**Research and Special Programs Administration**

**DOT-E 7235; Limit on Filling Pressure for High Pressure Composite Hoop Wrapped Cylinders Authorized by Exemption**

In response to notification of the rupture of one cylinder manufactured in 1978 under Exemption DOT-E 7235 and evidence that other normally charged cylinders have leaks caused by longitudinal cracks occurring in the threaded section of the cylinder neck, the MTB is issuing this notice specifying a reduction in filling pressure.

All cylinders marked DOT-E 7235-4500 are subject to the provisions of this notice. The manufacturer, Luxfer USA Limited (Luxfer), advises that most cylinders manufactured under E-7235, known as "30-minute cylinders," are used as breathing apparatus for firemen.

On August 11, 1983, (48 FR 36559), the MTB published a notice that Luxfer had initiated a recall of cylinders manufactured in 1982 (under E-7235) and bearing serial numbers WA43160 through WA50178 and WF20321 through WF21548. It was the opinion of Luxfer at that time that failures which prompted the recall were probably caused by a higher than normal composition of lead and bismuth in one cast of material. The most recent failure indicates that while this abnormality in material composition may be a contributing factor, it is not the basic cause of the failure to which this notice is addressed. Failure analysis studies performed for Luxfer establish that the fractures are intergranular and result from sustained load crack propagation in an area that, by conventional design standards, should be the lowest stressed area of the cylinedr. While the basic cause of failure has not as yet been determined, fracture toughness analysis indicates that for this "time dependent" type of failure, a stress reduction of approximately 10 percent will substantially decrease the likelihood of a catastrophic failure and increase the likelihood that any failure would be in a "leak without fracture" mode.

In consideration of the foregoing, and due to the risk of imminent hazard, exemption DOT-E 7235 has been amended effective February 28, 1984, to limit the filling (charging) pressure to 4000 psi for each cylinder manufactured, marked, and sold under the exemption that is marked with a 4500 psi service pressure (DOT-E 7235 4500). This action is necessary to accomplish a reduction in the sustained stress in these cylinders and is subject to modification based on newly developed data and implementation of an appropriate inspection procedure and program.

Persons owning, using, or otherwise having control over cylinders marked DOT-E 7235-4500, must limit the filling pressure to 4000 psi, and reduce to 4000 psi the pressure in cylinders already charged.

The feasibility of using non-destructive testing (NDT) techniques to identify the presence of cracks is being evaluated. This evaluation is proceeding on an expedited basis, and a determination will be made in the near future regarding the suitability of one or more of the NDT methods. Recommendations on employing tests for crack detection should be forthcoming when this investigative work is completed.

For further information contact: Arthur J. Mallen, Office of Hazardous Materials Regulation, Materials Transportation Bureau, Department of Transportation, 400 Seventh Street, SW., Washington, D.C. 20590. (202) 755-4906. Office hours are: 8:30 a.m. to 5:00 p.m., Monday through Friday.

Issued in Washington, D.C. on February 24, 1984.

**Alan I. Roberts,**

*Associate Director for Hazardous Materials Regulation, Materials Transportation Bureau.*

[FR Doc. 84-5356 Filed 2-24-84; 12:07 pm]

BILLING CODE 4910-60-M