SYNTHESIS AND CHARACTERIZATION OF MODIFIED DIATOMITE BY CALCINATION AND THEIR EFFECT IN THE PROPERTIES OF ASPHALT BINDER

W.REZIG Walid [1], HADJEL Mohammed [2]*

[1,2] Laboratory of Sciences Technology and Process Engineering LSTGP, Faculty of Chemistry , Department of Industrial Organic Chemistry , University of Sciences and the Technology of Oran Mohamed Boudiaf USTO-MB , BP 1505 EL M'naouer Bir El Djir 31016 Oran Algeria.*

E-mail[1] : walidrzg@gmail.com*

Abstract :

During the last decades, there has been an increasing interest in the cement industry to incorporate pozzolanic materials to cement in order to reduce CO_2 emissions, and increase the strength and durability of mortars and concretes.In this work, the potential use of two thermically activated kaolinitic diatomite (clay) as pozzolanic materials coming from different deposits of wetherland of Algeria (Sig , Wilaya of Mascara) is studied both kaolinitic diatomite has different kaolinite content and structure .After thermal treatment and grinding, their pozzolanic properties were studied on blended cement containing 30 % of calcined diatomite.It was determined that mortars containing calcined diatomite with a higher percentage of kaolinite and certain disorder degree in its crystallinity previous to calcination , developed higher resistance to compression. This can be attributed to larger quantity of hydration pproducts caused by the pozzolanic reaction , which also produces a better pore size arrangement.To conclude, when kaolinitic diatomite is used as pozzolana, kaolinite percentage and structural disorder are variables to be taken into account.

Keywords : Kaolinite , Diatomite, clay, pozzolana, cement.