

# BRUSHWELLMAN

ENGINEERED MATERIALS

## MATERIAL CERTIFICATION

Customer: General Services Administration  
 Stockpile Acquisitions Div.  
 Rm. 5207, Attn: R. A. Talbott  
 18th & F Streets, N.W., Washington, DC 20405

Date: June 26, 1984  
 S.O.#: EMA-202  
 P.O.#: GS0083-DXXC-0006  
 Specification: P-110a-R1  
 Grade A, Type I

**Material Description:**

Lot No. 3148, One (1) Beryllium Metal Hot Pressed Block.

Net weight: 2,816 lbs.  
 Gross weight: 3,353 lbs.

CHEMICAL COMPOSITION: (WT. %)				MECHANICAL PROPERTIES															
ELEMENT	3148 Top	3148 Bot.	Direct.	Y.P. DIR.X.	FTU (psi)kcal	FTY (psi)ksi	% EL	Yld./Ult.	Temp.										
Be	99.6	99.3	Top:																
BeO	.7	.9	Long.	---	49.8	34.4	3.2	.69	Room										
Fe	.08	.08	Long.	---	50.7	33.9	3.1	.67	Room										
C	.06	.07	Trans.	34.0	53.5	33.8	5.0	.63	Room										
Al	.04	.04	Trans.	34.3	53.7	34.2	5.9	.64	Room										
Mg	-.01	.03	Trans.	---	18.0	---	19.4	---	1200°										
Si	.03	.03																	
S	-.01	-.01	Bot.:																
U	-.01	-.01	Long.	---	47.8	32.8	2.7	.69	Room										
Ni	-.01	-.01	Long.	---	47.6	32.6	3.0	.68	Room										
Cr	-.01	-.01	Trans.	---	51.8	32.4	5.6	.62	Room										
Mn	.01	.01	Trans.	---	53.4	32.8	6.0	.61	Room										
Cu	-.01	-.01	Trans.	---	15.2	---	12.1	---	1200°										
Ti	-.01	-.01																	
				DENSITY gm/cc: Theoretical			AVG GRAIN SIZE: (Microns)												
				99.8%			<table border="1"> <tr> <td></td> <td>Top</td> <td>Bot.</td> </tr> <tr> <td>Avg.</td> <td>13.5</td> <td>13.3</td> </tr> <tr> <td>Max.</td> <td>43</td> <td>42</td> </tr> </table>					Top	Bot.	Avg.	13.5	13.3	Max.	43	42
	Top	Bot.																	
Avg.	13.5	13.3																	
Max.	43	42																	
				RADIOGRAPHIC INSP. PER P110-a-R1			PENETRANT INSP. PER MIL-1-68661B												
				ADDITIONAL INFORMATION:															
				Ultrasonic inspection in accordance with P-110a-R1.															
				X-ray No. G-2916															
BATCH NO.																			
OTHER ELEM. EA.																			
OTHERS TOTAL																			

This is to certify that the above material satisfies the requirements of Specification see above  
 Drawing \_\_\_\_\_ Purchase Order see above and was removed from Pressing No. 3148

CC: Shipping (3) Sales (1) File (1)

*R.R. [Signature]*  
 BRUSHWELLMAN INC. H. P. Garner  
 QUALITY CONTROL