

Title: Chemical Soil Properties
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These data elements are from one of two location, the SSURGO data set, or the NRCS Soil Characterization Database. Those data from SSURGO are represented usually as Low, High or Representative Samples (R). Those SCD data are point samples taken from locations perceived to be of a known soil type (example: sampled as "Tully"). These data can be extrapolated across other areas with the same soil type.

- Carbon
 - Total Carbon
 - Exists in SCD as **Organic Carbon**
 - "CMS analyte. Organic carbon is a measure of all organic forms of carbon in the soil, including organic carbon with minerals."
 - *OC_6A1c_Sjj_% wt_119_CMS_0_0*
 - OM
 - Exists in SSURGO as Low, High or **R**
 - **Om_1**: "The amount by weight of decomposed plant and animal residue expressed as a weight percentage of the less than 2.0mm fraction."
- Nitrogen
 - Total N
 - Exists in SCD as **Nitrogen Total**
 - "The total (organic+inorganic) nitrogen in a sample supplies inferences on the soil potential to supply nitrogen to plants, and is used to determine C_N_RA and nitrogen distribution in a profile. It is reported as gravimetric percent on a <2mm base."
 - *N_tot_6B3a_Sjj_% wt_121_CMS_0_0*
 - Extractable ammonium
 - ??????????????
 - Extractable nitrate
 - Exists in SCD as **N03 Saturation Extract**
 - "Nitrate in the saturation extract is the fraction removed from a sample by saturating the sample with distilled H2O, then vacuum extracting the water. It is reported as meq per liter of extract."
 - *NO3_sx_6M1c_Sjj_mmol(-)/L_125_CMS_0_0*

- Phosphorus
 - Total P
 - Exists in SSURGO as Low, High, or **R** in either...
 - **Ptotal**: “The estimate of total phosphorous content of the soil, measured after total dissolution of a size fraction of the soil material. It is reported as a gravimetric percent oxide of the size fraction used.”
 - Or
 - **Poxalate**: “The amount of phosphorous in the less than 2mm fraction, that is extractable by aluminum oxalate method. It represents the phosphorous level intermediate between total P and water soluble P.”
 - **Ph2osoluble**: “The amount of water soluble phosphorous in the less than 2mm fraction, that is extractable by distilled water. It represents the mobile phosphorous content.”
 - Extractable phosphate
 - **Pbray1**: “The amount of phosphorous in the less than 2mm fraction, that is extractable using the Bray1 method. It represents the plant available phosphorous content.”
- Base cations
 - Ca
 - Exists in SCD as either...
 - **Calcium, NH4 extractable**: “NH4OAC extractable calcium is the fraction removed by pH 7.0 NH4OAC. It is assumed to represent the exchangeable Ca. It is reported as meq per 100 grams on a <2 mm base. It is not reported for samples containing carbonates or soluble salts.”
 - *Ca_nh4_6N2e_Sjj_cmol(+)/kg_114_CMS_0_0*
 - Or
 - **Calcium, Saturation Extract**: “Calcium in the saturation extract is the fraction removed from a sample by saturating the sample with distilled H2O, then vacuum extracting the water. It is reported as meq per liter of extract. “
 - *Ca_sx_6N1b_Sjj_mmol(+)/L_0_CMS_0_0*
 - K
 - Exists in SCD as either...
 - **Potassium, NH4 extractable**: “NH4OAC extractable calcium is the fraction removed by pH 7.0 NH4OAC. It is assumed to represent the exchangeable Ca. It is reported as

meq per 100 grams on a <2 mm base. It is not reported for samples containing carbonates or soluble salts.”

- *K_nh4_6Q2b_Sjj_cmol(+)/kg_114_CMS_0_0*

○ **Or**

- **Potassium, Saturation Extract:** “Potassium in the saturation extract is the fraction removed from a sample by saturating the sample with distilled H₂O, then vacuum extracting the water. It is reported as meq per liter of extract. “

- *K_sx_6Q1a_Sjj_mmol(+)/L_0_CMS_0_0Na*

○ Na

▪ Exists in SCD as either...

- **Sodium, NH₄ extractable:** “NH₄OAC extractable calcium is the fraction removed by pH 7.0 NH₄OAC. It is assumed to represent the exchangeable Ca. It is reported as meq per 100 grams on a <2 mm base. It is not reported for samples containing carbonates or soluble salts.”

- *Na_nh4_6P2b_Sjj_cmol(+)/kg_114_CMS_0_0*

○ **Or**

- **Sodium, Saturation Extract:** “Calcium in the saturation extract is the fraction removed from a sample by saturating the sample with distilled H₂O, then vacuum extracting the water. It is reported as meq per liter of extract. “

- *Na_sx_6P1a_Sjj_mmol(+)/L_0_CMS_0_0*

○ % Base Saturation

▪ Exists in SCD as either...

- **Base Saturation, Sum of Cations:** “Base saturation by sum of cations (pH 8.2) is calculated by (BASE_SUM/CEC_SUM)*100. CMS derived value default.”

- *BSSCat_d-0_S*

○ **Or**

- **Base Saturation, NH₄OAc:** “NH₄OAc base saturation (pH 7.0) is calculated by (BASE_SUM/CEC_NH₄)*100. CMS derived value default.”

- *BSSBas_d-0_S*

- Dissolved organic nitrogen DON

- **Hayes and Seastedt?** Averaged amount for Konza...
 - Unsure of other locations for data
- pH
 - Exists in SSURGO as Min, Max, or **R** as either...
 - **Ph1to1h2o**: “The negative logarithm to the base 10, of the hydrogen ion activity in the soil using the 1:1 soil-water ratio method. A numerical expression of the relative activity or alkalinity of a soil sample. (SSM)”
 - **OR**
 - **Ph01mcacl2**: “The negative logarithm to the base 10, of the hydrogen ion activity in the soil using the 0.01M CaCl₂ method in a 1:2 soil: Solution ratio. A numerical expression of the relative acidity or alkalinity of a soil sample. (SSM)”
 - Exists in SCD as either...
 - **pH 1:1, Soil-water suspension**
 - *pH_h2o_8Clf_Sjj_(NA)_123_CMS_0_0*
 - **pH 1:2, Soil-CaCl₂ suspension**
 - *pHcacl_8Clf_Sjj_(NA)_123_CMS_0_0*
 - **pH, Saturated paste**
 - *pH_sp_8Clb_Sjj_(NA)_123_CMS_0_0*