U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

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

DEC 17 2012

Mr. Mark Ludwikowski
Sandler, Travis & Rosenberg, P.A.
1300 Pennsylvania Ave, NW, Suite 400
Washington, DC 20004-3062

Ref. No.: 12-0170

Dear Mr. Ludwikowski:

This is in response to your August 7, 2012 letter requesting clarification of the term "lot" as it pertains to the testing of rupture disks in accordance with Compressed Gas Association (CGA) publication S-1.1. Specifically you ask for confirmation of the appropriate lot size for the purposes of testing and subsequent shipment of rupture disks in accordance with the Hazardous Materials Regulations (HMR; 49 CFR parts 171-180).

Section 6.3.1 of CGA S-1.1 (Rupture disk burst pressure measurement) requires testing of at least 2 samples from each lot (no more than 3,000) of rupture disks. Section 6.3.2 requires testing of at least 2 samples from each lot (no more than 3,000) of rupture disk holders which are assembled with rupture disks. Section 6.3.3 provides that testing of the rupture disk holders which are assembled with rupture disks will satisfy the testing requirements of both 6.3.1 and 6.3.2, so long as the specific tests specified in those two sections are successful.
For the purposes of testing rupture disk devices in accordance with CGA S-1.1, a lot is considered to be not more than 3000 disks or rupture disk holders. So long as tests are performed in samples for each lot of not more than 3,000 rupture disks and rupture disk holders, any number of these items may be packaged together for shipment and called a "lot."

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
§173.304a
§178.75
Cylinders
12-0170

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August 7, 2012

U.S. DOT
PHMSA Office of Hazardous Materials Standards
Attn: PHH-10
East Building
1200 New Jersey Avenue, SE
Washington, DC 20590-0001

RE: Compressed Gas Association ("CGA") S-1.1.

To Whom it May Concern:

On behalf of **Daicel Safety Systems America, Inc.** (**"DSSA"**), we seek your guidance regarding the requirements under the Hazardous Materials Regulations (HMR; 49 CFR 171-180) applicable to CGA S-1.1. Standard.

DSSA is a manufacturer of automotive airbag inflators and sources rupture disks for its inflators from a third party supplier.

The HMR reference CGA S1.1 Standard at 173.301, 173.304a and 178.75 and adopt the entire document (except that compliance with paragraph 9.1.1.1 is not required).

We wish to turn your attention to section 6.3.2 of CGA S-1.1. Standard (an excerpt of which is included in **Attachment A**) regarding the "Rupture disk holder test" which notes that the "production of rupture disk holders (that part containing the pressure opening) of *3000 or less* shall be considered a lot" (emphasis added).

DSSA's supplier defines a rupture disk lot size of 10,000 parts. It is important to note that these are not rupture disk holders but rather rupture disks. Based on the foregoing, please advise whether a 10,000 part lot size for rupture disks is acceptable under the HMR's interpretation and adoption of CGA S-1.1.

Thank you in advance for your attention to this request. Please let us know if you have any questions or require additional information.

Sincerely yours,

SANDLER, TRAVIS & ROSENBERG, P.A.

By: _____

Mark Ludwikowski
Attorney for Daicel Safety Systems America, Inc.

Attachments

ATTACHMENT A

6.3.2 Rupture disk holder test

The production of rupture disk holders (that part containing the pressure opening) of 3000 or less shall be considered a lot. Two representative holders selected at random from the lot shall be assembled with proper rupture disks from an acceptable lot as tested in 6.3.1 and subjected to the burst pressure test of 6.3.1. The actual burst pressure shall not be in excess of the rated burst pressure or less than 85% of the rated burst pressure of the disk. For CTC/DOT-4L and TC-4LM cylinders, the actual burst pressure of the disk shall not exceed 105% and shall not be less than 90% of its rated burst pressure. If the actual burst pressure at a temperature not less than 60 °F (15.6 °C) or more than 160 °F (71.1 °C) is not within these limits, the entire lot of rupture disk holders shall be rejected. If the manufacturer desires to requalify the lot, he may subject four more holders selected as above from the same lot to the same test. If all four holders meet the requirement, the lot may be used; otherwise, the entire lot shall be rejected. Any elevated temperature determinations can be arrived at by tests conducted at room temperature provided that the relation of burst pressure to different temperatures is established by test for the type of material used.

6.3.3 Combined rupture disk and holder tests

Testing of the assembled rupture disk and holder for detailed requirements specified in 6.3.1 and 6.3.2 in lieu of individual tests is considered as complying with requirements of both 6.3.1 and 6.3.2.

6.3.4 Affect of temperature on rupture disk tests

It is recognized that the rated burst pressure of a rupture disk corresponds to only one specific design temperature within the range of 60 °F (15.6 °C) to 160 °F (71.1 °C). Note should be taken that different results will be obtained when rupture disks are tested at different temperatures. It is therefore necessary that the temperature be specified at which the rated burst pressure applies. This combination of pressure and temperature is what is used to meet the performance requirements of 6.3. (Example: 3000 psig (20 685 kPa) at 60 °F (15.6 °C); 3000 psig (20 685 kPa) at 160 °F (71.1 °C), etc.)

Room temperature testing may be used to qualify rupture disks designed for use at elevated temperatures. (Example: not exceeding 160 °F [71.1 °C] provided there is a correlation between room temperature and elevated temperature conditions as determined by prior testing.)

6.4 Tests of CG-4 and CG-5 combination rupture-disk/fusible-plug pressure relief devices

6.4.1 Lot (batch) size

A lot (batch) of rupture-disk/fusible-plug devices shall be defined as the production, not exceeding one 10-hour shift, of any one rated burst pressure and any one yield temperature. Two representative assembled devices shall be selected at random from a lot and submitted to a performance test conducted as follows:

6.4.1.1 Test method

Each assembled device shall be subjected to a pressure of 70% to 75% of the rated burst pressure of the rupture disk used and while under this pressure shall be immersed in a liquid bath held at a temperature not more than 5 °F (2.8 °C) below the minimum specified yield temperature of the fusible metal for at least 10 minutes. The fusible metal shall not show signs of yielding such as melting. The temperature of the bath shall then be raised at a rate not in excess of 1 °F (0.6 °C) per minute without material change in pressure. Yielding shall occur within 10 minutes after the maximum allowable yield temperature is reached and stabilized. Yielding shall be considered as occurring when the fusible alloy starts to flow. There shall be no leakage of air or gas.

The rupture disk shall then be tested in accordance with the requirements of 6.3.1. The device may be removed from the bath for this test.

6.4.1.2 Alternate test method

As an alternative to tests in 6.4.1.1, the rupture disk and fusible metal may be tested separately to the requirements of 6.2.3 and 6.3.1 providing the design of the device will allow for the separation of the parts and the separate tests.