

Summary soil properties. Refer to Keys to Soil Taxonomy for details.

Organic soil material

- a. If saturated < 30 days per year, $\geq 20\%$ OC.
- b. If saturated ≥ 30 days per year, $\geq 12 - 18\%$ OC depending on clay content.
% OC $\geq 12\% + (0.1 \times \% \text{ clay})$, up to 60% clay.

Mineral soil material

Soil materials with less than the above OC contents.

DIAGNOSTIC SURFACE HORIZONS--EPIPEDONS

(Show evidence of pedogenesis, NOT the same as an A or O horizon, may include part or all of an illuvial B horizon)

Histic --organic soil material saturated for > 30 days, 20 to 40 cm thick, unless composed of *Sphagnum* fibers, then 20 to 60 cm thick. May consist of mineral soil material if plowed.

Folistic --organic soil material saturated < 30 days, ≥ 15 cm thick unless composed of *Sphagnum* fibers; then ≥ 20 cm thick. May consist of mineral soil material if plowed.

Mollic --%BS ≥ 50 , not both massive and hard or harder dry, value ≤ 5 dry and ≤ 3 moist, chroma ≤ 3 moist, %OC ≥ 0.6 (unless moist value is 4 or 5, then $\geq 2.5\%$ OC), minimum thickness generally between 18 and 25 cm, (other properties include $P_2O_5 < 1,500$ ppm, moist > 3 months, and $n < 0.7$).

Anthropic --like mollic except for P_2O_5 content and duration of available moisture, and shows some evidence of human disturbance.

Umbric --like mollic except %BS < 50.

Melanic --Andic soil properties, ≥ 30 cm thick within 30 cm of the soil surface, value/chroma $\leq 2/2$ moist, $\geq 4\%$ OC and average $\geq 6\%$ OC, melanic index ≤ 1.70 .

Plaggen --human-induced horizon from manuring and spading.

Ochric --epipedon that does not meet requirements of the other seven epipedons.

DIAGNOSTIC SUBSURFACE HORIZONS

Argillic --clay accumulation with evidence of translocation (clay films, clay bridges on grains), minimum thickness 7.5 cm if loamy or clayey, 15 cm if sandy. Clay increase must occur within a vertical distance of 30 cm from the reference eluvial horizon.

<u>% clay in eluvial</u>	<u>Minimum clay increase in argillic</u>
< 15	3% absolute
15 - 40	1.2 times eluvial (20% relative)
≥ 40	8% absolute

Natric --properties of an argillic horizon, plus ESP ≥ 15 or SAR ≥ 13 within 40 cm of upper boundary of horizon, and structure of columnar, prismatic or blocky with tongues of eluvial material.

Kandic --accumulation of low activity clay (CEC ≤ 16 cmol (+)/kg clay and ECEC ≤ 12 cmol(+)/kg clay), ≥ 30 cm thick (usually), clay increase depends on clay content of overlying, coarser-textured horizon (but not the same as argillic).

Spodic -- accumulation of organo-metallic compounds, ≥ 2.5 cm thick containing spodic material: specific color requirements, pH ≤ 5.9 , OC $\geq 0.6\%$, oxalate extractable Al + 1/2 Fe $\geq 0.50\%$ and twice as much as in overlying horizon, or ODOE ≥ 0.25 and twice as high as in overlying horizon. Ortstein if cemented and ≥ 25 mm thick.

Cambic --horizon of alteration, redder colors than underlying horizon, or loss of rock structure, or development of soil structure, or loss of carbonates, does not meet requirements of spodic, oxic, argillic, or kandic, base is deeper than 25 cm, texture of loamy very fine sand, very fine sand or finer.

Oxic --low activity clay (like kandic) but no or diffuse clay increase, ≥ 30 cm thick, texture of sandy loam or finer, < 10 % weatherable minerals.

Calcic --accumulation of CaCO_3 , generally ≥ 15 cm thick, $\geq 15\%$ CaCO_3 and $\geq 5\%$ more carbonate than an underlying horizon.

Petrocalcic --like calcic, but cemented, will not slake in water, ≥ 10 cm thick, or ≥ 1 cm thick if laminar cap rests directly on bedrock

Gypsic --accumulation of gypsum, ≥ 15 cm thick, $\geq 5\%$ gypsum, $\geq 1\%$ visible secondary gypsum, product of % gypsum times thickness (cm) ≥ 150 .

Petrogypsic --like gypsic, ≥ 10 cm thick, does not slake in water (cemented).

Salic --accumulation of salts more soluble than gypsum, ≥ 15 cm thick, EC ≥ 30 dS/m, product of EC times thickness (cm) ≥ 900 .

Sombric --illuvial humus without sesquioxides.

Sulfuric -- ≥ 15 cm thick, pH ≤ 3.5 , evidence of acidification by sulfuric acid.

Duripan --silica-cemented, does not slake in water.

Fragipan --brittle, high density, but slakes in water, polygonal color pattern.

Albic -- ≥ 1 cm thick consisting of $\geq 85\%$ albic material: low chroma, high value soil material, color controlled by uncoated mineral grains.

Agric --illuvial accumulation of clay, silt and humus caused by long-term cultivation.

Placic --thin, Fe-Mn-organic carbon-cemented pan, < 25 mm thick.

Glossic -- ≥ 5 cm thick, 15 to 85 % albic material, remnants of argillic, natric, or kandic horizon.

Densic material and contact -- root restrictive, not cemented.

Paralithic material and contact -- root restrictive, very weakly to moderately cemented.

Lithic material and contact -- root restrictive, at least strongly cemented.