



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

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

OCT 22 2001

Ref No. 01-0178

Mr. Michael P. DeCicco
Polyolefin Catalyst Research
and Development
W. R. Grace Co.-Conn
7500 Grace Drive
Columbia, Maryland 21044-4098

Dear Mr. DeCicco:

This responds to your letter dated July 13, 2001, regarding classification of two products that were tested according to the UN Manual of Tests and Criteria as prescribed in § 173.124 of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180).

Tests were performed by an outside laboratory which issued a report stating that one product, when shipped in containers of less than 3000L, does not meet the criteria for a Division 4.2 material. The testing laboratory concluded that a second product does not meet the criteria for a Division 4.3 material. You state that these products meet Division 4.1 (flammable solid) criteria, but disagree with the laboratory's test conclusions. You are of the opinion that these products should more appropriately be classed as Division 4.2 (spontaneously combustible) and Division 4.3 (dangerous when wet), respectively.

This Office recognizes the "UN Manual of Tests and Criteria," prescribed in the definitions for Division 4.2, and 4.3 hazards in § 173.124, as the standard for determining the appropriate classifications in the Class 4 hazard class. Tests in § 173.124 are intended to be carried out under ambient conditions. Therefore, you may rely on the laboratory's tests results to classify your products as only meeting the Division 4.1 criteria. However, if additional information indicates your products react in a unique way to pose Division 4.2 or Division 4.3 hazards, you may take the worst case scenario to classify them as Division 4.2 or Division 4.3, in addition to Division 4.1.

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



010178

173.124

Mr. Edward T. Mazzullo
Director of Hazardous Materials Standards
Research and Special Programs Administration
U.S. Department of Transportation
400 7th Street SW
Room 8100
Washington, DC 20590-0001

Engram
§173.124
Class
01-0178

Dear Mr. Mazzullo:

I am hoping that you can assist me in determining the proper hazard classification of two products that we are developing. Our situation concerns Class 4, 4.2 and 4.3 testing of our material. My questions are as follows:

A. 4.2 (Self-Heating) - We sent a catalyst sample out to be evaluated by an outside laboratory. The lab issued a report stating that our material, when shipped in containers less than 3000L, should not be classified as 4.2. The test was conducted as per the UN Manual of Tests and Criteria, which calls for a sample to be heated to 140 and then monitored for any internal material temperature increase. My concern is that, although our material did not exceed the 60C increase which is required for a 4.2 classification, if the test were performed at room temperature our material would increase 60C. The UN Manual does not require a test at room temperature, but we do know that, upon exposure to air, our material does heat up. It does not, however, ever exceed the 200C limit which is required for a 4.2 test. Would we be correct to follow the labs advice and not classify 4.2, or should we take into consideration the fact that we know it does self-heat to some degree at room temperature and consider classifying it 4.2?

B. 4.3 (Water-Reactive) - Our main concern with this test is that it does not specify that the material, even if it is self-heating, be tested under an inert atmosphere when testing for water reactivity. The test, when performed under the UN Manual guidelines, allows for the material to be tested under ambient conditions, which allows the material to deactivate somewhat prior to the water being introduced to the material. In other words, we know that the material, once it is introduced to ambient conditions, will begin to deactivate and that any time elapsed prior to the introduction of the water will adversely affect the amount of flammable gases that are emitted from the solid once the water comes into contact with it. Once again, we do not think that the test procedure, as outlined by the UN Manual on Tests and Criteria, will result in the "worst case scenario" results that we anticipated. The test does, however, seem to take into account that any spilled material, and resulting flammable gases emitted, would almost certainly take place out in the open, not under an inert atmosphere, and for the purpose of protecting people from the hazard the test being conducted under ambient conditions makes sense. The manual is very ambiguous as to whether or not the test should be conducted under inert conditions or ambient conditions, although both the testing facility (Safety Consulting Engineers) and Richard Tarr, D.O.T., seem to feel that the manual implies that the test be conducted under ambient conditions. When we follow these guidelines, very little gas is emitted from the catalyst and the material does not reach the criteria necessary to be considered 4.3.

Summary: As per the results from Safety Consulting Engineers, and per my telephone conversation with Richard Tarr, we would be in compliance to classify our material as neither 4.2 or 4.3. We do know that our material is 4.1. Would we correct to follow the labs results and classify our material as 4.1, flammable solid, and not 4.2 or 4.3? Thanks in advance for your help.

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