

UNITED STATES OF AMERICA
NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: November 11, 1971

Adopted by the NATIONAL TRANSPORTATION SAFETY BOARD
at its office in Washington, D. C.
on the 21st day of October, 1971

FORWARDED TO:)
Honorable John A. Volpe)
Secretary)
Department of Transportation)
400 Seventh Street, Southwest)
Washington, D. C. 20590)

SAFETY RECOMMENDATION H-71-70 thru 73

The National Transportation Safety Board, in its investigation and analysis of a truck-automobile collision involving spillage of toxic cargo and four fatalities near Gretna, Florida, on August 8, 1971, has identified a safety problem which requires prompt action. Four children, ranging from 3 to 16 years of age, died after inhalation of a toxic methyl bromide mixture which escaped from containers damaged in the accident.

During the inquiry into the facts of this accident, it has been determined that (1) the cargo was methyl bromide containing 2 percent chlorpicrin, pressurized with air to 200 p.s.i., packaged in ICC 4BA240 and DOT 4BW240 cylinders; (2) certain DOT 4BW240 cylinders do not comply with 49 CFR 178.61-1 with respect to wall stress limits and marking requirements; and (3) the hinged valve protection covers on all cylinders used by the shipper did not comply with 49 CFR 173.353(a)(3) which requires "screw-on metal caps" on cylinders used for this cargo. The hinged covers do not serve as adequate crash damage protection.

This accident investigation disclosed a problem associated with containers and the regulations for hazardous materials. The problem is the absence of an established mechanism for reliably disseminating information about findings, such as those above, in a timely manner which would result in prompt remedial action wherever it may be required. The scheme of the current regulations contemplates that the users and carriers of hazardous materials in containers rely on container markings as certifying compliance with the regulations. Therefore, some mechanism for notification should be

available to inform users that some containers with certifying markings do not comply with the regulations, whenever such a discovery is made. The nature of the hazard should also be pointed out.

Three different types of situations are involved. Generally stated, these three situations can be described by the following examples:

1. Unsatisfactory container, properly used.

Properly marked and authorized containers are placed in service by shippers, but the containers are later found to be noncomplying or inadequate.

2. Satisfactory containers, improperly used.

Properly built containers do not incorporate special features required for a specific product, or are improperly filled or otherwise misused by the shippers.

3. Unsatisfactory containers, improperly used.

Both the container and use deficiencies exist, as was the case in the Gretna accident. 4BW cylinders were present and were improperly marked or exceeded maximum allowable wall stresses (case 1), as were cylinders which were made in full compliance with the 4BA or 4BW specification but which did not incorporate special screwed valve cover designs required for methyl bromide transportation (case 2).

The need for timely dissemination of information concerning deficiencies of containers varies, depending on the nature and scope of the safety problem discovered. However, a reliable notification mechanism should be available to the regulators to permit prompt dissemination of such findings among the manufacturers and users of the hazardous materials containers affected. To the extent possible, the burden of this notification should be borne by the party that should control such problems.

In each of the above situations only the container manufacturer can be identified with certainty. The linking of the containers to existing users cannot be achieved with confidence except through the container manufacturer. The Safety Board believes the most practical and effective method for alerting container users to such safety problems is for the container manufacturer to communicate to each purchaser the specific deviations and resultant hazard and to furnish the regulators with a list of the purchasers notified and the deviations. This action will focus attention on such problems in a manner which will make probable their expeditious

resolution. Reliance on the news media, petitions for special permits, or notices in the Federal Register appear less likely to achieve the desired dissemination of such findings than a notification campaign conducted by or through the container manufacturer.

The Safety Board believes action to minimize safety problems, such as those associated with the excess wall stresses in the lot of 4BW cylinders marked GM & DC BA36401 through BA36600, and marking deviations on GM & DC 4BW cylinders, requires prompt attention. Two known users of these containers for methyl bromide mixtures have already petitioned the Department of Transportation for special permits to remedy the cylinder valve protection cover deviations; other purchasers who might be using such cylinders for shipment of poisons should be alerted to these findings without delay.

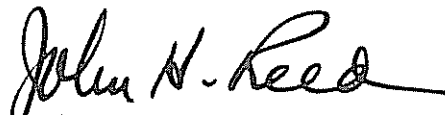
For these reasons, the National Transportation Safety Board recommends that:

1. The Secretary of Transportation require the General Processing Corporation to institute immediately a campaign to notify purchasers of the model of DOT 4BW cylinders present in the Gretna, Florida, accident of the deficiencies of certain cylinders of its manufacture with 49 CFR 178.61-1, and furnish within 30 days thereafter, a list of such cylinders and purchasers to the Secretary, Hazardous Materials Regulations Board, DOT. H-71-70
2. The Hazardous Materials Regulations Board communicate with such purchasers to identify the hazardous products for which such deficient containers are being used, and act to institute appropriate precautions it may determine to be necessary in the circumstances. Some examples of alternative regulatory precautions are set forth in the appendix. H-71-71
3. The Secretary of Transportation request the manufacturers of the 4BA and 4BW cylinders involved in the Gretna accident to inform all their customers who might be using these cylinders for the transportation of poisonous hazardous materials, about the regulatory valve protection cover deviations found in that accident, and the resultant crash impact hazard. H-71-72
4. The Secretary of Transportation establish a permanent mechanism for timely efficient communication of emergency compliance information to known or possible users of deficient hazardous materials containers. H-71-73 (see amendment to this sec)

The Safety Board will appreciate being kept informed of developments relating to these recommendations while its investigation into the facts of this accident continues.

