

National Transportation Safety Board

Washington, D. C. 20594

Safety Recommendation

Log T-91

Date: October 24, 1988

In reply refer to: I-88-7

Mr. William Jeffery Brown
President
Textile Treatments International, Inc.
1307 Smith Road
Austin, Texas 78721

On February 3, 1988, American Airlines flight 132, a McDonnell Douglas DC-9-83, departed Dallas/Fort Worth International Airport, Texas, for Nashville Metropolitan Airport, Tennessee. In addition to the passenger luggage in the midcargo compartment, flight 132 was loaded with a 104-pound fiber drum of textile treatment chemicals. Undeclared and improperly packaged hazardous materials inside the fiber drum included 5 gallons of hydrogen peroxide solution and 25 pounds of a sodium orthosilicate-based mixture. While in flight, a flight attendant and a deadheading first officer notified the cockpit crew of smoke in the passenger cabin. The passenger cabin floor above the cargo compartment was hot and soft, and the flight attendants had to move passengers from the affected area. The captain, who was aware of a mechanical discrepancy with the auxiliary power unit (APU) on an earlier flight which resulted in in-flight fumes, was skeptical about the flight attendant's report of smoke. No in-flight emergency was declared. After landing, the captain notified Nashville Ground Control about the possibility of fire in the cargo compartment, and he requested fire equipment. The flight attendants then initiated procedures to evacuate the airplane on the taxiway. About 2 minutes 8 seconds after the plane landed, the 120 passengers and 6 crewmembers began evacuating the airplane. After the plane was evacuated, crash/fire/rescue personnel extinguished the fire in the cargo compartment.¹

Following the accident, laboratory tests were conducted to determine the capability of materials shipped in the fiber drum and the consequences. The Safety Board concluded that the 5-gallon polyethylene drum packaged inside the fiber drum contained 50 percent strength hydrogen solution; that hydrogen peroxide solution leaked from the polyethylene drum before being loaded aboard flight 132 and again in flight while aboard flight 132; that a combination of the hydrogen peroxide solution, sodium orthosilicate-based mixture, and the previously wet fiber drum caused the in-flight fire in the midcargo compartment. During the investigation, the Safety Board determined that the hazardous materials shipped in the fiber drum did

¹For more detailed information, read Hazardous Materials Incident Report--*In-Flight Fire, McDonnell Douglas DC-9-83, N569AA, Nashville Metropolitan Airport, Nashville, Tennessee, February 3, 1988* (NTSB/HZM-88/02).

not comply with U.S. Department of Transportation (DOT) safety regulations for several reasons.

- Fifty percent strength hydrogen peroxide solution, in any quantity, is forbidden aboard passenger-carrying aircraft. Even 35 percent strength hydrogen peroxide solution is restricted to a maximum quantity of 1 quart per container for passenger-carrying aircraft.
- The hydrogen peroxide solution, an oxidizer, and the sodium orthosilicate-based mixture, a solid corrosive material, are not compatible and should not have been packaged together.
- While DOT-34 polyethylene drums may be used for 35 percent or 50 percent strength hydrogen peroxide solution, the drums must be equipped with vented closures to prevent the accumulation of internal pressure. However, had it been vented it would have been prohibited aboard aircraft.
- Neither proper shipping names nor hazard class information for hazardous materials packaged inside the fiber drum were marked on the outside of the fiber drum.
- Proper package orientation information was not marked on the outside of the fiber drum overpack to instruct handlers to keep the package upright.
- Hazardous materials warning labels were not affixed to the outside of the fiber drum.
- The shipper did not describe the materials and their hazards properly on shipping papers provided to the air carrier.

In addition to proper packaging of hazardous materials, the safe transportation of hazardous materials depends on sufficient information to identify the materials and the hazards presented during transportation. Accordingly, both shippers and carriers have a responsibility to determine if materials offered for transportation are hazardous and are in proper condition to ensure their safe transportation. As the shipper, Textile Treatments International, Inc., not only failed to provide a proper description of the hazardous materials on the shipping paper, but it also failed to provide a description of the contents to American Airlines that would have alerted the carrier that the package contained hazardous materials. Both the hand-written and the typed shipping documents indicated that the shipper told the air carrier that the fiber drum contained laundry equipment, not chemicals. There is no factual evidence to indicate that the freight clerk was told that the fiber drum contained laundry chemicals. Had the word "chemicals" been used, it should have alerted the air carrier to the possibility of hazardous materials.

It is likely that the materials were improperly packaged, marked, and described due, in part, to ignorance about the regulations governing the transportation of hazardous materials. Even though the shipper may not have been aware of specific Federal transportation regulations, both the person who prepared and the person who offered this shipment for transportation should have been aware of the hazardous characteristics of the materials shipped and recognized the need to package the materials safely and to identify these materials to American Airlines.

Hazardous materials labels and shipping descriptions were affixed to containers in the plant for both the hydrogen peroxide solution and the sodium orthosilicate-based mixture from which the shipped materials were taken. These warnings should have been sufficient to have caused the shipper to have determined that precautions were required when shipping these hazardous materials by air.

Although the nature of Textile Treatments' business requires it to ship a hazardous material to its customers and to ship hazardous materials for marketing demonstrations, it has no program to train persons responsible for shipping and handling hazardous materials. Consequently, the National Transportation Safety Board urges Textile Treatments to establish and implement a hazardous materials transportation safety training program for all persons responsible for packaging, shipping, or transporting hazardous materials.

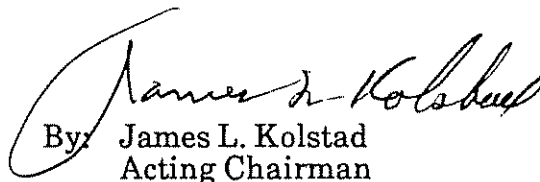
Therefore, the National Transportation Safety Board recommends that Textile Treatments International Inc.:

Establish and implement a hazardous materials transportation safety training program for all persons responsible for packaging, shipping, or transporting hazardous materials. (Class II, Priority Action) (I-88-7)

Also, as a result of its investigation, the Safety Board issued Safety Recommendations A-88-115 through -119 to American Airlines, Inc.; A-88-120 to the Research and Special Programs Administration; A-88-121 through -128 to the Federal Aviation Administration; and A-88-129 to the Air Transport Association of America.

The National Transportation Safety Board is an independent Federal agency with the statutory responsibility "... to promote transportation safety by conducting independent accident investigations and by formulating safety improvement recommendations" (Public Law 93-633). The Safety Board is vitally interested in any action taken as a result of its safety recommendations. Therefore, it would appreciate a response from you regarding action taken or contemplated with respect to the recommendation in this letter. Please refer to Safety Recommendation I-88-7 in your reply.

KOLSTAD, Acting Chairman, and BURNETT, LAUBER, NALL, and DICKINSON, Members, concurred in this recommendation.


By: James L. Kolstad
Acting Chairman