U.S. Department
of Transportation
Pipeline and Hazardous Materials Safety Administration

1200 New Jersey Ave., S.E.
Washington, DC 20590

DEC 13 2011

Mr. Raymond Papciak
Manager, Product Safety
Huntsman
8600 Gosling Road
The Woodlands, TX 77381

Ref. No. 11-0269

Dear Mr. Papciak:

This responds to your September 14, 2011 letter regarding the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to Diethylenetriamine. Specifically, you ask us to revise the listing in the Hazardous Materials Table for Diethylenetriamine to indicate that the material meets the criteria for Packing Group I and poses a subsidiary (6.1) toxic inhalation hazard risk. You state that limited data derived from testing on white rabbits indicates the acute inhalation toxicity for Diethylenetriamine is $LD_0 = 0.07$ mg/L and the $LD_{100} = 0.30$ mg/L, and therefore, it is likely that the LC_{50} is less than 0.2 mg/L and within the range of Packing Group I for inhalation toxicity (as aerosol).

To verify that Diethylenetriamine meets the defining criteria of a Division 6.1 material, it must be tested in conformance with § 173.132. Section 173.132(a)(1)(iii) defines inhalation toxicity as one of the following:

- a dust or mist with an LC_{50} for acute toxicity on inhalation of not more than 4 mg/L;
- a material with a saturated vapor concentration in air at 20 °C (68 °F) greater than or equal to one-fifth of the LC_{50} for acute toxicity on inhalation of vapors and with an LC_{50} for acute toxicity on inhalation of vapors of not more than 5000 mL/m3; or
- an irritating material, with properties similar to tear gas, which causes extreme irritation, especially in confined spaces.

Further, § 173.132(b)(3) specifies that male and female young adult albino rats (not rabbits) must be used as the test animal for acute inhalation toxicity. Additionally, § 173.133 establishes the applicable Packing Group predicated on the inhalation toxicity by dusts and mists using LC_{50}(mg/L).

The toxicity data you provide is not derived from the test methods specified in § 173.132 and therefore cannot be used to determine if the listing in the Hazardous Materials Table for Diethylenetriamine should be revised as you suggest. If mist inhalation data on Diethylenetriamine derived from testing conforms with § 173.132 and if the LC_{50} is shown

to be ≤0.2 mg/L as specified for Packing Group I in § 173.133, then we suggest you provide us with that information in the form of a petition for rulemaking meeting the criteria in § 106.95.

I hope this information is helpful. If you have further questions, please contact this office.

Sincerely,

Ben Supko
Acting Chief, Standards Development
Office of Hazardous Materials Standards

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Winter
§172.101
§ 173.2
§ 173.133
Applicability
11-0269

September 14, 2011

Certified Mail (7007 1490 0002 6577 4379)

U. S. Department of Transportation
Office of Hazardous Materials Standards
Pipeline and Hazardous Materials Safety Administration
1200 New Jersey Avenue, SE
Washington, DC 20590-0001

Attn: PH-10, US Department Of Transportation, East Building

RE: Changes to the Hazardous Materials Table for UN 2079 Diethylenetriamine, Class 8, PGII per 49 CFR 172.101

Dear Sir or Madam:

Huntsman Corporation is requesting from the Associate Administrator for Hazardous Materials Safety a re-evaluation of the transport classification for UN 2079 Diethylenetriamine from Class 8, PGII to Class 8 (6.1), PG I.

Due to the recent availability of summarized toxicity testing data performed for the EU REACH legislation, it has come to Huntsman's attention that Diethylenetriamine (DETA), currently classified and listed in the Hazardous Material Table as a dermal corrosive, should also have the subsidiary risk of being toxic by inhalation, as well. The Packing Group for this material should also be changed to Packing Group I, to reflect the most severe hazard in this classification (inhalation toxicity).

The toxicity testing data that requires the reclassification of DETA is summarized in the IUCLID dossier for DETA which has been compiled by the Ethyleneamines REACH Consortium. The data indicate:

- The acute inhalation toxicity data for DETA is limited, however, aerosol inhalation data indicate that the LD_0 = 0.07 mg/L and the LD_{100} = 0.30 mg/L, it is likely that the LC_{50} is less than 0.2 mg/L and within the range of Packing Group I for inhalation toxicity (as aerosol). The data are summarized in Attachment 1.
- Other toxicity endpoints for DETA are non-remarkable, with an oral LD_{50} of 1620 mg/kg, and a dermal LD_{50} of 1045 mg/kg. These numbers do result in any additional Packing Group for DETA on the basis of toxicity.
- The dermal corrosivity data for DETA has been derived from studies with non-typical endpoints for the determination of Packing Group. The conclusion for the study (for an application of 100% DETA) was that: "A 15 minute exposure to DETA resulted in necrosis in two of two rabbits." At five minutes and one minute

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of exposure, the full criteria for dermal corrosivity were not met, although small areas of necrosis were observed in some of the study animals. Under current UN/DOT classification criteria, the 15 minute observations would result in a Packing Group II classification for corrosivity. The data are summarized in Attachment 2.

The above data indicate that DETA is an inhalation toxic (aerosol) Class 6.1 PG I and a dermal corrosive Class 8 PG II. Using the guidance provided in 49 CFR 173 2(b) Note 2:

> *A material which meets the definition of Class 8 and has an inhalation toxicity by dusts and mists which meets criteria for Packing Group I specified in § 173.133 (a)(1) must be classed as Division 6.1 if the oral or dermal toxicity meets criteria for Packing Group I or II. If the oral or dermal toxicity meets criteria for Packing Group III or less, the material must be classed as Class 8.*

On the basis of this information, Huntsman proposes the following transport classification for DETA:

UN 2079 Diethylenetriamine, Class 8 (6.1) I.

If I can provide any additional information or assistance, please call (281) 719-3017 or Mr. Mike Stillwell at (281) 719-3027

Regards,

Raymond Papciak
Manager, Product Safety

Mike Stillwell
Transportation Safety Lead,
Rail Security Coordinator

Attachments (2)