Vico volcano is a well-developed Neogene-Quaternary phonolitic stratovolcano located at the northern edge of the Roman Magmatic Province, approximately 60 km north of Rome in central Italy. Vico Volcano had a complex history commencing at 419 ka and ending at 95 ka. Three main eruptive cycles have been identified within the Vico volcanic complex: the Rio Ferriera Synthem (419 – 400 ka), representing the initial effusive phase intermittent with minor explosive phases of activity; The Lago di Vico Synthem (305 – 144 ka), characterizing the major explosive caldera forming phase; and the Monte Venere Synthem (138 – 95 ka) which represents final effusive and phreatomagmatic volcanism. The eruptive style of explosive volcanic eruptions is principally determined by degassing processes, which are primarily controlled by the chemical and physical properties of the magma. H$_2$O, SO$_2$, CO$_2$ represent the most important volatile components dissolved in magmas, and are measured in the pre-eruptive melt, confined within glass melt inclusions. Melt inclusions were observed within pyroxene and feldspar phenocrysts in all four main ignimbrite forming eruptive pyroclastic deposits at Vico (Farine, Ronciglione, Sutri and Carbognano), fresh melt inclusions were also observed in the Mount Venere Lava sample. These melt inclusions are spherical to ellipsoidal in shape, ranging in size from 10µm to > 300 µm in size. Only fully enclosed melt inclusions were analysed which were uncovered and polished on both sides to obtain glass wafers. The determination of H$_2$O, SO$_2$ and CO$_2$ contents by IR spectroscopy was conducted in order to obtain original melt composition and volatile content.

KEY WORDS: Volatile analysis; phonolite; Vico Volcano; Central Italy