



U.S. Department  
of Transportation

**Pipeline and Hazardous  
Materials Safety  
Administration**

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

**JUL 3 1 2013**

Mr. Aubrey R. Campbell  
Baker Hughes  
2001 Rankin Road  
Houston, TX 77073

Ref No.: 13-0111

Dear Mr. Campbell:

This is a response to your May 17, 2013 letter requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 100-185) with regard to the segregation of hazardous materials by highway. Specifically, you seek clarification on the segregation requirements applicable to materials of the same hazard class in the same transport vehicle.

In your incoming letter you state that your company offers for transportation “UN1908, Chlorite Solution, Class 8, Packing Group (PG) II;” “UN1791, Hypochlorite Solutions, Class 8, PG III;” and “UN1789, Hydrochloric Acid Solution, Class 8, PG II” in separate intermediate bulk containers (IBCs). You correctly note that since these materials share the same hazard class, with no subsidiary hazards, there are no segregation restrictions for motor vehicle transport in accordance with the segregation table in § 177.848(d). However, you provided data that indicates that the event of commingling, these materials would create Chlorine Dioxide gas. “Chlorine Dioxide (*not hydrate*)” is forbidden for transportation per the Hazardous Materials Table (HMT; § 172.101). You question the applicability of § 173.21(e) in this situation, which prohibits the transportation of materials in the same packaging, freight container, or overpack, the mixing of which would cause a dangerous evolution of poisonous gases or vapors.

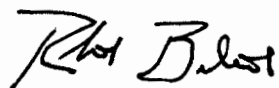
Based on the classification of these materials, the segregation table found in § 177.848(d) does not explicitly prohibit these products from being transported on the same vehicle by highway. However, as specified in § 173.21(e), it is forbidden to offer for transportation or transport “[a] material in the same packaging, freight container, or overpack with another material, the mixing of which is likely to cause a dangerous evolution of heat, or flammable or poisonous gases or vapors, or to produce corrosive materials.” Regardless of the segregation requirements in § 177.848, if the hazardous materials offered or transported will dangerously react when placed together in the same packaging, freight container or overpack they are forbidden. However, a transport vehicle does not meet the definition of a packaging, freight container or overpack and

therefore § 173.21(e) does not forbid the offering for transportation or transport of these materials in same transport vehicle.

We recognize the concerns that you have regarding the transport of Chlorite and Hypochlorite Solutions with Hydrochloric Acid in the same transport vehicle. However, we believe that the packaging requirements for these materials mitigates the potential for comingling and subsequent dangerous evolution of gas. If you believe that the current requirements in § 173.21(e), should be extended to include transport vehicles, you may submit a petition to amend the HMR in accordance with the procedures set forth in 49 CFR Part 106.

I hope this information is helpful. If you have any more questions, please do not hesitate to contact this office.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Benedict". The signature is written in a cursive style with a large initial "R".

Robert Benedict  
Chief, Standards Development  
Standards and Rulemaking Division

Suchak  
3177.848  
Segregation  
13-0111

May 17, 2013

Office of Hazardous Materials Standards  
Pipeline and Hazardous Materials Safety Administration,  
Attn: PHH-10  
U.S. Department of Transportation  
East Building, 1200 New Jersey Avenue, SE  
Washington, DC 20590-0001

Re: Letter of Interpretation

Dear Office of Hazardous Materials Standards:

Baker Hughes, Inc. (BHI) requests a letter of interpretation regarding the provisions in Title 49 Code of Federal Regulation (CFR) Part 177.848 applicable to segregation of hazardous materials during transport by highway.

Specifically, BHI offers UN1908, Chlorite Solution, 8, PG II, UN1791, Hypochlorite Solution, 8, PG III, and UN 1789, Hydrochloric acid solution, 8, PG II, in separate Intermediate Bulk Containers (IBC's) for transportation by truck. At the job site, these products are offloaded and mixed to form Chlorine Dioxide, which is used in water treatment operations. Although no segregation restrictions exist to transport the class 8 materials on the same vehicle according to 49 CFR Part 177.848, we are concerned that, during a possible accident, these materials may leak from the IBC's and instantly create Chlorine Dioxide, a deadly poison gas forbidden for transport according to the HMR. This condition could be detrimental to first responders and the public in such an event.

Our chemical engineers have confirmed that leakage of either UN1908 or UN1791 comingled with leakage of UN1789 instantly creates Chlorine Dioxide in the form of a gaseous cloud. We have also reviewed 173.21(e), which states, "Unless otherwise provided in this subchapter, the offering for transportation or transportation of the following is forbidden: A material in the same packaging, freight container, or over-pack with another material, the mixing of which is likely to cause dangerous evolution of heat, or flammable or poison gases or vapors, or produce corrosive materials." In our opinion, this section does not apply because the materials are authorized hazardous materials in proper and separate containers and loaded in a trailer, not a freight container or over-pack.

For clarity, please address the following questions:

1. Are the above stated materials (properly and separately packaged) allowed on the same vehicle during transportation?



2. Has PHMSA considered updating 177.848(c) to indicate that **sodium chlorite** and **sodium hypochlorite** may not be stored, loaded, and transported with Class 8 liquids?

Please see attached SDS' for the materials and information sheet on Chlorine Dioxide. Thank you for considering this important matter.

Sincerely,

A handwritten signature in cursive script, appearing to read "A.R. Campbell".

Aubrey R. Campbell  
Senior Dangerous Goods Safety Advisor  
Global Products and Services and Chemicals (GPSC), Baker Hughes