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سرویس ترجمه تخصصی



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بلاگ مرکز اطلاعات علمی



عضویت در خبرنامه

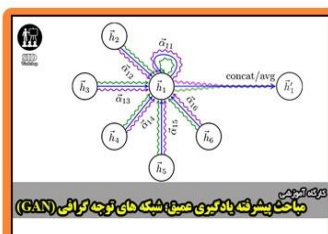


فیلم های آموزشی

کارگاه های آموزشی مرکز اطلاعات علمی جهاد دانشگاهی



کارگاه آنلاین آشنایی با پایگاه های اطلاعات علمی بین المللی و ترند های جستجو



مباحث پیشرفته یادگیری عمیق؛ شبکه های توجه گرافی (Graph Attention Networks)



کارگاه آنلاین مقاله نویسی IEEE و ISI ویژه فنی و مهندسی

با وجود تحقیقات مختلف در کاربرد نانو رس ها

(CEC)

CEC

A

(Cps)

Bentonite> Cloisite®Na⁺ > Kaolinite> Cloisite®30B > Cloisite®20A > Cloisite®15A

Geo-environmental Behaviour of Nanoclays in Interaction with Heavy Metal Contaminants

V. R. Ouhadi; M. Amiri

ABSTRACT

In recent years, the use of nanoclays in different projects are reported. However, there has been very little attention on the application of nanoclays in geo-environmental projects. In this paper the possibility of application of nanoclays for retention of heavy metal (HM) contaminant were investigated. To achieve this objective a series of experiments were performed on bentonite, kaolinite and nanoclays samples. The buffering capacity, retention properties and XRD experiments show that among Cation Exchange Capacity (CEC), specific surface area, and carbonate, the main factor that controls the soil-HM interaction is carbonate phase. The CEC is the second important factor. Furthermore, after interaction of soil samples with HM the intensity of basal spacing of minerals in XRD decreased. In Cloisite 15A which had the minimum interaction with HM, the minimum reduction in peak intensity was observed (200 Cps). In addition, the contaminant retention of soil samples are in accordance to following order:

Bentonite> Cloisite®Na⁺ > Kaolinite> Cloisite®30B > Cloisite®20A > Cloisite®15A

KEYWORDS

Nanoclay; Bentonite; Heavy metal contaminant; XRD; Buffering Capacity.

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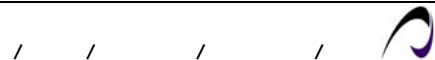
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Email: vahidouhadi@yahoo.ca :

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Email: Eng.amirii.mohammad@gmail.com :

ii



pH
.[]

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CEC .[]

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pH

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(:[]]:

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B

A

A

Na⁺

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EPA ASTM

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EGME

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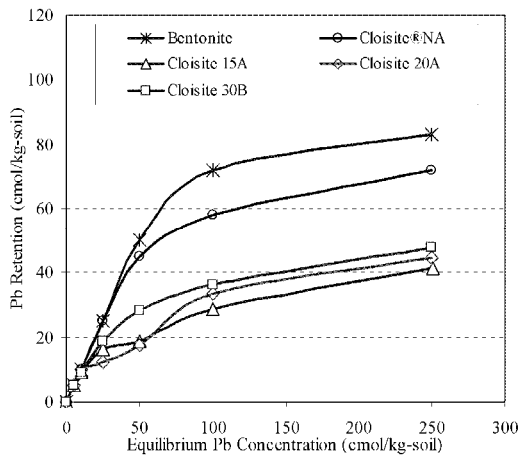
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Na⁺

(HNO₃)

[]

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Na⁺
%

[]

(Cu(NO₃)₂·3H₂O)

(Pb(NO₃)₂)

/ /
/

Na⁺

B

Na⁺

B

A

rpm

(AAS)

pH

(GBC932 AB Plus)

() ()

Na⁺

() ()

A

B

A

Na⁺

() ()

- B A A

:()

			(: :) pH
		± ,	
	± ,	± ,	(m ² / kg*10 ⁻³)
			(cmol / kg-soil)
			(G _s)
	ML - CL	CH	

