



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

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

DEC 18 2012

Mr. Stefan Frey
Head of Service and Systems Management
Dynetek Industries Ltd.
4410 46 Avenue SE
Calgary, AB T2B 3N7
Canada

Ref. No.: 12-0236

Dear Mr. Frey:

This is in response to your October 23, 2012 email requesting clarification of the requirements for filling DOT specification cylinders under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). Specifically you asked if a cylinder may be filled in excess of the marked service pressure.

A cylinder may be filled to a pressure in excess of the marked service pressure (1) in accordance with § 173.302a(b); or (2) to compensate for certain factors, such as heat of compression, high ambient temperature, or changes in elevation, provided the pressure in the cylinder at 21°C (70 °F) does not exceed the marked service pressure. Except as otherwise provided in § 173.301a(d), the pressure in a cylinder may not exceed 5/4 times the service pressure at 55 °C (131 °F).

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

Sincerely,

Delmer Billings
Senior Regulatory Advisor
Standards and Rulemaking Division

Leary
§173.301
Cylinders
12-0236

Drakeford, Carolyn (PHMSA)

From: Leary, Kevin (PHMSA)
Sent: Tuesday, October 23, 2012 11:10 AM
To: Drakeford, Carolyn (PHMSA)
Subject: FW: Clarification on 49 CFR

Carolyn,

Please use this email as a request for a letter of interpretation.

Thanks,

Kevin

From: Stefan Frey [mailto:stefan.frey@dynetek.com]
Sent: Tuesday, October 23, 2012 10:58 AM
To: Leary, Kevin (PHMSA)
Subject: RE: Clarification on 49 CFR

Hello Kevin,

Thank you for your feedback. I would very much appreciate if you could draft a letter addressing our items of discussion for our records.

Thank you.

Best regards,
Stefan

Stefan Frey, P.Eng.
Head of Service and Systems Management

Dynetek Industries Ltd.
4410 46 Avenue SE
Calgary, AB T2B 3N7
Canada

Phone: 403 720 0262
Cell: 403 617 6182
Fax: 403 720 0263

From: Kevin.Leary@dot.gov [mailto:Kevin.Leary@dot.gov]
Sent: Monday, October 22, 2012 1:54 PM
To: Stefan Frey
Subject: RE: Clarification on 49 CFR

Mr. Frey,

We do not respond to such requests for guidance via email. I am sure you understand there is a need to ensure that we provide consistent guidance and make that guidance available to others who have the same question.

If you require a written statement from PHMSA for your records I would be happy to draft a letter that responds to your questions (similar to the letter I previously emailed to you via attachment).

Kevin

From: Stefan Frey [<mailto:stefan.frey@dynetek.com>]

Sent: Monday, October 22, 2012 11:59 AM

To: Stefan Frey; Lynch, Tom (PHMSA); Leary, Kevin (PHMSA); Betts, Charles (PHMSA)

Subject: RE: Clarification on 49 CFR

Hello Kevin,

Would you be able to respond to the question below in writing so that I can document this for our records.

Thank you.

Best regards,
Stefan

Stefan Frey, P.Eng.
Head of Service and Systems Management

Dynetek Industries Ltd.
4410 46 Avenue SE
Calgary, AB T2B 3N7
Canada

Phone: 403 720 0262
Cell: 403 617 6182
Fax: 403 720 0263

From: Stefan Frey

Sent: Friday, October 12, 2012 9:57 AM

To: Stefan Frey; 'Tom.Lynch@dot.gov'; 'Kevin.Leary@dot.gov'; 'charles.betts@dot.gov'

Subject: RE: Clarification on 49 CFR

Hello Kevin,

Thank you for your voice mail message. Your statement makes absolutely sense and is in line with many other pressure vessel standards we apply for gas storage. I would like to file that comment in my records for future reference. Could you therefore please send a brief confirmation to this email to confirm the following:

- The pressure vessel can be offered for transport as long as the settled pressure at 21 C is smaller or equal to the specified service pressure of the cylinder.

The filling conditions are clearly outlined in your previous attachment and in 49 CFR.

Thank you for your prompt responses, it is much appreciated.

