

FIGURE 1

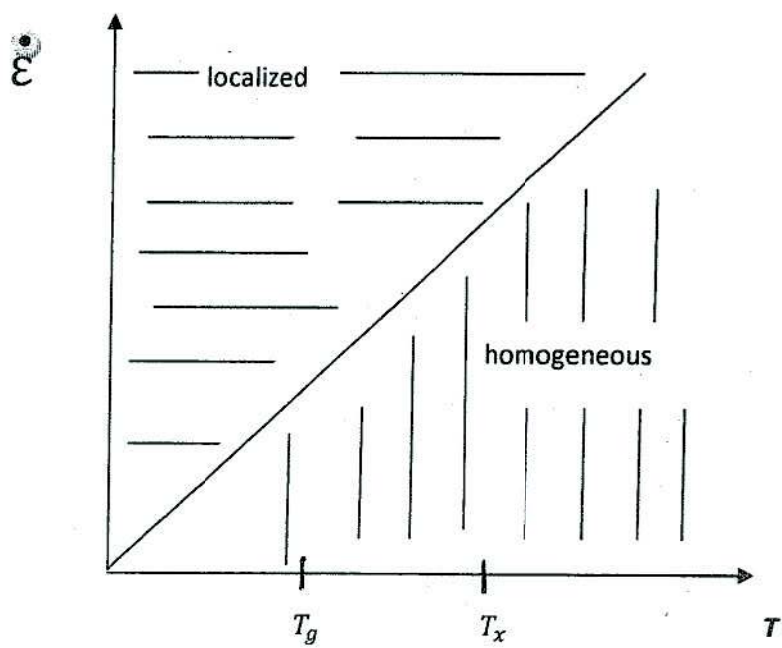
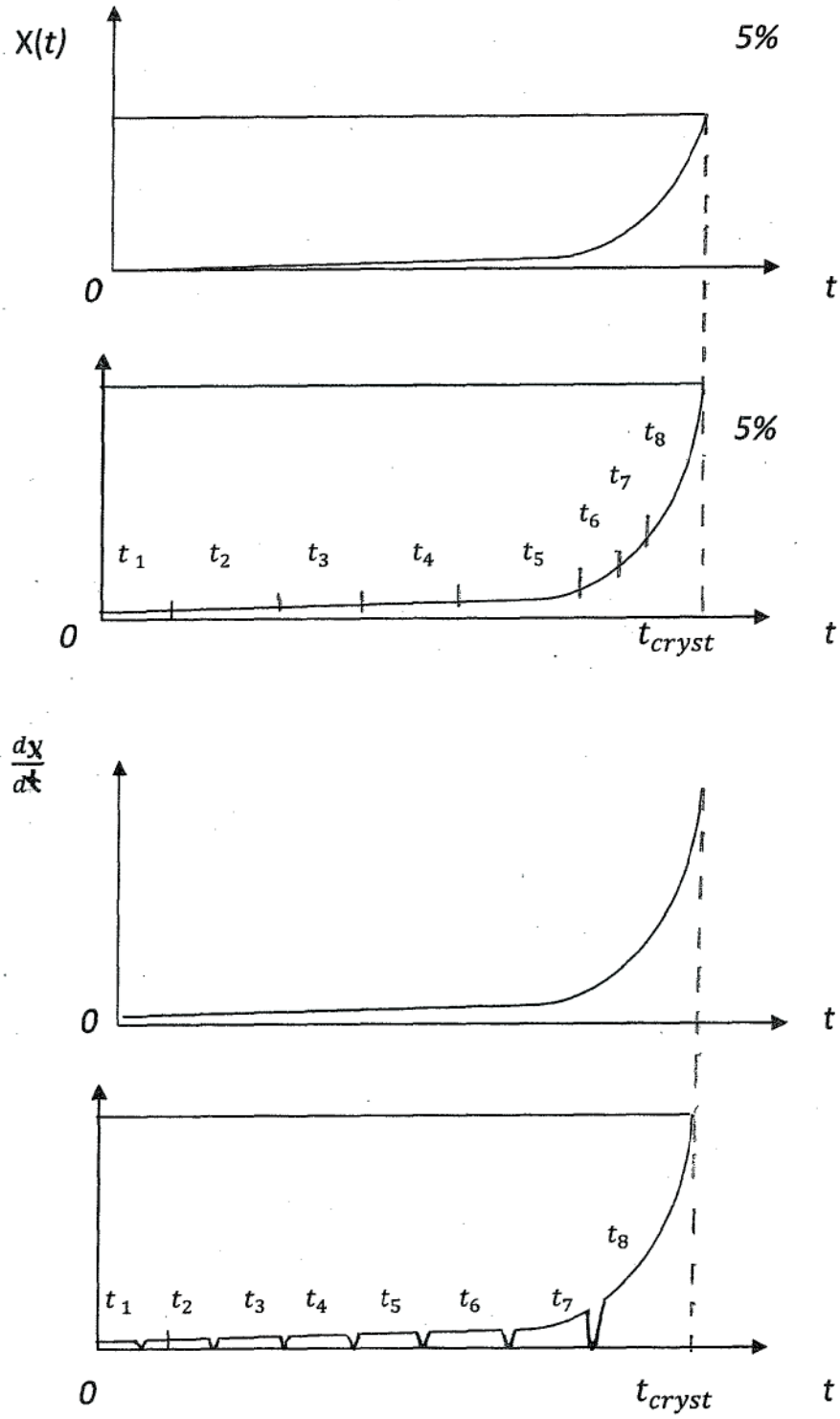
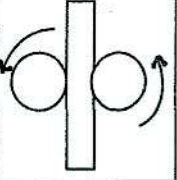
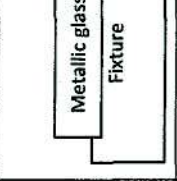
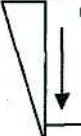


