lecture 17 보충자료 # 1 : Determination of e at the end of each load increment in the Oedometer test

- The void ratio at the end of each increment period can be calculated from the dial gauge readings and either the water content or dry weight of the specimen at the end of the test. Referring to the phase diagram in Fig. below, the two methods of calculation are as follows.

(1) Water content measured at end of test = w_1

Void ratio at the end of test = $e_1 = w_1 G_s$ (assuming $S_r = 100\ \%$)

Thickness of specimen at the start of test = H_0

Change in thickness during test = ΔH

Void ratio at the start of test = $e_0 = e_1 + \Delta e$

where, $\frac{\Delta e}{\Delta H} = \frac{1 + e_0}{H_0}$

In the same way Δe can be calculated up to the end of any increment period.

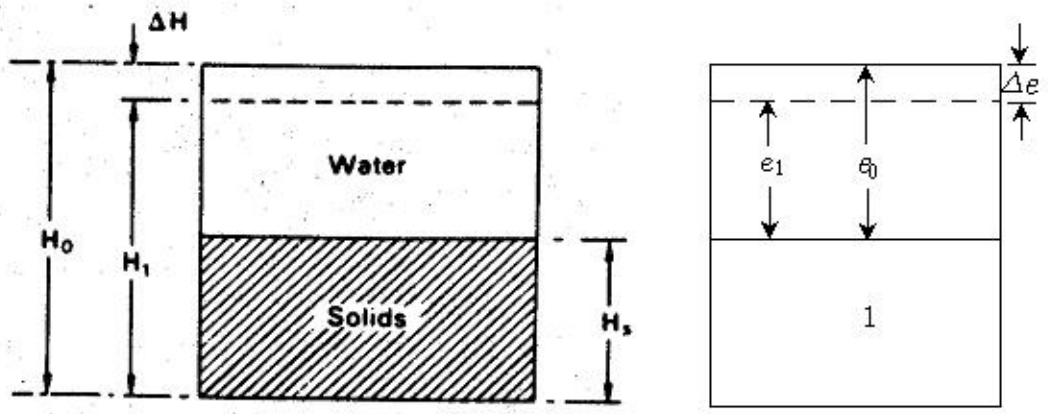

Fig. 7.2 Phase diagram.

(2) Dry weight measured at the end of test = M_s (i.e. mass of solids)

Thickness at the end of any increment period = H_1

Area of specimen = A

Equivalent thickness of solids = $H_s = \frac{M_s}{A G_s \rho_w}$

Void ratio at the end of test, $e_1 = \frac{H_1 - H_s}{H_s} = \frac{H_1}{H_s} - 1$

$e = \frac{V_v}{V_s}$