Best regards,
Stefan

Stefan Frey, P.Eng.
Head of Service and Systems Management

Dynetek Industries Ltd.
4410 46 Avenue SE
Calgary, AB T2B 3N7
Canada

Phone: 403 720 0262
Cell: 403 617 6182
Fax: 403 720 0263

From: Stefan Frey
Sent: Thursday, October 11, 2012 12:27 PM
To: 'Tom.Lynch@dot.gov'; Kevin.Leary@dot.gov; charles.betts@dot.gov
Subject: RE: Clarification on 49 CFR

Hello Kevin,

Thank you for your statement.

I am taking out of the letter, that as long as the pressure in the tank would settle to the specified service pressure at 21 C the tank is within its operating range. That means that on a day at temperatures below 21 C the pressure would have to be below the service pressure so that when the temperature rises to 21 C the service pressure would not be exceeded.

The statement in paragraph 4, last sentence is not clearly defined in this case; When ambient temperatures are above 21C the cylinder pressure would be above the marked service pressure if filled according to the third paragraph. Therefore I would think that the cylinder can be offered for transportation.

Please advice.

Best regards,
Stefan

Stefan Frey, P.Eng.
Head of Service and Systems Management

Dynetek Industries Ltd.
4410 46 Avenue SE
Calgary, AB T2B 3N7
Canada

Phone: 403 720 0262
Cell: 403 617 6182
Fax: 403 720 0263

From: Tom.Lynch@dot.gov [<mailto:Tom.Lynch@dot.gov>]
Sent: Thursday, October 11, 2012 11:07 AM
To: Kevin.Leary@dot.gov; charles.betts@dot.gov; Stefan Frey
Subject: RE: Clarification on 49 CFR

Thanks for finding the letter of clarification

From: Leary, Kevin (PHMSA)
Sent: Thursday, October 11, 2012 9:40 AM
To: Betts, Charles (PHMSA); Lynch, Tom (PHMSA); Stefan Frey
Cc: Leary, Kevin (PHMSA)
Subject: RE: Clarification on 49 CFR

Mr. Frey,

I believe the attached letter adequately answers your questions. If you still have questions, please feel free to contact me.

Kevin Leary
202-366-2944

From: Betts, Charles (PHMSA)
Sent: Thursday, October 11, 2012 9:04 AM
To: Lynch, Tom (PHMSA); Stefan Frey
Cc: Leary, Kevin (PHMSA)
Subject: RE: Clarification on 49 CFR
Importance: High

Ok thanks. Kevin Leary is looking into this.

From: Lynch, Tom (PHMSA)
Sent: Thursday, October 11, 2012 9:03 AM
To: Betts, Charles (PHMSA); Stefan Frey
Subject: RE: Clarification on 49 CFR

I think he ment DOT-SP **13173**

From: Betts, Charles (PHMSA)
Sent: Wednesday, October 10, 2012 3:43 PM
To: Stefan Frey
Cc: Lynch, Tom (PHMSA)
Subject: RE: Clarification on 49 CFR

Mr. Frey –

Thank you for your inquiry. We will get back to you as soon as possible with a response.

Regards,
Charles

From: Stefan Frey [<mailto:stefan.frey@dynetek.com>]
Sent: Wednesday, October 10, 2012 4:34 PM
To: Betts, Charles (PHMSA)
Cc: Lynch, Tom (PHMSA)
Subject: Clarification on 49 CFR

Dear Mr. Betts,

This question is related to SP 17173 Dynetek Industries Ltd. And to 49CFR \$173.301a.

During a fill, the pressure vessel gas temperature increases due to the heat of compression. 173.301c: the pressure in a cylinder at 21C may not exceed the service pressure for which the cylinder is marked. 173.301d the pressure of a hazardous material at 55C may not exceed 5/4 of the service pressure of the cylinder.

Can these statements be implied to allow a pressure vessel during fill to exceed the service pressure (223 bar in case of our V260 model) as long as it meets the following criteria:

- Pressure does not exceed $5/4$ x service pressure at 55C
- After a fill or in operation at temperatures above 21C the pressure settles to the service pressure or smaller pressure at the specified 21C. This could mean that the tank pressure while on a hot day (>21C) could have a pressure of >223 bar and is not considered to be overfilled.

Does the design qualification testing to CFFC would have any saying into this?

Your comments on this would be greatly appreciated.

Sincerely,

Stefan Frey, P.Eng.
Head of Service and Systems Management

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