The scientific effort focused on rheology and physical properties of magmatic suspensions, has significantly improved our knowledge of the mechanisms responsible for the observed flow behaviour of magmas. However, many experimental and numerical data on magma rheology were collected on relatively simplified systems. Therefore, it is necessary to implement present models with experimental results and numerical simulations performed on system that represent more closely natural magmas. This effort is important because rheological behaviour of magmas is fundamentally controlling the dynamics of magma ascent, emplacement, degassing, and, as a consequence, the transition from effusive to explosive eruptions and vice-versa. With this contribution I am going to show experimental, numerical and theoretical results, to highlight how the relative proportions of crystals and bubbles present in a silicate melt affect the rheological behaviour of magmas. Experimental studies have been performed using a high pressure and temperature Paterson-type deformation apparatus and at low pressure and temperature on analogues material. Experiments have been carried out varying the viscosity of the suspending phase, degree of crystallinity, bubble content and applied strain rates. Additional experiments have been performed on bubble-bearing silicate melts at different final strain to constrain the effect of deformation on magma degassing. The visco-elastic transition of suspensions containing different amount of crystals has been determine at magmatic pressures and temperatures. Throughout all the studies, which I am going to summarize in this contribution, a theoretical framework will be used to extract the most influential physical parameters responsible for the observed rheology of magmas.