



U.S. Department
of Transportation

**Research and
Special Programs
Administration**

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

JAN 24 2001

Ms. Linda McCarthy
Defense Logistics Agency
2001 Mission Drive
New Cumberland, PA 17070-5000

Ref. No. 00-0253

Dear Ms. McCarthy:

This is in response to your September 15, 2000 letter regarding the general requirements in § 173.27(c) for hazardous materials offered for transportation by aircraft under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). Specifically, you state that thousands of your hazardous materials suppliers provide no information on their hazardous material products' vapor pressures. You asked for information on how to convert a product's vapor pressure at 20 °C to its corresponding vapor pressure at 50-55 °C or for us to provide a conversion chart for this purpose.

We do not have this information available because of variations in concentrations and properties of hazardous materials. The best source for obtaining this information is from the product manufacturers. As you state, if you are unable to determine or obtain information on the vapor pressures for the hazardous material products, then they must be packaged in accordance with § 173.27(c)(3).

Please contact us if we can be of further assistance.

Sincerely,

Hattie L. Mitchell, Chief
Regulatory Review and Reinvention
Office of Hazardous Materials Standards



000253

173.27



DEFENSE LOGISTICS AGENCY
DEFENSE DISTRIBUTION CENTER
2001 MISSION DRIVE
NEW CUMBERLAND, PA 17070-5000

BeHs
Hydrostatic Pressure Test
~ 178.605

00-0253

IN REPLY
REFER TO

DDC-J3/J4-0

MEMORANDUM FOR DEPARTMENT OF TRANSPORTATION
ATTN: MR. EDWARD MAZZULLO
DIRECTOR OF HAZARDOUS MATERIALS STANDARDS
U. S. DoT/RSPA (DHM10)
400 7TH STREET SOUTH WEST
WASHINGTON, D.C. 20590-0001

SUBJECT: Interpretation Request – Hydrostatic Pressure Test Level Requirements For
Combination Packagings Of Hazardous Liquids

This office is responsible for testing of packagings for use by DoD components world-wide. We design and coordinate testing for a wide variety of single and combination packagings for both solid and liquid hazardous materials. Our request for interpretation concerns the hydrostatic pressure test level requirements for PG I liquids in combination packagings being shipped by air. We have read 49 CFR Paragraph 173.27 © a number of times and understand the requirements of the paragraph to mean that we may test at the greater of either 95 kPa or a calculation based upon the vapor pressure of the item being shipped at 55 degrees centigrade. The problem we are having is that we cannot determine the vapor pressure at 55 degrees centigrade, so we cannot use the formula. Our suppliers, and there are thousands) do not supply the vapor pressure at this temperature. We have gone to our chemical engineers and chemists in DoD to try to obtain a formula by which we can convert the vapor pressure provided in the Material Safety Data Sheet (MSDS) to the temperature required by Paragraph 173.27 ©. We were told by a number of our in-house chemists that this is impossible. Our advisor tells us "There is no easy formula for wide variety of complex chemicals such as those found in hazardous materials" Calling each manufacturer to attempt to obtain this data is physically impossible.

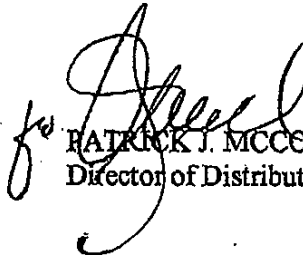
Since we cannot determine an accurate vapor pressure for each item we cannot determine which require testing to a level higher than 95kPa. To avoid being out of compliance with the law, we must default to 250 kPa for all PG I items being shipped by air. This forces us to use steel drums, spend more on our combination packaging designs than may be necessary and sometimes delays our shipments while our packers obtain air eligible containers at the 250 kPa level. We attempted to purchase packagings for PG I material from private industry. The packaging we purchased had an "X" in the UN Marking and the test report indicated it was tested at 100 kPa. The 100 kPa was marked on the packaging. The packaging was also marked "Tested for Air Shipment". No where on the packaging was it mentioned that the item you ship in the packaging could have a

on the packaging was it mentioned that the item you ship in the packaging could have a requirement higher than 100 kPa and that the shipper should calculate the requirement. If this packaging were used in the field, the packer would be led to believe that any PGI item could be shipped in this packaging, and could be out of compliance. So, buying a packaging was not an answer.

I have spoken to representatives at our test labs at LOGSA, Tobyhanna, and Naval Undersea Warfare Center, Keyport WA, as well as other DLA folks in the hazardous materials business and they all agree that the situation is not shipper friendly.

Example: One of our MSDS sheets for a flammable liquid lists the following: "Vapor Pressure (HMHG/70F): 180@20c". Can you advise how to convert the vapor pressure at 20c to the vapor pressure at 50-55c or provide a conversion chart that can be used for this purpose? If this is not possible, can the requirements in the 49 CFR be changed to provide uniformity with the MSDS information, or can the paragraph be changed to reflect a requirement that will make it possible for the shipper to determine the required test pressure?

Your assistance is appreciated. POC for this matter is Ms. Linda McCarthy, DSN: 977-8238 (Commercial 717-770-8238) email: lmccarthy@ddc.dla.mil


PATRICK J. MCCORMICK
Director of Distribution Operations