DUPONT®
Logistics

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Re: Comments on Docket No. PHMSA- 2008-0182; Petitions for Interim Standards for Rail Tank Cars Used to Transport Toxic-by-Inhalation Hazard Materials; Notice of Petitions for Rulemaking

DuPont welcomes and supports the current effort, reflected in the Notice of Petitions for Rulemaking published in the Federal Register on July 23, 2008, to develop an interim tank car standard. Given our shared interest in safety and certainty, an interim specification should be approved quickly to provide a basis on which rail car manufacturers can design and build tank cars. We support a 25-year grandfathering period for cars meeting any interim standard ultimately adopted.

However, we have significant technical concerns about the interim standard proposed in Petition P-1525 ("P-1525"). DuPont considers it imperative that the interim standard ultimately adopted result in a significantly safer rail tank car. In our view, the interim standard proposed in P-1525 is far too generic and does not adequately address the crashworthiness and commodity-specific requirements for tank car design. Accordingly, unless it is substantially modified, the standard in P-1525 is not a viable option for the interim rail car specification. DuPont believes that the standard articulated in P-1524 is appropriately tailored to the transport of anhydrous ammonia.

Our specific comments concerning P-1525 are presented in two sections. The first section details our concerns relative to P-1525. The second section outlines our suggested approach to developing an interim rail tank car standard.

SECTION 1: CONCERNS WITH P-1525

P-1525 does not address the specific requirements demanded by the chemical composition and characteristics of individual commodities. Ignoring these requirements is likely to result in a higher level of risk than currently exists. To illustrate our concerns, we offer the following comments related to chlorosulfonic acid and anhydrous hydrogen fluoride:

- Rail tank cars used to transport ***chlorosulfonic acid*** are constructed of 304 stainless steel to prevent coloring of the acid. There is no viable alternative construction material. Thus, the properties of 304 stainless steel relative to puncture resistance must be considered in the development of any proposed performance standard that would cover the shipment of chlorosulfonic acid. P-1525 does not address this issue. Presumably, additional modeling and verification would be needed to ensure that rail cars made of 304 stainless steel meet the proposed performance standard.

- ***Anhydrous hydrogen fluoride*** **("anhydrous HF")** is shipped in non-jacketed cars for two reasons. First, insulation is not needed for thermal protection.[1] Second, the use of jacketed cars would make it more difficult to detect blisters in tank cars containing anhydrous HF. Blister formation is unique to anhydrous HF and is among the main potential risks to safety in the transport of that commodity. While the blisters are generally mid-wall defects that are not immediately leak points, over time they can become leak paths to the outside of the tank car. Detecting them would be far more difficult on jacketed tank cars than it is now. Accordingly, requiring an outer shell on rail cars transporting anhydrous HF may increase, not reduce, the risks associated with its transport.

Moreover, the P-1525 tank car does not provide a significant improvement in crashworthiness relative to the existing car designs. Based on an analysis using the equations from the DOT paper titled Evaluation of Semi-Empirical Analyses for Tank Car Puncture Velocities, Part II: Correlations with Engineering Analyses (November 2001),[2] the 105J600W car meeting the P-1525 requirements has an improvement in puncture velocity of just 2 mph over the existing design. While any improvement is positive, it is questionable whether tank cars with such a minimal incremental improvement should be authorized to stay in service for an additional 25 years. In our view, it would be better to consider the path forward suggestions found in Section 2.

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[1] While hydrofluoric acid is a compressed gas, its boiling point -- 19.5ºC -- is among the highest for PIH commodities. When stored or transported, the tank pressure of anhydrous hydrofluoric is typically 30 psi and stable indefinitely. Compared to the design pressure of existing tank cars at 400 to 500 psi, there is a large safety margin between normal operating pressure and design pressure.

[2] This study is available on the Federal Railroad Administration's website, www.fra.dot.gov.

It is clear that in most cases the P-1525 tank cars do not offer a significant incremental increase in either puncture velocity or Tank Improvement Factor (TIF) over rail cars currently in DuPont service. Our assertion is based on the analysis below, which was performed on rail cars in the fleet DuPont uses today to transport materials classified as toxic by inhalation hazards ("TIH"). This analysis is a comparison between the P-1525 specification car and representative cars currently in DuPont service.

Commodity	Head Puncture Velocity	Required TIF	TIF of existing Dupont tank cars
Chlorine	16.20 mph	0.69	meets current regulatory standard
Chlorosulfonic Acid	13.61 mph	0.56	0.09
Dimethyl Sulfate	12.29 mph	0.57	0.42
Hydrogen Chloride, Refrigerated Liquid	20.15 mph	**	meets current regulatory standard
Hydrogen Cyanide, Stabilized	15.29 mph	0.80	0.68
Hydrogen Fluoride, Anhydrous	10.98 mph	0.63	0.67
Sulfur Trioxide, Stabilized	15.97 mph	0.56	0.47
Sulfuric Acid, Fuming	16.20 mph	0.56	0.45
P-1525 105J500W	15.20 mph		
P-1525 105J600W	17.40 mph		

Based on a specific review of the results of the analysis there are two notable discrepancies:

- In the chlorine specifications (DOT 105J500W and P-1525 105J600W), the TIF of the P-1525 specification is 0.69 and the difference in puncture velocity between the two specifications is only 1.20 mph. One would expect that for such a large TIF the corresponding increase in puncture velocity would be much larger than 1.20 mph.
- The analysis indicates a number of the rail cars that do not meet the required TIF have a calculated puncture resistance greater than the specification for that commodity required by P-1525.

