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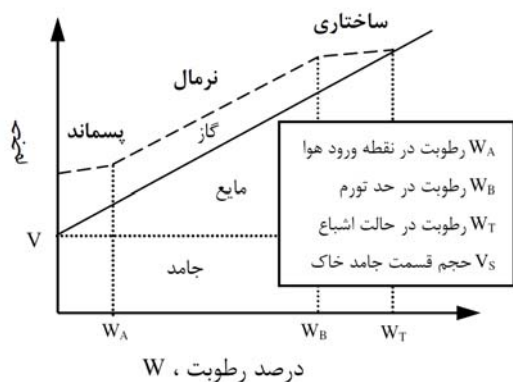
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Mishra et al., 2007

Haines (1923)

(Mishra et)

.al., 2007



(Gaurley et al., 1993)

Tripathy et)

(al., 2002

Haines (1923)

Structural)

(shrinkage

(e)

(w)

Normal)

(shrinkage

bijan_parsaee@yahoo.com :

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()

۸۸	حد روانی (I)
۳۱	حد خمیری (I)
۵۷	شاخص خمیری (I)
۱۳	حد انقباض (I)
۲/۷۵	وزن مخصوص دانه‌های جامد
۷۳	عبوری از الک ۲۰۰ (I)
۴۸	میزان رس (کوچکتر از ۰.۰۰۲ میلیمتر) (I)
۲۵	میزان سیلت (I)
۳۷	میزان ماسه ریز (I)
۱/۱۸	فعالیت (A)

(shrinkage Residual)

(

()

(Oedometer)

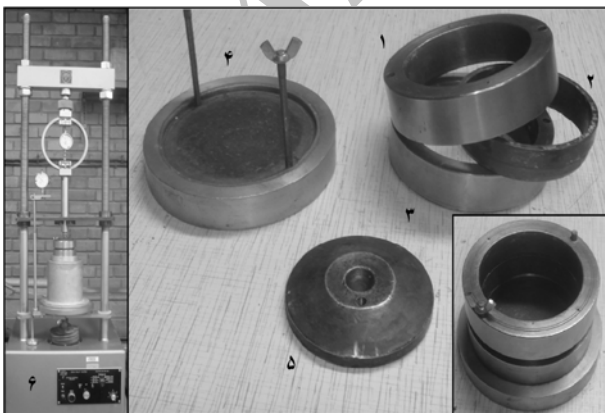
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(McKeen, R.G. (1992)

(Kaolin)



%

%

(A)

(PI)

(CH)

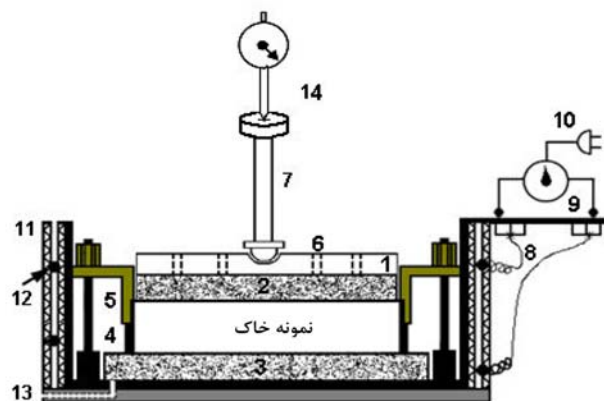
: : () :

$w_{opt}=20.5 \%$

$\gamma_d=16.1\text{kN/m}^3$

l) %
kN/m³

Archive of SID



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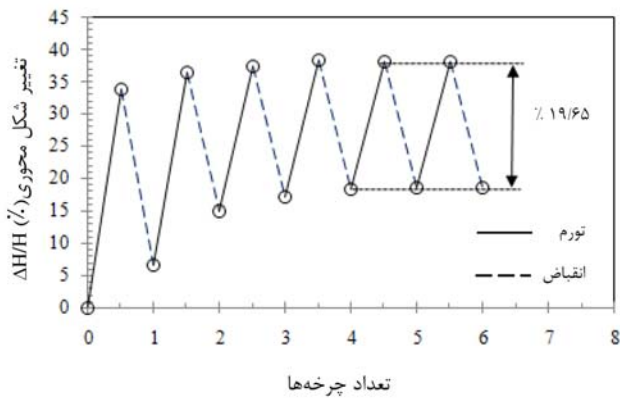
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$$\Delta e \quad \Delta V$$