FIGURE 2



START:	STEP 1	STEP 1A	STEP 2	STEP 2A.....	STEP N	END
Amorphous metallic glass feedstock	$T = T_{hom}^1$ $X_1 < X_{CRYST}$	$T = T_{amb}$ $X_{1a} = 0$	$T = T_{hom}^1$ $X_1 + X_2 < X_{CRYST}$	$T = T_{amb}$ $X_{2a} = 0$	$T = T_{hom}^1$ $\sum_{i=1}^n X_i < X_{CRYST}$	Quenching or controlled cooling or annealing
		STEP 1B		STEP 2B		
		$T = T_{amb}$ $X_{1b} = 0$		$T = T_{amb}$ $X_{2b} = 0$		
		Step 1K		STEP 2M		
		$\sum_{j=1}^k X_{1j} = 0$		$\sum_{j=1}^m X_{2j} = 0$		

EXAMPLE

START:	STEP I	STEP II*	CURL RIBBON	STEP 4**	END
Amorphous metallic glass feedstock	$T = T_{hom}^1$ $\begin{array}{c} \uparrow Y \\ \rightarrow X \end{array}$	$T = T_{hom}^2$ $\begin{array}{c} \uparrow Z \\ \rightarrow X \end{array}$	$T = T_{hom}^3$	Anneal curled ribbon to smoothen the surface	Create final stage of material by cooling rate or annealing
					