These recommendations will be released to the public on the issue date shown above. No public dissemination of the contents of this document should be made prior to that date.

Reed, Chairman; Thayer and Burgess, Members, concurred in the above recommendations. Laurel and McAdams, Members, were absent, not voting.


By: John H. Reed
Chairman

Appendix

Examples of Alternative
Regulatory Precautions

<u>Compliance Deficiency</u>	<u>Possible Precautions*</u>
1. Cylinder wall stress in excess of regulatory limit.	a. Down-rate maximum authorized service pressure. b. Use for less dangerous commodity. c. Impose handling constraints during transportation. d. Remove cylinders from transportation service.
2. Markings not applied to cylinder heads.	a. Require appropriate permanent stamped markings and submittal of documentation substantiating new markings. b. Require plate with proper markings to be affixed to cylinder in approved manner. c. Require requalification of cylinders. d. Remove cylinders from transportation service.
3. Incorrect valve protection cover.	a. Require modification of cylinder body and cover. b. Use for less dangerous commodity. c. Impose handling constraints during transportation. d. Require external supplemental protective shielding of valves.

*These are merely examples which may or may not be appropriate under given conditions. Other precautions can also be considered.

Log H-27 Not 688-A Rec H-71-70 thro 73

UNITED STATES OF AMERICA
NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: April 27, 1972

Adopted by the NATIONAL TRANSPORTATION SAFETY BOARD
at its office in Washington, D. C.
on the 16th day of February 1972

FORWARDED TO:)
Honorable John A. Volpe)
Secretary)
Department of Transportation)
400 Seventh Street, S.W.)
Washington, D. C. 20590)

AMENDMENT TO SAFETY RECOMMENDATIONS H-71-70 THRU 73
DATED NOVEMBER 11, 1971

The purpose of this amendment is to bring to your attention additional information affecting the above recommendations, issued by the National Transportation Safety Board on November 11, 1971.

The General Processing Corporation has informed the Safety Board that it has contacted the purchasers of the 4BW cylinders of its manufacture and offered to correct the deviations in the regulatory marking requirements in response to Recommendation 1 of the Safety Board's November 11, 1971, letter. This manufacturer has also furnished additional information to the Safety Board which indicates that the material used in the cylindrical portion of the cylinders in its lot BA36401 - BA36600 meets or exceeds the minimum tensile strength requirements of the specifications in 49 CFR 178.61. Thus, the need addressed by Recommendation 1 has been met, and Recommendation 2 is withdrawn.

The General Processing Corporation has informed the Safety Board that it has also implemented Recommendation 3 on its own initiative. Great Lakes Chemical Corporation, the shipper whose product was involved in the Gretna, Florida, accident, has been returning cylinders to General Processing Corporation for installation of a screw-type valve cover, rather than electing to adopt the alternative method of boxing or crating the cylinders as authorized by the regulations.

The Board commends the General Processing Corporation for its timely response to these recommendations.

Recommendation 3 reads as follows:

The Secretary of Transportation request the manufacturers of the 4BA and 4BW cylinders involved in the Gretna accident to inform all their customers who might be using these cylinders for the transportation of poisonous hazardous materials, about the regulatory valve protection cover deviations found in that accident, and the resultant crash impact hazard.

A suggestion has been made that this recommendation could be interpreted to mean that the container manufacturers should solve the problems created by the improper usage of containers over which they have no control. The Safety Board's intent is that the Secretary of Transportation arrange for communication of problems such as those found in the Gretna accident. The purpose of involving the cylinder manufacturers in this process is to facilitate the identification of specific container users to whom the communication of safety problems should be addressed.


As a result of additional information, the Safety Board revises Recommendation No. 4 to read as follows:

The Secretary of Transportation establish a permanent mechanism for timely efficient communication of emergency compliance information to users of hazardous materials containers, relating to improper usage, shipping procedures, or container deficiencies.

The prompt response of General Processing Corporation to the needs identified in the Safety Board's recommendations suggests a receptiveness by container manufacturers to Recommendation 4 which should facilitate its implementation by the Department of Transportation.

This amendment will be released to the public on the issue date shown above. No public dissemination of the contents of this document should be made prior to that date.

Reed, Chairman; Laurel, McAdams, Thayer, and Burgess, Members, concurred in the above amendment.


By John H. Reed
Chairman