V_0

(H_0) (ΔH)



Archive of SID

/ / ()

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$$\frac{\Delta V}{V_0} = \frac{\Delta e}{1+e_0}$$

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Chen (1965);

Subba Rao and Satyadas (1987); Chu and Mou (1973)

Adel (1991)

Popescu (1980)

Tawfiq

and Nalbantoglu (2009)

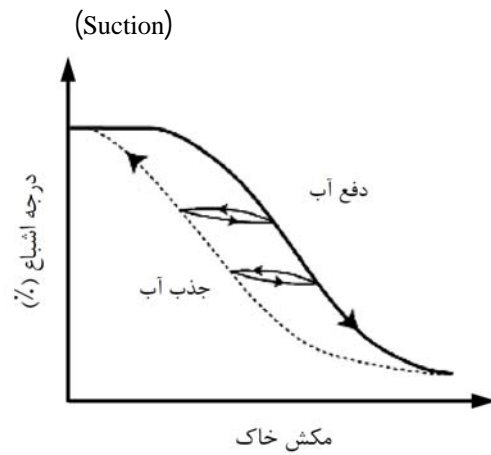
Al-Homoud et al. (1995)

Basma et al. (1996)

(Hysteresis)

(Soil-Water Characteristic Curve)

()



Alonso et al. (1994)

(Barcelona Expansive Model)

(Microstructure)

(Macostructure)

C B

F E D

(w)

(e₀)

(A)

B

B

A

()

C

()

()

