

TABLE 3

Piston-cylinder cell (solids)^a

Pressure limits (kbar)	Optical instrument	Windows	Wavelength range (μm)	Remarks	Ref.
160	Beckman DU (0.25–10 μm), Perkin-Elmer single beam, double prism instrument in IR	NaCl	UV, Visible NIR, MIR to 10	Sapphire, CaF ₂ windows have also been used; 80–450 K	30–33
30	Beckman	Quartz, sapphire	0.36–0.40		36
30 ^c	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 ^{64,65}	35
10–20 ^{c,d}	Perkin-Elmer Coderg	Sapphire Diamond	1–5 100–1000	2–300 K	Vu ^b
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 ^b
50	PE 421, 400, JACO	NaCl		77–500 K	46 ^b

^a Abbreviations: NIR, near infrared; MIR, mid-infrared; FIR, far infrared. ^b Personal communication. ^c Can be used for liquids as well.^d Can be used for gases as well.

TABLE 4
Piston-cylinder cells (liquids or solution)

Pressure limits (kbar)	Optical instrument	Windows	Wavelength range (μm)	Remarks	Ref.
200 ^a	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 ₂ O	40
10-12	Perkin-Elmer model 112	Sapphire	0.2-5	Studied ν_{OH} band in butanol solutions of CS ₂	41
1.5	Beckman IR-5A ^b	Irtran 1 or 2	~6	Study of C \equiv C vibration	42
10					
12 ^c	(?)	Sapphire	3	Studies of H ₂ O	43
1	(?)	Sapphire	(?)	Cell claimed to be suitable for use to 6 kbar	44

^a Can be used to 373 K. ^b With grating monochromator. ^c Similar to Drickamer cell in Table 3.

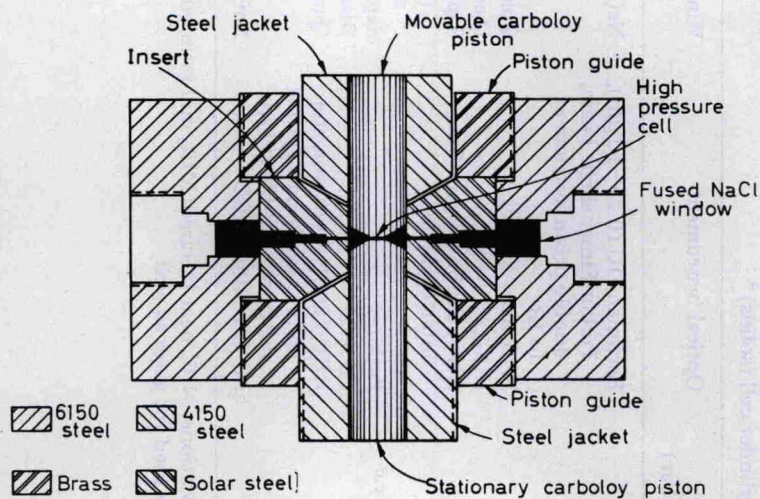


Fig. 1. Drickamer cell used for high pressure optical measurements [30-33]. (Figure reproduced through the courtesy of the authors and John Wiley and Sons, Inc., New York.)