

Table 7 Comparison of specific volume  $V$  (cc/mol) of liquid ammonia

$P$ (atm)	25°C			50°C		
	Present work	Keyes	Deviation (%)	Present work	Keyes	Deviation (%)
9.98	28.34 <sub>2</sub>	28.25 <sub>0</sub> *	-0.32			
20.05				30.30 <sub>8</sub>	30.25 <sub>6</sub> *	0.17
50	28.16 <sub>3</sub>			30.08 <sub>2</sub>		
61.65						
75	28.05 <sub>7</sub>			29.90 <sub>7</sub>		
100	27.96 <sub>0</sub>	27.91	-0.17	29.74 <sub>2</sub>	29.46	-0.94
250	27.76 <sub>0</sub>			29.44 <sub>4</sub>		
200	27.57 <sub>5</sub>	27.65	0.29	29.17 <sub>1</sub>	29.01	-0.55
250	27.40 <sub>0</sub>			28.92 <sub>2</sub>		
300	27.22 <sub>8</sub>	27.15	-0.29	28.68 <sub>8</sub>	28.60	-0.31
400	26.90 <sub>2</sub>	26.93	-0.11	28.24 <sub>2</sub>	28.12	-0.42
500	26.60 <sub>0</sub>	26.67	-0.23	27.82 <sub>5</sub>	27.82	-0.00

\* These are the values in International Critical Tables.

$$\text{Deviation} = (V_{\text{Keyes}} - V_{\text{Present work}}) / V_{\text{Present work}}$$

Table 7 (continued)

$P$ (atm)	75°C			100°C		
	Present work	Keyes	Deviation (%)	Present work	Keyes	Deviation (%)
36.58	32.98 <sub>6</sub>	32.98 <sub>8</sub> *	0.01			
50	32.79 <sub>3</sub>					
61.65				37.29 <sub>0</sub>	37.27 <sub>4</sub> *	-0.04
75	32.46 <sub>2</sub>			36.77 <sub>5</sub>		
100	32.16 <sub>2</sub>	31.83	-1.02	36.02 <sub>2</sub>	35.46	-1.55
150	31.63 <sub>5</sub>			34.92 <sub>0</sub>		
200	31.19 <sub>2</sub>	31.04	-0.48	34.02 <sub>5</sub>	34.01	-0.02
250	30.80 <sub>0</sub>			33.36 <sub>7</sub>		
300	30.45 <sub>0</sub>	30.37	-0.26	32.79 <sub>4</sub>	32.69	-0.30
400	29.84 <sub>5</sub>	29.77	-0.28	31.85 <sub>5</sub>	31.73	-0.37
500	29.33 <sub>0</sub>	29.25	-0.27	31.12 <sub>4</sub>	30.99	-0.41

ture. They have been represented in Table 7 together with the values given by International Critical Tables<sup>12</sup>). There have been little differences of 0.32 and 0.17% between both their values at 25 and 50°C respectively, but they have agreed well within the experimental error of this work at 75, 100 and 125°C.

The specific volumes of ammonia of this work have been represented graphically in Fig. 6 plotting them *vs.* temperature at even pressures. It is shown that they increase together with the increase of temperature and this tendency is more conspicuous with decreasing pressure.

Table 7 (continued)

P (atm)	125°C		
	Present work	Keyes	Deviation (%)
98.15	47.62 <sub>0</sub>	47.65 <sub>4</sub>	0.07
100	46.88 <sub>0</sub>		
150	40.65 <sub>0</sub>		
200	38.40 <sub>0</sub>	38.23	-0.44
250	37.00 <sub>5</sub>		
300	35.94 <sub>0</sub>	35.78	-0.44
400	34.37 <sub>5</sub>	34.24	-0.40
500	33.24 <sub>5</sub>	33.14	-0.30

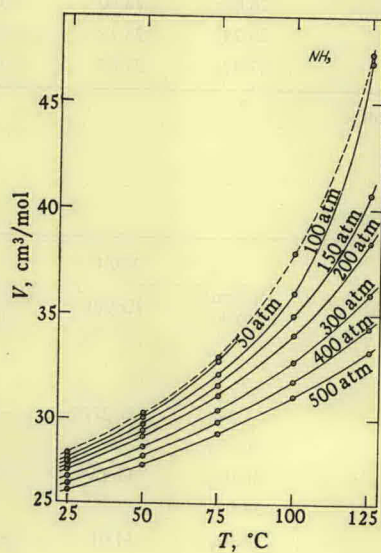


Fig. 6 Specific volume vs. temperature curves of liquid ammonia  
 —○—: Isobars above saturated vapor pressures  
 - -○- -: Saturated line

The Chemical Research Institute  
 of Non-Aqueous Solutions,  
 Tohoku University  
 Sendai, Japan