

## **Pd AND Pt SOLUBILITIES IN AQUEOUS SILICATE MELTS VERSUS THE $fO_2$**

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Palladium and platinum solubilities in silicate melt of Di<sub>55</sub>An<sub>35</sub>Ab<sub>10</sub> composition at oxygen fugacities from HM to WI buffer at 1200°C and 2 kbar of H<sub>2</sub>O-H<sub>2</sub> fluid pressure were determined. The set of runs with Pt at constant sulfur fugacity,  $\log fS_2 = -0.394$ , was carried out. All experiments were run under control of hydrogen portion in the fluid pressure. A decrease of oxygen fugacity in equilibrium with the melt lead to a considerable decrease of Pd solubility. In the near of MW buffer at  $X_{H_2} = 0.1$  a spasmodic increase of Pd solubility is observed and the curve slope changed as well. The solubility behaviour of Pt depending on oxygen fugacity is more complex. At HM buffer oxygen fugacity Pt solubility is higher. A Pt solubility decrease in the range from HM to MW buffers as well as Pd. Contrary to Pd the further addition of H<sub>2</sub> to the gaseous mixture results in the increase of the Pt concentration in silicate melt. Electron paramagnetic resonance data of the Pt-bearing sample obtained under reducing conditions did not show a presence of the Pt nuggets in the silicate glass. The new solubility mechanism of PGE cluster formation in reduced condition is suggested. The pressure of water-hydrogen fluid essentially increases Pd and Pt solubilities relative to dry conditions. In spite of the presence of sulphur and its different contents in silicate melts the solubility of Pt is practically consistent with the Pt solubility in an absence of sulfur in the whole interval of the investigated  $fO_2$ .