

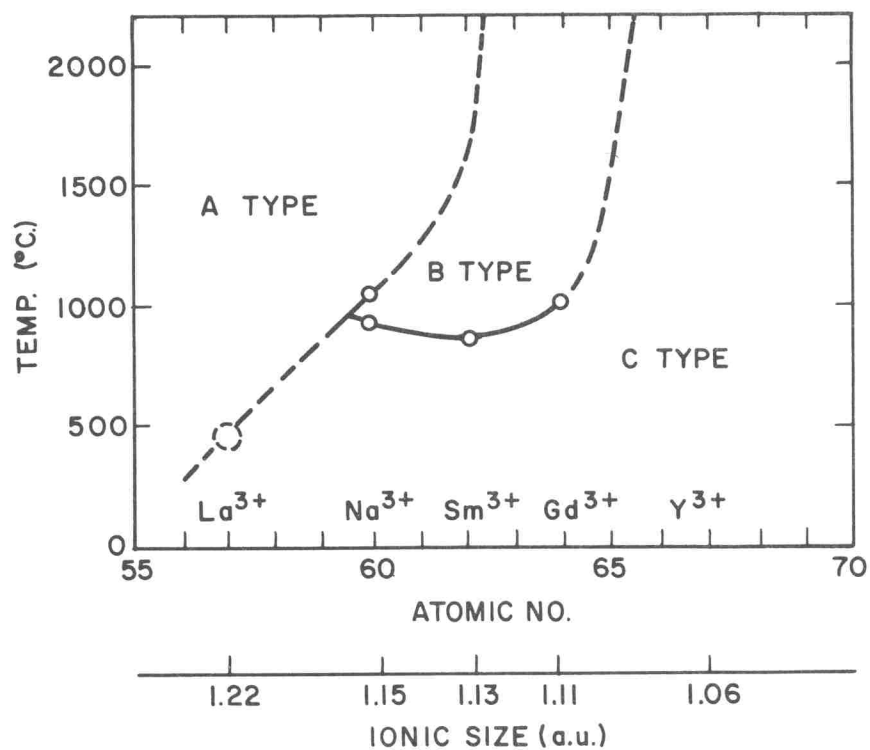


Figure 6 POLYMORPHISM OF RARE EARTHS AS A FUNCTION OF ATOMIC NUMBER

*Temperature determined from power versus temperature curve.

Run No.	Pressure (psi)	Temp. (°C)	Time (min)	Starting Oxide Material	Results
51	450,000	630	15	C-form	No analysis
52	450,000	575	15	C-form	B-form + C-form + "old" SmOOH
55	450,000	840	10	C-form	B-form + little "new" SmOOH
59	450,000	910	15	C-form	B-form + little "new" SmOOH
64	450,000	900	15	C-form	B-form + "new" SmOOH
65	450,000	875*	15	C-form	B-form + "old" SmOOH
66	450,000	780	15	C-form	Little B-form, mostly "new" SmOOH
67	450,000	700	10	C-form	B-form + "new" SmOOH
72	450,000	925	10	B-form	B-form + "old" SmOOH + "new" Sm(OH) ₃
73	450,000	715	30	B-form	B-form
92	450,000	550	1	C-form	Runs made to determine optimum conditions of formation of β-SmOOH
93	450,000	475	15	C-form	
95	450,000	510*	2	C-form	
96	450,000	920	1	C-form	
97	450,000	900	6	C-form	
99	450,000	930	17	C-form	Runs made to prepare single phase β SmOOH and search for single crystals. Product used. X-ray diffraction confirms new phase present in IR and X-ray studies. No single crystals isolated. X-ray diffraction confirms β-SmOOH present.
101	500,000	770	2	C-form	
103	500,000	690	13	C-form	
104	460,000	690	15	C-form	
107	500,000	650*	30	C-form	
161	500,000	630*	60	C-form	
162	500,000	665*	92	C-form	
163	480,000	670*	61	C-form	
164	480,000	670*	60	C-form	

SM₂O₃ RUNS

TABLE IV