



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

FEB 25 2008

1200 New Jersey Avenue, SE
Washington, D.C. 20590

Mr. E.A. Altemos
HMT Associates, L.L.C.
603 King Street, Suite 300
Alexandria, VA 22314-3105

Ref. No. 08-0025

Dear Mr. Altemos:

This is in response to your letter of October 2, 2007 requesting guidance regarding the requirements of the UN Manual of Tests and Criteria (UN Test Manual). Specifically, you request clarification regarding the test method for readily combustible solids (test method N.1). Your questions are paraphrased and answered as follows:

Q1) As referenced in 33.2.1.4.4, do the words "over the entire length of the sample" refer to the 100 mm length over which the test procedure in 33.2.1.4.3.2.3 requires the burning rate to be measured, or to the entire 250 mm length of sample deposited on the test surface by the 250 mm long mould?

A1) The words "over the entire length of the sample" refer to the 100 mm length over which the test procedure in 33.2.1.4.3.2.3 requires the burning rate to be measured. You will note that 33.2.1.4.4 refers to the "rate of burning" and 33.2.1.4.3.2.3 states "when the pile has burned a distance of 80 mm, measure the rate of burning over the next 100 mm."

Q2) The test manual procedure and classification criteria vary in certain respects depending on whether the material tested is a metal powder or whether it is a substance "other than a metal powder". Your guidance concerning the intent of the UN Test N.1 regarding the testing and classification of mixtures of metal powder and substances "other than metal powders" is requested.

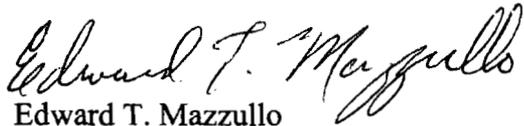
A2) It is our opinion that a powder which is a mixture of metal powder and "other than metal" powder should be tested in accordance with the method described for metal powders. We do not believe the method as currently worded allows for a quantification of the risk based on the powder's composition.

In your letter you also ask whether it may be necessary to seek clarification of the test method from the UN Sub-Committee of Experts on the Transport of Dangerous Goods. In our opinion, the text is clear with respect to the burning rate issue identified in your first question. However, we would not be opposed to considering an amendment

clarifying the applicability of the test method to a powder which is a mixture of metal and "other than metal" powders if a majority of the Sub-Committee members are in agreement that such a clarification is necessary.

I hope this information is helpful. Please feel free to contact me if I can be of further assistance.

Sincerely,

A handwritten signature in cursive script that reads "Edward T. Mazzullo". The signature is written in black ink and is positioned above the printed name.

Edward T. Mazzullo
Director, Office of Hazardous Materials Standards

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Eichenlaub
§173.124(a)(3)
§173.125(b)
Testing
08-0025
E.A. ALTEMOS
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October 2, 2007

Mr. Robert A. Richard
Deputy Associate Administrator
For Materials Safety (PHH-2)
Pipeline and Hazardous Materials
Safety Administration
Department of Transportation
1200 New Jersey Avenue, SE
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Washington, D.C. 20590-0001

Dear Mr. Richard:

This is to request your guidance regarding the interpretation of Test N.1 ("*Test method for readily combustible solids*") appearing in 33.2.1.4 of the United Nations (UN) *Manual of Tests and Criteria* ("the UN Test Manual"), as that test relates to the classification of, and assignment of packing groups to metal powders. This test is incorporated by reference at §§ 173.124(a)(3) and 173.125(b) of the Hazardous Materials Regulations (HMR).

There are two specific aspects of the test for which your guidance is sought. The first relates to the length of the sample of metal powder over which the rate of burning is to be timed in the "Burning rate test" in 33.2.1.4.3.2. As prescribed in 33.2.1.4.3.2.1, the 250 mm long mould (described in 33.2.1.4.2) is to be used to place the sample of metal powder to be tested on the test surface. The metal powder is then ignited, and as stated in 33.2.1.4.3.2.3, "[w]hen the pile has burned a distance of 80 mm, measure the rate of burning over the next 100 mm." However, where in each of the three paragraphs in 33.2.1.4.4 ("*Test criteria and method for assessing results*") the criteria for classification and packing group assignment for metal powders is presented, it refers to the time taken for the reaction to spread "over the whole length of the sample". It is unclear in this regard whether the "whole length of the sample" is the 100 mm length over which the test procedure in 33.2.1.4.3.2.3 requires the burning rate to be measured, or whether this means the entire 250 mm length of sample deposited on the test surface by the 250 mm long mould. My understanding of the intent of the test, based on my reading of the test as well as a brief telephone conversation with Dr. Ke, is that for purposes of metal powders the reference to the "whole length of the sample" in each

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of the three paragraphs in 33.2.1.4.4 is intended to mean the 100 mm length of sample over which 33.2.1.4.3.2.3 requires the burning time to be measured. However, your confirmation of this understanding is requested.

The second aspect of the test regarding which your guidance is requested relates to the testing of materials that are mixtures of metal powders with other materials (i.e., materials not metal powders). The test procedure and classification criteria vary in certain respects depending on whether the material tested is a metal powder or whether it is a substance "other than a metal powder". However, it is not clear from the test how materials that are mixtures of metal powders and "other than metal powders" are to be tested and classified. If such a mixture is substantially a metal powder (e.g., 95 per cent or more metal powder), it seems reasonable that the procedure and classification criteria relating to metal powders should be employed. However, for example for a 70/30 or a 50/50 mixture of metal powder to "other than metal powder", the test procedure and criteria to be used are far from clear. It would seem reasonable that if the "other than metal powder" component in the mixture is, itself, not "readily combustible" according to the "preliminary screening test" or "burning rate test" in 33.2.4.1, then the mixture of that material with metal powder should be tested and classified as appropriate for a metal powder. However, if the "other than metal powder" component of the mixture is, itself, a readily combustible material, it is unclear whether the mixture is to be tested and classified as a "metal powder" or as a substance "other than a metal powder". Your guidance concerning the intent of the UN Test N.1 regarding the testing and classification of mixtures of metal powder and substances "other than metal powders" is requested.

Finally, I note that given the ambiguity of the text of the Test N.1 as it currently appears in the UN Test Manual, it may be necessary to seek clarification of the test method by the UN Committee. Your views regarding the need for such action would also be appreciated.

Thank you for your consideration of this matter, and please do not hesitate to contact me if you have questions concerning this request, or if you require additional information.

Sincerely,



E. A. Altemos

cc: Dr. Charles Ke (PHH-21)
Mr. Duane Pfund (PHH-5)
Mr. Shane Kelley (PHH-5)