

TABLE 3

Piston-cylinder cell (solids)<sup>a</sup>

Pressure limits (kbar)	Optical instrument	Windows	Wavelength range ( $\mu\text{m}$ )	Remarks	Ref.
160	Beckman DU (0.25–10 $\mu\text{m}$ ), Perkin-Elmer single beam, double prism instrument in IR	NaCl	UV, Visible NIR, MIR to 10	Sapphire, CaF <sub>2</sub> windows have also been used; 80–450 K	30–33
30	Beckman	Quartz, sapphire	0.36–0.40		36
30 <sup>c</sup>	IKS-12	Diamond	5–6		37
55	RIIC, Grubb-Parsons Cube interferometer	Sapphire, diamonds (type II) MgO, fused silica, Irtran	1–1000	77–500 K <sup>64,65</sup>	35
10–20 <sup>c,d</sup>	Perkin-Elmer Coderg	Sapphire Diamond	1–5 100–1000	2–300 K	Vu <sup>b</sup>
9	RIIC 720FS interferometer and <i>f</i> -2 single pass grating instrument of Ebert type	Quartz	90–500	For FIR, hydrostatic gas pressure cell	38 <sup>b</sup>
50	PE 421, 400, JACO	NaCl		77–500 K	46 <sup>b</sup>

<sup>a</sup> Abbreviations: NIR, near infrared; MIR, mid-infrared; FIR, far infrared. <sup>b</sup> Personal communication. <sup>c</sup> Can be used for liquids as well.

<sup>d</sup> Can be used for gases as well.

TABLE 4  
Piston-cylinder cells (liquids or solution)

Pressure limits (kbar)	Optical instrument	Windows	Wavelength range ( $\mu\text{m}$ )	Remarks	Ref.
200 <sup>a</sup>	Perkin-Elmer model 521	KBr or NaCl	5-6	Used to study carbonyl reactions in metal carbonyls	39
40	Beckman DK-2	Sapphire	0.2-0.33	Solutions of inorganic salts in H <sub>2</sub> O	40
10-12	Perkin-Elmer model 112	Sapphire	0.2-5	Studied $\nu_{\text{OH}}$ band in butanol solutions of CS <sub>2</sub>	41
1.5 10 12 <sup>c</sup> 1	{ Beckman IR-5A <sup>b</sup> { (?) { (?)	{ Irtran 1 or 2 { Sapphire { Sapphire	{ ~6 { 3 { (?)	{ Study of C $\equiv$ C vibration { Studies of H <sub>2</sub> O { Cell claimed to be suitable for use to 6 kbar	{ 42 { 43 { 44

<sup>a</sup> Can be used to 373 K. <sup>b</sup> With grating monochromator. <sup>c</sup> Similar to Drickamer cell in Table 3.

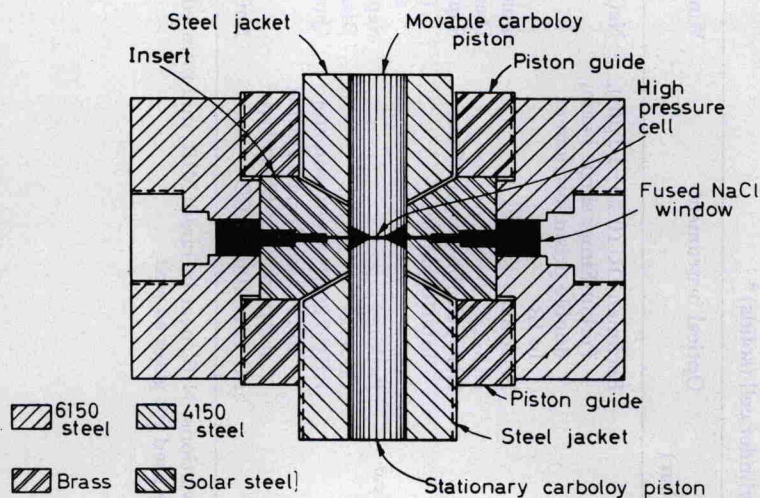


Fig. 1. Drickamer cell used for high pressure optical measurements [30-33]. (Figure reproduced through the courtesy of the authors and John Wiley and Sons, Inc., New York.)