	$X_1 < X_{CRYST}$	$X_1 + X_2 < X_{CRYST}$	$X_1 + X_2 + X_3 < X_{CRYST}$		

* STEP II can be replaced by grinding at $T = T_{amb}$

** STEP 4 is optimal

FIGURE 4

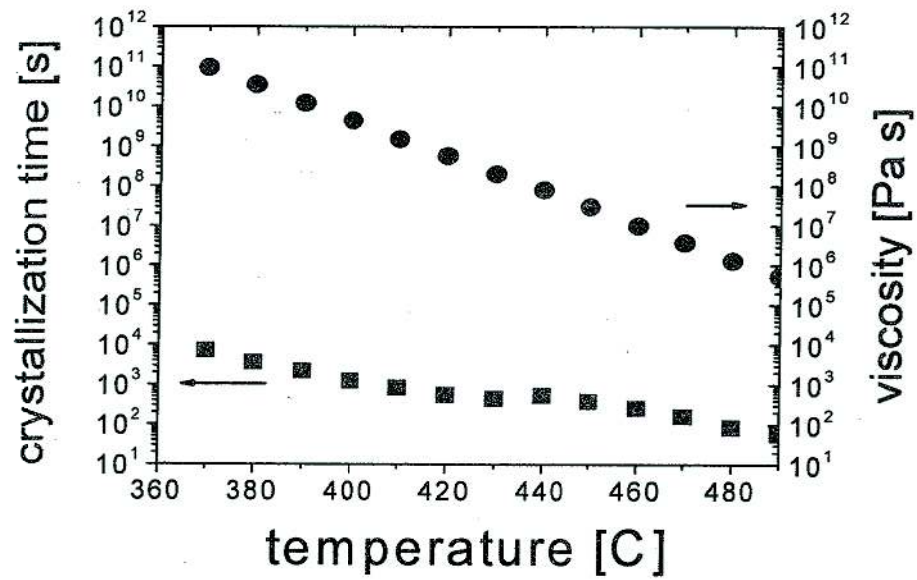
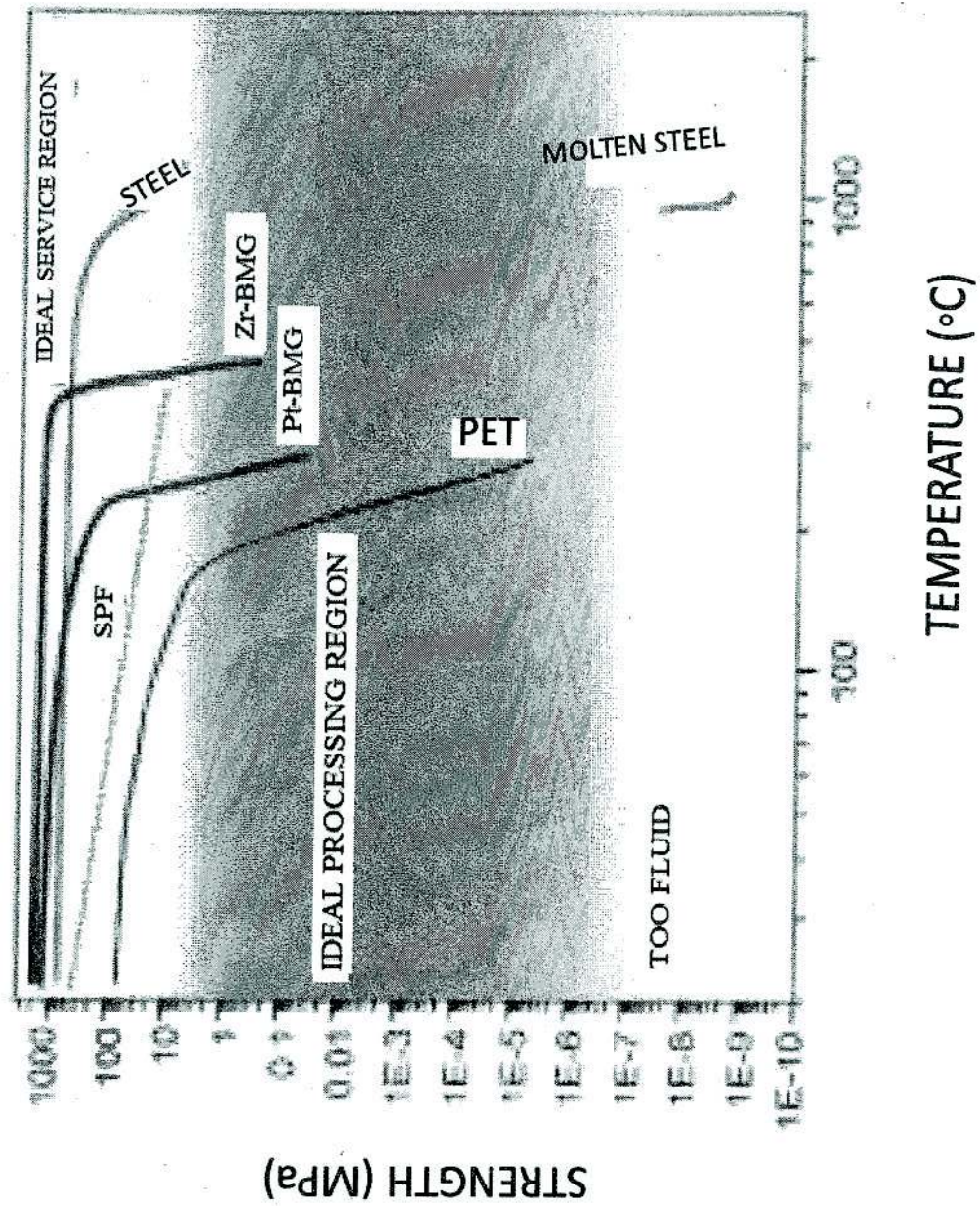


