In spite of its small radius (252 km), Enceladus is active satellite radiating high heat and emanating water plume. As a conventional heat source, tidal heating is thought to be the main mechanism to invoke such a large activity. However, Maxwell response with completely differentiated is insufficient to generate large heat as observed (around 10 GW). Other rheological model than Maxwell is proposed for the research of Iapetus, which results in appropriate response of Iapetus. Although we cannot say, of course, that Enceladus has the same rheology to Iapetus, analogy between Enceladus and Iapetus is a good approach because they both are Saturnian icy satellite. In addition to that, recent gravity measurement implies that Enceladus' core is not completely but partially differentiated, which means thickness of the ice mantle is relatively thin compared to former research. In this work, as ice alternative rheology, Burgers and Andrade body is applied to calculate heating rate in Enceladus by constructing new structure model consistent with latest observational results. While, in the case of Maxwell body, only small amount of heat was generated even though the new structure model, a few giga watt of heat was produced at Burgers and Andrade body when ocean exists. With a lack of ocean magnitude of tidal heat reduced by two of order.