

Chemical and mineralogical characterization of archeological ceramics from Aghmat site (VIIth Century) (southern Morocco)

Mouhssin El Halim^{1,2,*}, Lahcen Daoudi¹, Meriam El Ouahabi², Hicham El Boudour El Idrissi¹, Leila Rebbouh³, Nathalie Fagel²

¹*Laboratoire de Géosciences et Environnement (LGSE), Département de Géologie, Faculté des Sciences et Techniques, BP 549, Université Cadi Ayyad, Marrakech, Morocco* ; ²*UR Argile, Géochimie et Environnement sédimentaires (AGEs), Département de Géologie, Quartier Agora, Bâtiment B18, Allée du six Août, 14, Sart-Tilman, Université de Liège, B-4000, Belgium* ; ³*ESA Saint Luc de Liège, Boulevard de la Constitution, 414020 Liège, Belgium*

*E-mail: elhalim.mouhsin@gmail.com

The aim of this paper is to study Aghmat archaeological materials (VIIth centuries) using two types of ceramics collected from a recent archaeological excavation in Aghmat region (Morocco) in order to enhance documentation, conservation and restoration issues, then putting into value the architectural heritage. Fortuitously discovered in 2005, Aghmat village has allowed the reformulation of several hypotheses about Aghmat population skills in construction and handicrafts. Even though the areal extent of this archaeological site exceeds 20 km², no traces of furnaces have been found yet, only ruins of buildings and streets. Bricks and pottery samples were the most abundant types of ceramics founded. Mineralogical and chemical analyses of this materials provided information about the origin of raw materials and manufacturing process. Firing conditions have been estimated (mostly using temperatures from 800°C to 900°C). The chemical compositions indicated that SiO₂, Al₂O₃ and Fe₂O₃ are major elements while K₂O and MgO are less abundant. The ceramics were produced using at least two raw materials, non calcareous clay of Permo-Triassic age for bricks, and carbonate Quaternary clays for pottery samples, as the calcium oxide content is generally more than 10%. The differences identified through morphological analysis and experimental results were cross referenced with historical data, allowing a scientific interpretation, supported by experimental results and contrasted to historical information.

Keywords: Archaeology, Aghmat ceramics, Pottery, manufacturing process, Morocco