



SA-06-87

DATE: September 1, 1987

TO: Distribution

FROM: 429/Safety Manager, Head, Safety Engineering Branch,  
SSQRD

SUBJECT: Aluminum Cylinders

Recent findings disclose that a problem exists with aluminum gas cylinders in that an undetectable crack can penetrate the wall of a cylinder in the neck area and, without advance warning, permit the contents of the cylinder to escape quickly into the surrounding atmosphere.

This metallurgical phenomenon called "Room Temperature Grain Boundary Creep Cracking" is not well understood at this point, but is known to occur in alloy 6351 cylinders, to be time dependent, and to occur more rapidly in high lead content cylinder material.

Until this problem is resolved, three immediate steps should be taken:

- a. Any leaking aluminum cylinder should be taken out of service and C. B. Zeitman in the Safety Office, 3979, should be notified.
- b. Each organization should inventory its stock of cylinders (including breathing air cylinders) and, if aluminum cylinders are found, report them to C. B. Zeitman.
- c. Orders for gases placed with the Supply Management Section will be filled with non-aluminum cylinders. If the gas mixture cannot be obtained in non-aluminum cylinders, Supply Management will obtain approval from the Safety Manager before placing the order.

*W. C. Hoggard*  
V. William Wessel  
2964

Distribution:  
Facility Safety Heads  
Facility Coordinators  
Supervisors  
Contractor Safety Reps.

429/WCH