MASTER

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LX-10 PRESSING STUDIES

J. D. Harrell

DEVELOPMENT DIVISION

JULY - SEPTEMBER 1975

Normal Process Development
Endeavor No. 105

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ABSTRACT

Pressing LX-10 to densities at or above 1.865 Mg/m^3 will require multiple cycles. The best approach appears to be formation of the basic part via the standard wet-bag assembly and repress in a captive-water system for an extended period of time.

DISCUSSION

A series of pressings were made to consider the various process options available to press LX-10 to densities at or above the minimum 1.865 Mg/m^3 required for test devices. Table I lists the compaction cycles and mode of processing together with the densities attained.

Two pressings were made that utilized our recently improved ability to hold pressure for extended periods of time. In this case, the pressure of 126 MPa was held to compact both pressings for six hours.

CONCLUSIONS

Repeated application of pressure, without stripping the assembly and converting to captive-water, leaves the density disappointingly low. It appears that the best approach will be to form the basic part in the standard wet-bag assembly, convert to captive-water mode and repress at near the original pressure for an extended period of time.

The dwell period required for the captive-water repress is as yet undetermined.

FUTURE WORK

A test series, less extensive than this one, will be required to determine a reasonable period of dwell at pressure.

Table I. LX-10 Pressing Cycle

Piece No.	Basic Pressing ^a		Captive Water Repressing Cycles							
	Wet-Bag Cycles	Density (Mg/m ³)	No. 1 Density (Mg/m ³)	No. 2 Density (Mg/m ³)	No. 3 Density (Mg/m ³)	No. 4 Density (Mg/m ³)	No. 5 Density (Mg/m ³)	No. 6 Density (Mg/m ³)	No. 7 Density (Mg/m ³)	No. 8 Density (Mg/m ³)
78191Y4601	X1	1.853	-	-	1.862	-	1.863	1.864	-	1.865 ^b
78198Y4601	X1	1.852	-	1.860	1.861	-	1.862	1.863	-	1.865 ^b
78191Y4604	X2	1.858	-	1.861	1.864	-	1.864	1.865		
78198Y4604	X2	1.857	-	1.864	1.864	-	1.864	1.865		
78198Y4606	X3	1.859	-	1.865	1.865	-	1.865			
78192Y4602	X4	1.860	-	1.864	1.864	-	1.864	1.865		
78198Y4602	X1	-	1.857	-	1.863	1.864	-	1.864	1.865	
78198Y4603	X1	-	-	1.859	-	1.864	1.864	-	1.866 ^b	
78198Y4605	X1	-	-	-	1.862	-	1.866			
78192Y4601	X1	-	-	-	-	1.862	-	1.866		
78184Y3101	X1	-	1.866 ^c							
78184Y3102	X2 ^d	1.855								

^aBasic Pressing: Preheat @ 104 C, Compact @ 140 MPa 10 Minutes

^bPressings Reheated Nine Hours @ 66 C Before Captive-Water Repress

^cCaptive-Water Dwell Held Six Hours @ 126 MPa

^dSecond Cycle Held Six Hours @ 126 MPa