



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

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

FEB 27 2004

Mr. A.L. Rothschild
V.P. Technical
Bancroft Bag, Inc.
425 Bancroft Blvd
West Monroe, LA

Ref. No. 02-0243

Dear Mr. Rothschild:

Thank you for your letter and additional information regarding a new concept for documenting the conditions required to establish a repeatable, secure seal on UN standard paper bags, such as 5M2 paper bags and 5H4 plastic bags. Your closure method for these bags would be included in the customer notification as required by § 178.2(c) of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). I apologize for the delay in responding and any inconvenience it may have caused.

You state in your letter that it is impractical for test labs to duplicate closing bags exactly like package fillers because of the wide variety of closing equipment and the high cost of such equipment. You also suggest that: (1) the most significant variable affecting closure is the temperature at which the closure is sealed; (2) a cost effective means for verifying the temperature of closure is available with a "thermolabel", a heat-sensitive label that can be attached to the adhesive and closure flap interface and that reacts and provides an immediate visual indication when the desired temperature is reached; and (3) using a thermolabel, packaging test labs and package fillers would be closing bags in the same manner and the notification to customer would be consistent with the closure method used by the test lab.

We agree in concept with your proposal. Your notification to customer could be written so as to require the use of a thermolabel to ensure consistent sealing temperatures equivalent to those used in testing the bags. We do, however, have three concerns:

- (1) Your example of closing instructions lists a specific model pinch closer, contrary to your intent to have a generic closure instruction that would be acceptable for use with various pinch closer models. Perhaps you should describe an acceptable pinch closer apparatus in more generic terms.



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(2) If a range of temperatures is acceptable, your closure instructions should specify the upper and lower limits of that range.

(3) It would appear that the closure pressure applied to the seal may be a significant variable in affecting bag closure. If this or other factors (e.g., equipment, ambient conditions) may affect the closure, they should be specified in the notification.

Thank you for your continuing support in enhancing the safe transportation of hazardous materials. We welcome your suggestion and will study its merit for further consideration. Please contact us if we can be of further assistance.

Sincerely,



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



Bancroft Bag, Inc.

Stevens
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Packaging
02-0243

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August 9, 2002

Mr. Donald Burger
U. S. Department of Transportation
Research and Special Programs Administration
Office of Hazardous Materials Technology
400 7th Street S.W.
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Sir,

We understand that the Enforcement Agents from at least the Eastern, Southern, and Southwest Regions are trying to obtain and understand closing instructions for 5M2 paper bags and 5H4 plastic bags. Because of the wide variety of closing equipment in use and it's high cost (average \$20,000 each), it is impractical for test labs to duplicate closing the bags exactly like the package filler will close them. That's not even considering the adjustments necessary to compensate for changes in ambient temperatures and temperature of the bags at filling/closing time.

Instruments that could directly test the strength of the closure such as an Instron Tensile Tester cost at least \$12,000 and are generally found only in paper and plastic manufacturing facilities and related labs.

It has been suggested that the test lab simply report the conditions and readings on the closing equipment used to close the bags for testing and let the burden shift to the package filler to show that his closure is equivalent. I feel this strategy puts the package filler in a dangerous position. If he follows the settings as listed, but doesn't take into account differences in equipment and ambient conditions, he is likely to produce closures that will fail. If he changes the settings, how can he quantify equivalence without a large capital investment in equipment?

There is a test method I would like DOT to consider that would give a quantifiable result, and not be cost prohibitive (\$.40 per test). It doesn't directly test the strength of the closure, but it does directly test the single most significant variable in effecting a closure of bags. Almost all bags are closed/sealed by heating a plastic adhesive, coating, or film to the softening point. The package maker knows what that softening point is for the adhesive, coating, or film in any specific package design they manufacture and can communicate this information to the test lab. An adhesive backed thermolabel applied to the plastic in the closure area will record the temperature that the

plastic reaches in that area. The brochure for one supplier of these thermolabels is attached.

Thus closing instructions for a pinch style 5M2 paper bag would read something like:

Bags were closed for testing on a Theile 4601 pinch closer by folding 1 1/2" evenly across the top of the bag and reactivating the preapplied adhesive to 230°F as verified by a TL8-210 thermolabel. Softening point of this preapplied adhesive is 220°F.

The package filler would then be free to use other equipment in other ambient conditions and still be confident of an equivalent seal if he folds 1 1/2" evenly across the top of the bag and reactivates the preapplied adhesive to 230°F as verified with a thermolabel. Periodic testing with a thermolabel during a packaging fill run would be simple to do, low cost, and give a quantifiable result to record.

I look forward to your comments and questions. My address, etc. are:

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E-mail: Lrothschild@bancroftbag.com

Regards,



A. L. Rothschild
V. P. Technical

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Enclosure

ALR/sah