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

1200 New Jersey Avenue, SE
Washington, DC 20590

March 12, 2026

Matthew Austin
Huntsman Advanced Materials Division
5121 San Fernando Road West
Los Angeles, CA 90039

Reference No. 25-0104

Dear Mr. Austin:

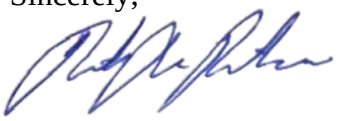
This letter is in response to your July 25, 2025 email requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to the classification of a hazardous material for transportation. You believe the substance, dapsone, may be toxic to humans when ingested (*i.e.*, a Division 6.1 poisonous material) based on a data review of a 2001 study, while some manufacturers are known to transport the material as a Class 9 environmentally hazardous substance. You also state that under normal conditions of transportation, there is no foreseeable possibility of the material being ingested, and thus should not be considered a toxic hazardous material for transport. Specifically, you ask whether this is a correct interpretation of the HMR.

No. Classification as Division 6.1 is based on the intrinsic toxic properties of the material—the likelihood of ingestion is not a factor in classifying a material as Division 6.1. This Office cannot classify a material for you as it is the shipper's responsibility to classify a hazardous material (*see* § 173.22). However, we note that, as provided in § 173.132, a poisonous material (Division 6.1) means a material, other than a gas, which is known to be so toxic to humans as to afford a hazard to health during transportation, or which, in the absence of adequate data on human toxicity is presumed to be toxic to humans because it falls within any one of the identified categories when tested on laboratory animals (whenever possible, animal test data that has been reported in the chemical literature should be used).

Furthermore, we note that classification, in the absence of human toxicity data based on oral toxicity should be based on the LD_{50} (median lethal dose), which is the statistically derived single dose of a substance that can be expected to cause death within 14 days in 50% of young adult albino rats when administered by the oral route (*see* § 173.132).

I hope this information is helpful. Please contact us if we can be of further assistance.

Sincerely,



Dirk Der Kinderen
Chief, Standards Development Branch
Standards and Rulemaking Division

Casey, C.
25-0104

From: INFOCNTR (PHMSA)
To: Baker, Yul (PHMSA)
Cc: Hazmat Interps
Subject: FW: letter of interpretation request Dapsone (80-08-0)
Date: Friday, July 25, 2025 15:07:03

Hi Yul,

Please see the below interpretation request.

Let us know if you need anything.

Janaye

From: Matt Austin <matthew_austin@huntsman.com>
Sent: Friday, July 25, 2025 12:21 PM
To: INFOCNTR (PHMSA) <INFOCNTR.INFOCNTR@dot.gov>
Subject: letter of interpretation request Dapsone (80-08-0)

Hello,

We are shipping a chemical commercially called dapsone (CASRN 80-08-0). It has reported oral LD50 values ranging from 250 mg/kg to 1000 mg/kg. Dapsone is shipped by various manufacturers as a hazardous material UN3077 Environmentally hazardous substance, solid, n.o.s. Our toxicologists recently reviewed the data on dapsone and determined "***In an acute oral toxicity study (Denton, 2001) adverse effects such as high levels of methemoglobin formation and elevated Heinz body count were identified. Such high levels of methemoglobin findings were also seen in repeat dose toxicity studies in rats treated with dapsone. These effects are known to be adverse effects of Dapsone. In addition to the experimental data on acute oral toxicity in laboratory animals, multiple case studies of human poisoning cases have been published in the scientific literature. Dapsone poisoning causes haemolytic anemia and an increase of methemoglobin levels in blood which decrease the blood oxygen levels and in more severe cases can result in hypoxia and death. The dose which can cause a potentially fatal outcome without medical treatment ranges from 200 mg/person (ca. 3.3 mg/kg bw) to 15 g/person (ca. 250 mg/kg bw).***

There is a large range of Dapsone doses that cause severe and, in some cases, lethal effects in humans, the majority of severe cases at doses below 250 mg/kg bw. In summary, considering the data from the acute oral toxicity study in rabbits and the data from the human poisoning cases, we estimate that the ATE is ca. 250 mg/kg bw. The findings are in line with information from studies conducted to support the medical use of Dapsone and additional information from the public literature on Dapsone. Based on the overall Weight of Evidence, 250 mg/kg dose for acute oral toxicity study is considered as a median lethal dose"

The adoption of the lower LD50 value resulted in our classifying the material as a GHS oral toxic 3 under OSHA guidelines. This would also result in dapsone being classed as a toxic solid based on 49CFR173.132(a)(1)(i) "A liquid or solid with an LD50 for acute oral toxicity of not more than 300 mg/kg". Dapsone is a talc like powder that is shipped in durable bags. Under normal conditions of transport there is no foreseeable possibility of dapsone being ingested and therefore we feel that it should not be considered a toxic hazardous material for transport. Is this a correct interpretation of the hazardous materials regulations?

Regards,

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818-265-7244
PSRC Global Contact Matrix for Business Colleagues