U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

1200 New Jersey Avenue SE
Washington, DC 20590

NOV 0 2 2011

Chang Jho, Ph.D.
Dynax Corporation
79 Westchester Avenue
Pound Ridge, NY 10576

Reference No. 11-0242

Dear Dr. Jho:

This is in response to your September 26, 2011 e-mail to Charles Ke, Ph.D., Chemist, Sciences Branch, Engineering and Research Division, Pipeline and Hazardous Materials Safety Administration (PHMSA). Dr. Ke forwarded your e-mail to PHMSA's Standards and Rulemaking Division for reply. Specifically, you ask if a concentrated surfactant solution that has a flash point of 27 °C and a boiling point greater 100 °C but does not sustain combustibility is excepted from regulation as a flammable liquid under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180).

You state the solution contains solids (40 percent), water, and some tert-Butyl alcohol, which is described as "UN 1120, Butanols, 3, PG II or III" in the HMR's Hazardous Materials Table (§ 172.101). You also enclosed a copy of a September 20, 2011 "Sustained Combustibility Testing" laboratory report, No. 11212, prepared by Stresau Laboratory, Inc., which concludes that the sample it tested "did not appear to sustain combustion at either the 60.5 °C or the 75.0 °C temperatures tested, which were raised to temperatures corresponding to actual barometric pressures at test initiations in order to compensate for the lower than standard barometric pressures as required by" the required testing criteria. It also describes these tests as being in compliance with the requirements of the HMR and United Nations Transport of Dangerous Goods Manual of Tests and Criteria, fifth revised edition (2009), Test Method L.2.

Under the HMR, a material that is a liquid with a flash point of not more than 60 °C (140 °F) meets the definition of a flammable liquid (see § 173.120(a)). However, if experience or other data indicates that the hazard of flammable liquid or combustible liquid material is greater or less than indicated by the criteria specified in § 173.120(a) or (b), the Associate Administrator of Hazardous Materials Safety may revise the classification or make the material subject or not subject to the requirements of 49 CFR Parts 170-189 (see § 173.120(d)). After reviewing the test data and analysis submitted with your request, we agree that the "concentrated surfactant

solution" you described may be excepted from regulation under the HMR, under the provisions of § 173.120(d), as a Class 3 (flammable liquid) material.

I hope this satisfies your request.

Sincerely,

T. Glenn Foster

T. Glenn Foster
Chief, Regulatory Review and Reinvention Branch
Standards and Rulemaking Division

Edmonson
§173.150
§173.101
Flammable Liquids
11-0242

Drakeford, Carolyn (PHMSA)

From: Foster, Glenn (PHMSA)
Sent: Tuesday, September 27, 2011 9:05 AM
To: Drakeford, Carolyn (PHMSA)
Cc: Supko, Ben (PHMSA)
Subject: FW: Sustained Combustibility and Flash Point of liquids
Attachments: Stresau-Lab-ReportDX2200.pdf

Carolyn,

Please log the attached in as a request for interpretation.

Thanks,
Glenn

From: Ke, Charles (PHMSA)
Sent: Monday, September 26, 2011 2:05 PM
To: Supko, Ben (PHMSA); Foster, Glenn (PHMSA)
Cc: Ke, Charles (PHMSA)
Subject: FW: Sustained Combustibility and Flash Point of liquids

This gentlemean need a formal interpretation on flammable liquid. Please give him a response.

Charles Ke

From: Chang Jho [mailto:chang.jho@dynaxcorp.com]
Sent: Monday, September 26, 2011 11:26 AM
To: Ke, Charles (PHMSA)
Cc: Steve Borsody
Subject: Sustained Combustibility and Flash Point of liquids

Dear Dr. Ke,

Tom Basham at Stresau Lab in Wisconsin referred me to you. We recently submitted to the lab one of our products called DX2200, basically a concentrated (40% solids) surfactant solution in water containing some t-butanol, for Sustained Combustibility Test based on the UN Transport of Dangerous Goods-Manual of Test and Criteria and US 49CFR. We submitted the sample to determine if it is considered flammable for transportation purposes under the regulations. As you know, both the UN and 49CFR standards allow exceptions to the classification of flammable liquids (Class 3) which is based on the flash point. According to the above standards, "liquids with a flash point greater than 35°C that do not sustain combustion" are exceptions to the Class 3 definition of a flammable liquid, i.e. a liquid having a flash point of <= 60.5°C.

Our product, again, is a highly concentrated water-based surfactant solution with the following characteristics:

. Flash point: 27°C (mainly due to the presence of t-butanol)
. Boiling point: >100°C
. Does not support sustained combustibility according to the test protocols of the UN and 49CFR standards. In fact, you cannot torch the product to induce combustion.
(I attached the test report from Stresau Lab.)

According to the test results, we believe our product is not a flammable liquid despite its flash point lower than the 35oC mentioned in the standards. We cannot find any relevance of this particular temperature of

35oC regarding the exceptional provision. It might have been derived from the initial boiling points for packing group designation.

The question is: Is our product a Class 3 flammable liquid? We would appreciate it very much if you could render an official interpretation.

Sincerely,

Chang Jho

Chang Jho, Ph.D, Dynax Corporation, 79 Westchester Ave., Pound Ridge, NY 10576
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