ISOSTATIC PRESSING DEVELOPMENT

J. C. Adams

&

R. E. Sheeran

PROGRAM ENGINEERING

OCTOBER - DECEMBER 1971

Normal Process Development
Endeavor No. 210

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MASTER

Mason & Hanger-Silas Mason Co., Inc.
Pantex Plant

P. O. BOX 647
AMARILLO, TEXAS 79105
806-335-1581

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The purpose of this project is to establish isostatic (wet bag) pressing as the primary method for compacting plastic bonded explosive.

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Section J

ISOSTATIC PRESSING DEVELOPMENT

ABSTRACT

About one hundred and fifty process-development pressings were made in prototype tooling. Problems arose which include stress cracking caused by difficult stripping of the part from the mandrel. Pressings made of PBX 9404 presented none of these problems. The primary effort is being directed toward developing a process for LX-09 and LX-04 pressings which at present are the problem areas.

DISCUSSION

Improved tooling for process-development powder handling and prepressing assembly is now being built and will afford a method of quicker preparation of the heated powder and mandrel for evacuation and pressing.

Another approach to this endeavor is presently being explored. This is a conversion of the large, long-pattern hydrostatic sac to a true isostatic "water bag" by making a top closure for the sac. The twenty-five-inch yoke press will be the location of this process development. Isostatic HE/mandrel/sac assemblies will be placed in the large bag, water added, and bag closed. The pressing fluid will then be in contact with the "water bag" instead of the isostatic sac, thus minimizing the possibility of oil contamination of the HE. Parts for repressing toward higher density may be placed bare in the "water bag" as is now done in the "captive water" cycle for the 68 Program.

PROJECTIONS

Some process-development tooling is ordered which is expected to make the loading and evacuation of the isopress assemblies a quicker operation with less temperature loss in the powder during loading. Mid February, 1972, is now the expected date for the first experimental use of the loading hopper/vibrator tooling now being built.