The Revised Soil Classification System RSCS

The accompanying Excel-sheet facilitates the implementation of the Revised Soil Classification System RSCS. The recommended procedure for soil classification follows:

[1] Input Parameters.

- Obtain the gravel fraction F_G (where $G >$ sieve No. 4), sand fraction F_S (sie ves No. 200 $< S <$ No. 4) and fines fraction F_S (passing sieve No. 200) by mass.
- Provide the percentage of the soil fractions passing Sieve #4 and Sieve #200.
- For gravel fraction F_G: determine e^{max} and e^{min}. For estimates of e^{max} and e^{min}, use the coefficient of uniformity C_u and grain roundness R (correlations for e^{max} and e^{min} as a function of C_u and R are built in the Excel-sheet).
- For sand fraction F_S: determine e^{max} and e^{min} for each fraction. For estimates of e^{max} and e^{min}, use the coefficient of uniformity C_u and grain roundness R (once again, correlations for e^{max} and e^{min} as a function of C_u and R are built in the Excel-sheet).
- For fines fraction F_F: determine three liquid limits using (1) deionized water LL_{DW}, (2) 2 M-NaCl brine LL_{brine}, and (3) kerosene LL_{ker}. Use the fall cone method for repeatability (BSI 1990).

[2] Soil Classification Charts.

- Triangular textural chart. The Excel-sheet automatically generates the triangular textural chart to identify the fraction that controls the mechanical behavior and the fraction that controls fluid flow.
- Fines classification chart. The liquid limits (LL_{DW}, LL_{brine}, and LL_{ker}) determine the fines plasticity and the electrical sensitivity S_E (Note: when $LL_{ker}/LL_{brine}=1$ and $LL_{DW}/LL_{brine}=1$, fines are not sensitive to pore fluid changes the electrical sensitivity is $S_E = 0$).

[3] Final Classification - Reporting.

- Classify a given soil according (Triangular textural chart). If the soil group includes either "F" or "(F)", determine its plasticity and electrical sensitivity (Fines classification chart).
- Report the final nomenclature. For example, **S(F) - HI** :

  S - Sand controls the mechanical response.

  (F) - Fines control the fluid flow

  HI - The fines exhibit high plasticity and intermediate electrical sensitivity.
- Report all input parameters, the soil classification, and include the triangular chart (soil-specific) and the fines classification chart.

Contact us

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