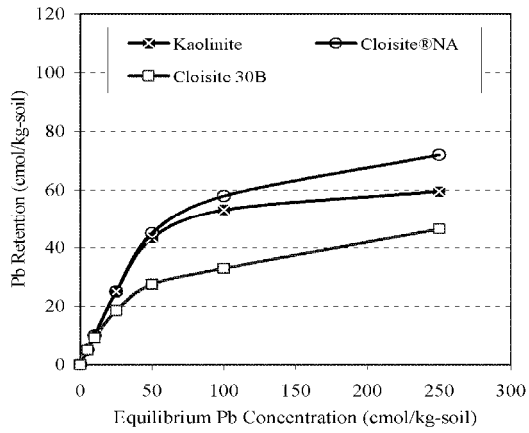
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Na⁺	A	A	B	
				(: :) pH
-	2M2HT	2M2HT	MT2EtOH	
-	(cmol / kg-soil)	(cmol / kg-soil)	(cmol / kg-soil)	
, ±	±	, ±	, ±	(m ² / kg*10 ⁻³)
				(cmol / kg-soil)
				(G _s)
CH	CH	CH	CH	

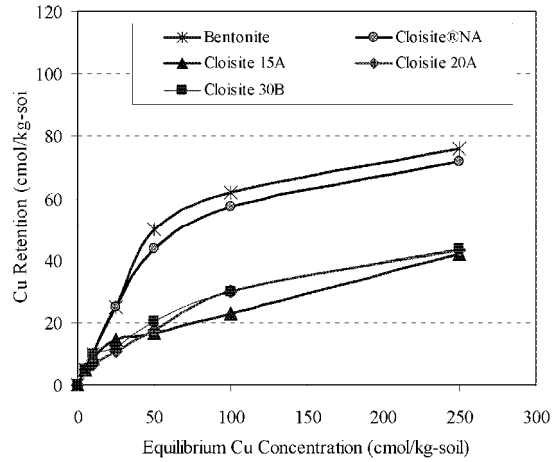
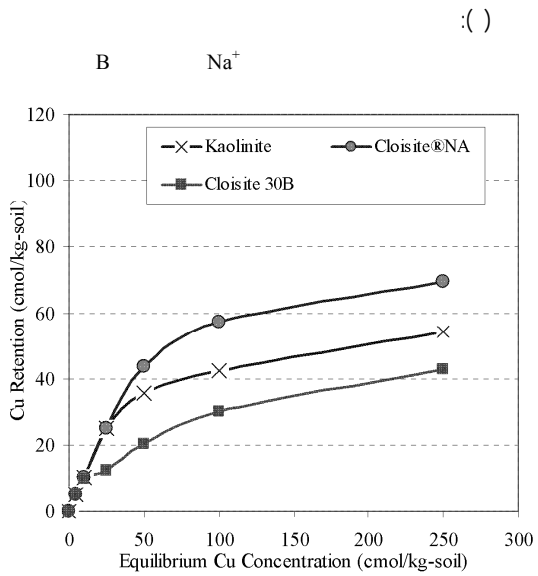


Na⁺
 (%)
 B
 Bentonite > Cloisite®Na⁺ > Kao. > Cloisite®30B > Cloisite®20A > Cloisite®15A

()
 Na⁺
 ()



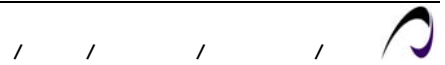
()
 (%)
 CEC (%)
 (%)
 (%)
 ()



()
 B Na⁺
 ()
 ()
 ()

Na⁺

()



()

(SSA)

(CEC)

pH ()

()

pH

%

[]

()

()

Na⁺

()

pH

()

()

pH

%

Na⁺

%

pH

Na⁺

pH

pH

B

Na⁺

%

B

%

()

Na⁺

SSA

CEC

:()

cmol/kg-soil

CEC (cmol/kg-soil)	SSA (m ² /g)		
'	'		
'	'		
'	'		Na ⁺
'			A
'	'		A
'	'		B

Cps ()

