



U.S. Department  
of Transportation

**Research and  
Special Programs  
Administration**

400 Seventh Street, S.W.  
Washington, D.C. 20590

JAN 31 2001

Ms. Barbara Konrad  
Honeywell International Inc.  
101 Columbia Road  
Morristown, NJ 07962

Ref. No: 00-0247

Dear Ms. Konrad:

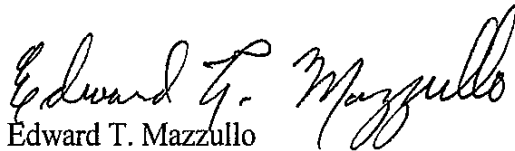
This is in response to your letter regarding closure procedures for a drum under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). Specifically you ask whether it is permissible to deviate from a manufacturer's recommended closure torque for a specification drum if there is sufficient evidence collected by the shipper that the recommended torque could result in a leaking package. You provided the following scenario:

You use a UN 1H1 drum manufactured by Russell-Stanley. This is the only drum on the market suitable for your product. The recommended torque closure from the manufacturer is 25 foot-pounds with no allowable tolerance range. You found that when closures of filled drums are torqued to 25 foot-pounds, severe cupping of the drum closure results. You believe this makes the drums unsuitable and unsafe for transportation. When you checked older versions of the same manufacturer closure instructions for the same drum, a closure torque of 20 foot-pounds was recommended. Internal studies confirm that closing the drums to a torque of 20 foot-pounds, significantly improves closure, does not deform the bung and results in an overall safer package.

If deformation of a closure is occurring, the manufacturer should be made aware of the deficiency. You should request that the manufacturer revise its notification to customers to specify an appropriate closure torque. Alternatively, you may use Variation 5 (§ 178.601(g)(5)) to change the torque closure on a UN certified drum. As provided by this variation, a closure device may differ from a tested design type provided an equivalent level of performance is maintained and qualifying tests (leakproofness test, hydrostatic pressure test and the stacking test) are successfully passed. A test report must be developed and attached to the original test report or closure notification.

I hope this information is helpful.

Sincerely,

  
Edward T. Mazzullo

Director

Office of Hazardous Materials Standards



000247

178.509

**Honeywell**

Honeywell  
P.O. Box 1057  
Morristown, NJ 07962-1057

La Valle  
8 178 ~~3~~  
~~Plastic Drums~~  
closure notification  
00-0247

September 5, 2000

US Department of Transportation  
Research and Special Programs Administration  
Office of Hazardous Materials Standards (DHM-10)  
400 Seventh Street, SW  
Washington, DC 20590-0001  
Attn.: DIANE

Re: Request for Interpretation on Allowable Deviations  
from Drum Closure Instructions

Dear Diane,

Thank you for speaking with me last week regarding the closure of drums in a manner that does not precisely correspond to the packaging manufacturer closure instructions. I was very interested to learn of your recent discussions with the National Association of Chemical Distributors (NACD) pertaining to this very issue. As we discussed, I am formally requesting a written response from your office on the following question:

**Is it permissible to deviate slightly from a manufacturer's recommended closure torque for a 1H1 specification drum if there is sufficient evidence collected by the shipper that the recommended torque could result in a leaking package?**

The packaging in question is a Russell-Stanley 55 DELCON 0505 NAT EC. This is the only drum on the market suitable for our product in its intended application. The recommended torque closure from the manufacturer is 25 foot-pounds with no allowable tolerance range (i.e. +/- 5 foot-pounds). We have found that when closures of filled drums are application torqued to 25 foot-pounds, per the drum manufacturers recommendation, severe cupping of the drum closure results. We feel this makes the drums unsuitable and unsafe for transportation. Internal studies confirm that closing the drums to a torque of 20 foot-pounds, significantly improves closure, does not deform the bung and results in an overall safer package.

We have reached this conclusion after careful analysis of both the packaging and the manufacturer's closure instructions. Our packaging protocol requires the placement of a floor-length clear plastic bag over the filled drum to maintain exterior cleanliness. When the drums are filled and closed according to the manufacturer's instructions (25 foot-pounds of torque), liquid vapor escapes from the drum bungs over a period of a few days. We observed this from condensation on the drum top surface beneath the clear bag. After one week we noticed that multiple bungs were

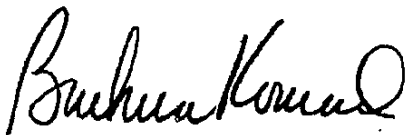
cracked along the thread edge, allowing even more liquid vapor to escape. We therefore concluded that 25 foot-pounds of torque is not appropriate for this particular drum in this particular application.

Going back to older versions of the same manufacturer closure instructions for the same drum, a closure torque of 20 foot-pounds was recommended. We conducted internal tests, similar to the ones described above, using 20 foot-pounds and determined that the closure of the drum was much better. To further test our hypothesis, we performed leakproofness testing (in accordance with 49 CFR 178.604(d) and Appendix B to Part 178), on several drums closed to 20 foot-pounds of torque. All of the drums passed the test. We therefore can assert that lowering the closure torque from 25 to 20 foot pounds results in a much better, safer seal of the drum bung.

We have spoken informally to the Hazmat information line (Diane) on this topic and have been advised that in our case, closing the bung to 20 foot-pounds (as opposed to the manufacturer's recommended 25 foot-pounds) would not be a violation of the hazardous materials regulations. We would like a formal interpretation to include in our files for this product packaging.

I am available to answer any follow-up questions you might have and I look forward to hearing from your office shortly. I can be reached at 973-455-4009. Thank you in advance for your help with this issue.

Sincerely,



Barbara Konrad  
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Honeywell International Inc.  
101 Columbia Road  
Morristown, NJ 07962  
973-455-4009 (phone)  
973-455-5391 (fax)

cc: Mike Dodd  
Norma Sibley