C

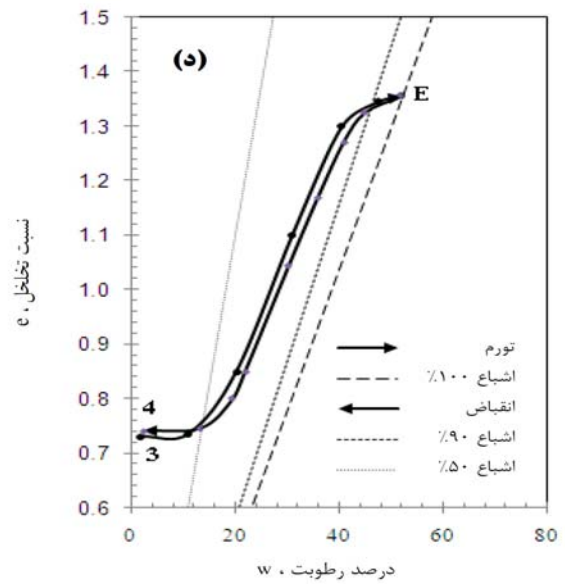
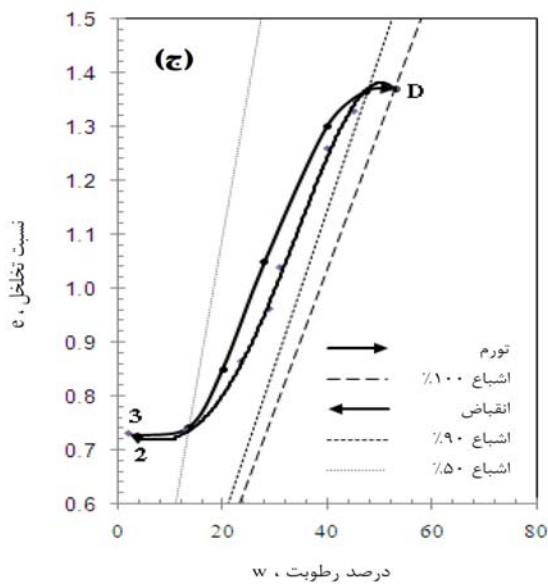
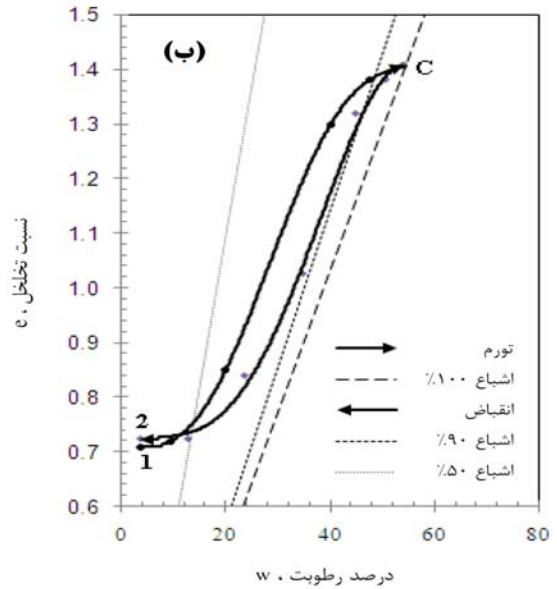
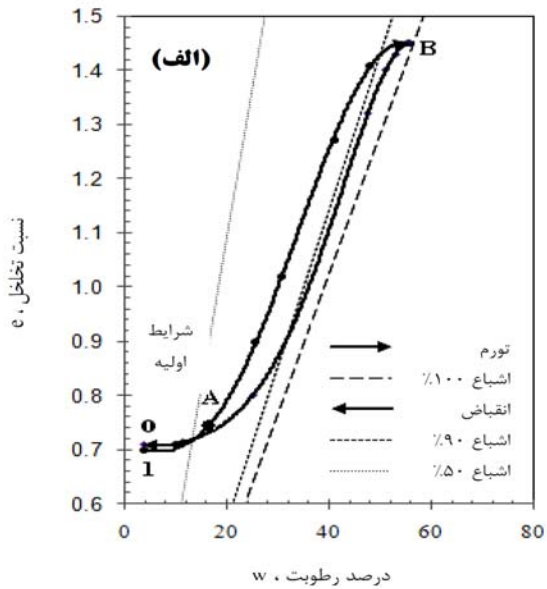
(Gens and Alonso., 1992)

D

D



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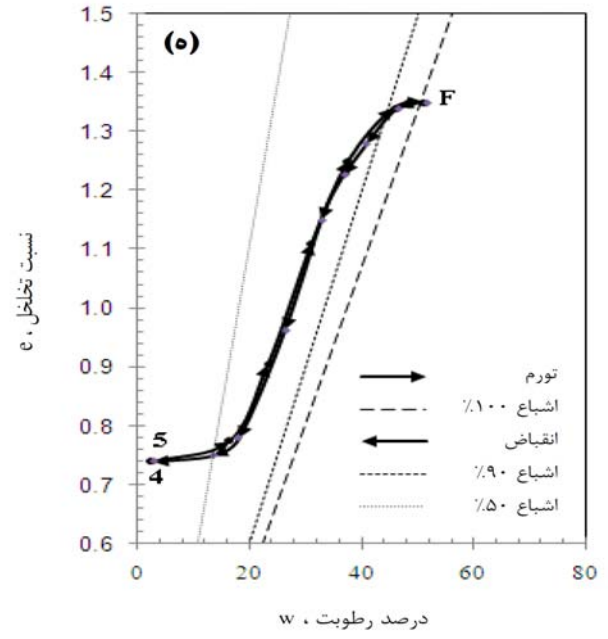


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Mishra et al.

(2007)



Sitharam et al. (1995); Tripathy et al. (2002)

Ho et al. (1992);

Haines (1923)

$\Delta H/H$: V
 γ_d : W
 e : A
 : PI

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