Cps

<

<



/ / / /

A

A
B

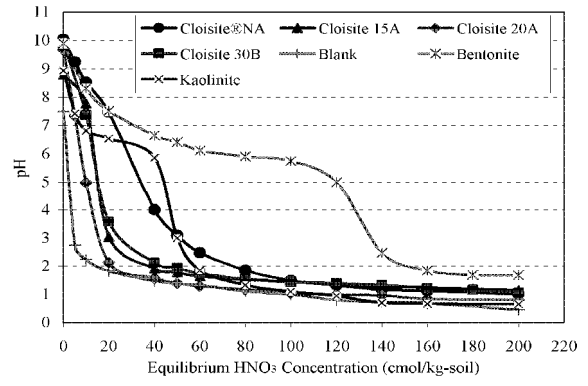
B

B

(Cps)

A
B

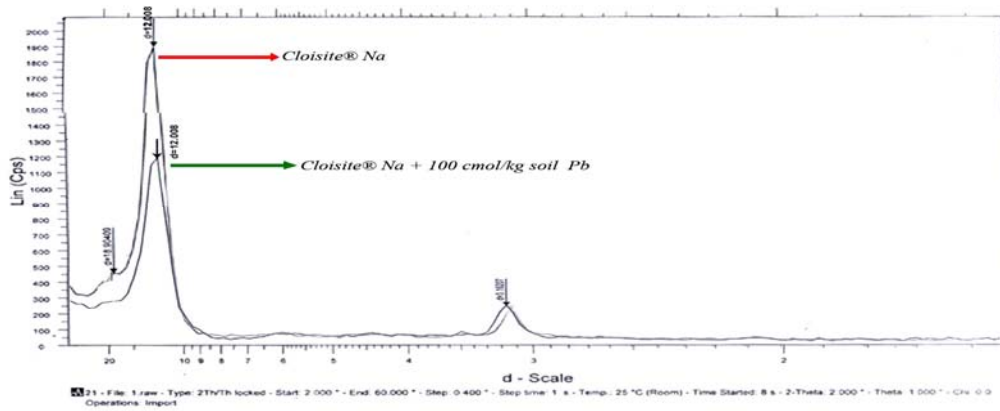
A



:()

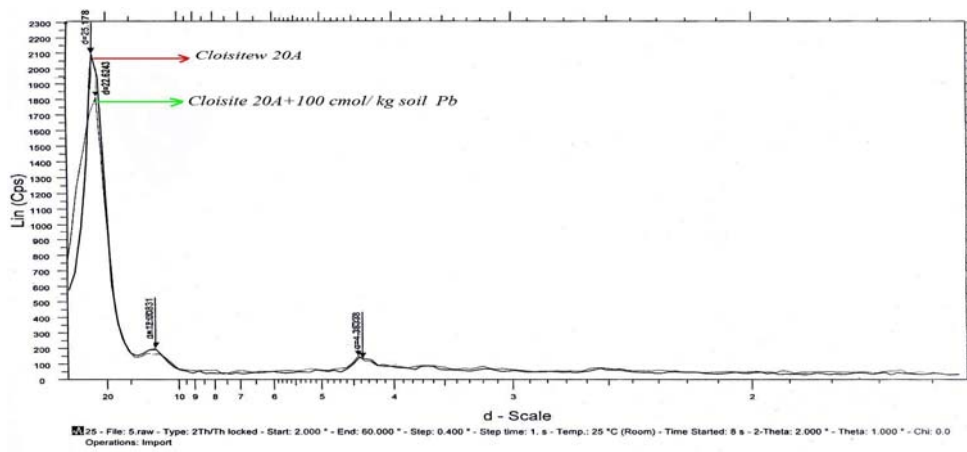
()

A



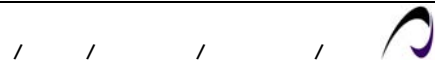
Na⁺

:()



A

:()



Bentonite> Cloisite®Na⁺ > Kaolinite> Cloisite®30B
 > Cloisite®20A > Cloisite®15A

%

A B %
 A

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¹ Cloisite
² SSA
³ CEC



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