Particle size analysis

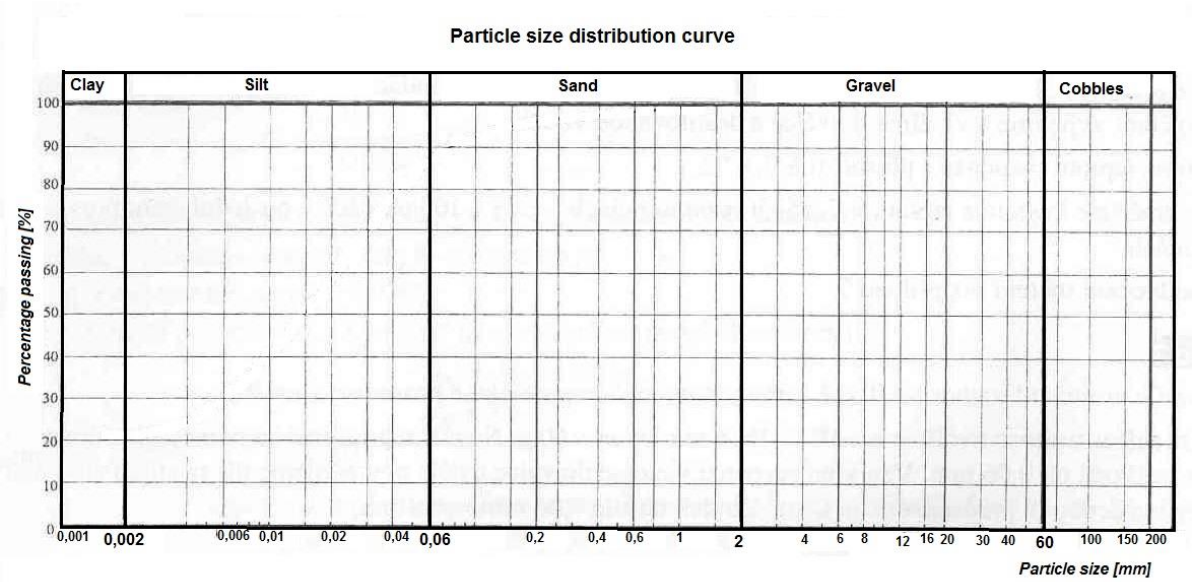
Determination of soil grain is aa important soil test. The grain analysis consists of a sieving and sedimentation test (in our case, hydrometer analysis). The sieving test is used to divide sandy and gravely grains by size using standard sieves. The hydrometer test is used to determine the granularity of the silty and clayey grains, based on the rate of grain settling in water suspension. An important fact is that for soils (not rare cases) dry sieve analysis is fundamentally inappropriate. Furthermore, if circumstances do not require, it is clearly better to not dry the sample in advance and prefer to leave it in the natural state.

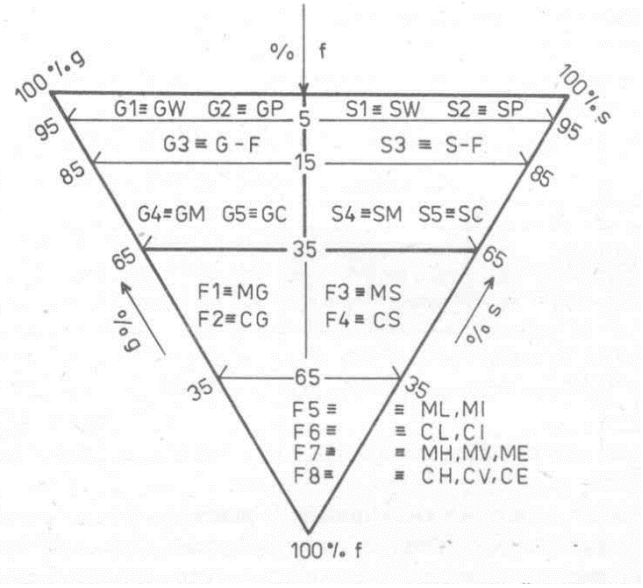
As noted, for the most perfect separation of the fine fraction from the coarse it is necessary to perform a wet sieving analysis to separate the fine fraction that is captured on the bowl. Care must be taken to avoid overloading the smallest sieve (0.063 mm). Sieve residues can be dry, and a sample of this sample is run through a set of standard sieves and a percentage amount is recorded on individual sieves. Fine grains obtained from the wet and dry sieves test is subjected to a hydrometer test. The recommended amount of soil required for the test is listed in the following table.

In principle, this procedure is applicable to all coarse-grained and fine-grained soils.

