

;

sadik_hosevni@yahoo.com

-

CEC

CEC

CEC

کلمات کلیدی: بنتونیت، ظرفیت تعویض کاتیونی، جذب یونی، کاتیون های بین لایه ای

Determination of the cation exchange capacity in Kerman province bentonites

Mohammad Sadegh Hosseini, Amir Sarrafi, Majid Tahmoorezi

Abstract

Cation exchange capacity (CEC) of bentonite is an important characteristic for use in different industries. Several methods are used to measure these properties among which adsorption of methylene blue and copper ethylenediamine complex are the most common methods. In this investigation CEC of bentonite samples of Kerman were examined and their values were compared. The results show that methylene blue method exhibit lower values for calcium bentonites and the CEC results by this method may not be reliable while copper complex method show correct values in sodium or calcium bentonites.

Keywords: Bentonite, Cation Exchange Capacity, Ionic Adsorption, Interlayer cations

Si^{+4} Al^{+3}

Li^{+}

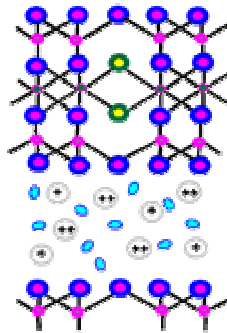
Fe^{+2} Mg^{+2}

[]

[]

CEC

[]



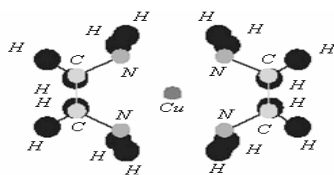
$(Na^{+}, K^{+}, NH_4^{+})$

CEC

CEC

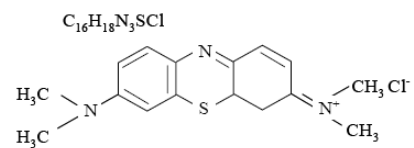
CEC

[]



()

[] [] ()



()

()

SiO₂

Al₂O₃

CaO Na₂O

CEC

() CEC

CEC

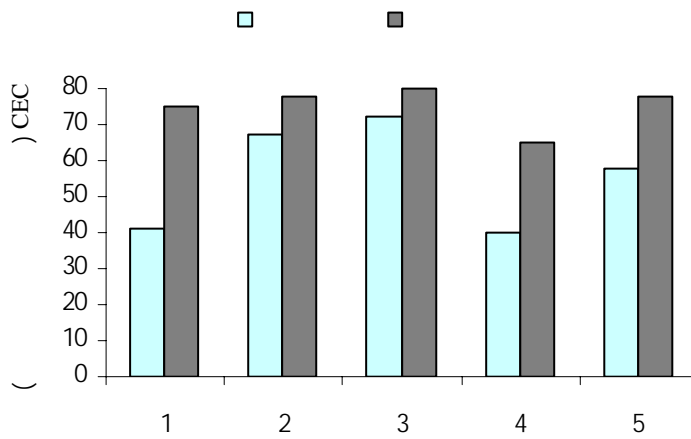
CEC .

CEC

CEC

CEC

CEC (



CEC

CEC

CEC

CEC

CEC

CEC

- [1] Grim, R. E.; 1968; *Clay Mineralogy*, McGraw-Hill Book Company.
- [2] Grim, R. E. and Guven, N.; 1978; *Bentonites: Geology, Mineralogy, Properties, and Uses*, Elsevier, Amsterdam.
- [3] Luckham, P. F. and Rossi, S.; 1999; "*The Colloidal and Rheological Properties of Bentonite Suspensions*", *Advances in Colloid and Interface Science*, Vol. 82, pp. 43-92.
- [4] Meier, L. and Kahr, G.; 1999; "*Determination of the Cation Exchange Capacity (CEC) of Clay Minerals Using the Complex of Copper Ion with Triethylenetetramine and Tetraethylenepentamine*", *Clays and Clay Minerals*, Vol. 47, No. 3, pp. 386-388.
- [5] Santamarina, J.C. and Klein, K. A.; 2002; "*Specific Surface: Determination and Relevance*", *Can. Geotech. Vol.39*, pp.233-241.
- [6] Bergaya, F. and Vayer, M.; 1997; "*CEC of Clays: Measurement by Adsorption of a Copper Ethylenediamine Complex*", *Applied Clay Science*, Vol. 12, pp. 275-280.