



U.S. Department  
of Transportation

**Research and  
Special Programs  
Administration**

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

AUG 5 1999

Mr. Mark Baca  
U.S. Department of Energy  
P.O. Box 5400  
Albuquerque, NM 87185-5400

Ref. No. 98-0185

Dear Mr. Baca:

This is in response to your letter concerning the packaging of explosives under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). We apologize for the delay in responding to your request and hope it has not caused you any inconvenience.

Based upon the scenarios you provided, your questions have been paraphrased and answered as follows:

Q1: Does the definition of a packaging in § 171.8 mean that all of the inner packagings, including the innermost plastic bags or plastic bottles, tape, bubble pack, or other void filler, foam lining, inner drum coatings, metal drum, or other outside container must be compatible with, and impermeable to, the explosive?

A1: Yes. Section 173.60(b)(9) states that packagings must be made of materials compatible with, and impermeable to, the explosives contained in the package, so that neither interaction between the explosives and the packaging materials, nor leakage, causes the explosive to become unsafe in transportation, or the hazard division or compatibility group to change (see § 173.24(e)(3)(ii)).

Q2: How far into a particular package must the concept of impermeability be carried? If the innermost container (e.g., plastic bag or plastic bottle) and the outside packagings are impermeable to the explosive, do all packagings used still need to be compatible and impermeable to the explosive?

A2: Yes. The term "packaging" in § 173.60(b)(9) is not limited to inner or outer packagings only. A packaging as defined in § 171.8 means a receptacle and any other components or materials necessary for the receptacle to



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173.60

perform its containment function in conformance with the minimum packing requirements in the HMR.

Q3: Do explosives that are sealed inside a 1.4 self-contained component with a housing that is compatible and impermeable to the explosive, still have to show that all packagings used are compatible and impermeable to the explosive?

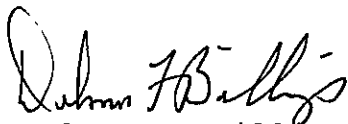
A3: It depends on the way the explosive substance is "sealed" within an explosive article. If there is a chance of leakage, the answer is yes.

Q4: Are metal packagings required to not generate or accumulate sufficient static electricity to cause a detonation of the substance or article?

A4: No. This requirement is for plastic packagings only.

I hope this satisfies your request.

Sincerely,



Delmer F. Billings  
Chief, Standards Development  
Office of Hazardous Materials Standards



**Department Of Energy**  
 Albuquerque Operations Office  
 P. O. Box 5400  
 Albuquerque, New Mexico 87185-5400

Polydore's  
 § 173.60

JUL 8 1998

Mr. James Jones  
 Exemptions & Approvals Branch  
 U. S. Department of Transportation  
 400 Seventh St. NW  
 Washington, DC 20590-0001

TO: MR. JAMES JONES  
 FROM: MR. JAMES JONES  
 50 JUL 14 11:12:04

Dear Mr. Jones:

The Department of Energy respectfully requests an interpretation and clarification of the Department of Transportation's intent of Title 49, Part 173.60(b)(9) and (b)(11).

A. Paragraph 173.60(b)(9) states, "Packagings must be made of material compatible with, and impermeable to, the explosive contained in the package, so that neither interaction between the explosives and the packaging materials, nor leakage, causes the explosive to become unsafe in transportation, or the hazard class or compatibility group to change."

**Scenario #1:** A package of 1.1 substance or article (explosive material) is packaged and ready to ship. The package contains the explosive inside a static free plastic bag, sealed with filament tape and placed in a metal drum as an outside container that has a rust inhibitor coating and a foam lining. The void space between the foam lining and plastic bag is filled with bubble pack or some other material to keep the explosive stationary inside the metal drum.

**Scenario #2:** A package containing a 1.4 self-contained article is packaged and ready to ship. The package contains an article with a sealed metal housing containing the explosive. The 1.4 article is further packaged in a static free plastic bag, sealed with filament tape; wrapped in bubble pack and placed in a fiber box.

**Scenario #3:** A package with a 1.1 inside an article with a sealed housing is packaged and ready to ship. The packaging causes the article to ship as a 1.4. The article is packaged as tested in a metal box with a cut out foam liner and the article placed in the liner.



Based on the scenarios above, our questions are as follows:

**Question #a:** Based on the definition of packaging in 171.8, does paragraph (b)(9) mean that all inner packagings, including the inner most plastic bags or plastic bottles, tape, bubble pack or other void filler, foam lining, inner drum coatings, metal drum or other outside containers must be compatible and impermeable to the explosive?

**Question #b:** The concern for the compatibility and impermeability to explosives is understood. What we don't understand is how far into the package the impermeability must be carried? If the inner most container (i.e., plastic bag, plastic bottle, etc.) and the outside packaging are impermeable to the explosive, then does all the bubble pack, foam, and other middle packagings need to be impermeable also?

**Question #c:** Do explosives, that are sealed inside of a 1.4 self-contained component with a housing that is compatible and impermeable to the explosive, still have to show that all packagings used are compatible and impermeable to the explosive?

**B.** Paragraph 173.60(b)(11) states "Plastic packagings may not be able to generate or accumulate sufficient static electricity to cause the packaged explosive substances or articles to initiate, ignite or inadvertently function. Metal packagings must be compatible with the explosive substance they contain."

Being in the business of manufacturing and shipping explosive substances and articles we understand the issue of static electricity and explosives together. The confusing thing about this paragraph is the last sentence (i.e., "metal packagings must be compatible..." Paragraph (b)(11) is very clearly talking about static electricity and explosives.

Based on the scenarios above, we have the following question:

**Question #a1:** Does this mean metal packagings must be compatible with static electricity, or not generate or accumulate sufficient static electricity to cause a detonation of the substance or article?

We appreciate your written interpretation(s) based on our questions referring to the scenarios given.

Should you need additional information, please do not hesitate to call Mrs. Marta Jones, Traffic Manager, DOE/Albuquerque, on 505-845-4398.

Sincerely,



Mark Baca

Director

Weapons Surety Division

cc:

Brian Hermann, DOE/NTP-A

Ashok Kapoor, DOE/NTP-A

Mike Tandy, LLNL

Randy Rowan, LANL

Barbara Hoffman, SNL/NM

Gracie Miranda, SNL/CA

Alan Rittel, AlliedSignal - Kansas City

Mark Hawk, ORNL

Dennis Claussen, Traffic Manager, DOE/RL

Jesse Beyers, Mason & Hangar - Pantex Plant

Rich Genoni, Waste Management Corporation, Hanford

Marta Jones, Traffic Manager, DOE/AL/WSD

Nicholas Davis, Traffic Specialist, DOE/AL/WSD