U.S. Department
of Transportation

**Pipeline and
Hazardous Materials Safety
Administration**

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

MAR 30 2006

Mr. William J. Briner
Regulatory Affairs Manager
Monsanto Company
800 North Lindbergh Blvd
St. Louis, Missouri 63167

Ref. No. 04-0119

Dear Mr. Briner:

This responds to your letter requesting clarification of the packaging requirements for Phosphorus, white or yellow (UN1381) under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). Specifically, you ask whether your packaging system for this material conforms to the requirements specified in § 173.188 for yellow phosphorus packaged under water and as specified in the exceptions for Division 4.2 materials under § 173.13. I apologize for the delay in responding and any inconvenience it may have caused.

You describe your system as follows:

> The phosphorus is placed under water in a glass jar and further placed in a hermetically sealed (soldered) metal can and then placed in another hermetically (soldered) metal can and, finally, placed in a 5 gallon UN specification 1A2 open-head steel drum conforming to the Packing Group I performance level for solids. The net quantity of phosphorus per jar will not exceed 2.85 kg (6.25 lbs) and only one inner packaging system will be placed in the outer drum. Vermiculite will be used as cushioning in the entire packaging system.

Q1. Phosphorus is solid under ambient temperatures. Most packaging systems used to package phosphorus stabilize it under water. Under this scenario, it is unclear whether to package it as a liquid as prescribed in § 173.13(c)(1) or as a solid as prescribed in § 173.13(c)(2). Is it permissible to package it as a solid in a single packaging tested at the Packing Group I performance level for solids as we propose or would it require a DOT special permit?

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173.188

A1. The HMR require a packaging used to contain liquids or a hazardous material that may become liquid during transportation to be tested for liquids. However, because the multiple inner packagings you propose using in your packaging system are hermetically sealed and an absorbent material is used as cushioning, it is our opinion that, if authorized under the terms of a DOT special permit, the outer UN 1A2 open-head steel drum need only be tested for solids at the Packing Group I performance level under § 173.13(c)(2).

Although it appears that your packaging system offers a greater level of performance than what is specified in § 173.13(c)(2), your packaging system is not specifically authorized and, therefore, would require a DOT special permit prior to offering it for transportation.

Q2. One packaging system prescribed in § 173.188 for phosphorus under water allows for a UN 1A2 open-head steel drum, as a single packaging, provided the capacity does not exceed 115 liters (30 gallons). UN 1A2 specification drums are not available that have been tested at the Packing Group I performance level for liquids. Is it permissible to package it as a solid in a single packaging tested at the Packing Group I performance level for solids as we propose in Q1 or would it require a DOT special permit?

A2. Your packaging system appears to meet the intent of the packaging prescribed in § 173.188(a)(2) and, therefore, would not require a DOT special permit. There is nothing in § 173.188(a)(2) that would prohibit the use of a single packaging tested at the Packing Group I performance level for solids containing the specific inner packaging system you propose.

I trust this satisfies your inquiry. In the future, we intend to propose to the United Nations Committee of Experts on the Transport of Dangerous Goods additional shipping descriptions for solid hazardous materials packaged in suspension. Please contact us if we can be of further assistance.

Sincerely,

Hattie L. Mitchell

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

5/10/04

Stevens
§173.188
Packaging

MONSANTO

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800 NORTH LINDBERGH BLVD
ST. LOUIS, MISSOURI 63167
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04-0119

May 7, 2004

U.S. Department of Transportation
Research and Special Programs Administration
Office of Hazardous Materials Standards
400 Seventh Street, S.W.
Washington, D.C. 20590

I am writing to inquire if phosphorus, yellow, under water in an inner glass jar placed in a hermetically sealed (soldered) metal can, enclosed in another hermetically sealed (soldered) metal can, and then placed in a 5 gallon UN Specification 1A2 steel drum conforming to the Packing Group I performance level for solids (i.e. a jar in a can/the can in a second can/the second can in a 1A2 steel drum) is an authorized packaging under the Hazardous Materials Regulations. The net quantity of phosphorus per inner packaging will not exceed 2.85 kg (6.25 pounds) and only one inner packaging system (jar in a can/the can in a second can) will be permitted per outer packaging. Vermiculite will be used to cushion the jar in the first can and to cushion the can within the drum.

Phosphorous has a melting point of 111 degrees F, therefore it is a solid at ambient temperatures. It is unclear if 173.13(c)(2) would apply, since phosphorus is a solid, or if 173.13(c)(1) would apply, since the phosphorous is under water.

It is unclear whether a 1A2 steel drum conforming to the Packing Group I performance level for solids is authorized under 173.188(a)(2) since 1A2 steel drums conforming to the Packing Group I performance level for liquids do not exist.

We believe that a jar within a can/the can in a second can/the second can in a 1A2 steel drum is a very safe packaging system. Please indicate if this is authorized under either 173.13 or 173.188, or if an exemption would be required for its use.

If you have any questions concerning this request, please call me at (314) 694-2999.

Thank you.

Sincerely,

William J. Briner

William J. Briner
Regulatory Affairs Manager

I look forward to your response. Thank you for your help.

Sincerely,

John H. Rutherford

John H. Rutherford