

USDA Soil Classification System

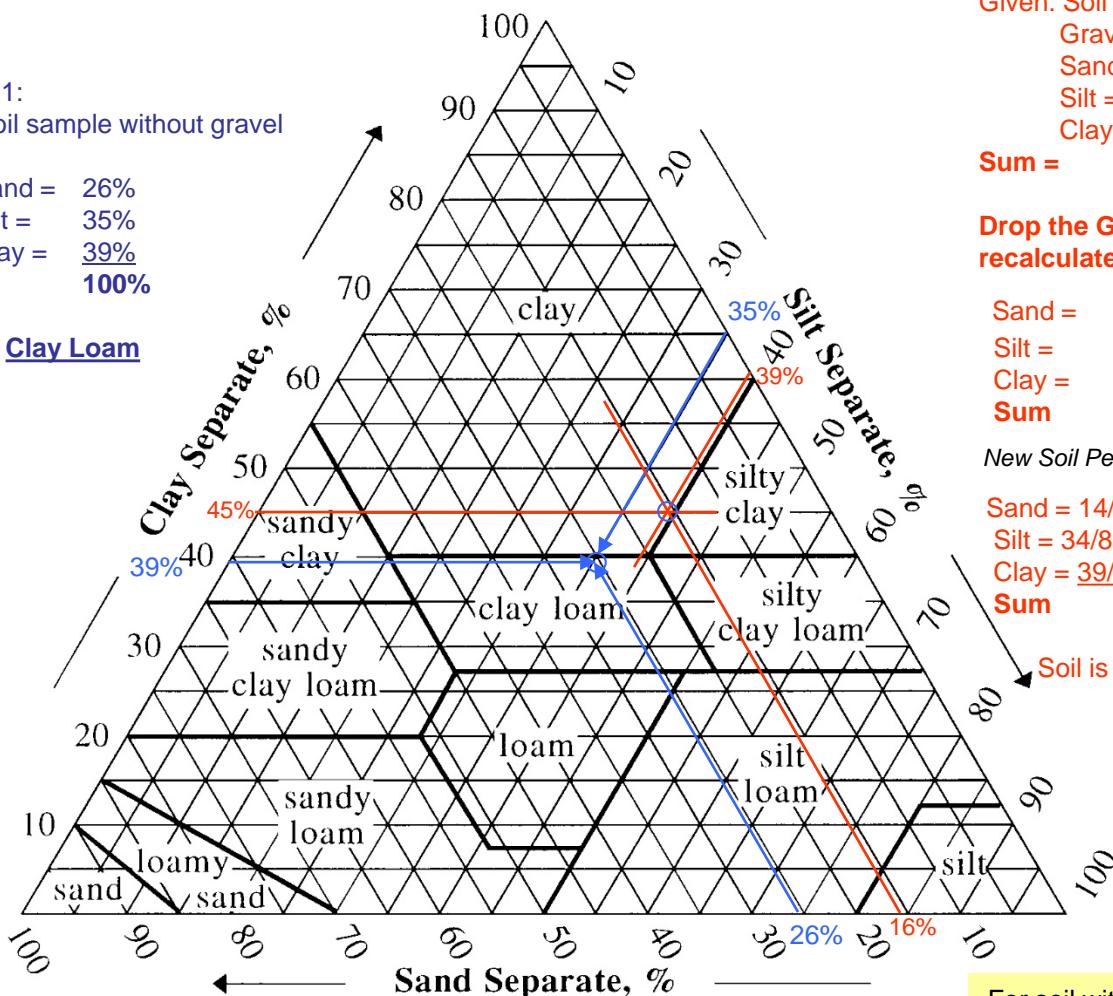
The Soil consists of Sand, Silt and Clay.

Example 1:

Given: Soil sample without gravel

Sand = 26%
Silt = 35%
Clay = 39%
Sum = 100%

Soil is **Clay Loam**



Example 2:

Given: Soil sample

Gravel = 13%
Sand = 14%
Silt = 34%
Clay = 39%
Sum = 100%

Drop the Gravel and
recalculate the ratios.

Sand = 14%
Silt = 34%
Clay = 39%
Sum = 87

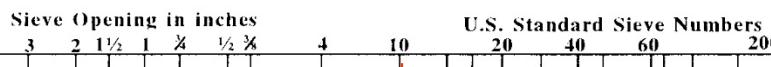
New Soil Percentages

Sand = 14/87 = 16%
Silt = 34/87 = 39%
Clay = 39/87 = 45%
Sum = 100%

Soil is **Clay**

For soil with gravel,
subtract the gravel
from the soil and
calculate the new
percentages

COMPARISON OF PARTICLE SIZE SCALES



USDA	GRAVEL Not included			SAND					SILT		CLAY	
				Very Coarse	Coarse	Medium	Fine	Very Fine				
UNIFIED	GRAVEL			SAND					SILT OR CLAY			
	Coarse	Fine	Coarse	Medium	Coarse	Fine						
AASHTO	GRAVEL OR STONE			SAND					SILT - CLAY			
	Coarse	Medium	Fine	Coarse	Medium	Fine					Silt	Clay

Grain Size in Millimeters

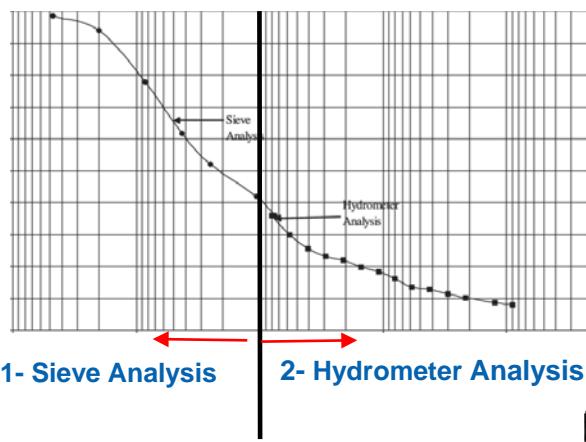
Grain Size Distribution

1- Sieve Analysis

Sieve 1



#200



PAN



2- Hydrometer Analysis

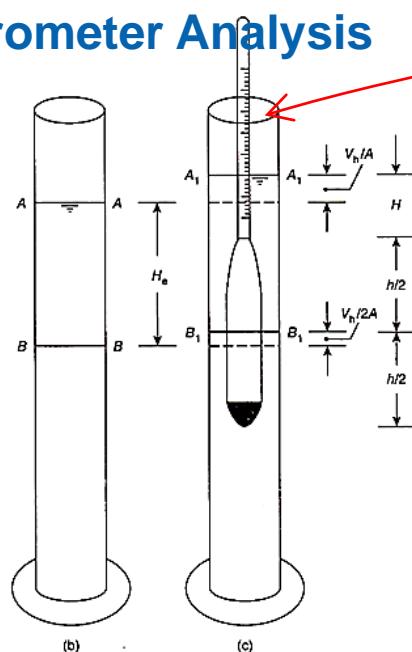
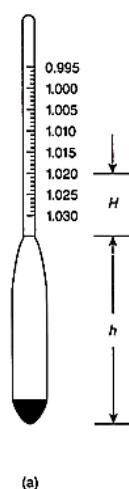


Figure 6.10 Hydrometer for sedimentation analysis: (a) Hydrometer, measuring jar (b) before and (c) after insertion of hydrometer.