



U.S. Department
of Transportation

**Research and
Special Programs
Administration**

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

JAN 27 2000

Mr. William O. Gramer
3M Package Engineering,
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St. Paul, MN 55144-1000

Ref. No: 00-0027

Dear Mr. Gramer:

This is in response to your letter regarding the orientation arrow markings that are required on certain packages of liquid hazardous materials under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). Specifically you ask whether § 172.312 prohibits the placement of arrows for purposes other than orientation on packages containing liquid hazardous materials.

The answer is yes. As provided by § 172.312, each non-bulk combination package having inner packagings containing liquid hazardous materials must be packed with closures upward, and legibly marked with package orientation markings. Additionally, arrows for purposes other than indicating proper orientation may not be displayed on a package containing a liquid hazardous material.

I hope this information is helpful.

Sincerely,

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



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172.312

3M Package Engineering

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Postmark	Date	# of pages
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Edward Mazzullo, Director.
Office of Hazardous Materials Standards
Research and Special Programs Administration, US DOT
400 7th St SW; DHM-10
Washington, DC 20590-0001



Request for Interpretation concerning the use of 'up-arrows': 6Aug1998

Dear Mr. Mazzullo,

It is our understanding that the Hazardous Materials Regulations (HMR) do not allow placement of 'orientation arrows' on combination packages containing liquid dangerous goods (hazardous materials) in articles or containers which have no 'upward' orientation. To display such marking appears to be a violation of the HMR, according to 49CFR172.312, and at best is misleading to dangerous goods package handlers for whom the arrows are intended.

In 172.312(b) we see that for liquid dangerous goods packages, "... arrows for purposes other than indicating proper package orientation may not be displayed...". 172.312(a)(1) specifically requires liquid-carrying dangerous goods packages to be oriented, or "...packed with closures upward" during transport. In 172.312 (c) orientation arrows are generally required on combination packages of liquid-carrying inner receptacles with closures capable of application and removal by the filler and user. It is generally understood that because these type of closures (e.g. screwtop, etc) are applied after filling and may be removed to allow emptying or other applications, the closures do not form a 'permanent' or 'welded-hermetic' seal, and thus, pose a possible means of liquid leakage from the outer package. An 'upward package orientation' clearly exists and is therefore communicated to the package handler so as to minimize risk of leakage in transport.

Paragraphs 172.312(c)(4) and (5) clearly state that when inner packagings have no such removable closures or no closures at all, there is therefore no 'upward' orientation and the requirement to label a package with arrows "...pointing in the correct upright direction. [172.312(a)(2)]" does not apply. The reason for this requirement seems self-evident - these types of packages have no such 'closure orientation'. As paragraphs (4) and (5) seem to state, 'articles' and 'inners' which are "...leak-tight in all orientations..." and which have "...hermetically sealed..." closures have no 'upward' orientation. As such, these type packages are not tested and designed for shipment in a specific orientation to minimize leakage from closures. Therefore, to label the package as having such an orientation "...pointing in the correct upright direction. [172.312(a)(2)]" would be incorrect.

Further, it seems that to label these packages as such could be misleading to handlers of the package as is the concern in paragraph (b). To apply arrows to such packages would not be for proper orientation of the inner closures (none exist), and thus may be "...for purposes other than indicating proper package orientation" and therefore may "... not be displayed..." [172.312(b)]. This seems to mean displaying such arrows would not be 'optional', as may be the case of small quantity exceptions stated in (c)(2) and (3).

Would you please clarify whether our understanding as stated in paragraph one is correct? Specifically, that up-arrows on combination packaging containing liquids in "... manufactured articles or hermetically-sealed inner packaging..." having no upward closure orientation are not allowed by 49CFR172.312.

Sincerely,

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RE-SENT-

13 JAN 2000.

Please advise if
this will not be
answered, or if it
already has been.