FIGURE 5



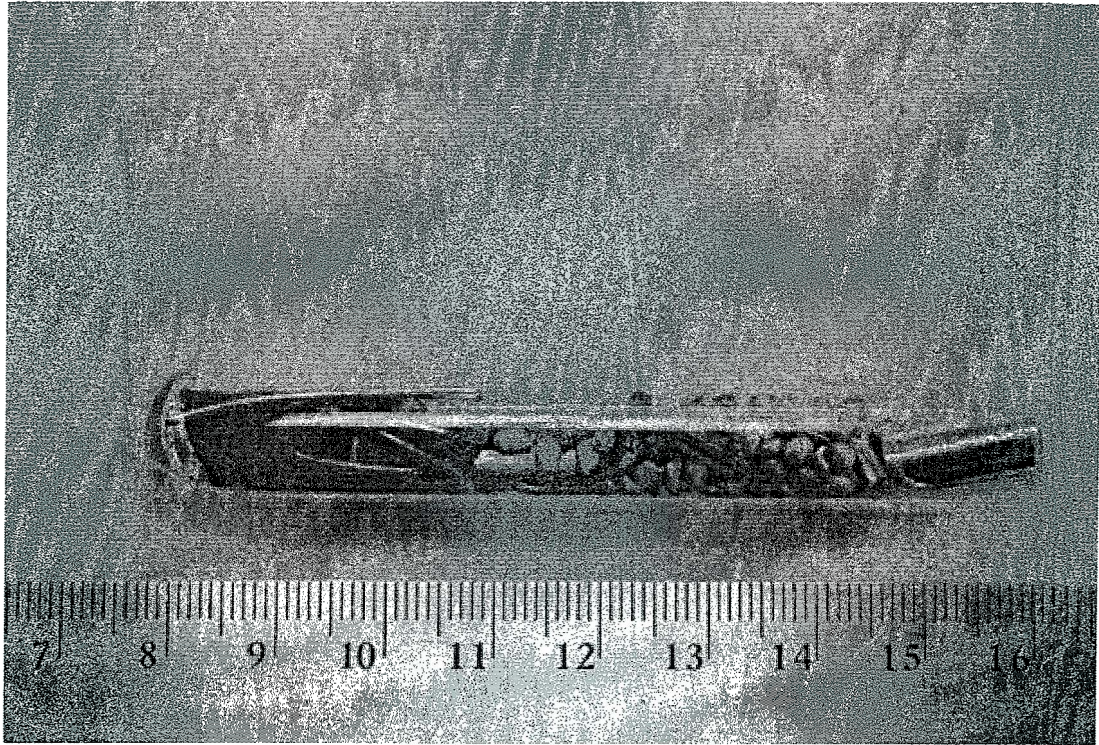


Figure 6

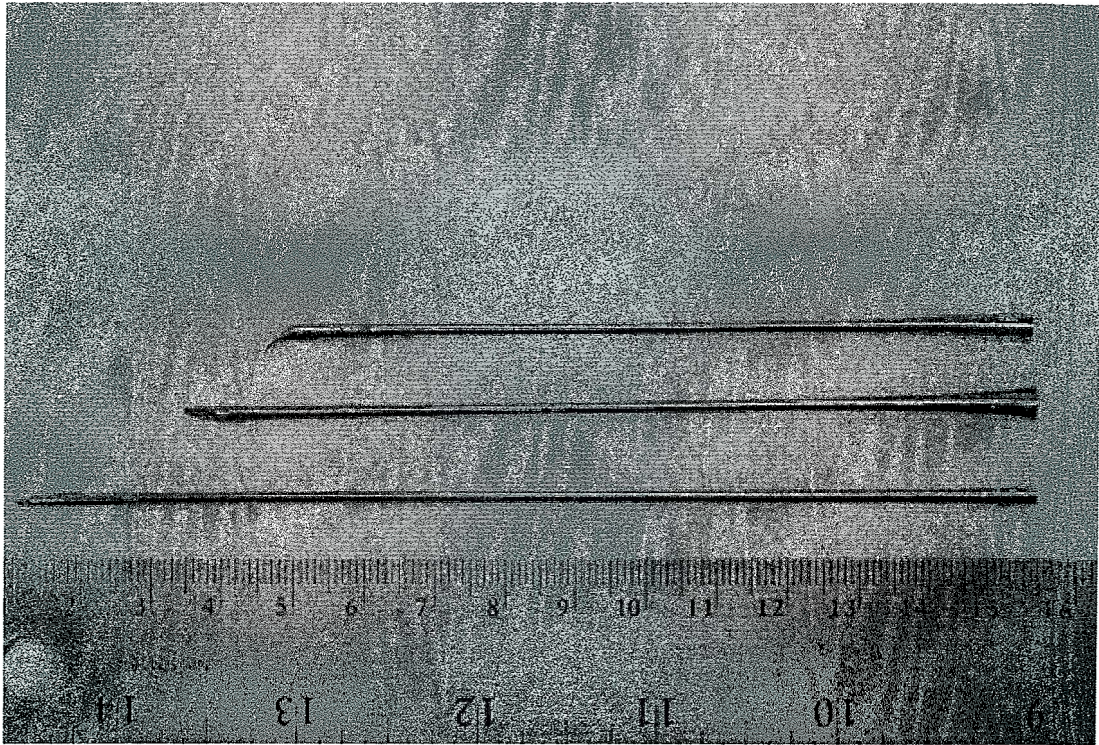


