



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

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

JAN - 2 2001

Mr. Richard Ruebush  
International Paper  
P.O. Box 4687  
Spartanburg, SC 29304-5687

Ref. No. 00-0191

Dear Mr. Ruebush:

This is in response to your letter dated July 10, 2000, regarding construction of "UN5M2" paper bags of three plies and four plies authorized in § 178.521(b)(2) of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). You state the multi-wall bags are sometimes constructed either with plastic film plies or plastic film plies laminated to paper plies with adhesives, either with all over adhesive coverage or stripes of adhesive.

Your questions are paraphrased and answered as follows:

- Q1. Does the statement in § 178.521(b)(2) in reference to the number of plies only mean paper plies, or does it also include plastic film plies which may be used in combination with paper plies?
- A1. The "UN5M2" multi-wall bag must be made of suitable kraft paper or an equivalent paper with at least three plies. To prevent the entry of moisture, a plastic film ply may be used as a waterproof ply or water-resistant barrier in combination with paper plies as prescribed § 178.521(b)(2).
- Q2. Is the plastic film ply considered a separate ply if it is laminated or bonded in some way to a paper ply, or is it only considered a separate ply if it is free and not bonded to a paper ply.
- A2. A plastic film ply bonded or laminated to the inner surface of a three ply bag as a waterproof ply or barrier would be considered a separate ply.



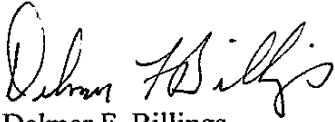
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- Q3. Is a bag constructed of a plastic film inner ply laminated to a ply of kraft paper having an outer ply of water-resistant kraft paper considered a three ply "UN5M2" bag.
- A3. Yes, provided the bag complies with all other requirements of § 178.521 and meets the testing requirements of Subpart M of Part 178.

I hope this satisfies your inquiry. If we can be of further assistance, please contact us.

Sincerely,



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

INTERNATIONAL  PAPER

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July 10, 2000

U.S. Department of Transportation  
Research and Special Programs Administration  
400 Seventh Street, S.W.  
Washington, D.C. 20590-0001

Office of Hazardous Materials Standards DHM-10:

I have some questions about 5M2 paper bags as mentioned in 49 CFR 178.521(b)(2). My questions are in reference to the statements about bags of three plies and bags of four plies or more.

Multiwall bags are sometimes constructed either with plastic film plies between paper plies or plastic film plies laminated to paper plies with adhesives, either with all over adhesive coverage or stripes of adhesive.

1. Does the statement about the number of plies only mean paper plies or does it also include plastic film plies which may be in combination with the paper plies?
2. Is the plastic film ply considered a separate ply if it is laminated or bonded in some way to a paper ply or is it only considered a separate ply if it is free and not bonded to a paper ply?
3. Is a bag construction such as a plastic film inner ply laminated to a ply of kraft paper having an outer ply of water resistant kraft paper considered a three ply 5M2 bag or is it necessary to have a third ply of paper?

I would be grateful if you can provide some clarification on these issues for me. Please contact me if you need more information at 864-596-7159 or at the address on the letterhead.

Regards,

*Richard Ruebush*

Richard Ruebush  
DOT Packaging Coordinator