U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

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

JAN 27 2014

Mr. Michael J. Bauer
ThyssenKrupp North America, Inc.
111 W. Jackson Blvd.
Suite 2400
Chicago, IL 60604

Ref No.: 13-0178

Dear Mr. Bauer:

This is in response to your May 22, 2013 letter requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) with regard to the testing of accumulators. Specifically, you seek confirmation that the methods you use for design-type testing are in conformance with the HMR. In your letter, you provide details on the testing procedures you use for testing of accumulators prior to shipment and indicate that the products are classified as "UN3164, Articles, pressurized, pneumatic (containing nitrogen), Division 2.2."

In your letter you state that your accumulators otherwise meet the requirements in §§ 173.306(f)(2), (f)(3) or (f)(4), as applicable for the design type. Accumulators shipped under the requirements of these sections are subject to pressure testing requirements. To conduct the burst pressure testing you utilize a hydrostatic pressure test of at least three accumulators of each design type and charge each accumulator to the pressures indicated in in §§ 173.306(f)(2)(iii), 173.306(f)(3)(ii) and 173.306(f)(4)(ii). While these sections require testing prior to shipment and before each refilling and reshipment, the HMR do not specify what type of pressure test is required. However, the method you describe satisfies the requirements of §§ 173.306(f)(2)(iii), 173.306(f)(3)(ii) and 173.306(f)(4)(ii) for the pressure testing of accumulators, classified as "UN3164, Articles, pressurized, pneumatic (containing nitrogen), Division 2.2." It should be noted that while the method you describe satisfies the minimum burst pressure requirements for the design, *each* accumulator must be tested to at least three times the charge pressure at 70 °F before initial shipment and before each refill and reshipment per §§ 173.306(f)(2)(iii) and 173.306(f)(3)(i). The results of this test for each accumulator must show no evidence of failure or damage.

Additionally, for the fire test required by § 173.306(f)(4) for accumulators intended to function as shock absorbers, struts, gas springs, pneumatic springs or other impact or energy-absorbing devices you indicate that you subject each design-type to the fire test specified in the Compressed Gas Association (CGA) pamphlet C-14. While CGA C-14 is not incorporated by reference in this section, provided the fire test demonstrates that the article relieves its pressure by means of a fire degradable seal or other pressure relief device,

such that the article will not fragment and that the article does not rocket, in accordance with § 173.306(f)(4)(iii) it would satisfy the requirements of the HMR.

I hope this information is helpful. We apologize for the delay in our response and any inconvenience it may have caused. If you have any more questions, please do not hesitate to contact this office.

Sincerely,

Robert Benedict
Chief, Standards Development
Standards and Rulemaking Division

ThyssenKrupp North America, Inc.

Michael J. Bauer
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May 22, 2013

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§173.306
Cylinders
13-0178

Associate Administrator for Hazardous Materials Safety
PHMSA
U.S. Department of Transportation
Attention: PHH-30
1200 New Jersey Avenue, SE East Building, 2nd Floor
Washington, D.C. 20590-0001

Re: Request for Interpretation re: UN 3164 Shipments by Land, Air, or Sea

To Whom It May Concern:

We hereby submit the following request for interpretation of the regulations specified below:

Section of the Regulations for which interpretation/clarification is being made:

- USDOT 49 CFR 173.306(f)(2)(iii)
  - (iii) Each accumulator must be tested, without evidence of failure or damage, to at least three times its charged pressure of 70 °F., but not less than 120 p.s.i. before initial shipment and before each refilling and reshipment.
- USDOT 49 CFR 173.306(f)(3)(i)
  - (i) Each accumulator must be in compliance with the requirements stated in paragraph (f)(2) (i), (ii), and (iii) of this section.
- USDOT 49 CFR 173.306(f)(4)(ii)
  - (ii) Has a minimum burst pressure of 4 times the charge pressure at 20°C for products not exceeding 0.5 L gas space capacity and 5 times the charge pressure for products greater than 0.5 L gas space capacity.

Description of activity for which interpretation/clarification is required:

We request interpretation of the HMR in regard to testing of UN 3164, Articles, pressurized, pneumatic (containing nitrogen), Class 2.2, that otherwise meet 49 CFR 173.306(f)(2) & (3), or (4).

Specifically, as to safety control testing requirements before initial shipment of accumulators we manufacture as new goods (we do not undertake refilling and reshipment of new or used goods). In that, the testing frequency approach is on a Design-type basis for goods that meet 49 CFR 173.306(f).

To conduct the required Burst-strength testing before initial shipment, we would like to confirm the following qualification approach for each Design-type:

> *Hydrostatic pressure* test-to-failure of at-least three accumulators for each design type. The pressure at failure will be compared to the regulatory criteria for highway mode transportation, with fragmentation resulting in a test-failure observation.

In addition, for our accumulators that meet 49 CFR 173.306(f)(4) physical configuration criteria, we would like to confirm the following qualification approach for each Design-type:

> *Fire Test* according to Compressed Gas Association pamphlet CGA C-14, at-least one accumulator for each design type. The Fire Test results will be compared to the regulatory criteria for land, air, or sea modes of transportation, with fragmentation or rocketing resulting in a test-failure observation.

Regulatory consistency, exceptions from regulatory requirements, or prohibitions:

Considering that similar design-type testing for safety control purposes of UN 3164 accumulators is consistent with recognized quality control/quality assurance protocols, we understand the following:

- Confirming the above testing approach is not a request for exception, special permit, or relief from the HMR, nor prohibited by the HMR, for UN 3164 accumulators; and
- Confirming the above testing approach will not increase risk of safety or property, as our goods are manufactured under a formal Quality Assurance Program.

Yours truly,

Michael Bauer

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