

TABLE 2
Sodium content of solutions collected at various flow rates

Run No.	T (°C)	P (bars)	Flow rate ml/per hr	Hrs of run when sample collected	Na ppm	Run No.	T (°C)	P (bars)	Flow rate ml/per hr	Hrs of run when sample collected	Na ppm
A-1	1000	400	20	0-1 1-2 2-4 4-6	62 86 96 84	A-7	2000	400	60	0-1 1-2 2-4 4-6	62 102 144 159
A-2			40	0-1 1-2 1-4 4-6	50 87 93 91	A-8			80	0-1 1-2 2-4 4-6	30 52 84 105
A-3			60	0-1 1-2 2-4 4-6	27 53 87 89	A-9	1500	600	20	0-1 1-2 2-9 4-6	120 148 146 144
A-4			80	0-1 1-2 2-4 4-6	18 36 62 76	A-10			40	0-1 1-2 2-9 4-6	116 143 146 147
A-5	2000	400	20	0-1 1-2 2-4 4-6	126 161 163 162	A-12			60	0-1 1-2 2-4 4-6	96 139 150 151
A-6			40	0-1 1-2 2-4 4-6	90 145 161 160	A-13			80	0-1 1-2 2-4 4-6	79 108 137 142

of the samples. Iron appeared sporadically in concentrations up to 0.12 ppm, presumably as a result of corrosion of the pressure vessel. Organic matter was not detected in any samples, indicating that lubricating material from the pump does not contaminate the pumped fluid to any detectable extent. pH was measured periodically during a run on 5 milliliters of sample collected directly from the sampling tube. After the first hour of a run, the pH rarely changed by more than 0.05.

EXPERIMENTAL RESULTS

The results of experiments designed to test the rate at which a steady state is reached are tabulated in table 2 and shown graphically in figure 2. The charge was brought to temperature in about 20 to 30 minutes, then pumped up to pressure, and collection of the sample begun at the rate indicated. Every hour the collected sample was analyzed for soda content. The results show that at collection rates of less than 60 milliliters per hour a steady state is reached in a few hours. In the absence of flow, the system would probably reach a steady state in less than 2 hours at both 400° and 600°C. The influence of pressure on this time appears to be slight.

These results suggested the following procedure which was adopted for the solubility runs. The charge of approximately 120 grams was brought to temperature and pressure and held there overnight under static conditions. Sample collection was then commenced at a rate of 50

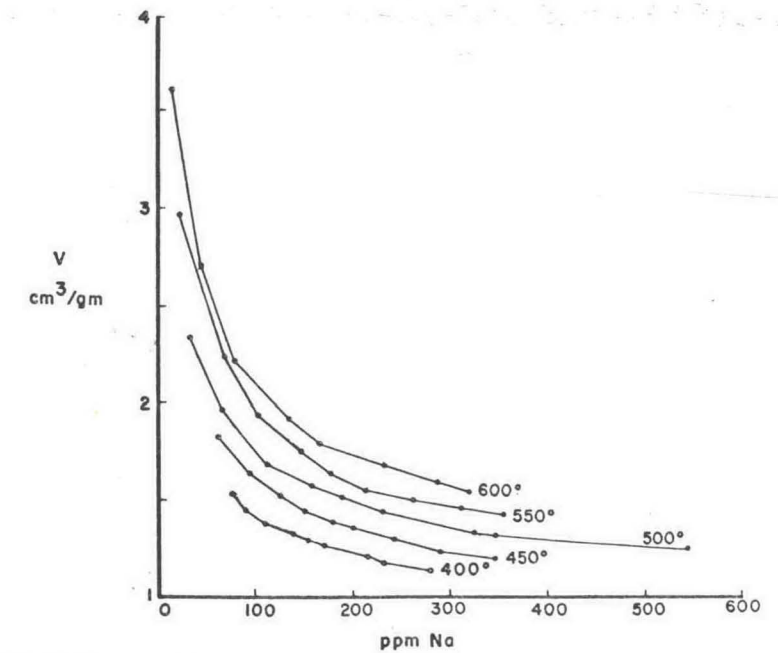


Fig. 3. Content of sodium in albite solutions at various temperatures and pressures. V is specific volume of water in cubic centimeters per gram.