



an ASME  
publication

\$1.50 PER COPY  
75¢ TO ASME MEMBERS

The Society shall not be responsible for statements or opinions advanced in papers or in discussion at meetings of the Society or of its Divisions or Sections, or printed in its publications.

*Discussion is printed only if the paper is published in an ASME journal or Proceedings.*

Released for general publication upon presentation

## The Effect of Hydrostatic Pressure (14kbar) on the Ultimate Compressive Strength of Various Sintered Materials<sup>1</sup>

THOMAS L. CORDELL

JAMES A. CORLL

Members, Technical Staff,  
Sandia Laboratory,  
Albuquerque, N. M.

This paper reports the investigation of the increase in ultimate compressive strength of sintered materials as a function of hydrostatic support pressures up to 14 kbar. Six tungsten carbide materials and five oxide ceramics were tested. All materials displayed significant increase in axial ultimate compressive strength when radially loaded by fluid pressure. For example: The ultimate compressive strength of WC with 3 percent Co binder is raised from 52 kbar to 92 kbar by 14 kbar fluid support pressure. A schematic design employing this effect in the design of a high-pressure apparatus is included.

<sup>1</sup>This work was supported by the U. S. Atomic Energy Commission.

Contributed by the Research Committee on Pressure Technology for presentation at the Winter Annual Meeting and Energy Systems Exposition, New York, N. Y., November 27-December 1, 1966, of The American Society of Mechanical Engineers. Manuscript received at ASME Headquarters, August 1, 1966.

Copies will be available until September 1, 1967.