Figure 7

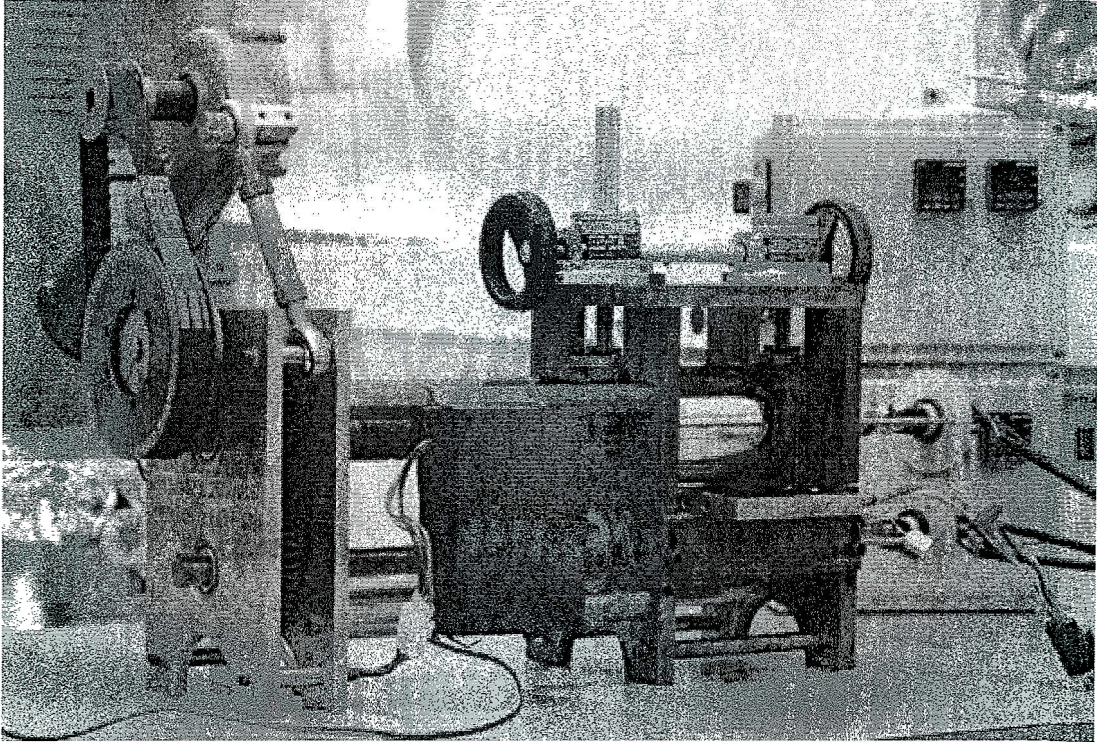


Figure 8

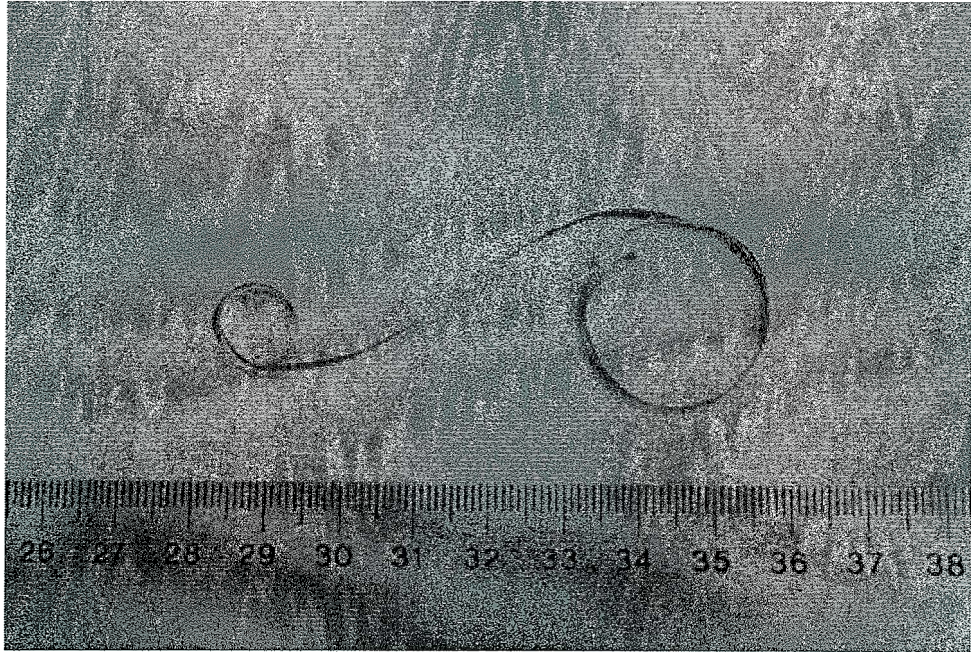


