- Q1. We offer for transportation Division 6.1, PG I, Hazard Zone A materials in an inner packaging system consisting of three inner packagings; the HMR prescribe two inner packagings. We place a single one liter non-impact resistant glass receptacle in an impact-resistant packaging with compatible absorbent material. This in turn is placed into a leak-tight packaging, again with compatible absorbent material, that is packed within an outer 4G fiberboard box. The completed inner packaging system meets the performance standards at the PG I level in subpart M, part 178, of the HMR. Does this packaging meet the requirements in § 173.226(c)(2)?
- A1. The answer is yes. Even though you have an additional inner receptacle, your packaging meets the provisions in §173.226(c)(2). The capacity of each inner receptacle may not exceed 4 L (1 gallon). Both the inner packaging system and the outer packaging must meet the performance test requirements in subpart M, part 178, of the HMR.
- Q2. Under the provisions in §173.226(c)(2), may multiple inner impact-resistant glass receptacles containing Division 6.1, PG I, Hazard Zone A materials be packed into the leak-tight intermediate packaging?
- A2. Section 173.226(c)(2) authorizes multiple impact-resistant inner receptacles, provided the capacity of each inner receptacle does not exceed 4 L (1 gallon), and the total amount of



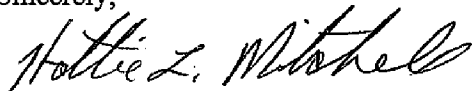
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173.226

liquid contained in the outer packaging does not exceed 16 L (4 gallons). Additionally, the inner packaging system and the outer packaging must conform to the performance test requirements in subpart M, part 178, of the HMR.

I hope this satisfies your inquiry.

Sincerely,

A handwritten signature in cursive script that reads "Hattie L. Mitchell". The signature is written in black ink and is positioned below the word "Sincerely,".

Hattie L. Mitchell  
Chief, Regulatory Review and Reinvention  
Office of Hazardous Materials Standards



# Lawrence Livermore National Laboratory



*Safety and  
Environmental Protection Directorate*

June 24, 2003

Corbin  
§ 173.226(c)(2)  
Packaging  
03-0170

Mr. Edward Mazzullo  
Director, Office of Hazardous Material Standards/  
Research and Special Programs Administration (DHM-10)  
Department of Transportation  
400 7<sup>th</sup> St SW  
Washington D.C., 20590-0001

**Subject: Inner Packaging Systems for Division 6.1 PGI, PIH, Zone A Materials**

Reference: 49 CFR 173.226 (c)(2)

Dear Mr. Mazzullo:

I would like to extend my sincere thanks to Mr. Cameron Satterthwaite for his interpretation of 49 CFR 173.226 (c)(2), as it applies to "impact-resistant" glass. The purpose of this correspondence is twofold:

- 1.) To obtain written concurrence to the guidance that Mr. Satterthwaite provided us on December 18, 2002 and
- 2.) To pose an additional question (to your department) that is also related to 49 CFR 173.226 (c)(2).

First, during our December 18<sup>th</sup> phone conversation, Mr. Satterthwaite concurred with me that placement of inner-glass containers (holding materials meeting the definition of division 6.1 PGI, Zone A inhalation-hazard [PIH]) into non-breakable intermediate containers meets the "impact-resistant glass" requirement, provided that the following conditions are met:

- The intermediate container is compatible with the lading.
- Movement of the inner-glass container is restricted within the intermediate packaging via a compatible absorbent medium or other appropriate dunnage.
- The final inner packaging system conforms to the performance test requirements of 49 CFR 178 Subpart M, at the Packaging Group I level. *See Illustration A*


Mr. Satterthwaite's interpretation (of conditionally allowing the use of intermediate non-breakable containers) preserves the intent of the regulation and provides much needed relief to the regulated community. However, before implementing this guidance, we are requesting a written response from the Office of Hazardous Materials Standards, reiterating the previously expressed position.

Second, given the three requirements itemized below, can multiple inner-receptacles, holding identical liquid material, meeting the definition of 6.1 PGI, Zone A PIH, be packed into a single "leak-tight packaging of metal or plastic," or does 173.226 (c) (2) contain language prohibiting such an assembly?

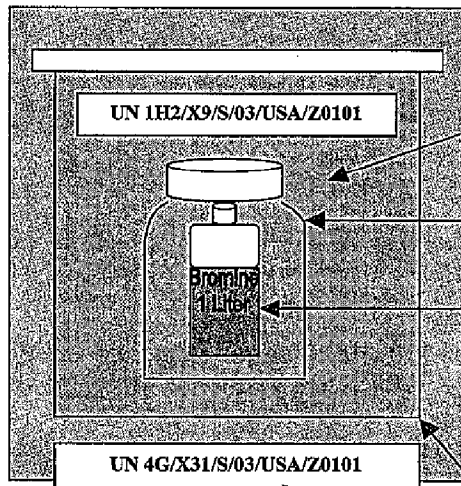
- No inner receptacle exceeds 4L in capacity.
- The total amount of liquid contained in the outer packaging does not exceed 16L.
- The specific package configuration is tested in accordance with 49 CFR 178 subpart M, at the Packaging Group I level. *See Illustration B*

Again, we greatly appreciate the technical support that your department provides and look forward to your response with much anticipation.

Sincerely,

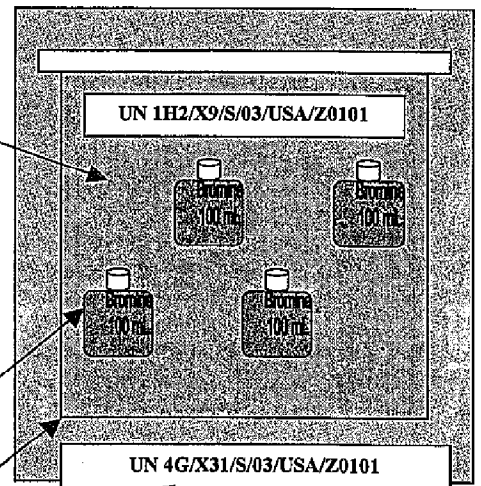
  
Earl Thomas  
Lab Pack Operations Team Leader  
Lawrence Livermore National Laboratory

**Illustration A**



- Shaded area =  
absorbent media
- Non-breakable  
intermediate  
container
- Non-impact  
resistant glass  
receptacle
- Impact-resistant  
glass receptacles
- Leak-tight inner  
packaging
- 4G Outer packaging

**Illustration B**



cc: Kerry Cadwell, Storage and Disposal Group Leader

Dennis Barrett, Packaging and Transportation Safety, Program Manager

John Bowers, Waste Treatment Group Leader, Authorized Derivative Classifier

Kathryn Rauhut, Laboratory Counsel, General Law Office