Conserve and transfer energy through natural clay

M. Djebbar [(1)]

[(1)] *Laboratory for Materials, Applications and Environment University of Mustapha Stampoli Algéria*

1. Introduction – Mineralogical analysis of Clay using XRD, TEM, SEM and EDAX showed that it consisted of smectte, quartz, and feldspar with minor illite of chlorite and montmorillonte.
The organic compounds chemically reacting on clay surfaces. The natural clay before and after treaded was characterized using XRD and IR techniques and ATG/ATD. On the crystallochemical plane, this smectite is dioctahedral, aluminous and ferriferous. There is a strong substitution of Si by Al in tetrahedral layer. In addition, the report 10,47 Is high. The non-negligible amount of carbon present in this clay fraction, as well as the unusual reticular spacings of smectite observed on X-rays. The thermogravimetric results for treated clay revealed a weight loss corresponding to free and absorbed water on the outer surface of montmorillonite and organic materials due to acid treatment in the range of 34 to 133°C. The corresponding weight loss for natural and treated clays was 8.69% and 2.04%, respectively.
2. Experimental - The transfer and storage of energy this fact through the electrons produced by the chemical oxidation / reduction path to the biological and micro bacterial pathway. According to the literature and following the research of this work the two chemical and biological paths are manifested in the crystal structure of the clay as chemical laboratory where the inorganic / organic raw materials are transformed into more complex molecules we modify interlayer space Between the sheets, the slight structural rearrangements increase the binding energy, hydroxyls in the empty cavities tend to be perpendicular to the plane (a, b) of the sheet and the potassium tend to penetrate deeper In the cavities (~ 0.2 A).. The structural formula gives the chemical composition of the mesh, the layers are formed by an anion framework of (O-2) and OH-

3. Results and Discussion - Approximate structural formula for smectite In order to better characterize the nature of the smectite existing within the clay fraction, a calculation for determination of the structural formula was determined. The calculation gives the following composition. Table 3 lists the chemical analyses of these finest fractions including some key trace elements, in the order of decreasing Fe content.

4. Conclusions - The corresponding weight loss for natural and treated clays was 8.69% and 2.04%, respectively it is similar and approximate at the mineralogical XDR analyses total C is 6.86% at 1Kev. It has been demonstrated in this study that our clay contains organic matter. The environmental aspects of organic compounds chemically reacting on clay surfaces. Three main types of the transformation of organic compounds in Clay are considered: photodecomposition, chemical transformation, and microbiological degradation. The fresh organic matter easily decomposes into energy food this reaction is coupled to another reaction. In fact, part of the energy released during the reduction of the electron acceptor allows the synthesis of a molecule called ATP (energy molecule) for bacteria with production of CO2 and H2O, nitrates, phosphates, sulphates, soluble inorganic (K+, Na+ ...). These simple molecules can be fixed by clay. In some cases however, the gain (or loss) of an electron can result in significant changes to the electronic structure of Clay.

5. References

[1] J.G .Nairn, Marcel Dekker, New York., **4**, (1992) p. 107–120.
[2] R. J. J. Sci. Fd. Agric,18, (1967) p. 544-547.