Figure 4: 'Shape' of spiral that could be made with a forementioned methodology

Figure 9

FIGURE 10

Process for blow molding one hemisphere

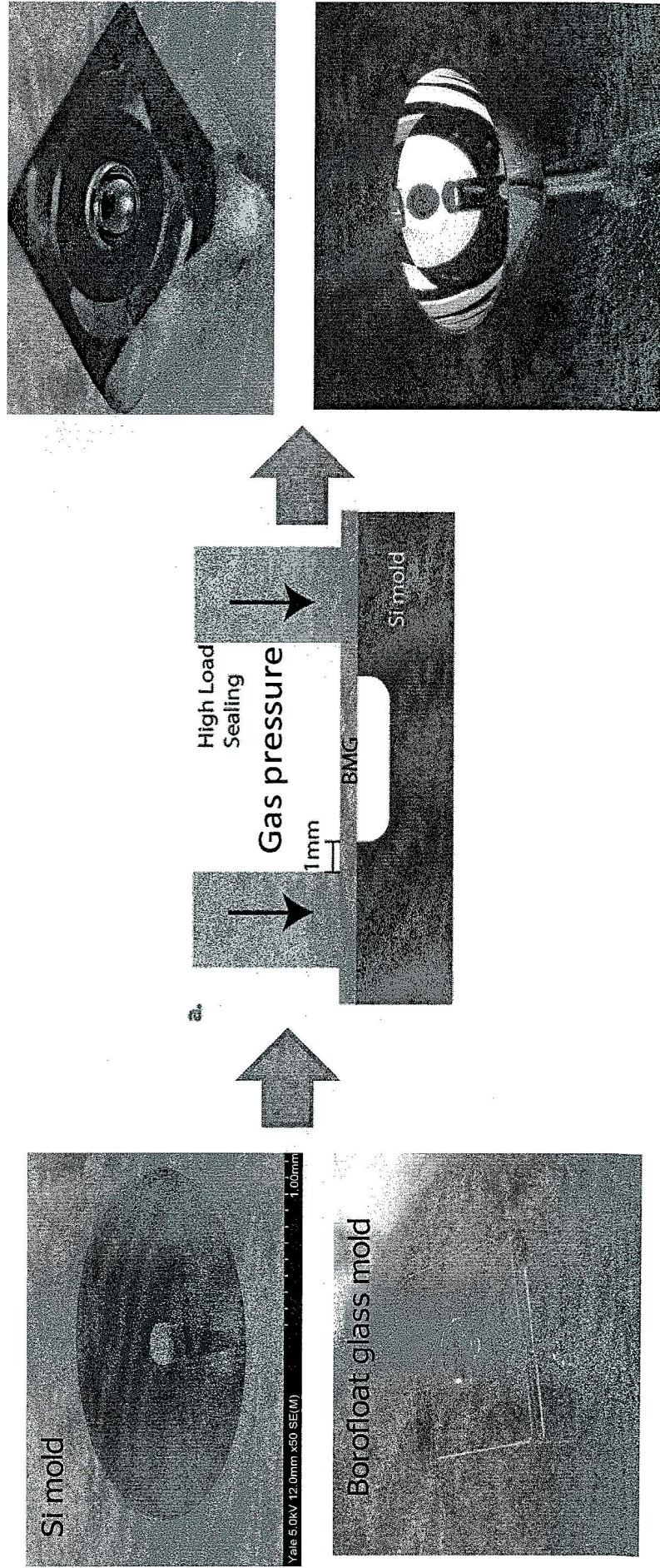


FIGURE 11

LARGE SCALE