A possible explanation for the disproportionate relationships is that the P-1525 specification (calculations to determine the TIF) does not take into consideration factors such as internal pressure, spacing between the tank head and head shield/jacket and material of construction. In other words, the above results suggest that a TIF alone is not a true indicator of tank cars' crashworthiness.

Finally, we stress that the P-1525 proposed specification is unproven and may result in significant maintenance concerns. As shown above, the P-1525 proposed specification does not offer a significant improvement in crashworthiness. Additionally, the proposed top fittings protection is a concern. Inspections of similar designs in the past have shown that corrosion can develop in welded protective housings, and that such corrosion could impact the structural integrity of the housing, reducing the protection the housing offers the valves in the event of a

rollover. We are aware of no data analyzing the impact of the corrosion risk on the overall integrity of the housing (and related impact on overall tank car safety) as compared to the current bolted housing design.

SECTION 2: SUGGESTED PATH-FORWARD

As stated above, DuPont is sensitive to the requirements of shippers needing to add or replace rail cars in PIH service today and supports the development of an interim car standard. However, we believe that the approach needs to be methodical, systematic and commodity specific. The generic changes proposed in P-1525 do not effectively balance all interests or appropriately promote our shared goal of further enhancing the already excellent safety of shipping PIH materials via rail tank cars. In the interest of advancing our shared objective, DuPont respectfully offers the following suggestions:

1. DOT should determine the context (statistic-based or performance-based) from which the interim specification will be developed. As detailed above, a strictly probabilistic approach will result in new rail tank cars that offer only marginal improvements over existing fleets. The performance specification presented in the April 1, 2008 Notice of Proposed Rule Making would result in definite and considerable improvements in the puncture resistance relative to existing car specifications. DuPont is of the opinion that a performance specification is needed for the interim standard.

2. Each TIH commodity must be considered individually. The first two commodities to be considered should be chlorine and anhydrous ammonia because together they constitute 82% of the total number of annual shipments of TIH commodities via rail. Chlorine is one commodity to which the P-1525 requirements can easily be translated without a significant loss of lading capacity or risk of increasing long term safety risks. As indicated above, this easy translation does not result in a significant improvement in crashworthiness. DuPont supports Petition P-1524 regarding the interim specification for rail cars used to transport anhydrous ammonia. The remaining commodities need to be considered individually to determine what commodity specific requirements should be included in the interim specification.

3. Consideration should be given to commodities that are currently over-packaged. As in Petition P-1524, DuPont respectfully suggests that the DOT permit the construction and continued use of cars meeting the existing specification and those cars which are over the required specification for a given commodity (over-packaged) for a minimum of 25 years after implementation of the new rule.

   In this context, it bears noting that tank cars currently in service have evolved to the point where they afford reliable containment even under accident conditions. Through science, experience and application for and subsequent receipt of special permits from the Department of Transportation ("DOT"), shippers use rail tank cars that differ from and improve upon the general regulatory requirements. That is, science and experience have

been used to establish to DOT's satisfaction that an equivalent or greater level of safety can be obtained through standards that differ from those outlined in the regulations. The same pragmatic approach is needed in developing an interim car standard. The companies that ship or receive PIH commodities have to be part of the dialogue because they know the physical, chemical and thermodynamic properties that pose a threat to safety and containment and understand how best to manage those commodities accordingly. This knowledge is critical in developing a new standard. Statistical analysis is helpful but should only be considered a guideline and not be used as the primary resource in developing a new tank car specification.

4 Another alternative to P-1525 is the determination of an achievable (based on current technology) interim performance standard. Based on the performance standard, tank car owners could design modifications to existing cars that can provide a specific, requisite improvement in puncture resistance. Methods of determination may include finite element analysis, calculations, or model and component testing. This approach would require DOT to either identify acceptable modeling software or to allow the submission of proposed designs to DOT for it to run the models on its software, providing continuity of results and ensure valid comparisons.

CONCLUSION

DuPont thanks the Federal Railroad Administration ("FRA") and the Pipeline and Hazardous Materials Safety Administration ("PHMSA") for requesting public comment on the proposed interim standards. Safe rail shipment of all our commodities is of utmost importance to DuPont. In our experience, safety improvements can only be obtained through careful consideration of all factors affecting the design of railcars. Communication among stakeholders offers the best avenue for ensuring that all perspectives are considered and that the regulations ultimately adopted will lead to achievable and substantial improvements without crippling any particular industry and further impairing our Nation's economy. Again, DuPont supports the efforts of the FRA and PHMSA to enhance rail transportation safety for hazardous materials, including TIH chemicals, and offer our support to reach this end.

Should you have any questions about these comments or the views of the DuPont Company on other issues related to the proposed tank car rules, please feel free to contact me by phone at (302) 992-3171 or via electronic mail at karl.alexy@usa.dupont.com.

Respectfully submitted,

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