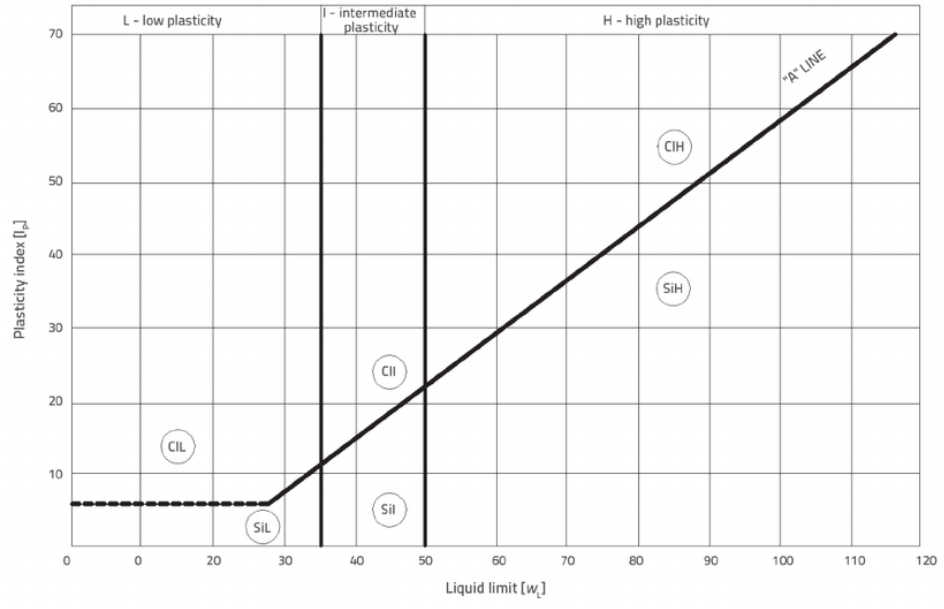
Table: Minimum amount of soil required for the sieve test (CSN EN ISO 17892-4)

Grain diameter D_{90} (mm)	Minimum amount of soil required for the sieve test (g)
0,5	50
1,0	100
4,0	150
6,0	350
8,0	600
16,0	2 500
22,4	5 000
31,5	10 000
45,0	20 000
63,0	40 000
75,0	56 000

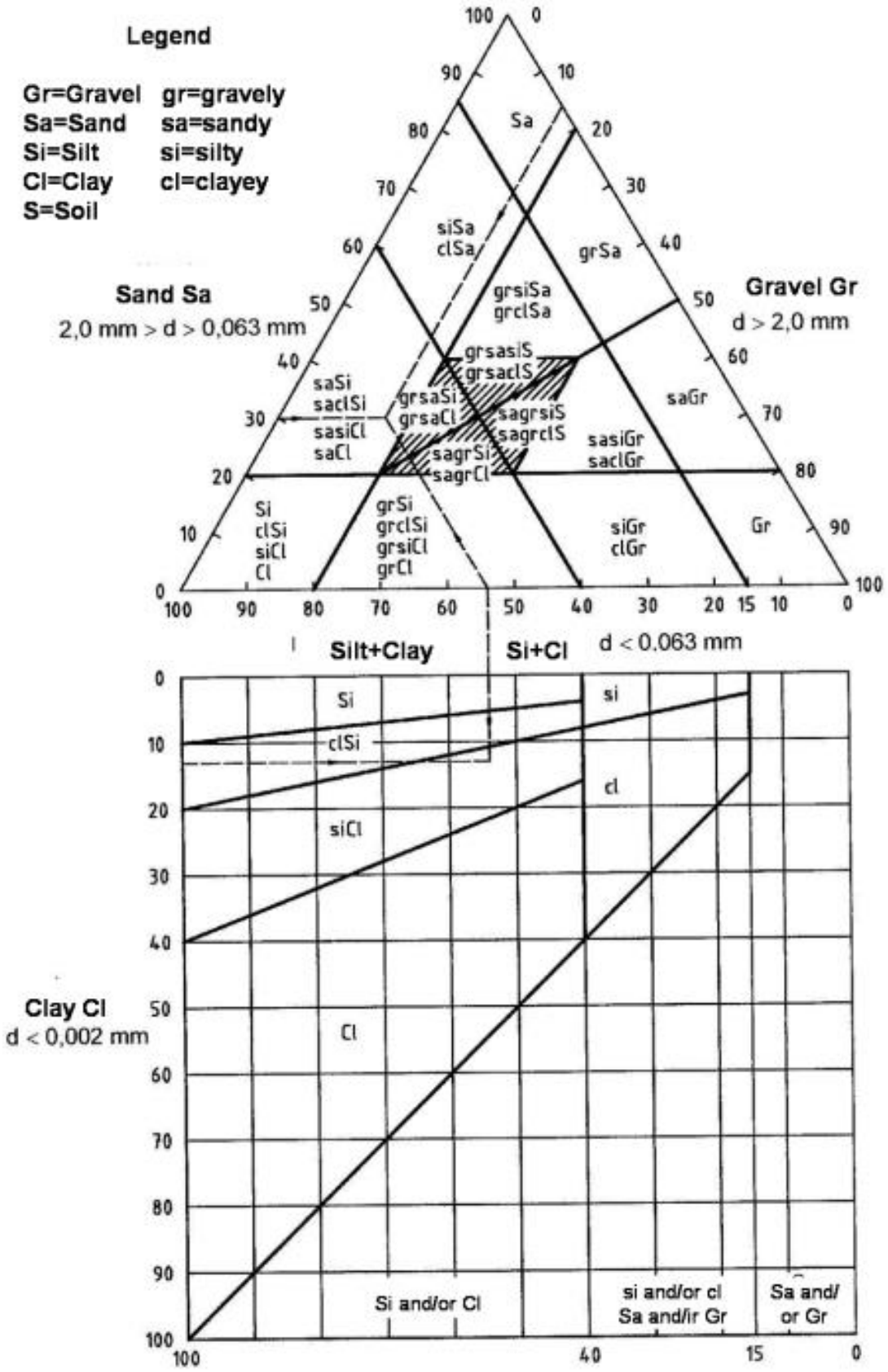




(ČSN 73 6133)



(Knappett, 2012)



(BS EN ISO 14688)