

white. Some varieties exhibit a beautiful play of colours. Very brittle. $H = 5.5 \dots 6.5$. $G = 1.9 \dots 2.3$.

The variety called hyalite is transparent...semitransparent; colourless; reniform, botryoidal. Fire opal is transparent; red, yellow, sometimes iridescent. Noble opal, semitransparent...translucent; milk-white, yellowish-white, exhibiting a play of colours. Common opal shows no play of colours. Semiopal is dull and opaque. Cascholong is white and opaque. Siliceous sinter is deposited in fibrous, reniform and botryoidal masses by various hot springs. Hyrophane imbibes water readily, and becomes more transparent in consequence.

In the matrass yields water. Before the blowpipe decrepitate, is infusible. Is almost perfectly soluble in a cold solution of caustic potash. In other respects, the chemical characters are the same as those of quartz.

Consists of amorphous silica with from 5 to 13 per cent. of water, and small quantities of red oxide of iron, alumina, lime, magnesia, potash and soda.

Analyses of hyalite *a* from Frankfort on the Maine by Bucholz, *b* from Hungary by Beudant, *c* from Waltsch in Bohemia by Schaffgotsch, of the red or yellow variety called fire opal *d* from Zimapan in Mexico by Klaproth, of noble opal, exhibiting a play of colour *e* from Cscherwenitza in Hungary, of yellow opal *f* from Telkőbanya, both by Klaproth:—

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>
Silica	92.00	91.32	95.5	92.00	90.0	93.5
Red oxide of iron	—	—	0.8	0.25	—	1.0
Lime	—	—	0.2	—	—	—
Water	6.33	8.68	3.0	7.75	10.0	5.0

In hyalite from Zimapan in Mexico the loss by ignition was found to be 2.5...2.9 per cent.; in siliceous sinter from the Geyser 10.6 per cent.

Analyses of opal *g* from Frankfort by Stucke, *h* from Moravia, *i* from Paris (menilite), both by Klaproth; *k* from Castella Monte by Beudant; wood opal (forming the substance of fossil wood) *l* from Oberkassel by R. Brandes; hydrophane *m* from Hubertsburg in Saxony by Klaproth:—

	<i>g</i>	<i>h</i>	<i>i</i>	<i>k</i>	<i>l</i>	<i>m</i>
Silica	82.75	85.00	85.50	93.2	93.00	93.13
Alumina	3.50	3.00	1.00	—	0.13	1.62
Red oxide of iron	3.00	1.75	0.50	(Mg 0.3)	0.37	—
Lime	0.25	—	0.50	0.4	—	—
Water	10.00	8.00	11.00	6.1	6.13	5.25
Carbon	—	1.00	(0.33 bituminous oil)	—	—	—