The possibility of using geopolymers to fill gaps/lacunae in glazed ceramic tiles (azulejos) has been studied. Since the 15th century, glazed ceramic tiles are characteristic elements of the Portuguese architectural heritage and their use as external rendering elements has made them prone to degradation. On the other hand, civil construction is a sector with a high consumption of natural resources and CO₂ emissions. In order to respond a necessary increase of sustainability in conservation/restoration processes, it is important to create/use sustainable repair materials that also ensure compatibility and durability of interventions. Geopolymers were studied as a potential sustainable and compatible repair material. Two commercial metakaolins ARGICAL-M 1200S and ARGICAL-M 1000 were used as precursors in geopolymer pastes and tested. The purpose of this research was to assess the potential of geopolymers in the restoration of the glazed ceramic tiles, both in the filling of gaps and the bonding of ceramic fragments. The physical, chemical and mineralogical analyses of these materials were performed. Additionally, in order to evaluate possible use in conservation interventions, tile lacunae filling, glazing reintegration and bonding of ceramic fragments were studied. Several tests were performed in order to analyse the compatibility and durability of the designed geopolymers and the ceramic/geopolymer system. The results suggest that the geopolymers had a better performance in the bonding of ceramic fragments and can have potential to be applied in the conservation and restoration of tile facades. Thus, as a general conclusion, it was possible to develop sustainable materials to apply in conservation of buildings facades.